

Señor

SUPERINTENDENTE DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES

SUPERINDUSTRIA Y COMERCIO

Radicacion : 00050590 00000001

Folios: 33

Fecha (AMD): 2000-09-27 16:29:43

Tramite : 002 PATENTES D 1 REGISTRO/ 329 COMPLEMEN

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

E. _____ S

Re: P1.-SOCIETE DES PRODUITS NESTLE S.A. .- Solicitud de
Patente de Invención para "PLACA TROQUELADORA Y
ENSAMBLAJE DE CORTADORA CON UN MOTOR
HIDRAULICO".- Clase B29C .-Expediente número 00-050.590 .-

1. Me refiero a mi solicitud arriba mencionada de 6 de Julio de 2000.
2. Anexos me permito presentar a usted:
 - (1) Copia autentica, debidamente certificada de la solicitud de patente presentada para el invento arriba nombrado **respecto de la cual reclamo prioridad**, a saber la solicitud estadinense número 60/142.827 de 8 de Julio de 1999, junto con su traducción correspondiente a las legalizaciones y reivindicaciones de dicho documento; y
 - (2) Copia debidamente autenticada por el Notario Sexto del Circulo de Bogotá, de los documentos que acreditan la calidad de Traductor Oficial del señor Eduardo Calado Noguera quien elaboró la traducción de la legalizaciones de la solicitud estadinense número 60/142.827 de 8 de Julio de 1999.
3. Ruego a usted tomar atenta nota de lo anterior y proceder de conformidad.

Señor Superintendente,

JOSE ANTONIO LLOREDA

T.P. 10.784

Código 231

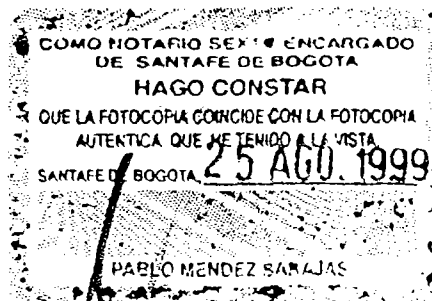
EL SUSCRITO JEFE DEL AREA DE
LEGALIZACIONES DEL MINISTERIO DE
RELACIONES EXTERIORES

CERTIFICA

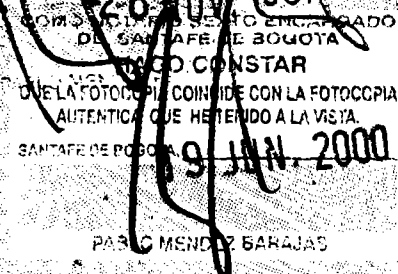
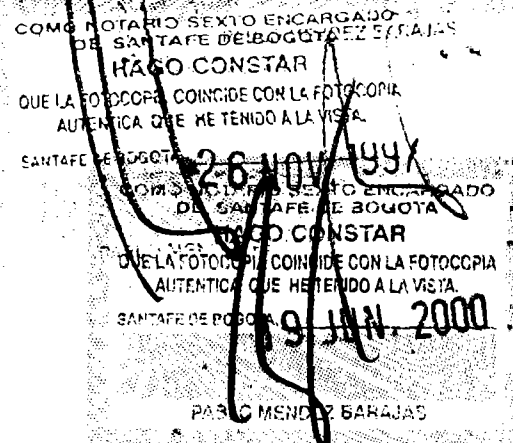
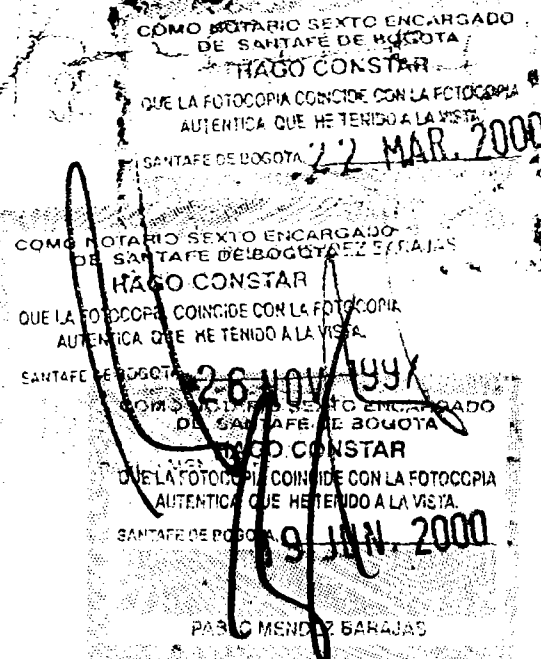
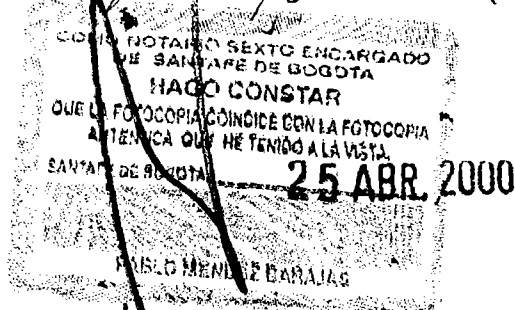
Que revisados los registros que se llevan en la oficina de Legalizaciones aparece la firma del señor **EDUARDO CALADO NOGUERA**, como traductor e intérprete oficial para los Idiomas INGLES- ESPAÑOL, ESPAÑOL- INGLES, según resolución 541 del 27 de febrero de 1976.

