

Rionegro, 19 de junio de 2007

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-095435- -00001-0000

Fecha: 2007-08-30 11:38:38 Dep. 2020 NUECREACION
Tra. 2 PATENTES Eve: 1 REGDEPOSITO
Act. 538 PETICION Folios: 3

Señores
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
División Nuevas Creaciones
Bogotá D.C.

ASUNTO: EXAMEN DE PATENTABILIDAD

Yo, JOSÉ DAVID RENDON RIVAS, identificado con cédula de ciudadanía No. 15.421.437 de Rionegro, Antioquia, solicito muy gentilmente a quien corresponda me sea sometido al examen de patentabilidad el proyecto "SOPORTE PARA TRANSFORMADOR", con radicado Nro. 06095435, para la obtención de la respectiva PATENTE DE INVENCION.

Por la atención prestada mil gracias.

JOSÉ DAVID RENDON RIVAS
C.C. 15.421.437 de Rionegro
Teléfono 532 02 65
Dirección: Cra. 62B No. 42 -30
Urbanización "La Alameda"
Rionegro – Antioquia

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-095435-00001-0000

Fecha: 2007-08-30 11:35:38 Dep: 2020 NUECREACION:
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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800174009-2

RECIBO OFICIAL DE CAJA : 07 - 69,746
FECHA : AGOSTO 30 DE 2007

***** CONSIGNACION *****

DEBITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	Vr. PAGO
JOSE D RENDON	CONSIGNACION	BANCO POPULAR	050-00110-6	88291567	28/08/2007	101,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	*** 25% PTC CAP-1 EXAMEN DE PATENTIBI
			TOTAL : \$

N: CIENTO UN MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 06-95435

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCION**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **574** DE

FECHA **30 DE MARZO DE 2007** EL TÉRMINO HÁBIL SEÑALADO POR LA LEY

EXPIRA EL **03 DE JULIO DE 2007**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____

NO X

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4141

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Señor
José David Rendón Rivas
(Solicitante)

ASUNTO	Radicación	06 – 95 435
	Trámite	002
	Evento	001
	Actuación	430
	Oficio	1819
	Folios	022

Patente de Invención	☒	Patente de Modelo de Utilidad	☐
Vía Nacional	☐		
Vía PCT (fase nacional)	☐	Cap. I	☐
		Cap. II	☐
Solicitud Internacional n.º	_____		
Fecha de Presentación Intrnl.	_____		

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. Documentos estudiados

El solicitante presentó inicialmente, el 06-05-03, un esbozo de solicitud, ver folios 16 a 23; posteriormente, el 06-07-12, presentó otro esbozo de solicitud, ver folios 30 a 38.

<u>Descripción:</u>	Folios 6 a 8 como se radicó inicialmente
<u>Reivindicaciones:</u>	Folios 9 y 10 como se radicó inicialmente
<u>Dibujos:</u>	Folios 12 a 14 como se radicó inicialmente
<u>Respuesta del solicitante:</u>	Folio 30.

2. Objeto de la invención

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El objeto de la presente solicitud de patente de invención consiste en suministrar una base de soporte para un transformador de forma prismática rectangular, que se apoya en dos brazos, uno horizontal y otro inclinado, los cuales, en su base se apoyan en un poste y en el extremo distal se unen a una placa sobre la cual se instala el transformador.

El problema planteado en esta solicitud es satisfacer la necesidad de establecer una distancia prudencial entre el poste y el transformador, con el objeto de distanciar el transformador eléctrico de las viviendas cercanas.

Para solucionar este problema técnico la solicitud en estudio proporciona un soporte compuesto por una placa plana dotada de perforaciones; y, un brazo horizontal y un brazo inclinado unidos a la parte posterior de la placa. Los extremos libres de los brazos sirven para unir el soporte al poste, mediante los medios adecuados.

Clasificación Internacional de Patentes (IPC): H01F 27/06, E04H 12/20

3. De la solicitud de Patente

Antes de entrar en detalles específicos, se le dan al solicitante ciertas indicaciones generales, algunas de las cuales son aplicables a este caso y todas deberán ser tenidas en cuenta en las eventuales modificaciones:

El título o nombre de la invención debe concordar con lo que se reclama en el capítulo reivindicatorio. Esto es, si en las reivindicaciones se reclama un producto, tal producto debe ser mencionado en el título, y si en las reivindicaciones se reclama un procedimiento o un sistema o un método, también debe ser mencionado allí. Normalmente, el título debe contener máximo diez palabras aunque eventualmente pueden ser más. El título no debe contener palabras cuyo significado no esté reconocido dentro del sector de la técnica de que se trate. Preferiblemente, deben ser palabras cuyo significado se encuentre en el Diccionario de la Real Academia Española (DRAE).

En Colombia, la máxima autoridad en cuestiones del lenguaje es la Academia Colombiana de la Lengua. En caso de duda sobre el significado de las palabras, se debe acoger la definición que trae el Diccionario de la Real Academia Española (DRAE).

En Colombia, es de uso obligatorio el Sistema Internacional de unidades. Esto implica, también, que la coma decimal es de uso obligatorio. Cuando aparezca algún valor con unidades diferentes a las exigidas, deberá incluirse su correspondiente conversión al Sistema Internacional.

La parte técnica de la solicitud se divide en tres secciones, debidamente separadas, preferiblemente en este orden: El capítulo descriptivo, el capítulo reivindicatorio y el juego de dibujos o figuras. Ninguna de estas secciones podrá llevar membretes (encabezamientos o pies de página) ajenos al contenido técnico de la solicitud.

Por lo menos el capítulo descriptivo debe estar debidamente paginado y

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aspectos de lo que se mencione en ellas: los cuales, a su vez, deben estar designados con números o signos de referencia.

Dentro del texto de la descripción y las reivindicaciones se aconseja encerrar entre paréntesis el número o signo de referencia cada vez que se mencione el detalle correspondiente, con el fin de distinguirlo de otros tipos de números o signos que eventualmente aparezcan allí. Estos números o signos de referencia deben aparecer dentro del juego de dibujos (preferiblemente, sin paréntesis, aunque pueden estar encerrados dentro de un círculo) siempre acompañados de líneas o flechas que señalen o indiquen a qué parte, pieza, elemento o aspecto se encuentran asociados.

Las reivindicaciones deben estar numeradas individual y consecutivamente (1, 2, ... 5, 6, etc.) El capítulo reivindicatorio no debe tener subtítulos.

Normalmente se pueden encontrar dos categorías de reivindicaciones: una, la de producto y la otra, de procedimiento.

En las reivindicaciones se deben definir los alcances de la protección que desea el solicitante. En consecuencia, las reivindicaciones forman un cuerpo aparte de la descripción y como tal debe ser redactado: la primera vez que se mencione un nombre dentro de las reivindicaciones debería estar acompañado de un artículo indeterminado; y, la inclusión -entre paréntesis- de un número de referencia no sustituye la definición del elemento o aspecto al que se refiere, simplemente sirve de información complementaria. Se debe entender que la descripción sirve para interpretar las reivindicaciones y, en consecuencia, si en una reivindicación se reclama un aparato, por ejemplo, no se deberían mencionar aspectos del funcionamiento del aparato dentro de la reivindicación, limitándose a definir únicamente los elementos que constituyen el aparato.

Cada una de las figuras debe estar debidamente identificada, preferiblemente con un número consecutivo: Figura 1, figura 2, ...

Las figuras deben ser realizadas siguiendo las reglas del dibujo técnico.

Se prefiere que dentro de las figuras no se incluya ningún texto. Cada uno de los detalles ilustrados en las figuras deberá estar señalado con un número o signo de referencia, el cual será el mismo en todas las figuras en donde se encuentre el detalle en cuestión. Si en alguna figura no se encuentran números de referencia, se entiende que no se va a decir nada sobre ella dentro del texto de la descripción y, entonces, es preferible que se omita tal figura. Análogamente, si en una figura no se encuentra señalado algún detalle con el respectivo número de referencia, es preferible que se omita tal detalle.

La patente de **modelo de utilidad** no puede incluir los procedimientos, por definición. Si alguna de las reivindicaciones de una solicitud de patente de modelo de utilidad reclama un procedimiento, debe ser suprimida.

Descripción (artículo 28 D. 486)

Durante el análisis del texto de la descripción y de las ilustraciones anexadas, se observaron los siguientes defectos:

- 1) El capítulo descriptivo no se encuentra debidamente paginado, por lo que se dificulta hacer las referencias a la ubicación de los defectos formales.
- 2) En el folio 6 aparece por primera vez una expresión numérica (600 voltios) en la

aparece en el mismo folio, se debería sustituir por '2,3 m', porque, en primer lugar, en Colombia es de uso obligatorio la coma decimal en el sistema numérico; en segundo lugar, se deben usar los símbolos de las unidades, no las abreviaturas de ellas; en tercer lugar, los símbolos del Sistema Internacional de unidades no tienen plural, y, en cuarto lugar, los signos de puntuación -en este caso, la coma- deben estar separados del símbolo por un espacio.

3) En el mismo folio 6 aparecen por primera vez dentro de la solicitud varios valores expresados en unidades distintas a las del Sistema Internacional. El solicitante deberá escribir la conversión de los respectivos valores al Sistema Internacional de unidades. Por lo demás, se le advierte al solicitante que únicamente habría que citar ciertos valores cuando tales valores sean críticos, es decir, cuando la invención no pueda funcionar con otros valores de magnitudes similares. En otras palabras, el solicitante debe estar atento al hecho de que su invención puede funcionar alterando algunos, si no todos, los valores especificados en la descripción. Lógicamente, se deberá tener en cuenta que, por ejemplo, el calibre de los perfiles utilizados incide en la resistencia que éstos pueden tener, pero eso es una cuestión ajena a la actividad inventiva, es la simple adecuación a la carga que puede soportar.

4) En el mismo folio 6 aparece la expresión *pie amigo* en donde debería estar la expresión *pie de amigo*, de acuerdo con la definición que trae el Diccionario de la Real Academia Española (DRAE) respecto a la última expresión.

5) En el capítulo descriptivo no se incluye una reseña de los dibujos o figuras acompañantes. ✓

6) En las figuras no se señalan, mediante números o signos de referencia, todos y cada uno de los detalles que se ilustran allí. Incidentalmente, tales números de referencia deberían estar, encerrados entre paréntesis, cada vez que se mencione el detalle en cuestión dentro del texto de la descripción.

7) En el folio 8 aparece varias veces la expresión KVA, que, si se interpreta como relativa a símbolos de unidades, correspondería a *kelvin*, *volt*, *ampere*, en su orden. En el caso de referirse a *kilo volt ampere*, será: kVA.

8) En el mismo folio 8 aparece la expresión 560 kilogramos que debería ser escrita *560 kg*, o bien, *quinientos sesenta kilogramos*. Por lo demás, la resistencia a que alude esta cifra dependerá en gran proporción de los materiales empleados para fabricar el soporte: entre más gruesos, mayor resistencia (claro está, dentro de los límites comunes de uso).

La descripción no cumple con los requisitos de claridad y divulgación completa, lo que dificulta o impide su comprensión y ejecución de acuerdo al Art. 28 de la Decisión 486

Reivindicaciones (artículo 30 D 486)

Durante el análisis del texto de las reivindicaciones se observaron los siguientes defectos:

1) Encabezando el capítulo reivindicatorio, folio 9, se encuentra un apartado que debería estar únicamente dentro de la descripción.

