

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO	
RAD: 14-21929- -7	FECHA: 2016-06-27 10:21:05
DEP: 2020 DIRECCION DE NUEVAS CREACIONES	EVE: 1 REGISTRO/DEPOSITO/CONCESION/DEPOSITO
TRA: 2 PATENTES DE INVENCION	FOLIOS: 8
ACT: 519 TRASLADOINFORME	

DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Abogado(a)/Señor(a)
LUZ VICTORIA TOBON RESTREPO
ROBERTO FUSCO VEIGA

Asunto: Radicación: 14-21929- -7
Trámite: 2
Evento: 1
Actuación: 519
Oficio: 8321
Folios: 8

Patente de Invención	X			Patente de Modelo de Utilidad	
Vía Nacional	X				
Vía PCT (Fase Nacional)		Capítulo I		Capítulo II	
No. Solicitud Internacional					
Fecha de Presentación Internacional					

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 comunica:

1. Documentos estudiados

Descripción:	Rad. N° 14-021929-00000-0000	03/febrero/2014
	Rad. N° 14-021929-00002-0000	04/abril/2014
Reivindicaciones:	Rad. N° 14-021929-00000-0000	03/febrero/2014
	Rad. N° 14-021929-00002-0000	04/abril/2014
Dibujos:	Rad. N° 14-021929-00000-0000	03/febrero/2014
	Rad. N° 14-021929-00002-0000	04/abril/2014
Oposiciones:	No se presentaron	
Prioridad:	No se presentó	

2. Objeto de la invención

De acuerdo con lo establecido en el numeral 1.2.2.2 del Capítulo Primero del Título X de la Circular Única para efectos del examen de patentabilidad, se tendrá en cuenta la tasa pagada por el solicitante al momento de comenzar el examen para las reivindicaciones adicionales; esto es que cuando la solicitud contenga más de diez (10) reivindicaciones y no se haya pagado la tasa complementaria, sólo se estudiarán las cubiertas por la tasa pagada. Por lo tanto, se estudiara la reivindicación 1 del radicado N° 14-021929-00002-0000, página 8.

Título de la solicitud: “Bomba eléctrica de accionamiento automático con ducto angular para galón de agua de 10 y 20 litros” (Fl. 1).

El problema planteado en esta solicitud consiste en la necesidad de proporcionar un medio con el cual se pueda realizar un bombeo de agua desde el interior de los botellones o garrafones de 10, 12 ó 20 litros de manera práctica e higiénica.

Para resolver este problema técnico, la solicitud en estudio proporciona una bomba eléctrica de accionamiento automático con ducto angular para galón de agua de 10, 12 y 20 litros el cual se caracteriza por poseer un ducto recolector de agua con un ángulo de inclinación que se encuentra de 9° a 13° con relación al giro de simetría del botellón, siendo su accionamiento automático por medio de sensores que detectan la aproximación del vaso y accionan el bombeo del agua.

El objeto de la presente solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): F04D 15/02.

3. De la solicitud de patente

Reivindicaciones (Art 30 D 486, Art 22 PCT)

La reivindicación 1 no es clara porque:

- Incluye el fragmento “...la longitud del ducto, el diámetro de la barra, el diámetro de la turbina, la altura de las aspas de la turbina, el diámetro interno de la capa de la turbina, el diámetro interno del tubo de salida del agua...” (reiv. 1) son frases inconclusas que no especifican de manera clara las características estructurales de dichos elementos y la interrelación que se presenta entre estos, tampoco se mencionan las dimensiones. Se sugiere replantear la redacción de la reivindicación teniendo en cuenta que, de acuerdo a la descripción y dibujos, hay componentes que hacen parte del objeto que se reclama y que se omitieron en la reivindicación, lo cual hace general al objeto que se reclama. Adicionalmente se debe tener en cuenta que no se pueden incluir ni ventajas ni resultados a alcanzar y también sin que se amplíe la materia inicialmente divulgada en la presentación de la descripción inicial.

Por las anteriores razones únicamente se tendrán en cuenta los componentes físicos que se citan en el tenor de la única reivindicación allegada en el radicado N° 14-021929-00002-0000.

- La reivindicación 1 también menciona el fragmento “*chorro de agua iluminado (facilitando su uso en lugares oscuros o con poca iluminación)*” lo cual es una característica del fluido que va a contener el garrafón y que se va a dispensar, lo cual no es una característica estructural del objeto. Igualmente sugiere un resultado a alcanzar y una ventaja técnica, lo cual no es una característica que defina el dispositivo de bombeo, por lo que no se tendrá en cuenta en el examen de patentabilidad. Se sugiere retirarlo y mantenerlo en el pliego descriptivo para luego sustituirlo en la reivindicación por los elementos estructurales que generan o surten dicho efecto.

Por último, se sugiere incluir los números de referencia de los elementos que componen el objeto de estudio.

Descripción (Art 28 D 486)

El dibujo 1, 2 y 3 contiene una lista de partes las cuales no deben ir incorporadas a los mismos, ya que este debe ser parte del contexto de la descripción. Se sugiere por lo tanto incluirlas en dicho pliego descriptivo manteniendo la misma numeración presente en estas, para que posteriormente haya correlación con los componentes mencionados en el texto de la descripción, en donde los números de referencia, de cada componente, que también se deben incluir en dicho texto, servirán de guía para el lector.

Igualmente, falta la descripción de los dibujos 2 y 3 en el contexto de la descripción.

4. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de presentación de la solicitud de patente nacional: febrero 3 de 2014, y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Ítem	Documento	Título	Fecha de Publicación
D1	Catálogo de venta internet	"Preciolandia – Bomba de agua eléctrica para garrafón..."	2013*
D2	US7669738	"Water transfer system for a bottled water dispenser"	02/marzo/2010

*Ver anexo 1.

El documento D1¹ divulga bomba de agua eléctrica para garrafón (Página principal).

El documento D2² divulga un aparato para la transferencia de agua a un dispensador de agua embotellada que comprende preferiblemente un conjunto de mango tubular, un conjunto de cubierta y un conjunto de transporte de botellas de agua. El conjunto de mango tubular se acopla a un cuello de una botella no invertida agua e incluye un doblado, un primer conducto rígido y un segundo conducto que rodea preferentemente el primer conducto (Resumen).

5. Examen de Patentabilidad (Art 14 D486)

Nivel inventivo (Art18 D486)

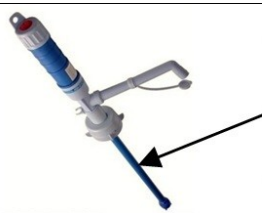
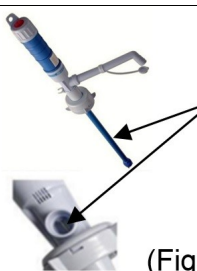
La reivindicación 1 consiste en "*Bomba eléctrica de accionamiento automático con ducto angular para galón de 10, 12, y de 20 litros...*" (Ver página 8 del radicado N° 14-021929-00002-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

Características esenciales	D1	D2
Bomba eléctrica de accionamiento automático con ducto angular para galón de 10, 12, y de 20 litros.	Bomba de agua eléctrica para garrafón (Ver texto principal de la página).	Un aparato para la transferencia de agua a un dispensador de agua embotellada (Resumen).