La anterior certificación se expide a solicitud del interesado quien se identificó con cédula de ciudadanía 17.177.588 expedida en Bogotá.

Dada en Santa Fe de Bogotá, D.C., a los seis (6) de noviembre de 1997.



Blanca Acosta
BLANCA ACOSTA DE GARCIA
Jefe Area de Legalizaciones (e)



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República de Colombia



Ministerio de Justicia y del Derecho

EL SECRETARIO GENERAL (E) DEL MINISTERIO DE
JUSTICIA Y DEL DERECHO

CERTIFICA:

Que por Resolución 541 del 27 de febrero de 1976, le fue expedida licencia para ejercer funciones de Traductor e Intérprete Oficial en los idiomas INGLÉS y ESPAÑOL al señor EDUARDO CALADO NOGUERA, identificado con la cédula de ciudadanía No. 17.177.588 expedida en Bogotá.

Que dicha Resolución se encuentra vigente en la fecha.

Se expide la presente certificación a solicitud del interesado.

Dada en Santa Fe de Bogotá, D.C., a

14 OCT. 1997

[Firma manuscrita]

ALVARO NAMEN VARGAS

ICM/mmc

COMO NOTARIO SEXTO ENCARGADO
DE SANTA FE DE BOGOTA
HAGO CONSTAR
QUE LA FOTOCOPIA COINCIDE CON LA FOTOCOPIA
AUTENTICA QUE HE TENIDO A LA VISTA.
SANTA FE DE BOGOTA 25 AGO 1999

PABLO MENDEZ BARRAL

COMO NOTARIO SEXTO ENCARGADO
DE SANTA FE DE BOGOTA
HAGO CONSTAR
QUE LA FOTOCOPIA COINCIDE CON LA FOTOCOPIA
AUTENTICA QUE HE TENIDO A LA VISTA.
SANTA FE DE BOGOTA 26 NOV 1997

COMO NOTARIO SEXTO ENCARGADO
DE SANTA FE DE BOGOTA
HAGO CONSTAR
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SANTA FE DE BOGOTA 25 ABR 2000

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SANTA FE DE BOGOTA 24 NOV 1997

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DE SANTA FE DE BOGOTA
HAGO CONSTAR
QUE LA FOTOCOPIA COINCIDE CON LA FOTOCOPIA
AUTENTICA QUE HE TENIDO A LA VISTA.
SANTA FE DE BOGOTA 19 JUN 2000

Julio 07, 2000
Traducción Oficial No.0286
REF:SOCIETE DES PRODUITS NESTLE
Patente No.60/142,827

Société 00.050.590
(Nestec S.A.)
Caso -6506 / Co.

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS
OFICINA DE MARCAS Y PATENTES

Mayo 25,2000

Por medio del presente documento se certifica que adjunta se encuentra una fiel copia de los registros de la Oficina de Marcas y Patentes de los Estados Unidos, correspondientes a los documentos para la solicitud tal como se presentaron, con el fin de asignarle una fecha de registro bajo la norma del código 35 USC 111.

Número de Solicitud:60/142,827

Fecha de Registro:Julio 08,1999

Autorizado por:

COMISIONADO DE MARCAS Y PATENTES

Firma: T LAWRENCE

Funcionario Encargado de Certificaciones

Hay sello de la Oficina de Marcas y Patentes realizado de color dorado.