2) La reivindicación 1, folio 9, reclama un soporte que, además de estar definido por sus componentes, está definido por sus dimensiones. Esto último no es estrictamente necesario. Si el solicitante lo desea, podría citar las dimensiones en una reivindicación dependiente, dejando la reivindicación principal libre de ellas.

3) En la misma reivindicación 1 aparecen varias veces unidades distintas a las admitidas en el Sistema Internacional.

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- 5) En la misma reivindicación 1 aparece la expresión *de más o menos 120°* que es ambigua, porque en ninguna parte de la descripción se ha establecido cuánto *más* o cuánto *menos* puede variar el valor del ángulo plano a que se refiere.
- 6) Las reivindicaciones 2 a 6 son reivindicaciones independientes, lo que incide en el hecho de que ninguna de ellas tenga suficiente definición.
- 7) Respecto a las reivindicaciones 2 a 6, dado que reclaman, todas un producto tangible (*un soporte*), deberían definirlo por sus características también tangibles, no por su funcionamiento o por el resultado de su empleo.
- 8) En las reivindicaciones 4 y 6, folio 10, aparecen las expresiones *se puede colocar*, *puede ser colocado*, respectivamente, que son ambiguas porque así como se puede colocar, se encuentra implícita la posibilidad contraria: *se puede no colocar*. Tales expresiones deben ser sustituidas por expresiones asertivas: *se coloca*, *es colocado*.

Debe entenderse que las reivindicaciones dependientes de las reivindicaciones objetadas son, asimismo, objetadas, por razones análogas.

Las reivindicaciones no cumplen con los requisitos de definición, claridad, concisión o sustento por la descripción de acuerdo al Art. 30 de la Decisión 486.

Se deben presentar, entonces, nuevos capítulos descriptivo y reivindicatorio, ambos completos, junto con un nuevo juego de dibujos, donde se hayan corregido todas las objeciones que se han hecho arriba. Esto con el fin de evitar -cuando solo se presentan algunas páginas sueltas corregidas- que el lector tenga que desplazarse desde un sitio a otro de la solicitud y luego regresar a donde estaba antes sin perder la ilación de la lectura, porque esto produce confusión y afecta negativamente la claridad de dichos capítulos.

Se le advierte al interesado que las modificaciones sugeridas arriba podrían resultar inconducentes si se mantienen las objeciones a la patentabilidad que se insinúan adelante.

4. Determinación del Estado de la Técnica

La fecha que se ha tenido en cuenta para determinar el Estado de la Técnica es la

Fecha de presentación de la solicitud nacional 2006-09-22

Se realizó la búsqueda en el estado de la técnica de documentos relacionados con la solicitud teniendo en cuenta la fecha indicada; y durante la búsqueda de anterioridades se encontraron los siguientes documentos, que forman parte del estado de la técnica más cercano al objeto de la solicitud:

n.º	Documento	Título	Fecha de publicación
D1	Patente US 2 333 519, cuyo inventor es Deimer W. Callander, quien le cedió sus derechos a la Westinghouse Electric & Manufacturing Company	«Transformer mounting lug»(Soporte para montaje de un transformador)	1943-11-02
D2	Patente US 2 996 277, cuyo inventor es Edward A. Hoffman	«Transformer mount»(Un montaje para transformador)	1961-08-15
D3	Patente US 3 427 025, cuyo inventor es...	«Vertically adjustable basketball goal»(Canasta de básquetbol)	1969-09-11

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n.º	Documento	Título	Fecha de publicación
D4	Patente US 4 290 584, cuyos inventores son George H. Eckels, Donald H. Graft y Wayne R. Stallard quienes le cedieron sus derechos a la Stelco Inc.	«Pole mounted winch»(Un cabrestante montado sobre un poste)	1981-09-22
D5	Patente US 5 158 281, cuyo inventor es Linkwood Williams	«Portable basketball goal assembly»(Un montaje de canasta de básquetbol portátil)	1992-10-27

Se anexa la copia de las páginas pertinentes de estos documentos

NOTAS: No se realizaron las evaluaciones de los demás requisitos de patentabilidad, porque se hicieron algunas objeciones respecto a la definición, la claridad, la concisión y el sustento por la descripción de las reivindicaciones; esto es, no se pudo practicar un análisis comparativo, por ausencia de materia.

A continuación, los números de referencia citados son los que le corresponden a cada documento en comento.

A pesar de lo anterior, con base en las enseñanzas de los documentos encontrados hasta ahora, se prevén objeciones respecto a la novedad o al nivel inventivo del objeto de la solicitud, porque ya antes se habían resuelto problemas técnicos parecidos de una manera similar. Concretamente, en el juego de básquetbol, se conocen las canastas que están soportadas por un poste y que constan, básicamente, como se ilustra en el documento D5, de una placa (48) que tiene como soporte un brazo horizontal (18) y un pie de amigo inclinado (22). Por lo demás, a cualquier persona del oficio, del nivel medio, se le ocurriría que, para poner una distancia entre dos elementos, se debe poner un elemento sólido distanciador; que, para economizar material, el elemento debe ser recto; y, que, para soportar cierto peso, se debe poner un refuerzo, en forma de pie de amigo inclinado. Pero esta solución no se limita al básquetbol: también puede verse, en la figura 3 del documento D4, cómo se puede soportar un cabrestante sobre un poste: mediante un elemento horizontal (24) y un pie de amigo (25). En el caso del documento D2, la solución se encuentra geoméricamente invertida: el pie de amigo inclinado (104) está por encima del elemento horizontal (108); pero la solución se ha aplicado al soporte de transformadores. Entonces, si se combinan las enseñanzas de D5 o de D4 con las enseñanzas de D2 se obtiene una solución como la propuesta por el solicitante. La combinación, en sí misma, sería evidente, porque se trata de la combinación de elementos conocidos que son tomados de campos relacionados con la tecnología en cuestión y porque la combinación está basada en la escogencia de un número limitado de posibilidades; además la combinación no implica un efecto que es mayor que, o diferente de, el efecto esperado de la suma de los efectos de cada uno de los elementos combinados tomados individualmente, en otras palabras, con la solución propuesta por el solicitante no se obtiene un resultado sorprendente o inesperado. También, para determinar que la combinación es obvia, se estableció que con la combinación no se supera ningún prejuicio de los expertos en el arte.

Teniendo en cuenta lo anterior, se le sugiere al solicitante que, si considera que el objeto de la solicitud reúne los requisitos para ello -en especial los determinados

reivindicatorio para que no se encuentre ninguna objeción previsible -en el momento en que la Oficina examine su solicitud para verificar el cumplimiento de los requisitos, bajo esta nueva modalidad-.

Esta sugerencia se hace en concordancia con lo dispuesto en el artículo 35 de la mencionada Decisión.

5. Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados negativamente por la falta de claridad de la descripción y las reivindicaciones y por la falta de definición, de sustento y de concisión de estas últimas.

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el número 5.2, letra e), del capítulo quinto del título primero de la Circular Única n.º 10 de 2001.



ALIX CARMENZA CÉSPEDES DE VERGEL
Directora de Nuevas Creaciones (C)

El anterior requerimiento fue notificado por fijación en lista, de fecha

_____ 11 Feb. 2013

CONCEPTO TÉCNICO n.º 0546

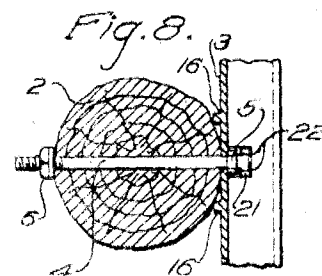
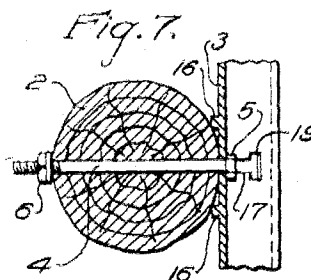
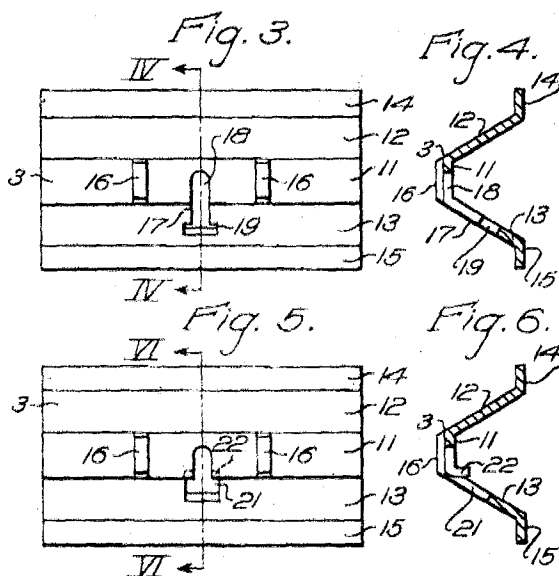
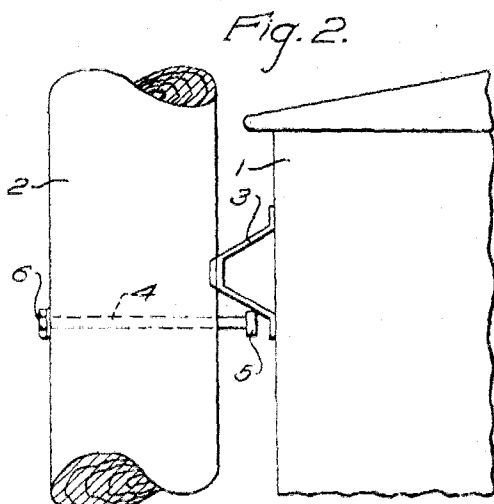
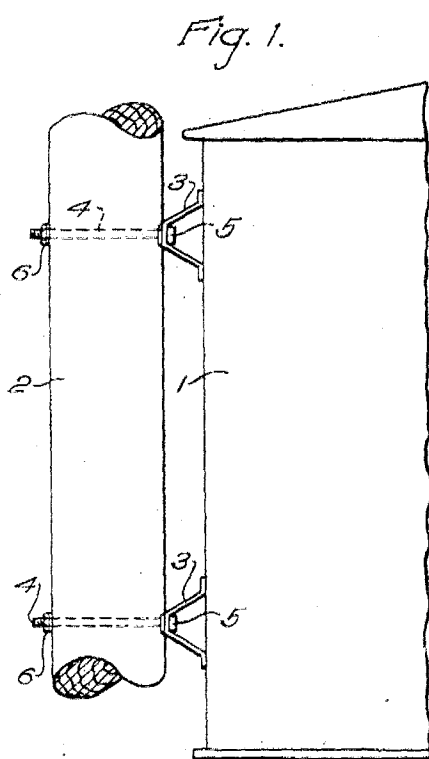
EXAMINADOR TÉCNICO
Código n.º 202009

Nov. 2, 1943.

D. W. CALLANDER
TRANSFORMER MOUNTING LUG

2,333,519

Filed Feb. 12, 1942



WITNESSES:

Robert C. Baird
New C. Moore.

INVENTOR

Delmer W. Callander.

BY

Franklin E. Hardy
ATTORNEY

Patented Nov. 2, 1943

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52
2,333,519

DI

UNITED STATES PATENT OFFICE

2,333,519

TRANSFORMER MOUNTING LUG

Delmer W. Callander, Hamilton, Ontario, Canada,
assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application February 12, 1942, Serial No. 430,590

6 Claims. (Cl. 248—221)

My invention relates to a supporting device for supporting apparatus such as electrical transformers in elevated positions on poles.