1 <http://www.preciolandia.com/mx/bomba-de-agua-electrica-para-garrafon-el-77ynhw-a.html#&panel1-6>
consultada (20 de enero de 2016)

2 <https://www.google.com.co/patents/US7669738?dq=US7669738&hl=es-419&sa=X&ved=0ahUKEwj7dPV773KAhVKND4KHQbNB0sQ6AEIGjAA>

Ducto recolector de agua	 Ducto recolector de agua (Figura pestaña 6)	Un ducto recolector de agua (166) (Fig. 6)
Ducto recolector con un ángulo de inclinación de 9° a 13°	No se menciona	El ducto recolector de agua con un ángulo hasta 20° (Fig. 6 y Col. 4, líneas 42 a 49)
Una barra	 Una barra dentro del ducto que conecta el motor eléctrico con la turbina en el extremo de succión (Figura pestaña 3)	No se menciona
Una turbina con aspas	 Una Turbina con aspas (Figura pestaña 3)	No se menciona
Capa de la turbina	 Capa de la turbina (Figura pestaña 3)	No se menciona
Motor eléctrico	 Motor eléctrico con fuente de baterías (x Pilas) (Figura pestaña 6)	No se menciona

Los documentos D1 y D2 se consideran el estado de la técnica cercano a la invención definida en la reivindicación 1 porque divulgan una bomba eléctrica de accionamiento automático con ducto angular para garrafón de agua.

La diferencia entre la invención, definida en la reivindicación 1 y el producto de D1 consiste en mencionar un ducto recolector con un ángulo de inclinación de 9° a 13°.

El efecto que logra el incluir “un ducto recolector con un ángulo de inclinación de 9° a 13°” es que maximiza la captación y dispensación de agua del garrafón.

Por lo tanto, el problema técnico objetivo que pretende resolver esta invención se puede formular así: “¿Cómo modificar el producto conocido en D1 para maximizar la captación y dispensación de agua del garrafón?”.

Sin embargo, la utilización de ductos de captación con un ángulo de inclinación para maximizar la captación y dispensación de agua del garrafón, ya está divulgada en el documento D2 que se refiere a un ducto de captación que puede alcanzar inclinaciones de hasta 20° (Fig. 6 y Col. 4, líneas 42 a 49).

En consecuencia, la persona del oficio normalmente versada en la materia, incluiría “un ducto recolector con un ángulo de inclinación de 9° a 13°” del documento D2 en el producto divulgado en el documento D1 para llegar así al objeto de la reivindicación 1 de la solicitud. Por lo cual se considera obvia.

Conclusión:

La reivindicación 1 cumple el requisito de novedad (Art. 16), pero no cumple con el requisito de nivel inventivo (Art. 18).

6. Conclusión

Los requisitos de Patentabilidad de la presente solicitud están afectados así:

Item	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	Catálogo de venta internet	1	Nivel Inventivo
D2	US7669738	1	Nivel inventivo

[illegible]

Expediente 14-21929- -7

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 (60) 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.

Si como respuesta a este requerimiento el solicitante llegara a modificar: i) el capítulo reivindicatorio, ii) la descripción de la invención a proteger, iii) o presente un nuevo capítulo reivindicatorio, y desee que se realice un nuevo examen de patentabilidad a esta modificación, no deberá pagar la tasa de modificación voluntaria pero sí la correspondiente a la tasa de examen de patentabilidad. En todo caso, el número de requerimientos por no patentabilidad estará supeditado a que el término del estudio de patentabilidad no sea superior a 18 meses, contados desde la publicación de la solicitud de patente de invención. Adicionalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones deberá pagar la tasa por reivindicación adicional.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.



JOSÉ LUIS SALAZAR LÓPEZ
Director de Nuevas Creaciones (c)

El anterior requerimiento fue notificado por fijación en lista, de fecha 2016-06-28

Elaboró: Rachid Ponce Vergel
Revisó: Rosa Patricia Tellez Chavarro

Rachid Ponce

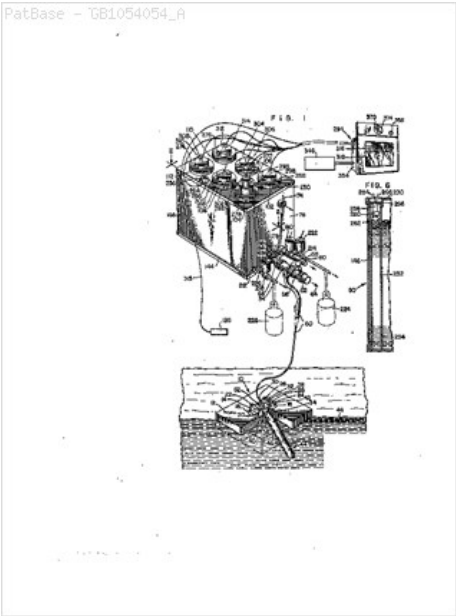
Search history

- Search 1: CL=(ELECTRIC~ PUMP~ JUG~ OR BOTTLE~) (Results 88381)
- Search 2: CL=(ELECTRIC~ PUMP~ JUG~ OR BOTTLE~ ANGLE~) (Results 6)
- Search 3: TAC=(ELECTRIC~ PUMP~ JUG~ OR BOTTLE~ TURBINE~) (Results 2)
- Search 4: DSC=(ELECTRIC~ PUMP~ JUG~ OR BOTTLE~ ANGLE~ TURBINE~) (Results 0)
- Search 5: DSC=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND ANGLE~ AND TURBINE~) (Results 710)
- Search 6: TAC=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND ANGLE~ AND TURBINE~ AND LIGHT~) (Results 13)
- Search 7: DSC=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND ANGLE~ AND TURBINE~ AND ILUMINATED~) (Results 0)
- Search 8: CL=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND ANGLE~ AND TURBINE~) (Results 18)
- Search 9: DSC=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND TURBINE~ AND ILUMINATED~) (Results 0)
- Search 10: TAC=(ELECTRIC~ AND PUMP~ AND BOTTLE~ AND ANGLE~ AND LIGHT~) (Results 55)

Title: fluid analysing apparatus.

Abstract: Source: GB1054054A 1,054,054. fluid analysing apparatus. HONEYWELL Inc. June 4, 1963 [June 1, 1962], No. 22204/63. Headings G1A and G1N A fluid analysing apparatus comprises a tank including a means responsive to a physical characteristic of the fluid within the tank, the tank being positioned within and spaced from the walls of a container the capacity of which is such as to provide a space many times greater than the volume of the tank, and fluid passageways being provided so that a sample may pass through the base of the tank through an opening in the upper wall, and out through a drain in the upper wall of the container. The invention is applied to an apparatus for testing river water in which samples may be drawn from predetermined depths by a pump 44, Fig. 1 (not shown), and wherein the container holds six tanks 102, 104, 106, 108, 110, 112 each including a probe, the respective probes measuring temperature, turbidity, pH, chloride ion conductivity, and dissolved oxygen content which are recorded on a single chart together with sunlight intensity on the river which is measured by a separate transducer 135. The pump 44 is suspended from a shaft 30 mounted on a float 12 and apertures are provided in the shaft supporting bracket wherein pins may be located to fix the pump at a desired angle. A proportion of the pumped water is fed back to the river through a manually adjustable valve 60. The fluid is fed to the tanks through a manifold 74 and the inlet ends within the tank may be screwed for the provision of nozzles such as 124, Fig. 3, so that the initial spray may be directed on the probes for cleaning purposes. Sand filters may be incorporated in the manifold. Apertures 150, 152 provide for the egress of water and the size of the space to which the water flows ensures a good representative sample in the tank. An overflow 174 is provided in the outer container, and a drain 178 controlled by a solenoid operated valve 180 is provided for cleaning purposes. The control circuit provides for samples to be bottled in the event of characteristics exceeding predetermined limits. The turbidity meter comprises a light 280, Fig. 3 (not shown), directing light on to the surface of the tank sample through a lens 282 the reflected light from the water being detected by one or more photo-cells 288 around an aperture 284. An analogue to digital converter may precede the recorder. The process is controlled by cam operated mercury switches in response to a timer, and the measuring is initiated by a floating level switch in the container.

Classifications:
International (IPC 8-9): G01N1/10 G01N33/18 (Advanced/Invention);
G01N1/10 G01N33/18 (Core/Invention)
CPC: G01N1/10 G01N33/18
European: G01N1/10 G01N33/18



Family:

Publication number	Publication date	Application number	Application date
GB1054054 A	00000000		00000000

Title: Improvements in and relating to Submergible Vessels.