Edwanda Calado

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HOJA DE SOLICITUD PROVISIONAL

Esta es una petición para registrar una SOLICITUD PROVISIONAL bajo el código 37

CFR 1.53(b) (2)

Número de Caso:P-99,1419

INVENTORES / SOLICITANTES

Apellidos:FANSWORTH

Nombre :JOHN

Segundo Nombre:T

Domicilio (ciudad y Estado o país extranjero):Saint Joseph, Missouri

Apellidos:BOATMAN

Nombre : JACK

Segundo Nombre:K.

Domicilio (ciudad y Estado o país extranjero): Saint Joseph, Missouri

TITULO DE LA INVENCION (Máximo 200 caracteres)

PLANCHA DE MOLDEAR POR EXTRUSIÓN Y ENSAMBLAJE DE
CORTADORA CON MOTOR HIDRÁULICO

DIRECCION PARA LA CORRESPONDENCIA

HILL & SIMPSON

233 South Wacker Drive, 85th Floor Sears Tower

Chicago

Edmund Calabrese
TO: DIRECTOR OF
PATENT & TRADEMARK
OFFICE
WASHINGTON, D.C.
20503
DATE: 10/1/99
FILED: 10/1/99

Estado, Illinois Codigo Postal-60606 Pais, Estados Unidos

1. PARTES DE LA SOLICITUD INCLUIDAS (Verificar de que todas apliquen)

- | | |
|---|--|
| ☒ ESPECIFICACIONES | ☐ [10] Número de Páginas |
| ☒ GRAFICA (S) | ☐ [4] Número de Páginas |
| ☐ DECLARACION DE PEQUEÑA EMPRESA | ☐ [] Número de Páginas |
| ☐ Otros (especificar) | ☐ [] Número de Páginas |

FORMA DE PAGO DE HONORARIOS DE SOLICITUD PROVISIONAL

- ☒ Se adjunta cheque para el pago Provisional de honorarios de registro.
- ☒ Por medio de la presente el Asistente Comisionado autoriza el cobro de los honorarios de registro al Número de Cuenta Corriente: 08-2290

SUMA DE HONORARIOS PROVISIONALES DE REGISTRO: \$150.00

La invencion fué realizada por una agencia del Gobierno de los Estados Unidos o bajo contrato con una agencia del Gobierno de los Estados Unidos.

- ☒ No
- ☐ Si, el nombre de la agencia del Gobierno de los Estados Unidos y el número de contrato son:

Atentamente,

FIRMA: ROBERT M BARRETT

Edw. Paludo

AS
42

Fecha: 7/8/99

No de Registro: 30,142

[] se adjuntan hojas con los nombres de inventores adicionales

SOLICITUD PROVISIONAL SOLO PARA REGISTRO PATENTE

Declaración sobre obligación: El trámite de este formulario toma dos horas. El tiempo puede variar de acuerdo a cada caso específico. Cualquier comentario adicional sobre el tiempo necesario para la tramitación, debe enviarse a la Oficina de División de Realce y Calidad, de la Oficina de Marcas y Patentes, Washington, D.C. 20231, y a la Oficina de Asuntos de Información y Regulatorios, Oficina de Administración y Presupuesto (Proyecto 0651-0037), Washington, D.C. 20503. NO ADJUNTAR HONORARIOS O FORMULARIOS COMPLETOS A ESTA DIRECCIÓN. ENVIAR A: Comisionado Asistente para Patentes, Washington, DC., 20231.

Eduardo Calado

REIVINDICACIONES:

1. Aparato de la plancha para moldear por extrusión, la cual tiene las siguientes partes:

el primer acople significa lo siguiente: que para acoplar la plancha del molde por extrusión en la primera cara del mismo, hacia un molde que define la longitud del eje,

el segundo acople significa lo siguiente: que para acoplar la plancha del molde por extrusión en la segunda cara del mismo, hacia una cortadora ubicada en dicho eje longitudinal,

aperturas a través de la cual la extrusión se recibe del molde y es sometida a extrusión para corte de medidas predeterminadas por dicha cortadora,

un pasaje de entrada del fluido que recibe el fluido en el molde para despacharlo a dicha cortadora, y

Eduardo Calado

un pasaje de salida de fluido que recibe el fluido de dicha cortadora, para despacharlo de la plancha de molde, el aparato cortador tiene un motor que funciona a base de fluidos, para la rotación del cortador transversalmente hacia dicho eje longitudinal, en un curso de movimiento para la extrusión con el fin de separarlo el molde.