The poles which support transformers are not infrequently struck by moving vehicles which are out of control. Such a blow may cause the entire pole to vibrate or to move suddenly and violently and to such an extent that a transformer supported thereon may break loose and fall to the ground. A severe blow near the bottom of a pole which supports a transformer may not only tend to jar the transformer loose horizontally but may also cause the transformer to jump upwardly. This sudden upward displacement of the transformer may free it from the pole and allow it to drop to the ground.

It is an object of the invention to provide a support or hanger lug that is simple in construction, mechanically strong and that provides a reliable support or hanger for the transformer under normal conditions, and will also support the transformer under abnormal conditions as when the pole upon which the transformer is mounted is subjected to violent shock.

Another object of the invention is to provide a simple transformer support or hanger which will effectively prevent detachment of the transformer from the pole as a result of upward movement of the transformer when the pole is violently jarred.

Other objects and advantages of the invention will be apparent from the following description of preferred embodiments thereof, reference being had to the accompanying drawing, in which:

Figure 1 is a side elevational view of a transformer secured to a pole by a pair of supports or hanger lugs constructed in accordance with the invention,

Fig. 2 is an enlarged side elevational view showing the upper hanger lug only positioned about the through-bolt with the head of the through-bolt extending from the pole in a position ready to receive the hanger lug,

Fig. 3 is a side elevational view of a hanger lug, or support, constructed in accordance with the invention,

Fig. 4 is a sectional view taken on the line IV—IV in Fig. 3,

Fig. 5 is a side elevational view of a modified form of hanger lug,

through-bolt showing a support of the character illustrated in Figs. 3 and 4, and

Fig. 8 is a horizontal sectional view through the pole and hanger lug of a support corresponding to that shown in Figs. 5 and 6.

In the drawing, a transformer tank 1 is shown mounted on a pole 2 by means of a through-bolt 4 passing through a hole in the pole and provided with a head 5 on the end thereof adjacent the transformer and with a screw threaded nut 6 on the opposite end. The hanger lug or supporting member, may, as shown in Figs. 3 and 4, be constructed with a vertical portion 11 providing a bearing surface for engaging the side of the pole 2 and from the upper and lower edges of which extend sloping portions 12 and 13 which terminate, respectively, in the vertical flanges 14 and 15. The hanger lug may be attached to the tank by welding the flanges 14 and 15 thereto. Vertical ridges or spurs 16 may be provided extending outwardly from the bearing surface to engage the pole on opposite sides of the through-bolt 4 so as to steady the transformer and prevent it from rocking about the point of support established by the bolt. This is best shown in Figs. 3, 4 and 7. A slot 17 is provided in the hanger lug 3, the upper end of which is in the vertical portion 11 and terminates in a rounded end 18 providing a bearing resting on the through-bolt 4 behind the head 5 thereof when in position. The slot 17 is of a width sufficient to accommodate the shank of the bolt 4 and is formed at its lower end with a widened portion 19 of a width sufficient to permit the bolt head 5 to pass through the lower sloping portion 13 of the hanger lug or supporting structure.

When it is desired to mount the transformer on the poles, the through-bolts 4 are inserted through the pole with the head 5 spaced outwardly from the pole as shown in Fig. 2, a distance sufficient that when the supporting hanger lugs 3 are brought against the pole above the bolts, the widened portion 19 of the slot will be just above the bolt head 5. As the transformer is lowered slightly from this position, the head 5 of the bolt 4 passes through the widened portion 19 of the slot 17 and the shank of the bolt passes through the slot 17 until engaged by the bearing surface at the upper end 18 of the slot. The nut 6 is then tightened so as to bring the bolt head 5 tightly against the hanger lug, thus securing the

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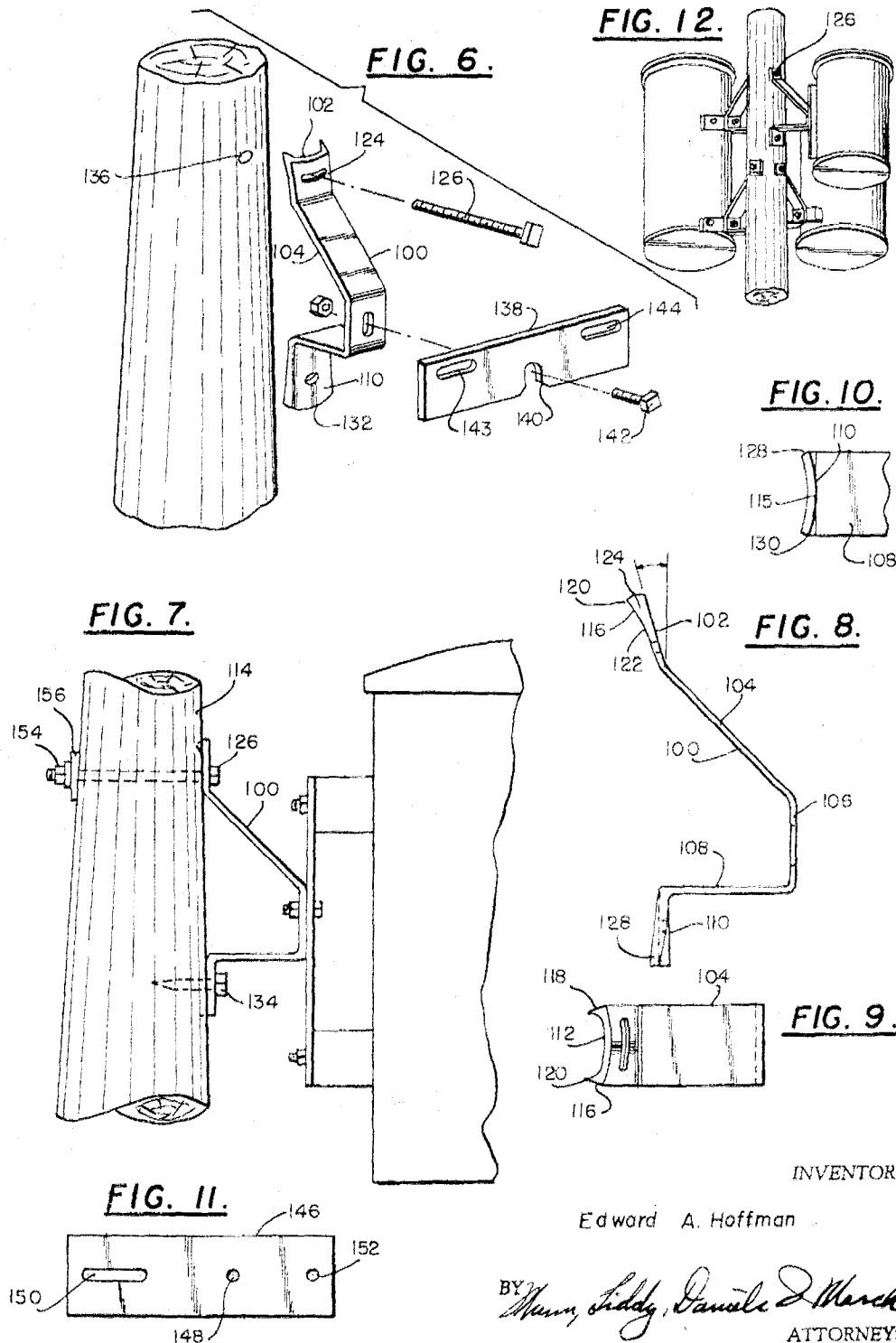
Aug. 15, 1961

E. A. HOFFMAN
TRANSFORMER MOUNT

2,996,277

Filed March 2, 1959

3 Sheets-Sheet 3



INVENTOR

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2,996,277 TRANSFORMER MOUNT

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Filed Mar. 2, 1959, Ser. No. 796,703
5 Claims. (Cl. 248-221)

This invention relates to supporting devices and in particular to a means for supporting transformers.

This application is a continuation-in-part of application Ser. No. 489,368, filed Feb. 21, 1955, now abandoned.

Transformers are mounted individually, as well as in banks of two or more, and they are usually supported from one or more poles in an elevated position. Many forms of supports have been devised to mount the transformers. Where heavy installations are made or banks of transformers are installed, the mounting means previously used often comprise complex frames consisting of many costly parts and furthermore they often require gaining and weakening of the pole. Some less complex mounting means have been devised, however, these do not adequately and safely support the heavier transformer installations. In some instances the lower ends of transformers lean into the poles after they are assembled.

A further disadvantage of prior mounting devices is that they are not suitable for all sizes of transformers. Utility companies must stock different sizes of mountings for the different transformers. Accordingly, one of the objects of this invention is to provide a mounting means for transformers with which these disadvantages are overcome.

Another object of my invention is to provide a transformer mount with which there is no necessity for cross arms, transformer hanger brackets and suspension hooks which are required in the conventional mounting methods.

It is also an object of the instant invention to provide a means for eliminating the special platform and bussing construction needed in larger installations and also to eliminate the need for extra poles.

A further object of my invention is to provide a mount which can fit poles of any size, and also provide a means for mounting any size of transformer from 3 kva. through 100 kva.

Yet another object of my invention is to provide transformer mounting means which instead of weakening the pole, actually reinforces the points of support for the transformer.

An additional object of my invention is to provide mounting means which will prevent transformers or other devices supported thereon from being jarred loose, and suffering serious damage.

It is also an object of my invention to provide transformer mounting means with which it is possible to make adjustments after shrinkage of the poles.

Still another object of this invention is to provide a very simple transformer mounting means which will accomplish the above objects. According to the instant invention there is provided a transformer mounting means which will make it possible to mount any combination of transformers on a pole as well as make it possible to mount these transformers without the use of different sets of brackets or other supporting or mounting means. According to the invention a single type of mounting means is adaptable for all transformers and for mounting either one or more than one transformer on a pole.

An additional object of the invention is to provide a transformer mounting means with which it is unnecessary to use special mounting washers.

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same size. This results in minimum inventory and storage space required to accommodate the mountings of various sizes of transformers throughout a utility district.

A further object of the invention is to provide a very economical mounting assembly tailored to support any size of transformer and to make an installation on any position on a pole.

An additional object of the invention is to provide a transformer mounting wherein it is not necessary to fit bands to various pole diameters. The mounting is made by simply bolting the mounting to the pole.

Yet a further object of the invention is to provide a transformer mounting means whereby it is only necessary to bore a single hole in a pole to mount the smaller size transformers.

An additional object of the invention is to provide a cluster installation of such light weight and so easy to use that only one man is required on the pole and wherein assembly on the ground is even more simplified. With other known mounts because of the weights and other assembly conditions usually two men are required on the pole when positioning and bolting clamps, forming bands or installing other parts. Obviously this results in a considerable labor saving.

A further object of the invention is to provide a transformer mount which has a greater safety factor than mounts heretofore known and in addition which has fewer parts, as set forth above. It is known that the band type clusters, for example, are subject to tightening stresses which are added to the combined weight of all the transformers in the cluster. All parts are inter-related and hence any component is apt to weaken the entire installation. With the instant invention this is not apt to happen at all. Each transformer of a cluster is independently mounted.

Still another object of the invention is to provide a transformer mount which resiliently cooperates with the pole in such a manner as to more securely attach the mount and transformer to the pole and prevent unwanted movement thereof.

These and other objects and advantages will become apparent from the following description and the accompanying drawings, in which:

FIGURE 1 is a sectional plan view showing a pole and transformer mount constructed in accordance with the invention.

FIGURE 2 is a side elevational view of the transformer mounting shown in FIGURE 1.

FIGURE 3 is a partial elevational view of another transformer mounting constructed in accordance with the invention.

FIGURE 4 is an elevational view of a vertical hanger bar used in mounting a transformer.