Abstract: Source: GB191516600A 16,600. Myers, G. F. Nov. 24. Submarine vessels.-Relates to submarine vessels controlled by a single operator occupying a substantially prone position. According to the invention, the operator's compartment, Fig. 7, is defined by the hull of the vessel and longitudinally spaced bulkheads at F and H. a couch or pad 47 is provided for the operator to lie on, a conning tower 48 is disposed around the head of the operator, the steering rod 14 extends between the knees of the operator, and control levers such as 61 are placed at his sides. If the operator is an extra tall man, an opening 46, Fig. 17, is made for his feet at the bottom of the front bulkhead. In the form shown, the operator's compartment, Fig. 7, is arranged between a front compartment, Fig. 6, for discharging torpedoes and projectiles and a rear compartment, Fig. 8, containing the propelling apparatus of the submarine. The front compartment contains a torpedo tube 30 and is closed by a door comprising four quadrants 6, Fig. 11, on pivots 7 geared together in pairs and worked by a pair of longitudinal shafts 9, Fig. 17, which are connected by chains 12 to a sprocket-wheel 13 on the steering post, so that the door is opened and closed by rotation of this post. The torpedo tube contains a single automobile torpedo, or a number of armourpiercing projectiles bunched in directly into the tube or inserted separately into short barrels, which are then bunched into the tube small projectiles may be arranged between the top of the tube and the hull of the boat. The conning tower is slidably mounted in a gasket 49, and normally lies within the periphery of the submarine boat, but can be moved up by the operator's shoulder and clamped by a screw 50 the back of the conning tower is then supported by a raised backing. The conning tower is made of green bottle glass in one piece or in two concentric pieces with intermediate transparent material or it is made of metal with dead lights. The top is hinged at 52 and pleated valves 53 are provided at the top or sides for ventilation when the vessel is at the surface of the water. The conning tower is arranged in a depression of the hull, and the instruments used by the operator to control the submarine boat are placed at 55 in front of the conning tower. These instruments include, for instance, a compass, a speedometer, a clock, a depth indicator, a longitudinal and transverse inclinor, and an air-gauge for indicating the time of submergence still remaining available. The flexible shaft 56, Fig. 20, running to the propeller shaft, the rubber tube 57 leading to the depth gauge, the electric wires 58 running to the air valve meter, and the various other connexions between the instruments and their respective devices are completed through sockets 60 at the side of the compartment. The steering post 14 is connected by cords 77 to the horizontal and vertical rudders of the submarine vessel, so that steering is performed by swinging the post 14 about a universal joint 72 to right or left for horizontal steering, and up or down for vertical the post is moved by hand or by knee pads 76. The propelling engine of the submarine is preferably a water-cooled gasoline engine with water-circulating motor 84<1>, air motor 85, selfstarter 86, and exhaust 87. The propeller shaft may operate in either direction under the control of gears 93, Fig. 27, on a ring 92 connected by a cable 63, Fig. 8, to a reversing lever 61, Figs. 7 and 19, at the side of the operator's compartment against a quadrant 62 with notches for the forward, neutral, and reverse positions. The air for the engine is obtained from a tank 5 during submersion, and by air-ducts 67, 68 when awash. These ducts are pivoted at 106 and are connected by wires to the levers 65, 66, Fig. 19, at the side of the operator for raising and lowering the ducts. Each duct has a valve 100, which is opened by a spring when the duct is raised and no waves strike the valve and when the valve is closed it closes an electric switch. The electric switches 96, 97 of the two air-ducts are in series with an electro-magnet 94 which opens the reducing valve 83 of the air tank 5 when both ducts are closed when one at least of the ducts is open, the electro-magnet 94 is put out of action, and the reducing valve is opened by a spring. The air-ducts are drained by the water pump 84<1>. The air from the front air-duct is led on its way by a suction motor driven by the main engine. The pipe 69 from the front air duct is flattened and has small holes 70 where it passes through the operator's compartment, in order to supply air thereto. The exhaust pipe 87 of the engine has a valve 108 under the control of the automatic switches of the air-ducts to allow part or the whole of the exhaust to flow into the engine chamber when the air-ducts are closed. The air tank 5 is provided with tubes 84 through which the various rods and wires and pipes are passed from the engine compartment to the devices in front of the air-tank. When a steam-engine or an electric motor is used instead of a gasoline engine, the air-tank 5 is replaced by a tank containing steam under pressure or by electric batteries respectively. A receptacle containing oxylythe or other chemical may be used to refresh the air in the operator's compartment. Another receptacle 81 contains a respirator helmet, which the operator dons when he wants to escape from the submarine at the same time he inflates a rubber tyre tube which he always carries round him. Before leaving the submarine, the operator opens a flooding valve 115 he then unhooks and removes the upper part of his compartment as shown in Fig. 20, escapes through the opening thus made, and rises to the surface. The removal of the upper part of the compartment breaks the connexions of the instruments at the sockets 60, and a small amount of air leaks out and continually rises to the surface, indicating the position of the sunken submarine. This submarine is intended especially for discharge from ordinary torpedo tubes, and is provided with a projection 82, Fig. 8, adapted to fit the usual guide-groove of torpedo tubes. Certain of the features mentioned above form the subject-matter of concurrent Specifications 104,479, 104,648 and others by same applicant. Specifications 2320/83, 12,415/99, 13,157/01, and 24,600/09 also are referred to.

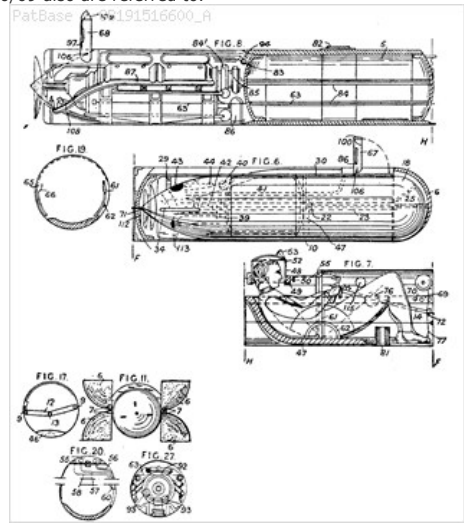
Classifications:

International (IPC 8-9): B63G8/32 F41F3/10 F42B19/00 (Advanced/Invention);

B63G8/00 F41F3/00 F42B19/00 (Core/Invention)

CPC: B63G8/32 F41F3/10 F42B19/00

European: B63G8/32 F41F3/10 F42B19/00



Title: Improvements in or relating to apparatus for duplicating three-dimensional objects