2. La plancha del molde de acuerdo a la Reivindicación 1, la cual tiene un borde periférico adjunto a las mencionadas primera y segunda cara, dicha primera y segunda cara del acople, tiene un significado el cual consta de una pluralidad de aperturas en ascenso, con el objetivo de recibir los respectivos sujetadores a través de la plancha del molde, cada uno de los pasajes de entrada de fluido tienen una parte radial que se extiende radialmente a través de dicho borde periférico, hacia el área central de la plancha del molde donde cada uno de los pasajes finaliza en una respectiva parte longitudinal que se extiende a través de dicha segunda cara de la plancha del molde.

3. Una plancha de molde y un aparato cortador, la plancha del molde tiene un primer medio de acoplamiento para el acople de la plancha del molde por extrusión hacia la primera cara del mismo, el cual define la longitud del eje,

Edmundo C. Cordero

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el segundo acople es para el acoplamiento de la plancha del molde en la segunda cara de la misma, hacia un cortador ubicado en dicho eje longitudinal,

aperturas a través de la cual la expulsión del molde se recibe de la extrusión y pasa hacia un cortador para determinar las medidas,

un pasaje de entrada de fluido el cual recibe el fluido en la plancha para moldear y despachar hacia la cortadora,

un pasaje de salida de fluido para recibir el fluido de dicho cortador y evacuarlo de la plancha de moldear,

El montaje cortador tiene un motor hidráulico en la segunda cara de la plancha del molde, adecuado para recibir el fluido hidráulico de dicho pasaje de salida de fluidos y para evacuar el fluido hidráulico hacia el pasaje de salida de fluido, y

un cortador rotatorio el cual esta diseñado para una rotación transversal, hacia el mencionado eje longitudinal mediante dicho

Eduardo

motor hidráulico, hacia un curso de movimiento por extrusión para la evacuación del molde.

4. Montaje de acuerdo a la Reivindicación 3, en el cual dicha cortadora rotatoria tiene incluido un espacio para el acople de la rotación de dicho motor hidráulico, encontrándose el motor ubicado en dicho espacio, teniendo el espacio un montaje de cuchillas para apoyar una de las cuchillas que se extienden radialmente y con una separación predeterminada de dicha segunda cara de la plancha de moldear y encontrándose este adaptado para la evacuación del molde.

5. Una plancha de moldear y ensamblaje de cortadora, la plancha de moldear tiene un primer medio de acoplamiento, para un acople con la plancha de moldear en la primera cara de la misma, hacia un molde, el cual define la longitud del eje,

el segundo acople es para el acoplamiento de la plancha de moldear la segunda cara de la misma hacia una cortadora ubicada en dicho eje longitudinal,

aperturas a través de la cual la plancha de moldear se recibe por extrusión y pasa hacia una cortadora que predetermina las medidas,

Edmundo Calvo

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un pasaje de entrada de fluido para recibir el fluido en la plancha de moldear hacia dicha cortadora,

un pasaje de salida de fluido para recibir el fluido de dicha cortadora para evacuar de la plancha de moldear,