FIGURE 5 is an elevational view of a horizontal hanger bar used in mounting larger size transformers.

FIGURE 6 is a perspective exploded view illustrating a preferred form of the invention.

FIGURE 7 is a side elevational view showing the elements of FIGURE 6 in assembled relationship and in use in supporting a transformer.

FIGURE 8 is a side elevational view of a bracket used in the form of the invention illustrated in FIGURES 6 and 7.

FIGURE 9 is a top plan view of the bracket of FIGURE 8.

FIGURE 10 is a fragmentary bottom plan view of the bracket of FIGURES 8 and 9.

FIGURE 11 is a front elevational view of a mounting

ers utilizing the brackets of the preferred form illustrated in FIGURES 6 through 10.

Similar reference characters in the several figures indicate similar parts.

Referring now particularly to the drawings, FIGURE 1 shows a group or bank of two transformers 1, 2, mounted on a single pole 5, and FIGURE 2 is a side elevational view showing the mounting means used to support the transformers 1, 2. FIGURES 1 and 2 also show how the mounting for a third transformer can be integrated to provide a three transformer mounting. There is shown an upper through bolt 10 and a four-pointed mounting washer 12, and a brace member 14. The brace member 14 is formed in part by a tension bracket 15 having an uppermost portion 16, an upper leg 18 which extends outwardly of the uppermost portion at an angle thereto, an intermediate portion 20 which extends substantially parallel to uppermost portion 16, a lower leg 22 which extends inwardly of the intermediate portion and a lowermost portion 24 which extends downward substantially parallel to the other portions and which is secured to pole 5 by a suitable lag screw 25. As illustrated, lower leg 22 extends in a substantially horizontal direction. Intermediate portion 20 receives a spacer bolt 26. The spacer bolt 26 is threaded, at least in part, and has abutment nuts or collars 28, movably mounted thereon.

The ends of a lateral strap brace member 30 are secured to pole 5 by lag screws 32 at locations approximately 90° around the pole from the location of portions 16, 24. Strap brace 30 is tensioned at its center point by spacer bolt 26. A square washer 34 and nut or collar 36 serve to secure and tension strap brace 30 to spacer bolt 26. The so associated tension bracket 15 and strap brace 30 form brace member 14.

As shown in FIGURES 1 and 2, a second transformer which need not necessarily be of the same size may be supported opposite transformer 1 by utilizing an additional brace member 14'. Mounting washer 12' and portion 16' are mounted on bolt 10. Similarly, the ends of strap brace 30' overlap the ends of strap brace 30 and are secured to pole 5 by lag screws 32. Obviously, however, a single transformer can be supported on the pole.

A third transformer can be supported on the same pole in a fashion which integrates the mounting of all three transformers. FIGURES 1 and 2 also illustrate the mounting for a third transformer. Brace member 14" is mounted on bolt 10" and lag screw 25" just enough below brace members 14 and 14' so that the ends of lateral strap braces 30" are secured by the same lag screws 25 and 25' which secure portions 24 and 24' respectively. For clarity the third transformer has been omitted, although it should be understood that like transformer 1 it would be attached to its own brace member 14" by spacer bolt 26" and spacer collars 28" as hereafter explained in connection with transformer 1.

Spacer bolt 26 also serves to connect or secure transformer 1 to brace member 14. A vertical hanger bar 40 has a suitable opening 42 (FIGURE 4) for receiving spacer bolt 26; the nuts or collars 28 hold hanger bar 40 and portion 20 in juxtaposition on spacer bolt 26.

A significant advantage of the present invention lies in the use of the above described brace member 14 for all sizes of transformers. Only minor variations differentiate the complete mounting arrangement for transformers of all sizes. Thus, for example, FIGURES 1 and 2 specifically illustrate a mounting arrangement for larger transformers, e.g. 75 or 100 kva. Vertical hanger bar 40 (FIGURE 4) has a suitable opening 44, and a horizontal hanger bar 46 has a slot 48 (FIGURE 5) which receives nuts and bolts 49. Horizontal hanger bar 46 also has two longitudinal slots 50, 52 which receive nuts and bolts

zontal hanger bar 46 and nuts and bolts 49 secure the horizontal hanger bar to opening 60 (FIGURE 4) of vertical hanger bar 40. A lower compression bracket 15 including a brace member 14 preferably set in inverted position is bolted (by spacer bolt 26) to a slot 62 in vertical hanger bar 40. Inverting lower brace member 14 strengthens the overall transformer mounting by placing bolts 10 furthest apart, thus utilizing combined compression and tension forces and forming a truss-like structure.

The mounting for intermediate sized transformers, e.g. 37.5 and 50 kva. differs from the mounting illustrated in FIGURES 1, 2 only in that the horizontal hanger bars 46 may be omitted. The upper and lower transformer brackets are bolted respectively to openings 44 and 60 on vertical hanger bar 40.

In FIGURE 3 the invention is shown as applied to smaller size transformers 3, 4 e.g. 3, 5, 10, 15 kva. A brace member 14 is secured to a pole and to a vertical hanger bar 40 in the manner previously described. Vertical hanger bar 40 has an opening 64 for receiving nut and bolt 65 which attaches upper transformer bracket 66 to the vertical hanger bar 40. Similarly, lower transformer bracket 68 is attached by nut and bolt 65 through an opening 70 in vertical hanger bar 40. For these lighter weight transformers a supporting bolt 72 which acts as a brace member is connected directly to the pole and to vertical hanger bar 40. Abutment nuts or collars 74 secure support bolt 72 to vertical hanger bar 40, while square washer 76 and nut or collar 78 secure support bolt 72 to the pole. As shown in FIGURE 3, a second transformer 4 may be supported opposite transformer 3. If the second transformer is of a small size, e.g. 3, 5, 15 kva., the same supporting bolt 72 can be used to mount both transformers. Obviously, however, a single transformer can be supported on the pole. The mounting for transformer 4 (FIGURE 3) shows how secondary spools can be fitted into the overall mounting structure for support of through secondaries at the transformer level.

The mounting arrangement shown in FIGURE 3 can be used for mounting a 25 kva. transformer with but one minor change. The transformer brackets on a 25 kva. (and larger) transformer are conveniently set 24" apart as against 12" for 15 kva. (and below). Accordingly the brackets of a 25 kva. transformer are respectively secured in the openings 44 and 60 on vertical hanger bar 40, just as they would be on 37.5 and 50 kva. transformers.

In any event a similar mounting for a third transformer always can be integrated on the pole with the two transformer mountings. Regardless of transformer size the corresponding brace member 14, 14' and 14" are disposed in the manner shown on FIGURES 1 and 2.

While the vertical hanger bar 40 illustrated in FIGURE 4 is shown with openings 44, 42, 64, 70, 60, 62 so that it can be used to mount all sized transformers, obviously two different hanger bars may be kept in stock, and used as required. In the hanger bar for the small sized transformers of 15 kva. and below openings 44 and 60 would be omitted, while in the hanger bar for transformers of 25 kva. and larger the openings 64 and 70 would be omitted.

FIGURES 6 through 12 illustrate another preferred form of the invention. In this form of the invention the transformer mounting comprises a brace member 100. The brace member has an upper pole contacting and positioning first flange 102. An upper leg 104 extends angularly outwardly from one edge of the flange 102. In viewing the structure as illustrated in FIGURE 8 it is seen that the upper leg 104 extends downwardly and at its lower ends is connected to a transformer

connected to the pole. At the lower edge of the transformer connecting and supporting flange 106 there is provided a second leg 108. This is a lower leg and extends substantially perpendicularly inwardly from the flange 106 and at an acute angle with respect to the leg 104. A pole contacting and positioning third flange 110 is connected to the inner end of the second leg and extends substantially perpendicularly thereto.

This flange 110 can be referred to as the lower pole contacting and positioning flange. The upper flange 102 has an inner surface 112 which is adapted to abut the vertical surface of the pole 114. Similarly the lower flange has an inner surface 115 adapted to also abut the vertical wall of the pole vertically beneath the upper surface of the upper flange 102. It should be noted that the inner surface 112 of the upper flange 102 extends at an acute angle with respect to the inner surface of the lower flange 110 and with respect to the transformer connecting and supporting flange 106, when the brace member is in its free unassembled condition.

Furthermore the bracket is formed of a resilient material, preferably a steel and the upper flange and leg 104 can flex to position the inner surface 112 parallel to the face of the pole.

Furthermore the upper flange is seen to have to be bent at its upper edges to form wing-like members 116 and 118 at each side. These are in the form of appended flanges positioned at the upper corners of the surface 112. It should be noted that the flanges have apices 120 adjacent the top of the upper flange 102 and positioned inwardly thereof to form points. The wing-like members 116 and 118 taper away from these points inwardly toward the adjacent flange. The upper points 120 are adapted to be readily forced into the pole.

The upper flange 102 is also provided with a slot 124 which is horizontally extended and adapted to receive a mounting bolt 126. The latter is of a size to extend through the pole. It is apparent that the slot accommodates sideways movement of the mounting member adjacent its top. The lower flange 110 has an inner curved surface 115 and thus has a pair of wing-like portions 128 and 130 which are somewhat similar to the extensions or members 116 and 118. However, these members do not constitute flange-like constructions extending substantially perpendicular to the flange but instead comprise end portions conforming generally to the curvilinear shape of the flange. They taper inwardly of the flange adjacent their upper ends. The lower flange 110 is also provided with an opening 132 adapted to receive a lag screw 134.

The connection to the pole is achieved by first placing the bolt 126 in slot 124 and hole 136. Next the nut 156 is tightened. The brace member is adjusted as the nut is tightened to properly position the transformer connecting and supporting flange 106. When nut 154 is tight the lag screw 134 is put in position.

It is important to note that as the bolt 126 is tightened by means of the nut 154, which bears against the washer 156, the flange 102 is deformed and bent upon the leg 104. This tensions the whole transformer mount and urges the lower flange 110 more securely against the pole. This also results in the points 116 and 118 being more securely urged into the pole. A far more secure mounting is thus achieved than with a plain flat brace member, and the bracket is less likely to move on the pole. A special washer such as 12 is unnecessary with this form of the invention and the connection is more secure than could be achieved with such washers.

Horizontal hanger bar 138 can be constructed similar to bar 46 and has a slot 140 for receiving the bolt 142 and a pair of longitudinally elongated slots 143 and 144 for receiving transformer mounting bolts. As an alternative the vertical hanger bar 146 can be used. This bar is equivalent of the bar 40 and has an opening 148 to receive the bolt 142 and spaced paired slot and hole

openings 150 and 152 to receive the transformer mounting bolts.

FIGURES 7 and 12 illustrate that a single transformer or a cluster of transformers can be on the pole by means of the transformer mounting members 100.

Only one bracket and mounting hanger is needed for each transformer up to 25 kva. Two brackets can be used for the heavier sizes as illustrated in FIGURE 12. FIGURE 12 also illustrates that one bolt 126 can function with a pair of brackets for mounting transformers on opposite sides of the poles and also that the brackets can be staggered lengthwise of the pole.

From the above description it is apparent that I have devised a transformer mounting means comprising a small number of simply constructed parts, yet which provides a support having a high degree of strength and safety. The mounting means which I have disclosed instead of weakening the pole, in fact strengthens it at the point of attachment of the transformers.

Furthermore, my mounting means can be easily adjusted to the poles no matter what their diameter when originally mounted. Another important feature of the mounting means of FIGS. 6 through 12 is that the cantilevered weight of the transformer as well as the tension spring action of the bracket results in adjustment in compensation for normal shrinkage and swelling of the pole. Also adjustment can be accomplished, if necessary, simply by tightening the nuts on the screw bolts and spacer bolts such as 126 and 142.