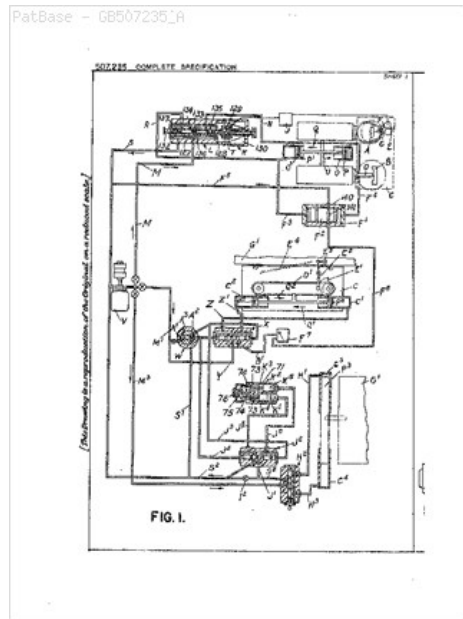
Abstract: Source: GB507235A 507,235. Photo-electrically controlled copying-apparatus. JACKSON, L. MELLERSH. (Buggie and Co., H. H.) Oct. 4, 1937, No. 26829. [Class 40 (iii)] Apparatus for duplicating three-dimensional objects comprises an optical unit having means for projecting a beam of **light** towards an object or pattern to be scanned, to produce an image on the surface of the object with a sharply defined contour line, and having a lightsensitive cell system supported in fixed angular relation to the projector with the line of sight of the cell intersecting the contour line of the image; means supporting the object and optical unit for relative movement towards and away from each other; means controlled by the cell for effecting the said movement, to maintain the point of intersection of the line of sight of the cell with the contour line on the surface of the object being scanned, and a tool operable upon a work blank and controlled by the cell in accordance with the pattern. The tool and the optical unit are traversed in unison across the blank and the pattern respectively. The invention is shown as applied to a machine for making a mould for **bottles** by controlling a cutting-tool under the influence of a photoelectric device which scans the surface of a solid pattern. Fig. 1 shows the apparatus diagrammatically. A pattern A, preferably covered with reflecting paint, and a work blank B are supported on a carriage C which can reciprocate horizontally and is adapted to be fed downwardly step by step. A cutting tool D is mounted so as to engage the inner surface of the blank, and an optical unit E comprising a photo-**electric** cell and a projector is located oppositely to the outer side of the pattern. The optical unit is movable relatively to the pattern by fluid-pressure-actuated means controlled by the cell, which means correspondingly moves the tool relatively to the blank, but in opposite phase. The optical system, Fig. 7, comprises a projector G, which casts on the pattern a sharp contour line, an image of which is focused by lenses 112 on a semicircular or straight aperture in a plate 115 in a tube F set at an **angle** to the projector so that the line of sight I intersects the adjacent edge of the beam from the projector at a predetermined point. **Light** passing through the aperture falls on a photo-**electric** cell 113. The photoelectric cell system F, 113 and the projector G are fixedly supported in relation to each other on a quadrant 102, which is adjustably pivoted on a yoke 101. The arrangement is such that as the optical system moves transversely with respect to the pattern, the cell scans the images of the contour lines projected on the surface, and the **light** passing through the aperture in the plate 115 is varied accordingly. When the amount of reflected **light** received by the cell diminishes, the effect produced by the cell is such that the cell recedes and the tool D is fed into the work, and vice versa. Thus, the point of intersection of the line I with the projected image closely follows the contour of the pattern at a constant level, and correspond. ing movements are imparted to the tool D, until the end of a transverse movement of the carriage is reached. The carriage is then lowered through a predetermined distance, and the same operations are repeated at a lower level, and so on until the whole surface of the pattern has been scanned. The control produced by the cell 113 is effected through an electromagnet K, Fig. 1, which operates a valve L to control the supply of fluid from a pressure supply pipe M (connected to a **pump** V) to cylinders O, O<1>, the pistons in which are connected to the optical unit E and the tool D. When **light** falls on the cell 113, the supply pipe M is connected to 0, and the exhaust side of 0<1> is connected to a return pipe S; conversely, when the cell is rendered non-conductive, the valve L changes the connections to the cylinders O, 0<1>, the appropriate movements of the optical unit and of the tool being thus produced. The tool is maintained substantially normal to the work throughout the cutting operation by mounting the pattern and the work on face-plates (not shown) on the carriage C, which plates are oscillated by means of a belt D<1> and pulleys connected to the plates. The required movements of the belt are obtained by connecting it to opposed pistons P', P<2> in cylinders C<1>, C<2>, which are connected alternately to fluid pressure supply and exhaust through a four-way valve X and a pilot valve W. The valve W is automatically rotated by the pattern face-plates at the end of each oscillation of the latter, to change the flow of fluid through the valve X to the cylinders C<1>, C<2>. Rotation of the face-plates also effects transverse feed of the carriage C by means of a cam E<1> secured to the plates so as to rotate therewith. The cam acts on one end of an arm E<2> pivoted on the carriage and having its other end bearing against a fixed abutment E<3>. The return of the carriage is effected by a spring E'. The face-plates and the carriage are held stationary during periods when the tool is being fed into the work, a valve F<1> being provided for this purpose to prevent flow of exhaust fluid from the cylinders O, O<1> to the return line S until movement of the tool into the work is completed. Step-by-step vertical movement of the pattern A and the work B is effected by means of a piston P<3> connected to a slide G<1> which supports the carriage C. Opposite ends of the piston P<3> slide in cylinders C<3>, C<4> connected to a manuallyoperated valve H<2>, through which pressure from a supply line M<3> is admitted to the cylinders as required. The valve H<2> communicates through a valve J<2> with a two-chamber measuring-valve K<2>. When the pilot valve W is rotated at the end of the travel of the carriage C in each direction, it moves the piston of the valve J<2> in one direction or the other, allowing a predetermined volume of fluid to pass from one of the chambers of the valve K<2> to the cylinder C<3>, and connecting the cylinder C<4> to an exhaust line S<2>; thus, equal increments of downward movement of the carriage occur after each complete horizontal scanning and cutting movement. A machine embodying the features diagrammatically shown in Fig. 1 is fully described and shown in the Specification. Details of the machine include means for securing the work-piece and the pattern to the face-plates; constructions of the various valves and their operating-devices: means for mounting the carriage for horizontal and vertical movement; means for varying the increments of downward movement of the carriage by adjustment of the valve K<2>; means for mounting the cutting-tool and driving it by a pivotally mounted motor operating through a belt and sets of pulleys adapted to give variable speeds; and means for moving the optical unit and tool simultaneously, comprising a transverse rock-shaft operatively connected to the pistons in the cylinders O, O<1>. A modification is also described, in which the optical system includes two oppositely inclined projectors which cast beams intersecting each other at the surface of the pattern, **light** reflected from the pattern being received by a suitably inclined photoelectric cell. Specification 465,447 is referred to.

Classifications:

International (IPC 8-9): B23Q35/00 (Advanced/Invention)

CPC: B23Q35/00 B23Q2735/004

European: B23Q35/00 L23Q735/00B2



Family:

Publication number	Publication date	Application number	Application date
GB507235 A	19390605	GB19370026829	19371004

Priority:

GB19370026829 19371004

Probable Assignee: H H BUGGIE AND COMPANY

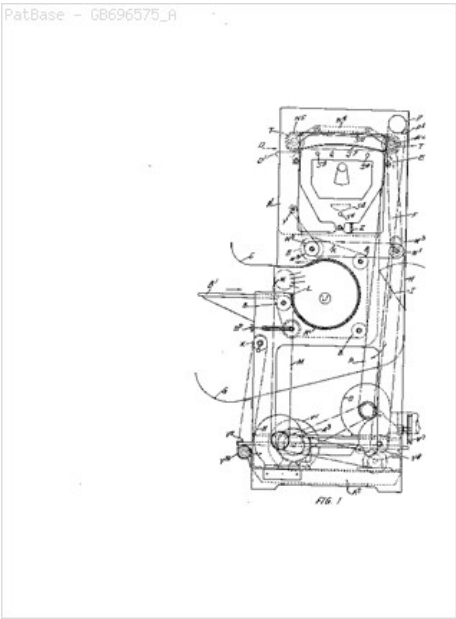
Assignee(s): (std): H H BUGGIE AND COMPANY

Assignee(s): H H BUGGIE AND CO

Title: Improvements in photographic contact printing machines

Abstract: Source: GB696575A 696,575. Photographic contact printing apparatus. MORSE, S. H. Jan. 8, 1951 [Nov. 28, 1949], No. 30452/49. Class 98 (ii). [Also in Group XXVIII] A photographic contact printer having a gapped cylinder as in Specification 483,607 around which drawings and c. are passed in contact with sensitized sheets and within which a **light** source is located is characterized in that the gap in the cylinder is directed towards one side of the printer so that the sheets to be exposed can be fed in and withdrawn from the same side of the printer. In the printer shown, **light**-sensitive and copy materials are fed in contact around a fixed translucent cylinder L having a gap therein turned to one side of the printer and enclosing a lamp J, by endless bands K entrained around rollers including a roller B driven by an **electric** motor. The exposed material is fed to a tray C and from there may be fed by hand to an ammonia developing section Q as described in Specification 667,376 through which it is fed by an endless band S<SP>10</SP> across a wire mesh. Liquid ammonia is fed to the developing section by a diaphragm **pump** (see Group XXVIII) and the ammonia vaporized by a heater S<SP>6</SP>. The developed sheets pass down a shoot F into a tray G, but may be fed out at the back of a printer by operation of a flap I. The endless hands K and S<SP>10</SP> are driven by mechanism as described in Specification 519,181.