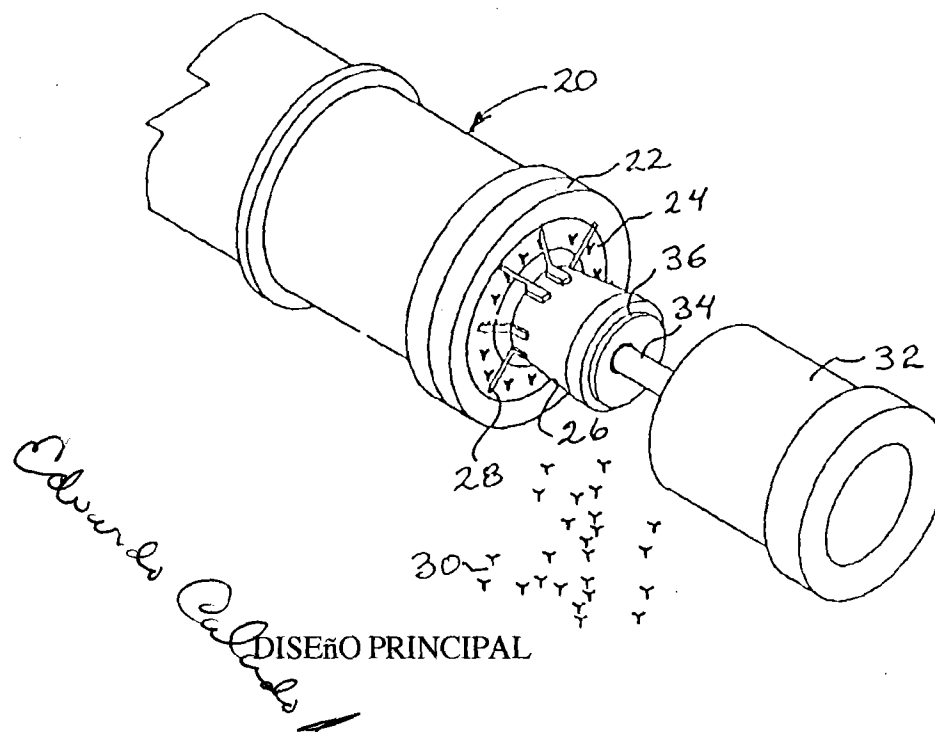
El montaje de la cortadora tiene un motor hidráulico acoplado a dicha segunda cara de la plancha de moldear y está adaptado para recibir el fluido hidráulico de dicho pasaje de entrada de fluidos y para evacuar el fluido hidráulico hacia el pasaje de salida de fluido,

un espacio acoplado para la rotación de dicho motor hidráulico, encontrándose el motor dentro de dicho espacio, y

por lo menos una de las cuchilla que se extiende radialmente ensamblada en dicho espacio con una separación predeterminada de dicha segunda cara de la plancha de moldear, y por lo menos una de las cuchillas se encuentra lista para una rotación transversal, hacia el eje longitudinal, mediante el funcionamiento del motor hidráulico, hacia un movimiento por extrusión separarlo del molde.