The brace member mounting means particularly of the form illustrated in FIGURES 6 through 12, provides a means for connecting transformers to poles which will greatly facilitate the mounting operation, which will considerably decrease the number of parts, and which will, nonetheless, give increased strength and rigidity. The spring-like construction of the upper flange, together with its integral projections, makes it possible to obtain a secure fixed, yet adjustable, mounting of the transformer on the pole without gaining the pole or otherwise weakening the poles. The spring structure results in both the top and bottom flanges being forced securely against the pole.

While I have shown and described a preferred form of my invention, it will be understood that variations in details of form may be made without departure from the invention as defined in the appended claims.

I claim:

1. A one-piece metallic mounting component for securing a transformer to a pole comprising:

- (a) a pole contacting and positioning upper flange,
- (b) said upper flange having a metallic surface adapted to abut directly against the vertically disposed surface of an upright wooden pole,
- (c) an upper leg connected adjacent the lower end of said upper flange and extending outwardly from said upper flange at an obtuse angle with respect to the surface of said upper flange,
- (d) a transformer connecting and supporting middle flange connected to the lower end of said upper leg,
- (e) said middle flange having a surface adapted to be substantially vertically disposed when the surface of said upper flange is abutted against the vertically disposed surface of an upright pole and the surface of said middle flange extending at an obtuse angle with respect to said upper leg,
- (f) a second leg connected to the lower end of said middle flange, said second leg being shorter than said first leg,
- (g) said second leg extending perpendicularly inwardly of the said middle flange surface, and at an acute angle with respect to said first leg, and
- (h) a pole contacting and positioning bottom flange connected to the inner end of said second leg,
- (i) said bottom flange having a pole contacting

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Feb. 11, 1969

E. H. PROCTER

3,427,025

VERTICALLY ADJUSTABLE BASKETBALL GOAL

Filed Jan. 27, 1964

Sheet 1 of 2

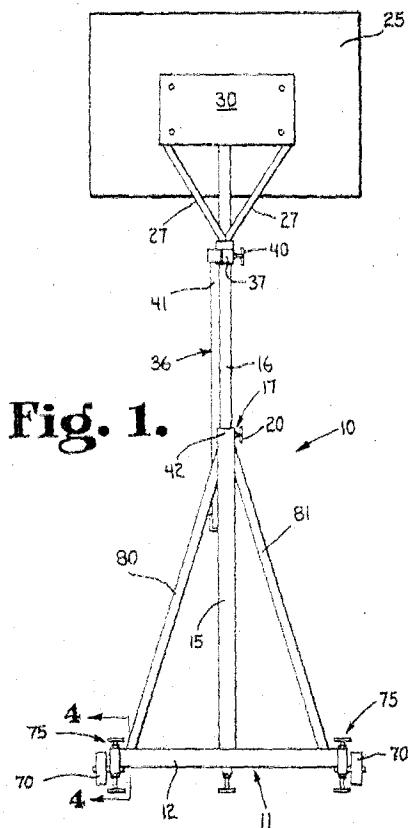


Fig. 1.

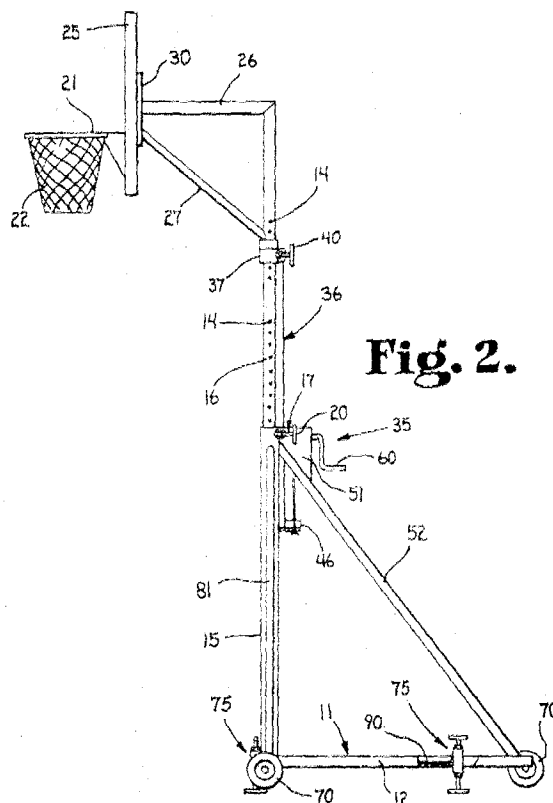


Fig. 2.

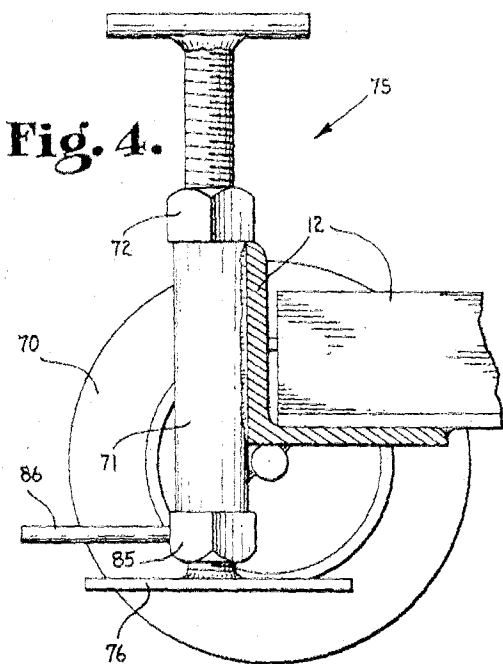


Fig. 4.

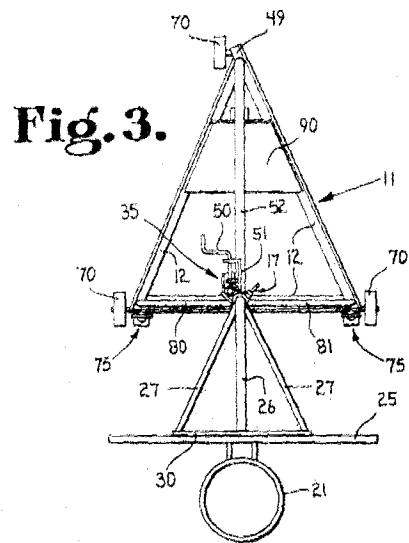


Fig. 3.

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3,427,025

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3,427,025

VERTICALLY ADJUSTABLE BASKETBALL GOAL

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U.S. Cl. 273-1.5

3 Claims

Int. Cl. A63b 63/04; F16m 11/24

The present invention relates to a basketball goal.

Many persons, particularly children, do not have ready access to a gymnasium including a basketball court. Consequently, a substantial amount of basketball playing and practice is performed in yards, lots, driveways and similar locations. In certain situations, a basketball goal can be mounted on a post fixed or received within the earth or upon a garage. However, such mounting does not permit easy movement from place to place of the goal and, in the case of the earth-fixed post, can be relatively expensive. Also, some persons feel that a basketball goal mounted on a garage injures the aesthetic appearance of the garage building.

Consequently, one object of the present invention is to provide a basketball goal particularly adapted for outside use.

A further object of the invention is to provide a basketball goal which is relatively sturdy and rigid, yet is relatively easily moved from place to place over rough and uneven ground.

Another object of the invention is to provide a basketball goal which is easily adjusted to a level position on rough or uneven ground.

Still a further object of the invention is to provide a basketball goal the hoop and backboard of which can be easily and conveniently adjusted to various heights for use by children and to insure that the hoop and backboard are at regulation heights when the goal is used on uneven ground.

Related objects and advantages will appear as the description proceeds.

One embodiment of the present invention might include a basketball goal comprising a framework including a base and an upright portion, said upright portion having a hoop support on the upper end thereof, a plurality of wheels rotatably mounted on said base for rotation about parallel axes, a plurality of screws threadably received within said base for rotation about vertical parallel axes, a horizontal pad secured to the lower end of each of said screws, a lever fixed to the upper end of each of said screws, each of said screws being positioned adjacent to a respective one of said wheels, a nut received on each of said screws and having a lever secured thereto, each of said nuts being susceptible of being tightened against said base to lock the screw thereof in a given position and being susceptible of being loosened away from said base to permit adjustment of the screw thereof to a different position.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

FIG. 1 is a front elevation of a basketball goal embodying the present invention.

FIG. 2 is a side elevation of the construction of FIG. 1.

FIG. 3 is a top plan view of the construction of FIGS. 1 and 2.

FIG. 4 is an enlarged section taken along the line 4-4 of FIG. 1.

FIG. 5 is a fragmentary perspective view of certain structure forming a part of the goal of FIGS. 1-4 and usable in adjusting the height of the hoop and backboard.

FIG. 7 is a side elevation of the construction of FIG. 6. FIG. 8 is a top plan view of the construction of FIGS. 6 and 7 with certain structure removed for clarity.

FIG. 9 is an enlarged section taken along the line 9-9 of FIG. 7 in the direction of the arrows.

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring more particularly to the drawings and to FIGS. 1-5, there is illustrated a basketball goal 10 which includes a triangular base 11 made up of three elongated angles 12 welded together at adjoining ends. To the middle of the shorter angle 12 is welded an upright tubular element 15 within which is telescoped a further tubular element 16. The tubular element 16 is provided with a plurality of holes 14 vertically spaced therealong, said holes being adapted to be engaged by a screw 17 threadably received in the wall of the tubular element 15 and having a hand lever 20 secured to the extending end thereof.

Mounted upon the upper end of the tubular member 16 is a basketball hoop 21 with net 22 and a backboard 25, said mounting being accomplished by bracing elements 26 and 27 and by mounting element 30. The position of the hoop 21, backboard 25 and tubular element 16 can be adjusted relative to the ground by releasing and retightening the hand screw 17. In order to facilitate raising and lowering of the hoop, a windlass construction 35 is provided. The windlass construction cooperates with a stiff leg 36 for raising and lowering the goal. The stiff leg 36 includes a collar 37 which is adjustably fixed to the upright tubular member 16 by means of a hand screw 40, the threads of which cooperatively engage suitable threads in the collar 37 and the inner end of which engages said above mentioned holes (or alternatively indentations) vertically spaced in the tubular member 16.

The stiff leg 36 further includes an upright member 41 fixed to the collar 37 and extending downwardly past the upper end 42 of the upright tubular member 15. At the lower end of the member 41, there is fixed an angle 46 to which is secured the end 47 of a line 48 capable of being wound on the windlass crank 50. The windlass 35 includes a generally triangular element 51 which is fixedly mounted upon brace member 52 which is, in turn, fixed to the upright tubular element 15 and to two of the members 12 of the base 11 at the intersection 49 of said two members 12. The generally triangular element 51 has projections 55 and 56 integral therewith and secured thereto, respectively, said projections having apertures 57 there-through through which extends the crank 50 of the windlass. The crank may be locked in a desired position by means of a blocking member 61 pivotally secured to the projection 55 and engageable with a transversely extending pin 62 received through the crank 50.

Rotatably mounted upon the members 12 of the base 11 are three wheels 70, each of the wheels being located adjacent a respective corner of the triangular base 11. Adjacent each of the wheels 70, there is provided a piece of tubing 71 welded to the members 12 of the base. At the upper end of each piece of tubing 71 is welded a nut 72

United States Patent [19]

Eckels et al.