Classifications:
International (IPC 8-9): G03B27/22 (Advanced/Invention)
International (IPC 1-7): G03B27/10
CPC: G03B27/22
European: G03B27/22



Family:

Publication number	Publication date	Application number	Application date
GB696575 A	19530902	GB19490030452	19491128

Priority:

GB19490030452 19491128

Probable Assignee: SYDNEY HAROLD MORSE

Assignee(s): (std): SYDNEY HAROLD MORSE

Title: METHOD AND APPARATUS FOR MAKING AIR PRESSURE CONTAINERS

Abstract: Source: GB758560A Artificial filaments, obtained by spinning a solution of protein to form a bundle of protein filaments and hardening the filaments by treating them with a hardening agent, are insolubilized by impregnating the bundle of hardened filaments with an aqueous solution of formaldehyde having a pH greater than 6, and heating the bundle to such a temperature and for such a period of time that the filaments do not dissolve within 90 minutes in an aqueous solution of 0.1 per cent sulphuric acid and 0.25 per cent sodium sulphate at 97 DEG C. Preferably, after the impregnation with the aqueous formaldehyde solution the filaments are stretched, e.g. 200 per cent, and are held in the stretched condition while undergoing drying at least long enough that they no longer tend to shrink, prior to heating them to insolubilize them. The drying of the filaments, whether or not in the stretched condition, may be done at 15-160 DEG C. and the insolubilization at 120-180 DEG C. The pH of the formaldehyde solution may be 6.5-11 and preferably 6.5-7.5 or 9.5-11 and its concentration may be 10-37 grams formaldehyde per 100 c.c. of solution. The pH of the formaldehyde solution may be adjusted between 6.5 and 7.5 by means of sodium borate, aluminate, stannate, tungstate or hydroxide, ammonium hydroxide, potassium chromate or pyridine, or between 9.5 and 11 by means of sodium stannate, aluminate or hydroxide. The hardening agent is preferably an aqueous solution of formaldehyde which may also contain a high concentration of sodium chloride or sulphate and have a pH of about 4.5. The hardened filaments may be treated while still wet or after having been dried. Preferably, if the filaments are to be stretched while wet, the formaldehyde hardening should be effected in 10-15 minutes at 50 DEG C. In an example, filaments produced by spinning a matured alkaline solution of peanut globulin in an aqueous acid saline coagulating bath and relaxed in a concentrated aqueous saline bath are hardened for 7 minutes at 50 DEG C. in a bath consisting of 20 per cent sodium sulphate, 2.5 sodium chloride and 1.5 formaldehyde at pH 5, mangled, washed in water and dried at 80 DEG C. The filaments are then impregnated with 10 per cent formaldehyde solution adjusted to pH 7.5 with sodium hydroxide, mangled, dried at 80 DEG C. and heat treated for 30 minutes at 160 DEG C. Specifications 513,910, 533,952, 596,536, 597,497, [all in Group IV], 605,830, 623,460, 642,359, 654,513 and 708,057 are referred to.

Classifications:

International (IPC 8-9): B21F17/00 B29C53/76 B29C53/80 B29C63/00 B29C63/24 B65H54/64 C08G63/83 C08G63/86 C08G63/87 D01F4/00 (Advanced/Invention); B21F17/00 B29C53/00 B29C63/00 B65H54/64 C08G63/00 D01F4/00 (Core/Invention)

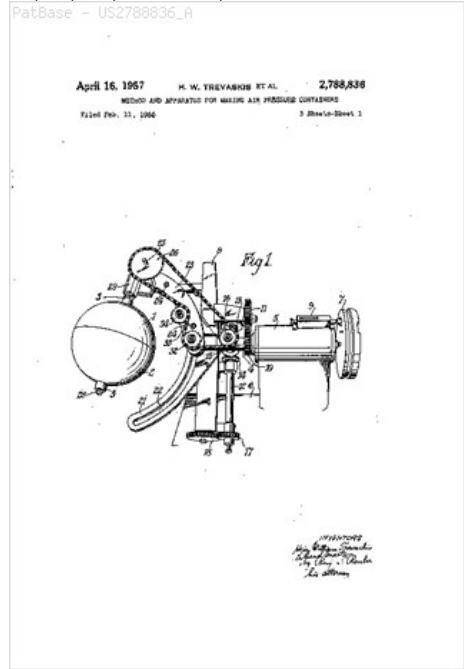
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CPC: C08G63/83 C08G63/86 C08G63/87 D01F4/00 B29C63/24 B29L2031/7734 Y10S273/07 B65H54/64 B21F17/00 B29C53/76 B29C53/8016 B29C63/00

European: B21F17/00 B29C53/76 B29C53/80B2 B29C63/00 B29C63/24 B65H54/64 C08G63/83 C08G63/86D C08G63/87 D01F4/00 L29L31/7734

US: 242/435 273/DIG.7

PatBase - US2788836_R



Family:

Publication number	Publication date	Application number	Application date
BE536016 A	00000000		00000000
BE537625 A	00000000		00000000
CH321510 A	19570515		00000000
CH332148 A	19580831		00000000
DE1078278 B	19600324	DE1955I009877	19550301
DE1149956 B	19630606	DE1955D019778	19550212
ES220314 A1	19550401	ES19550220314	19550224
FR1119597 A	19560621		00000000
FR1119598 A	19560621		00000000
FR1144154 A	19571010		00000000
GB758560 A	19561003	GB19540011770	19540423
GB770036 A	19570313	GB19540004288	19550209
GB770531 A	19570320	GB19540005700	19540226
NL102623 C	00000000		00000000
NL194759 A	00000000		00000000
US2788836 A	19570416	US19550487603	19550211

Priority:

GB19540005700 19540226 GB19540011770 19540423 US19550487603 19550211
GB19540004288 19550209

Probable Assignee: DUNLOP RUBBER CO

Assignee(s): (std): DUNLOP RUBBER CO ; ICI LTD

Assignee(s): IMPERIAL CHEMICAL INDUSTRIES LIMITED ; IMP CHEMICAL IND LTD ; DUNLOP RUBBER CO LTD ; DUNLOP RUBBER COMPANY LIMITED

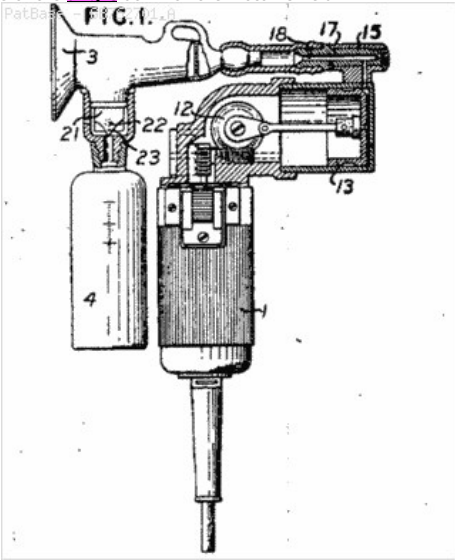
Inventor(s): (std): DAVIDSON WALTER LAMB ; ERHARD MARTIN ; FLETCHER NORMAN ; HENRY WILLIAM TREVASKIS ; MARTIN ERHARD ; MCGILLIVRAY ROY ; NORMAN FLETCHER ; TREVASKIS HENRY WILLIAM ; WILLIAM TREVASKIS HENRY

Title: IMPROVEMENTS IN OR RELATING TO BREAST **PUMPS**

Abstract: Source: GB762701A 762,701. Breast **pumps**. VEB ELEKTROGERATEWERK SUHL. May 31, 1954, No. 16051/54. Class 81(2) A breast **pump** has the motor, **pump**, suction cup and receiving **bottle** combined as a unitary arrangement so that it may be self-applied by the patient. The **electric** motor 1 drives a crank 12 and thus actuates a piston 13 to provide pressure pulsations in a duct 18 leading to the glass suction cup 3. A side tube 21 in the wall of the cup 3 supports the **bottle** 4 but communication between the two is limited by a one-way flap valve formed by a rubber sleeve 23 covering a lateral orifice 22. This valve allows milk to flow into the **bottle** but, by closing during the suction phase, it reduces the volume which has to be evacuated and thus permits the use of a small capacity **pump**. The bore 18 extends through a plug member 17 which is rotatable in a sleeve 15 so that the **bottle** can always hang vertically irrespective of the **angle** at which the motor is held.

Classifications:

International (IPC 8-9): A61M1/06 (Advanced/Invention);
A61M1/00 (Advanced/Non-invention);
A61M1/06 (Core/Invention);
A61M1/00 (Core/Non-invention)
International (IPC 1-7): A61M1/06
CPC: A61M1/06 A61M1/005 A61M1/0068
European: A61M1/06 K61M1/00H12C K61M1/00P2



Family:

Publication number	Publication date	Application number	Application date
GB762701 A	19561205	GB19540016051	19540531

Priority:

GB19540016051 19540531

Probable Assignee: SUHL ELEKTROGERAETE K VEB

Assignee(s): (std): SUHL ELEKTROGERAETE K VEB ; SUHL ELEKTROGERAETE VEB K

Assignee(s): VEB ELEKTROGERATEWERK SUHL ; ELEKTROGERATEWERK SUHL VEB

Inventor(s): (std): KUPFER ALFRED

Title: Improvements in drink dispensing machines

Abstract: Source: GB788511A 788,511. Coin-free apparatus. WESTERN MANUFACTURING (READING), Ltd. Nov. 28. 1955 [Nov. 29, 1954], No. 34565/54. Class 27 Cups stored mouth downwards in nested stacks in a rotatable magazine in a coinfree drink dispensing machine are released one by one as the magazine is stepped round, by means of a pair of tapered arcuate rails 69, 70 which engage between the rims of the lowermost and next above cups and the released cup falls to a funnel 82 where its rim engages an abutment 84 that forms a pivot round which the cup rotates through 180 degrees to an upright position before reaching a filling station. Drink dispensing. The machine is provided with three vessels 8 8¹ 8¹¹ holding different fruit cordials which are delivered by fixed-chamber metering devices 9, 9¹, 9¹¹ to separate outlet tubes 10 and with a refrigerated or heated water tank 14 from which water is delivered by a **pump** 13. A **bottle** for injecting carbon dioxide into the water under delivery or a separate reservoir for carbonated water may also be provided and in the latter case a restrictor and diaphragm valve are included in the pipe line from the reservoir, the **valve** being operated by the pressure of the carbonated water to shut off the still water when carbonated water is being delivered. The water **pump** and metering devices are operated by cam, crank or eccentric means 40, 46 on a shaft 35 driven by a motor 36 and the means 46 is slidable on the shaft under the control of a selector knob 54 so as to operate selectively one of the three metering devices. Float-controlled switches may be provided to prevent further operation of the machine and to illuminate warning lamps when either the water or one or all of the cordials is exhausted. Cup delivery. The magazine is carried on a pivoted bracket so that it can be tilted to an inclined position to facilitate loading and is indexed by a pawl 30 which engages pins 29 on a disc 28 on the magazine spindle and is pivoted on a member 31 reciprocated by a crank disc 34 or similar means on the shaft 35. A fixed base plate 66 below the magazine carries the separator rails. 69, 70 above a tapering depression 67 ending in a delivery hole 81. The radial distance between the opposed surfaces of the rails is slightly less than the diameter of the cup where it is engaged by the rails so that in being separated from the stack and depressed by the rails it is **lightly** gripped and prevented from riding up between the rails until, above the hole 81, the radial distance increases to release the cup. The released cup turns about the abutment 84 and falls in an upright position to a filling position 94, Fig. 8. where it is supported under its rim by a counterweighted lever 86. To ensure that the cup does not jam in the funnel 82, a **light** spring 85 vibrates it as it falls and a lug 142 can engage and tilt a cup that happens to fall in a horizontal position. In a funnel of modified shape, the spring 85 and lug 142 are omitted and an upstanding stop on the abutment 84 forms a pivot point for the cup. A sector plate 88 is pivoted at 115 below the funnel 82 and has walls 89, 91, 92, forming a compartment 90 normally accessible from the outside of the machine, and an arcuate web 95 which prevents access when the plate is swung in the direction of the arrow D to bring its left-hand part and the compartment 90 directly under the lever 86; the wall 89 may engage an abutment 139 on the lever 86 to support the lever during filling of the cup or the lever may be supported by a stop movable by cam means on the shaft 35. When the plate is moved back to its initial position, the lever 86 swings down to deposit the cup on the plate and the cup is then brought round to the delivery position. The movement of the plate is controlled by a grooved face cam 65 fitted on the shaft 35 and engaged by a follower roller 98 on a sliding block 104 which has a pin 108 engaged in a slotted crank member 110. The crank member is rotatable on the spindle 115 of the plate 88 and a spring is fitted between the crank member and a lug 117 on the spindle so that if movement of the plate in the direction of the arrow D is obstructed, for example, by the customer's fingers, the movement can continue to a limited extent by compression of the spring. To prevent damage in the event of a positive obstruction of the plate movement, the drive to the shaft 35 is through a slipping clutch 38. The walls 91, 92 may be mounted on the plate 88 by means of a pivot 140 geared to the spindle 115 or block 104 so that they swing in the opposite direction to the plate and sweep the compartment 90 clear of any obstructive objects such as a discarded cup. Coin action. An inserted coin falling down a duct 121 pivots a counterweighted lever 123 to close a mercury switch 127 in the circuit of the shaft motor 36 and the lever is held in this position by a pawl 128 engaging a trigger 135 on a second lever 130. Further fall of the coin in the duct is delayed by staggered vanes 137 which divert it from side to side of the duct but, after sufficient time to allow cam means on the shaft 35¹ of a gearbox 37 to close a second switch in parallel with the mercury switch, the coin strikes the lower end of the lever 130 and releases the trigger 135. After one revolution of the shaft 35, the cam means on the shaft 35 opens the second switch and stops the motor 36.

Classifications:

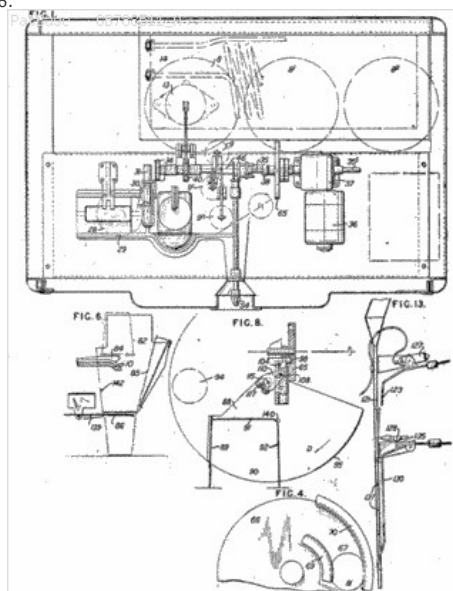
International (IPC 8-9): G07F13/10 (Advanced/Invention):

G07F13/10 (Core/Invention)

International (IPC 1-7): G07F13/02

CPC: G07F13/10

European: G07F13/10



Family:

Publication number	Publication date	Application number	Application date
GB788511 A	19580102	GB19540034565	19541129