[11] 4,290,584

[45] Sep. 22, 1981

D4

[54] POLE MOUNTED WINCH

[75] Inventors: George H. Eckels, Overland Park, Kans.; Donald H. Groft, Forty Fort, Pa.; Wayne R. Stallard, Mission, Kans.

[73] Assignee: Stelco Inc., Kansas City, Kans.

[21] Appl. No.: 714,854

[22] Filed: Aug. 16, 1976

[51] Int. Cl.³ B66F 9/00

[52] U.S. Cl. 254/380; 182/2; 242/100; 242/106; 248/309 A

[58] Field of Search 254/145, 161, 186 R, 254/162, 163; 182/2; 187/27; 81/57.28, 57.29, 57.3, 57.31, 57.13, 57.14, , 57.11, ; 248/14, 16, 231, 214, 215, 223, 243, 222.3, 309 A, 225.2; 242/100, 100.1, 100.2, 106

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Primary Examiner—Joseph F. Peters, Jr.

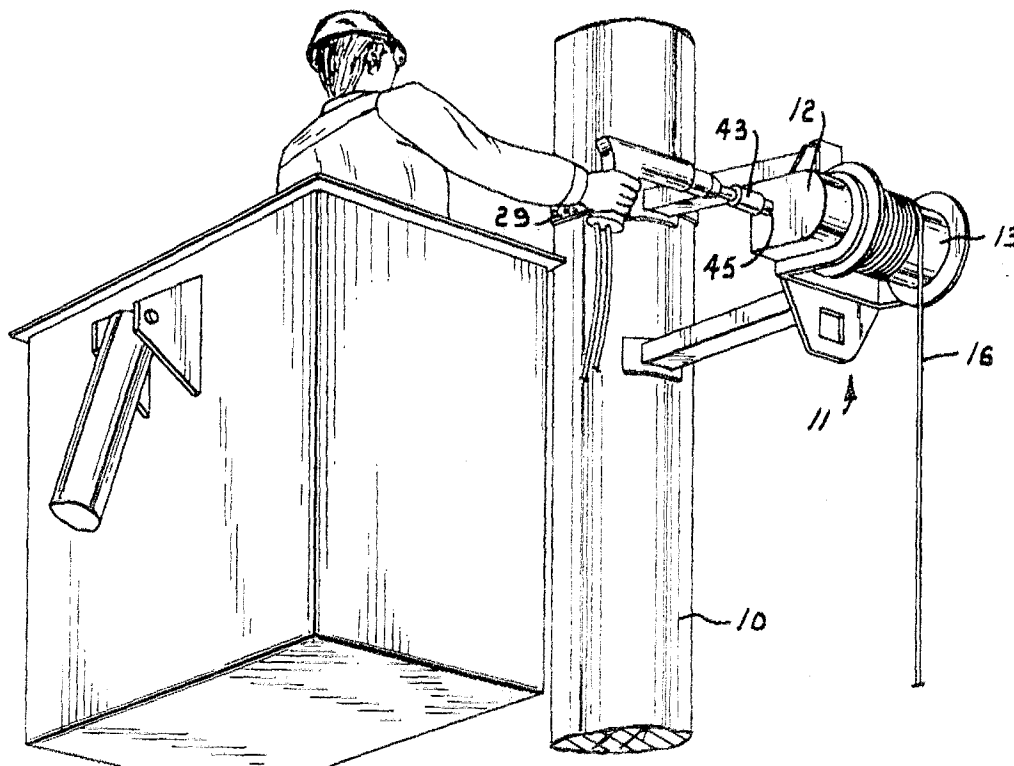
Assistant Examiner—D. W. Underwood

Attorney, Agent, or Firm—Lowe, Kokjer, Kircher, Wharton & Bowman

[57] ABSTRACT

A portable winch includes a base plate which is adapted to be quickly and easily coupled with and uncoupled from a bracket attached to a utility pole. The base plate hangs on the bracket and requires no tools or clamps to maintain the connection. The base plate and bracket have cooperating portions which stabilize the base plate in its operating position and prevent rocking, swinging or swaying. The winch can be supported so that the winch cable drops either on the outside or inside of the drum, thus to change the spacing of the cable from the pole. The control means for operating the winch can be carried on the basket of an aerial boom by a bracket which hangs on the lip of the basket. The bracket includes a support tongue on which the winch can be hung during its travel to and from the pole. Alternately, the winch can be powered by a hand drill detachably coupled with the winch drive and held by a worker in the basket.

9 Claims, 7 Drawing Figures



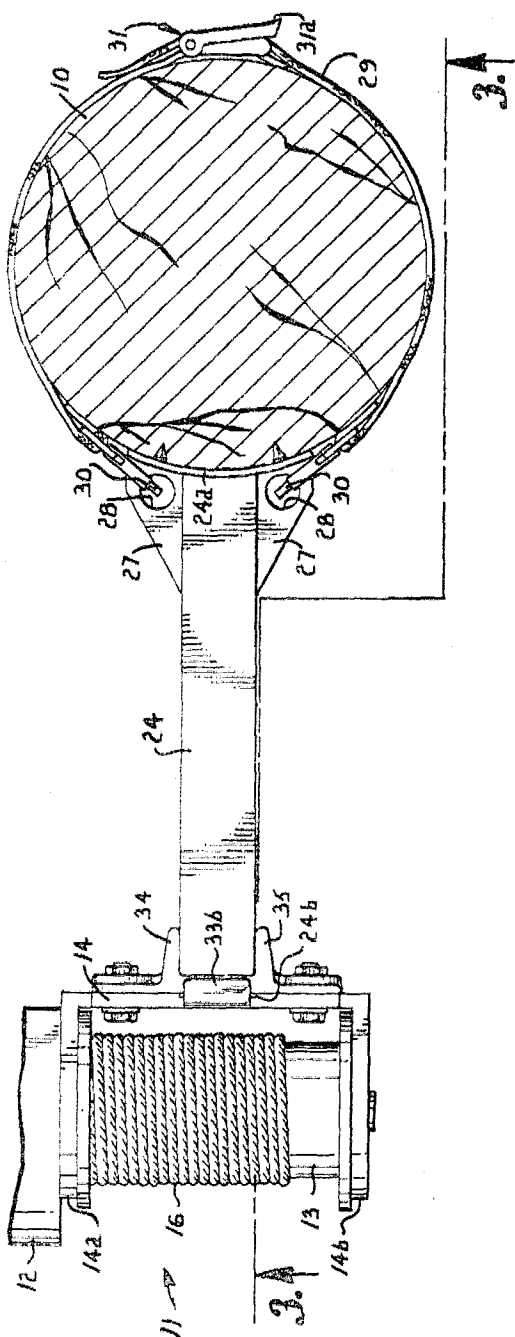


Fig. 2.

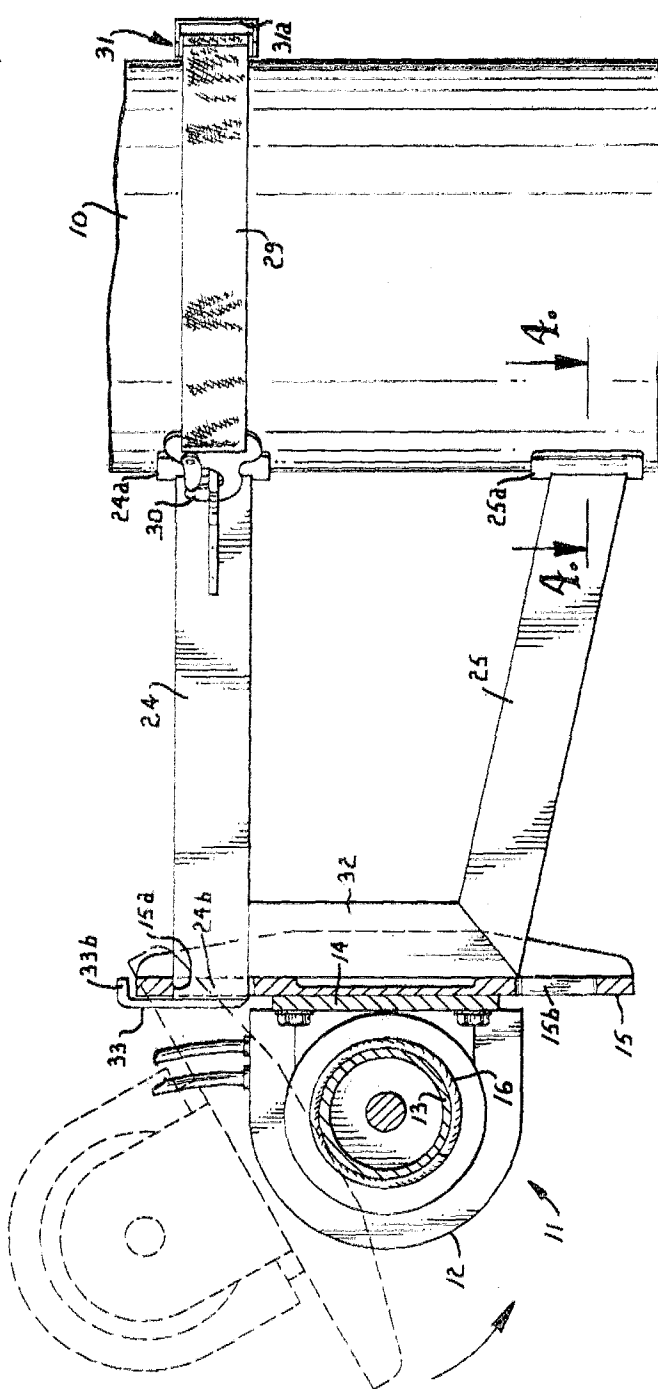


Fig. 3.

POLE MOUNTED WINCH

BACKGROUND AND SUMMARY OF THE INVENTION

In utility construction and maintenance work it is necessary to elevate transformers and other relatively heavy and unwieldy objects to the top, or near the top, of a utility pole. Similiar needs occur from time to time in other fields.

The present invention is directed to the provision of a hoisting means for the purpose described which is capable of being temporarily mounted on the pole and which has many advantages over alternate lifting means of which we are presently aware.

One of the principal advantages is that the hoisting device according to our invention is a power operated winch which is provided with means for quickly and easily attaching it to and removing it from an operating position on the pole. The winch and its support bracket are separate items. The support bracket thus is capable of being mounted on the pole separately from the winch, making the task of connection of the bracket with the pole much easier than if the weight of the winch also had to be supported while establishing the connection.

Another advantage of our invention is that it provides a winch which is relatively light in weight and which can be easily lifted and supported in different positions on the pole to locate the winch cable at varying locations.

A further advantage of our invention is that it provides a portable winch arrangement in which no hand tools are required for mounting the winch on or removing it from its operating position on the pole.

Still another advantage is that the operation of the winch is controlled remotely, such as from the basket of any suitable aerial device of the type used in utility and other construction and maintenance work. In our arrangement, we provide one form of control for the winch in which the control is adapted to be removably mounted on the operator's basket of an aerial device. The connection between the control and winch is by flexible power supply lines. Thus the operator is able, while having full control over the functions of the winch, also to maneuver himself by means of movement of the basket to the most advantageous position to perform the work required. In another form, the winch control is in the form of a hand held power drill fitted with a tool head for detachable coupling with the winch drive.

A further advantage of the invention is that it provides means for carrying the winch in the basket in a standby location from which it can quickly and easily be removed from and attached to the pole.

Other and further objects and advantages of the invention, together with the features of novelty appurtenant thereto, will appear in the course of the following description.

DETAILED DESCRIPTION

In the accompanying drawings, which form a part of the specification and in which like reference numerals indicate like parts in the various views:

FIG. 1 shows a front elevational view of the preferred embodiment of a winch and mounting means according to the invention, the winch being mounted on a pole, and also showing at the left-hand side of the

figure a fragment in cross section of a basket of an aerial device with the control means for the winch mounted thereon, and also illustrating, in broken lines, the standby and stored position for the winch in the basket during transport to and from the mounting position on the pole;

FIG. 2 is a fragmentary top plan view of the winch and mounting means, the pole being shown in horizontal section.

FIG. 3 is a partly sectional view taken generally along line 3—3 of FIG. 2 in the direction of the arrows;

FIG. 4 is a fragmentary section, on an enlarged scale, taken on line 4—4 of FIG. 3 in the direction of the arrows;

FIG. 5 is a partly sectional view taken along line 5—5 of FIG. 1 in the direction of the arrows;

FIG. 6 is a perspective view showing a modified form of the invention; and

FIG. 7 is a fragmentary plan view illustrating the modified form in more detail.

Referring now to the drawings, a portion of typical upright utility pole is indicated at 10. Mounted on the pole is a winch 11 which includes a hydraulic drive motor and worm drive speed reducer 12 which drives a rotary drum 13. While we show a hydraulic power source, it will become evident to those skilled in the art, as the description continues, that pneumatic or electric power may also be utilized.

The drum is suspended between the legs 14a, 14b of a U-shaped member 14. The web or the base portion of the U-shaped member 14 is bolted or otherwise secured to a base plate 15 which forms part of the mounting connection for supporting the winch from the post 10 and the details of which will subsequently be described.

The winch drum carries a cable 16 and is adapted to be rotated by the motor means 12 in either direction thereby to either lift or lower a load 17, which can be connected to the cable by any conventional means such as the hook 18.

Coupled with the motor means 12 for the winch are the hydraulic lines 19 and 20 which also connect with a three position tandem valve 21. The connections at both the motor and valve are preferably detachable fittings. The valve in turn connects through lines 22, 23 with a source of hydraulic fluid (not shown) which can be carried on the vehicle equipment which is normally used in working with utility lines and the like. The valve 21 is a conventional valve having an operating lever 21a which can be manipulated to put the motor means 12 in a neutral lock position, in a forward drive condition or in a reverse drive condition. Such valves and motor means are well known to the art and the details thereof do not form any part of the invention and will not be further described.

Continuing now with further description of the winch and the means for mounting the winch to the pole, the mounting bracket for the winch is best seen in FIGS. 2 and 3. The bracket comprises upper and lower bracket members 24 and 25 which are arranged to extend outwardly from the surface of the post with their axes in the same vertical plane. Preferably members 24 and 25 are constructed of steel tube. Each of the members 24 and 25 has an arcuate footing 24a or 25a which is adapted to rest against the surface of the post and conform generally to the curvature thereof. Each of these footings is provided with spikes 26 (see FIG. 4)

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which assist in the overall support function. For concrete poles, the footings utilize rubber pads instead.

The upper bracket element 24 is equipped with two oppositely located side gussets 27. Each of these gussets is provided with an aperture 28. The gussets and apertures provide a means of securing a retaining strap 29 around the post, the retaining strap having the hook portions 30 which engage in the openings in the gussets. Strap 29 is further equipped with a ratchet buckle 31 which performs the function of tightening the strap securely to the post in response to manipulation of the handle portion 31a.

A strap tensioning device of character satisfactory for use in connection with our invention is disclosed in U.S. Pat. No. 3,180,623, issued Apr. 27, 1965.

At the outer end of the winch mounting bracket the upper and lower members 24 and 25 are joined by a vertical member 32 which preferably is also made of tubular material. The location of the member 32 and the length of the lower member 25 are such that the outer end of the upper member 24 extends past member 32 in order to provide a horizontal extension or projection 24b. This extension has secured to its end a locking flange or tab 33 which extends upwardly past the top surface of the member 24 and terminates in a horizontally bent flange portion 33b which overlies a portion of the upper surface of the projection 24b.

As earlier described, the winch mounting plate 15 is either bolted to or made integral with the base of the winch. The mounting plate is, in its preferred form, a symmetrically structured device having rectangular openings 15a and 15b near the opposite ends. The openings 15a and 15b are of slightly greater inside dimensions than the outside dimensions of the tube member 24. The location of the outermost edge of each opening 15a and 15b is such that the outer end of each plate can, when the winch is hung on the support bracket, fit under the flange 33b as shown in FIG. 3.

The rear face of the mounting plate 15, i.e., that face confronting the pole and opposite from the winch, is provided with two parallel ribs 34, 35 which project rearwardly from the base of the plate and form a rectilinear groove which is adapted to receive the outermost portions of the mounting bracket parts 25, 32 and 24. The base of the groove serves to engage the confronting portions of the rear face of the plate between the ribs 34, 35 and mounting bracket surfaces holds the much place despite shifting of the takeoff position of the cable on the drum or presence of side loads.

The reason for providing the plate 15 with a symmetrical structure and the two openings 15a, 15b is to provide a means of reversing the position of the winch so that the cable can depend either from the inside of the drum or the outside of the drum, whichever the user prefers. Thus, where it may be desirable to shift the location of the vertical proportion of the cable at least the diameter of the drum, a change in the relationship can be made. Obviously the mounting is the same whether the mounting plate is engaged by the opening 15a or 15b.

Turning again to FIG. 1 and referring to the valve 21 for controlling the operation of the winch, this valve is preferably mounted on a hanger bracket 36 which is adapted to be hung over the lip 37 of a basket 38 of the type carried by vehicle mounted aerial booms. This basket, or bucket as it sometimes is called, is mounted at the end of the boom and is adapted to carry worker(s) from a lower elevation to a convenient elevation near

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the top of the utility pole, utility lines or other structure so as to enable them to carry out appropriate tasks.

The hanger bracket 36 is preferably constructed generally from metal rod formed to provide the appropriate configuration. Referring to FIG. 5, there are two parallel side rod portions 36a which are joined with an in-turned generally U-shaped portion 36b and a cross-over portion 36c. The cross-over portion is adapted to bear against the side of the basket 38 as shown in FIG. 1. A mounting plate 39 is secured to and bridges between the rod portions 36a. The valve is mounted to the mounting plate 39.

At the upper end the rod portions 36a are bent inwardly and downwardly to provide respectively, cross-over portions 36b which overlie the lip 37 of the basket and downturned inside portions 36f which are joined by a cross-over 36g.

A generally U-shaped cover plate 40 is secured, as by welding, to the upper end of the hanger bracket and provides support for the legs of a smaller tongue-like member 42 which extends inwardly into the basket away from the plane of the down turned legs 36f with a slight upward inclination as shown in FIGS. 1 and 5. The tongue 41 is also preferably formed of bent rod having legs which extend upwardly inside the cap or cover piece 40 and are secured thereto by welding or other appropriate means.

It will be evident that the hanger bracket 36 with the valve thereon can easily be removed and replaced on a basket simply by lifting it to the point where it is free of the upper lip 37.

When in mounted position the tongue 41 of the bracket serves as a convenient hanger for a detached winch, as shown in the broken lines in FIG. 1.

The manner of mounting and utilization of the winch assembly is believed fairly evident from the foregoing description. In moving the equipment to the pole the winch and its pole support bracket are separated with the winch preferably being hung on the tongue 41 in the basket. The operator maneuvers the basket through the usual operating controls (not shown) into a position adjacent to the pole so that he can quickly connect the mounting bracket to the pole to the coupling and tightening of the strap 29.

The winch itself is then removed from the tongue and placed on the bracket in the manner illustrated in FIG. 3, i.e., by fitting one of the openings 15a in the base plate over the lip 33 and flange 33b and letting the winch move into its stabilized position on the bracket. The operator is now free to move the basket at will and to control the operation from the basket through the medium of the valve 21.

The winch can quickly be removed and replaced as desired. Moreover, it can be reversed in position to shift the cable takeoff point from one end of the drum to the other or to the inside or outside of the drum.

The winch and mounting bracket are effectively locked together in such manner that the winch is held in place without swinging, rocking or moving out of place as the lift cable traverses the drum thereby achieving a fully stabilized structure.

Referring now to FIGS. 6 and 7, in the modified form of the invention, power for operating the winch is supplied by a hand held drill, which preferably is a pneumatically powered drill. The drill can be any available commercial unit. The only addition to it that need be made is to fit it with a wrench socket 43 which is adapted to be coupled with a tool head 44 (such as a hex

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United States Patent [19]
Williams

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[45] **Date of Patent:** **Oct. 27, 1992**

[54] **PORTABLE BASKETBALL GOAL ASSEMBLY**

[76] **Inventor:** Linkwood Williams, 1179 E. Parkway S., Memphis, Tenn. 38114

[21] **Appl. No.:** 800,132

[22] **Filed:** Nov. 29, 1991

[51] **Int. Cl.:** A63B 63/08

[52] **U.S. Cl.:** 273/1.5 R; 248/910

[58] **Field of Search:** 273/1.5 R; 248/910

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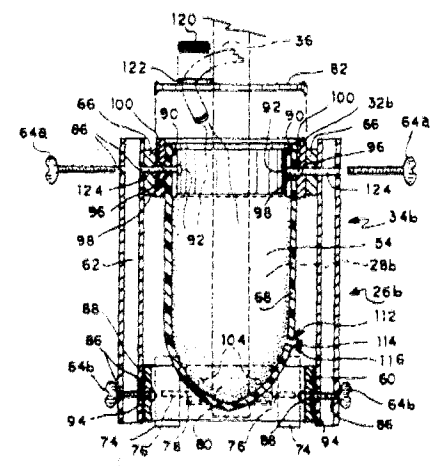
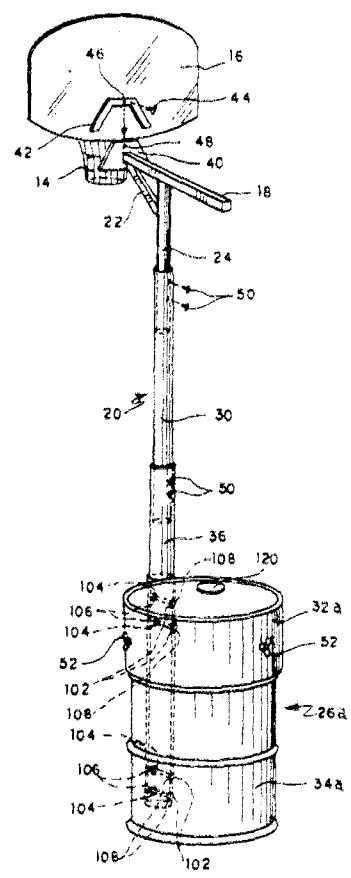
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Primary Examiner—Paul E. Shapiro
Attorney, Agent, or Firm—Richard C. Litman

[57] **ABSTRACT**

A portable basketball goal assembly which includes an anchor, a goal post, a backboard, and a basket. The mass of the anchor is variable to promote mobility. The anchor includes a nonpermeable receptacle which facilitates the storage of a volume of substance, such as water. The container may be either a drum, such as an industrial drum, a rain barrel, a garbage canister, or the like, or it may be an industrial strength bag suspended from a frame assembly both of which are capable of retaining the volume of substance. The volume of substance is proportional to the mass of the anchor. A variance in the volume of substance produces a variance in the mass of the anchor. The nonpermeable receptacle has an opening in the top to allow the user to add to the volume of substance, thus increasing the mass of the anchor. Also included near the bottom of the nonpermeable receptacle is a stopcock which enables the user to discharge some of the volume thereby decreasing the mass of the anchor. The goal post is supported by the anchor which supports the backboard which, in turn, supports the basket. The variable mass of the anchor permits the anchor to provide adequate support for the goal post as well as enhances the portability of the basketball goal assembly.