Priority:

GB19540034565 19541129

Probable Assignee: WESTERN MEG READING LTD

Assignee(s): (std): WESTERN MFG READING LTD

Assignee(s): WESTERN MANUFACTURING READING LIMITED

Inventor(s): (std): BUSWELL ROBERT EDMUND

Title: Improved apparatus for testing the viscosity of a liquid

Abstract: Source: GB894749A 894,749. Viscometers. TECHNE (CAMBRIDGE) Ltd. May 10, 1960 [May 11, 1959], No. 16087/59. Class 106 (2). Apparatus for measuring the viscosity of a liquid comprises a piston or liquid column compelled to move so that it compresses and maintains at constant pressure gas acting on the surface of a liquid in a container, the liquid being forced through a restriction or capillary and its viscosity measured by the time taken for a given volume to pass therethrough. As shown, gas in tubes 7, 5 acts on liquid in a container 1 and forces it through a capillary tube 2. Consequential fall in the gas pressure allows mercury column 9 in manometer 8 to break contact with an oscillating contact 23 thus de-energizing a relay 18, releasing brake 17 and allowing shaft 42 to rotate and a piston 13 to drop further into a cylinder 10 until the lost volume of liquid is compensated for and the column 9 again contacts the contact 23. Thus the pressure of the gas is maintained at a constant value. The operation is started by closing mains switch 52 to energize a pump 11. A lever 27 is raised to open a solenoid operated valve 26 and to lift a platform 29 carrying a microswitch and time delay switch. The valve 26 is closed by lowering lever 27 and ensuing rotation of shaft 42 to lower piston 13 causes a quadrant 41 to engage switch 43 energizing a time recorder 44 and moves a lever 38 to release platform 29, thus actuating microswitch 33 and providing a pulse through printer 35 which may be connected to time recorder 44. A container which is immersed in the liquid and closed by a valve 45 operated by air pressure may replace the container 1.

Classifications:

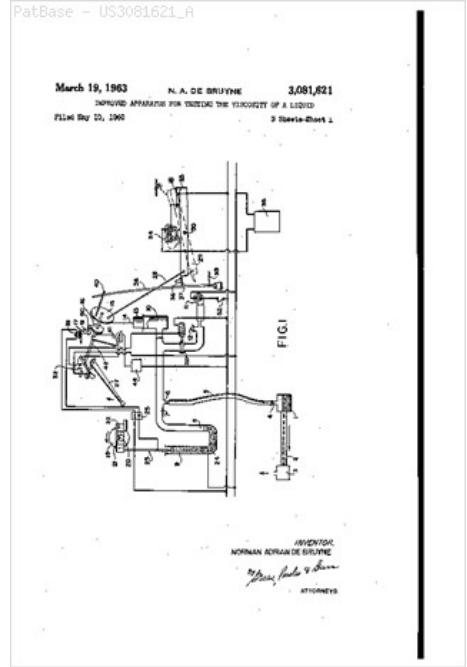
International (IPC 8-9): G01N11/06 (Advanced/Invention);
G01N11/00 (Core/Invention)

International (IPC 1-7): G01N11/06

CPC: G01N11/06

European: G01N11/06

US: 73/54.07



Family:

Publication number	Publication date	Application number	Application date
FR1256812 A	19610324	FR19600826815	19600511
GB894749 A	19620426	GB19590016087	19590511
US3081621 A	19630319	US19600028057	19600510

Priority:

GB19590016087 19590511 FR19600826815 19600511

Probable Assignee: TECHNE CAMBRIDGE LTD

Assignee(s): (std): TECHNE CAMBRIDGE LTD

Assignee(s): TECHNE CAMBRIDGE LIMITED

Inventor(s): (std): DE BRUYNE NORMAN ADRIAN ; BRUYNE NORMAN ADRIAN DE

Title: Improvements in or relating to grinding apparatus

Abstract: Source: GB875566A 875,566. Grinding tools. CATT, F. A., and CATT, J. A. April 3, 1959 [Jan. 3, 1958; June 24, 1958; Oct. 20, 1958], Nos. 340/58, 20274/58 and 33486/58. Class 60. Apparatus for grinding tools comprises a structure 115, Figs. 1 and 2, mounted for movement in a direction substantially parallel to the axis of a grinding wheel 112, a carrier 123 mounted on the structure to swing about an axis parallel to and spaced from such axis, and a tool table 125 pivoted on the carrier for movement about an axis at right **angles** to the axis of the grinding wheel; the carrier is extensible radially from its axis of swing to permit variation of the radius of the arcuate path of swing of the table, such path being movable to and from the grinding wheel by reason of the mounting of the structure. The grinding wheel is mounted on the shaft of a motor 111 on a base from which two pairs of spring blades 114 arranged in X-formation depend for the support of two double-cranked members 115. Radius arms 119 carried by a tube 118 rotatable in the members 115 support a tube 120 providing a pivotal bearing for a shaft 121 which at its outer end has a T-socket 122 receiving the shank 123a of the carrier 123. The upper yoke part 123b of the carrier provides a pivotal mounting for the table 125 and a tool rest 126 is pivoted on the upper face of the latter. The position of the carrier 123 is adjustable in the socket 122 and also by varying the position of the tube 120 by means either of a cable 131 or a linkage associated with a ratchet and detent. A bracket 138 projecting from the shaft 121 co-operates with stops 137 to limit the arc of swing of the carrier with the shaft. The inclination of the table 125 about its pivotal mounting is adjustable by a screw 129 and is indicated by a pointer 135 connected by a cable 134 with the table and movable over a scale 136. In the modification shown in Fig. 1 of the second Provisional Specification, the shaft 24 providing the pivotal axis of the carrier is mounted in a tube 22 carried directly by X-shaped springs 15. The shank 54 of the yoke-shaped carrier 56 is secured to a member 40 which is adjustable vertically by a lever 45 on a tubular member 34 arranged to be clamped in desired position in a T-socket 26 at the end of the shaft 24. The tool table 60 is pivoted by screws 57 in the yoke 56 and tiltable by a screw 61, the degree of tilt being indicated by a pointer 79 which is operated by either a cable 67, rack-and-pinion gearing with or without a cable, or an hydraulic drive. The table is fitted with a tool holder 104 and a pivoted tool rest 82 which can be set in desired position by adjustable stops on the periphery of the table. The tubular member 34 is provided with a cam follower 109 for cooperating with a cam track 110 in order to grind a desired profile on the tool; in this case, the grinding wheel has a narrow annular rib for tracing out the shape of the cam on the tool. An alternative form of grinding wheel consists of an aluminium back plate 98, Fig. 4 (second Provisional Specification), with three nested annular grinding discs 100, 101, 102, of which the intermediate disc has the coarsest grain; the discs 100, 101 are bonded to the plate 98 and the disc 102 only to the other discs. If desired, the X-shaped rings 15 may be omitted and the shaft is then merely mounted for rotation and axial movement in a fixed frame. A tool rest and holder suitable for grinding twist drills may be provided with means for engaging a flute of the drill in the required angular position, grinding being effected by swinging the carrier to bring the drill tip into contact with the inner cylindrical face of an annular grinding wheel. The apparatus shown in Fig. 1, may be utilized for sharpening boring tools so that correct clearance **angles** in accordance with the diameter to be bored are formed by the provision of a gauging device in the form of a bracket 139 rotatably mounting a snail cam 140 which is marked off around its periphery for different bore sizes. The cam having been set for the desired bore, a depth gauge is inserted between the top of the cam and a stop at the top of the bracket and then transferred to a position at the top 141 of the wheel guard; the complete carrier structure is then adjusted to bring the top face of the tool in the tool carrier into contact with the lower edge of the gauge. In order to clean the grinding wheel, its back plate is provided with scoops for raising paraffin from a bath to a baffle provided with a gutter for discharging the paraffin on to the inner face of the wheel; the paraffin is collected by a gutter surrounding the tool table, and **pumped** back to the bath. Alternatively, a felt pad fed by a wick from a **bottle** of paraffin can be brought into contact with the grinding wheel at intervals. The grinding wheel may be dressed by a diamond on the end of a lever which is pivoted to swing across the face of the grinding wheel. The first Provisional Specification describes also the grinding wheel as being formed of two nested portions of different grain sizes bonded on one side of a backing plate or of two wheels of different grain sizes which are either secured on opposite sides of a disc of soft material or moulded together.