15 Claims, 2 Drawing Sheets



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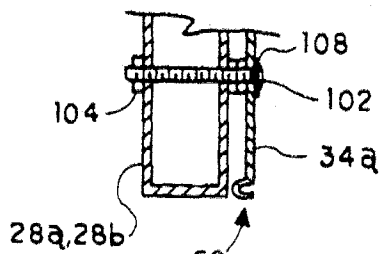


FIG. 8

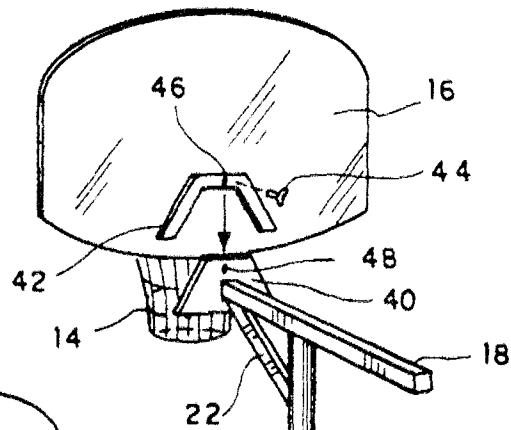


FIG. 2

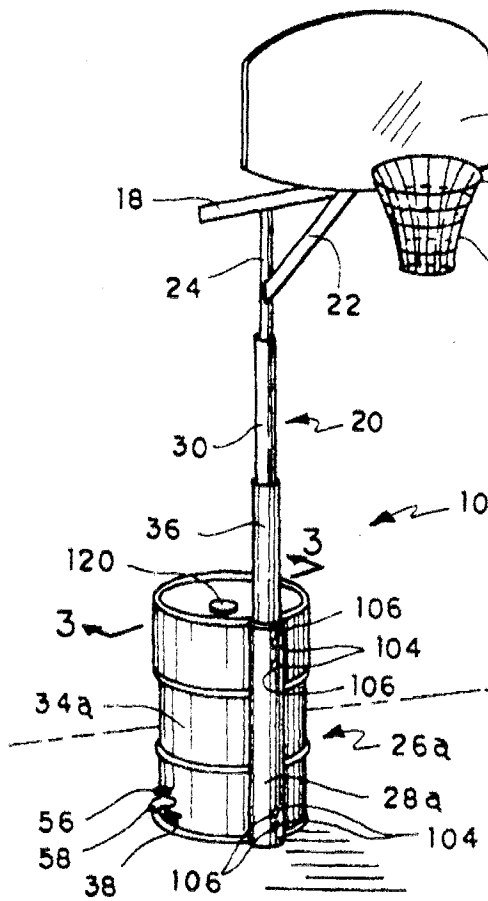


FIG. 1

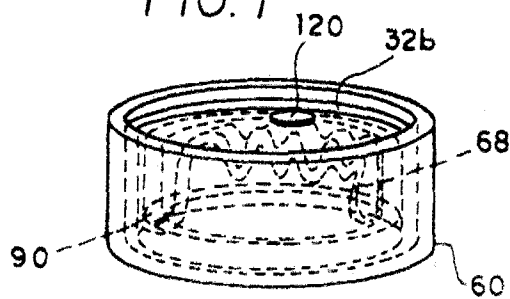
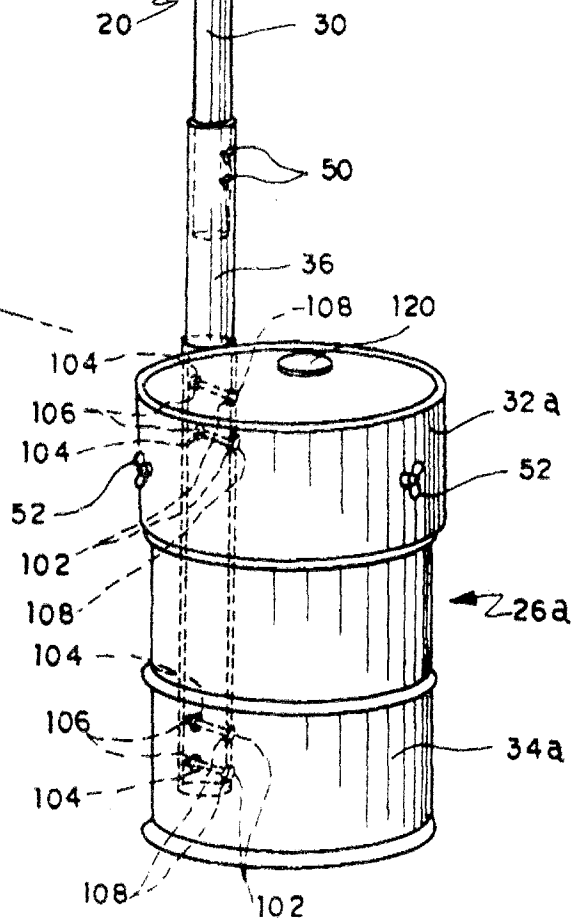


FIG. 7



DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now referring to the drawings, FIGS. 1-2 show the basketball goal assembly 10 according to the present invention. The basketball goal assembly 10 includes a hoop 12, a backboard 16, a standard 20, and an anchor 26a. The hoop 12 having a net 14 suspended thereon is perpendicularly secured to a horizontally central lower portion of the backboard 16. A grooved flange 42, having a half hexagonal shaped parameter, is integrally attached to a horizontally central lower rear portion of the backboard 16. The top of the grooved flange 42 includes a horizontally centered bore 46 to permit the insertion of a threaded shaft 44. A plate 40 is affixed perpendicularly to a forward end of a horizontal extension 18. An uppermost portion of the plate 40 is tapered and a threaded bore 48 is horizontally centered adjacent the top edge of the plate 40. The backboard 16 is fastened to a front most portion of a horizontal extension 18 by slipping the plate 40 into the grooved flange 42. The backboard 16 is held vertically in check by the tapered joint configuration of the plate 40 and the grooved flange 42. Moreover, the backboard 16 is bound in the vertical as well as the horizontal position by inserting the threaded shaft 44 into the bore 46 located on the grooved flange 42 and tightening the threaded shaft 44 into the threaded bore 48 in the plate 40. The longitudinal center of the horizontal extension 18 is connected to the top end of the standard 20 to form a right angle between the horizontal extension 18 and the standard 20. A crossbar 22 is fixed to the horizontal extension 18 contiguous to the plate 40 reaching downward diagonally a vertical distance equal to the horizontal distance from the longitudinal center of the horizontal extension 18 to the plate 40 engaging with the top telescopic section 24 of said standard 20.

The standard 20 includes a plurality of cascading tubular telescopic sections 24,30,36. The top telescopic section 24 has an outside diameter which has a loose fit configuration with the inside diameter of the center telescopic section 30; the center telescopic section 30 has an outside diameter which has a loose fit configuration with the inside diameter of the bottom telescopic section 36. The bottom portion of the top telescopic section 24 fits inside of the top portion of the center telescopic section 30 and the bottom portion of the center telescopic section 30, in turn, fits inside the top portion of the bottom telescopic section 36. The bottom portion of the bottom telescopic section 36 is inserted into a sleeve 28a and both the bottom telescopic section 36 and the sleeve 28a are vertically fastened to the front of the anchor 26a. The top and center telescopic sections 24,30 can be adjusted in succession to provide a standard 20 of a desired height and are secured to maintain the desired height by tightening the set screws 50.

The anchor 26a of the preferred embodiment is a nonpermeable receptacle including a cylindrical container 34a and a mating cylindrical lid 32a. The container 34a can be an industrial drum, a rain barrel, a garbage can or any other waterproof vessel. The peripheral side wall of the lid 32a has an inside surface which has a loose fit configuration with the outside surface of the upper portion of the container 34a. The lid 32a is placed on the container 34a and secured into place with threaded shafts 52 having wing shaped heads. The sleeve 28a and the telescopic section 36 are fastened to the lid 32a to provide a sturdy and durable

bond. Carriage bolts 102 are inserted through the lid 32a, the sleeve 28a, and the bottom telescopic section 36 to provide a substantially flush fit on the inside surface of the lid 32a. The carriage bolts 102 are then secured in place by applying a nut 104 and a washer 106 to the carriage bolt 102 until tight. To provide additional vertical stability, the lower portion of the sleeve 28a is also secured to the lower portion of the container 34a in the same manner, however, a gasket 108 is used to provide a leakproof seal. The sleeve 28a must be secured to the lid 32a prior to putting the lid 32a on the container 34a and the carriage bolts 102 adjacent the lower portion of the container 34a must be fixed to the container 34a prior to attaching the lid 32a and the sleeve 28a to the container 34a. These carriage bolts 102 adjacent the lower portion of the container 34a are inserted through holes 110 in the container 34a using gaskets 108 against the inside surface of the container 34a between the container 34a and the carriage bolts 102 to provide a leakproof seal. Washers 106 and a nuts 104 are applied to the portion of the carriage bolts 102 extending through the outside surface of the container 34a and are tightened to secure the carriage bolts 102 into a stationary position (see FIG. 8). After the carriage bolts 102 are set in place, the lid 32a is attached and the sleeve 28a combined are secured by applying a nut 104.

FIGS. 4 and 6 illustrate the anchor 26b according to a first alternative embodiment which includes a cylindrical container 34b comprised of a cylindrical lid 32b, a cylindrical base 60, three vertical tubular members 62, and the sleeve 28b. The lid 32b and the base 60 are joined by the three tubular members 62 and the sleeve 28b spaced equidistantly apart about the circumference of the lid 32b and the base 60. The bottom of each of the tubular members 62 and the sleeve 28b are secured to the base 60. This is accomplished by aligning a bore 86 in the bottom end of one of each of the tubular members 62 and the sleeve 28b with a bore 94 in the base 60, each bore 94 in the base 60 leading to a threaded boss 88 on the interior of the base 60. A threaded shaft 64b, having a winged head, is inserted into each one of the bores 86 in the bottom of each one of the tubular members 62 and the sleeve 28b, and further through each of the bores 94 in the base 60. Each threaded shaft 64b is tightened into a respective threaded boss 88 until the three tubular members 62 and the sleeve 28b are vertically stationary. The top of the tubular members 62 and the sleeve 28b are fastened to the lid 32b in a similar manner in which the bottom of the tubular members 62 are fastened to the base 60 with the exception that an industrial strength nonpermeable bag 68 is clamped and suspended from the lid 32b and spacers 66 are required to compensate for a difference in the diameter of the lid 32b and the diameter of the base 60. The lid 32b is smaller in diameter than the base 60 to permit the lid 32b to fit in the base 60 along with the ring clamp 90 and the bag 68 when the basketball goal assembly 10 is being stored (see FIG. 7). The bores 86 in the top of each of the tubular members 62 and in the top of the sleeve 28b are each aligned with the bores 124 in a spacer 66, with one of each of the bores 96 in the lid 32b, and further with one of each of the bores 98 in a ring clamp 90, each of the bores 98 in the ring clamp 90 leading to a threaded boss 92 adjacent the inside surface of the ring clamp 90. The spacers 66 are sandwiched between the tubular members 62 and the lid 32b and between the sleeve 28b and the lid 32b. The bag 68 is sandwiched between the inside surface of the lid 32b and the outside