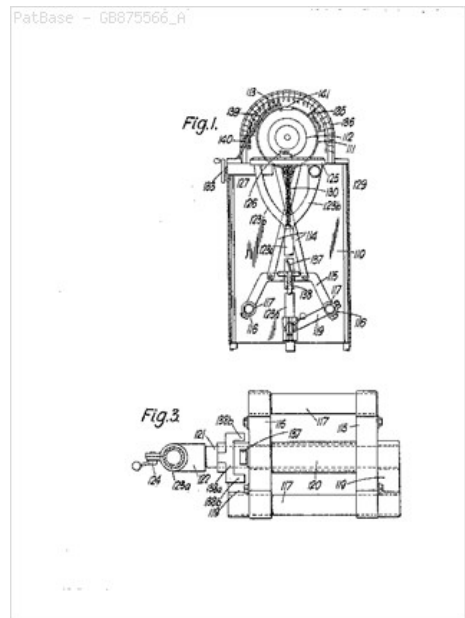
Classifications:

International (IPC 8-9): B24B3/34 (Advanced/Invention);
B24B3/00 (Core/Invention)

International (IPC 1-7): B24B3/34

CPC: B24B3/34

European: B24B3/34



Family:

Publication number	Publication date	Application number	Application date
GB875566 A	19610823	GB19580000340	19580103

Priority:

GB19580000340 19580103

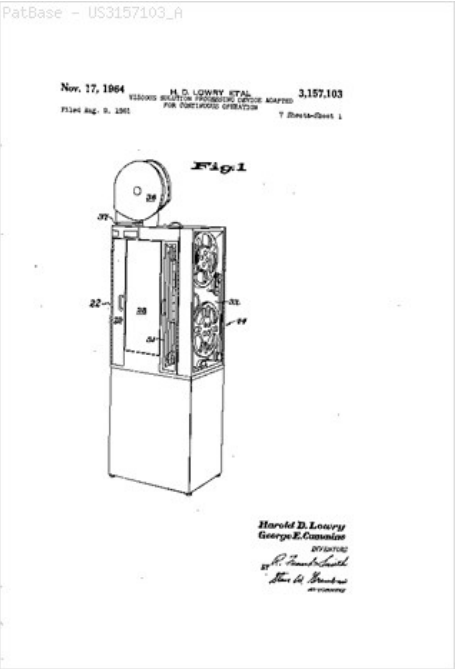
Probable Assignee: JOHN ARTHUR CATT

Assignee(s): (std): FRANCIS ARTHUR CATT ; JOHN ARTHUR CATT

Title: Viscous solution processing device adapted for continuous operation

Abstract: Source: GB1019742A 1,019,742. Photographic processing apparatus. EASTMAN KODAK CO. Aug. 8, 1962 [Aug. 9, 1961], No. 30437/62. Heading G2A. In the form of processing apparatus shown, the exposed film 15 is fed from a magazine into a feed chamber 23, from which it passes through a tube 46 into a processing chamber 24. Here it passes round a lower roller 51 and an upper adjustable roller 52 so as to form a loop of variable size. As the film passes round roller 51, developer in the form of a viscous solution is extruded from a hopper 16 to coat the film as it moves past. The film now passes a high-velocity water spray nozzle 54 which removes the developer coating, and then through an air squeegee 50 which removes surface moisture. The film is then guided by an idler roller to pass over another "coating" roller coaxial with the "coating" roller 51, where it is now coated with a viscous fixing solution extruded from a hopper 17 operating in a similar manner to hopper 16. After being looped up and down the chamber 24 over idler rollers, to provide a suitable fixing period, the film is led round idler roller 64 past another high-velocity water spray nozzle 65 to remove the fixer coating, and into a washing chamber 25. Here the film is led past three nozzles 95 through which hot water is sprayed under pressure against the film. The processing chamber 24 and washing chamber 25 are separated by a plate 84 adjustably supported in a bracket 83, which do not extend as far as the top or bottom of the housing, so that chambers 24 and 25 are in communication both above and below the separating partition. The action of the hot water, which is at about 125°F, maintains the atmosphere saturated with water vapour at this temperature, and circulation between the two chambers ensures that the atmosphere in the processing chamber is maintained at a constant wet bulb temperature. The film passes out of the upper end of washing chamber 25, is guided round a roller 99 and through another air squeegee, into a drying chamber 26. Here it is led up and down the chamber several times past a slotted plenum 109 which discharges hot air under pressure against the film, after which it is led into a wind-up chamber 27. Here it is coated with a wax lubricant, and finally wound on to a take-up spool. Fig. 12 shows diagrammatically the various supply systems. The hot water for the spray nozzles 95 (and the clean-up nozzles 169) comes from an external supply source as shown, and then, after use, collects in a sump 138. The developer solution is provided in a container 33, from which a conduit leads it to a reservoir **bottle** 158. The conduit ends above the liquid level in the **bottle**, and another conduit 159, extending to below the liquid level, is connected to a metering **pump** 18. The output side of the **pump** has a conduit 161, which passes the viscous developer solution first through a coil 162 immersed in the hot water in sump 138 before delivering it to the extrusion hopper 16. In a similar manner **pump** 19 meters the fixing solution from container 33¹ through a reservoir **bottle** 158¹ to the extrusion hopper 17, though without passing it through a warming coil. The containers 33, 33¹ are of polythene, and collapsible, and can be changed without interrupting the processing operation. The spacing between the hoppers 16, 17 and the film 15, and their inclination thereto, can be varied by adjusting means. The water from the sump can be led, via a conduit 142 and circulating **pump** 143, and further conduits 148, 149, to the extrusion hoppers 16, 17, a shut-off valve 151 being provided in this circuit, and normally being closed while the device is in operation. When the processing operation is to be terminated, the **pumps** 18, 19 are switched off, and the valve 151 opened, allowing hot water from the sump to be **pumped** through the hoppers 16, 17. This clears out the viscous solution remaining in them, which would otherwise harden and tend to clog them up during the shut-down period.

Classifications:
International (IPC 8-9): F21S8/00 F21V17/10 F21V17/16 F21V23/06 G03D15/02 G03D5/00 G03D5/04 (Advanced/Invention); F21S8/00 F21V17/00 F21V23/00 G03D15/02 G03D5/00 (Core/Invention)
International (IPC 1-7): F21S1/02 G03D13/00 G03D5/04 G03D5/06
CPC: F21V3/00 F21Y2113/00 F21S8/033 F21V17/107 F21V17/164 F21V23/06 G03D5/006 G03D5/04 G03D15/022 Y10T292/088
European: F21S8/03G F21V17/10F F21V17/16B F21V23/06 G03D15/02F G03D5/00C G03D5/04
US: 114/74T 118/401 134/64R 292/76 362/235 362/311 362/311.06 396/571 396/606 396/627



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Probable Assignee: WALLACE D RUNSWICK
Assignee(s): (std): EASTMAN KODAK CO ; WALLACE D RUNSWICK
Assignee(s): EASTMAN KODAK COMPANY
Inventor(s): (std): CUMMINS GEORGE U ; DEANE EDWARD H ; HARTSHORN DEANE EDWARD ; JAMES WILSON ROBERT ; JONES PRESTON A ; LOWRY HAROLD D ; CUMMINS GEORGE E ; WILSON ROBERT J
Inventor(s): Cummins George Eugene ; Lowry Harold Doidge ; George E Cummins ; Harold D Lowry