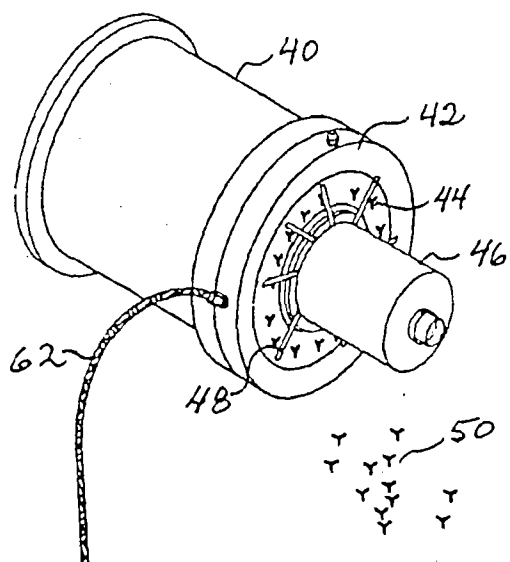
Eduardo C. Jarama

GRAFICA 1

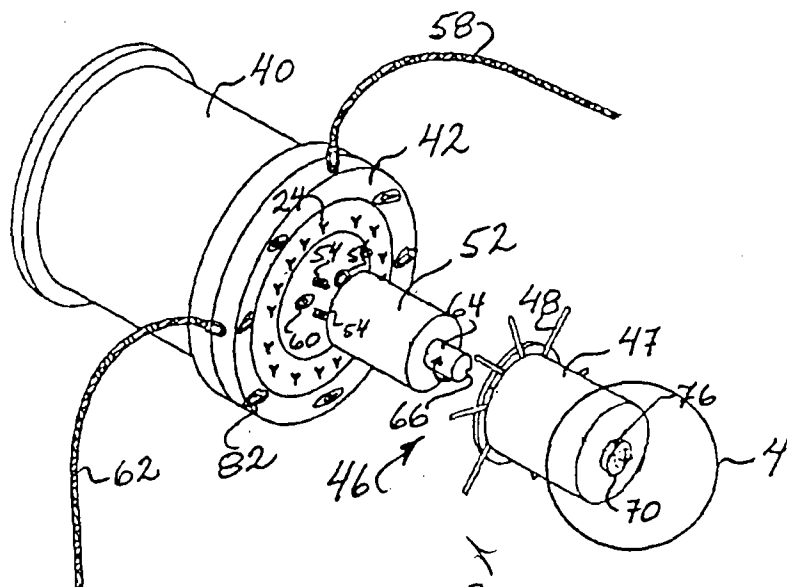


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GRAFICA 2



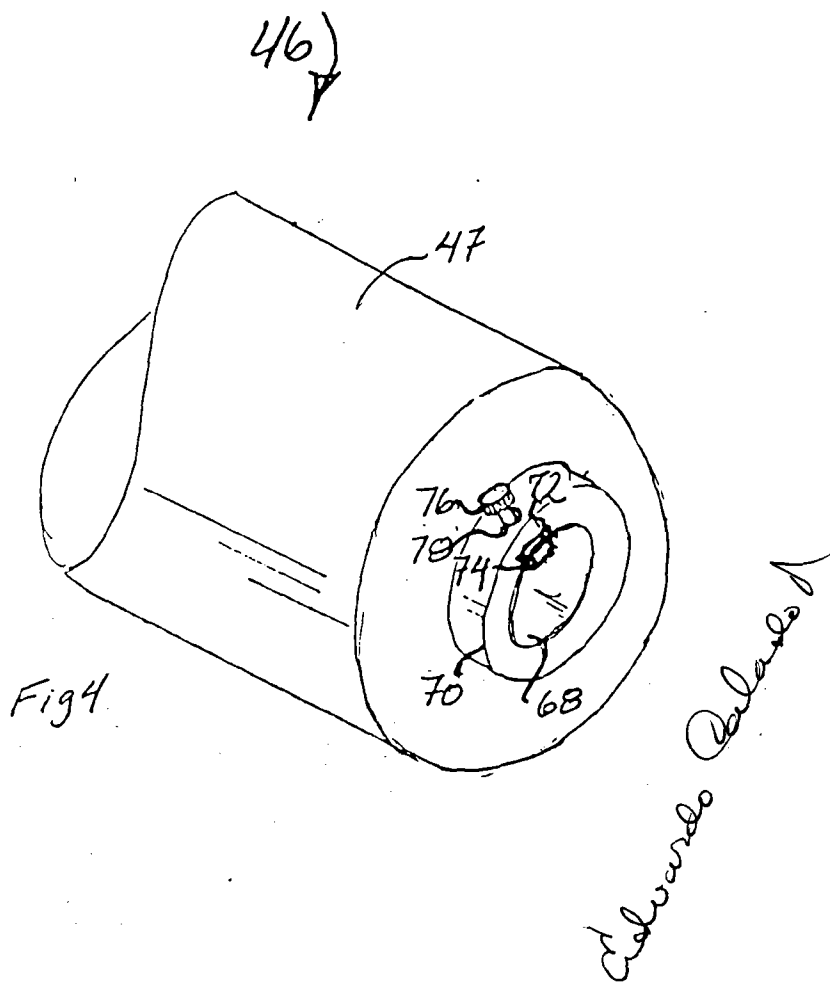
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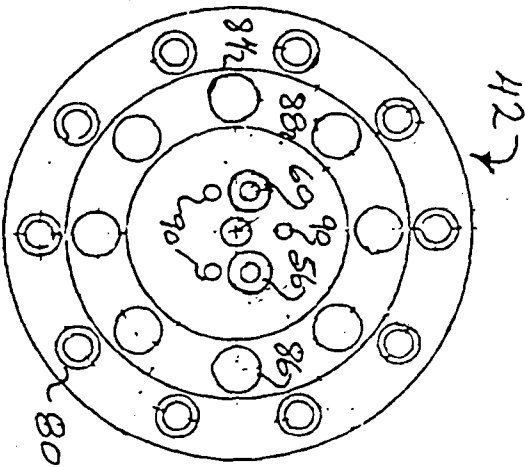


Edw. Calvetti

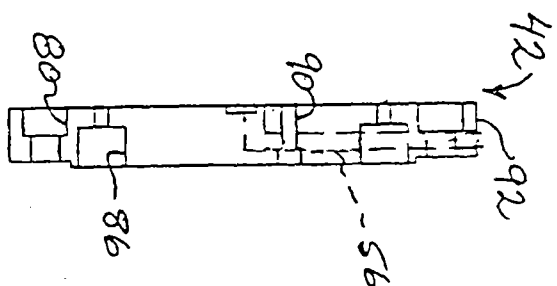
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GRAFICA 4

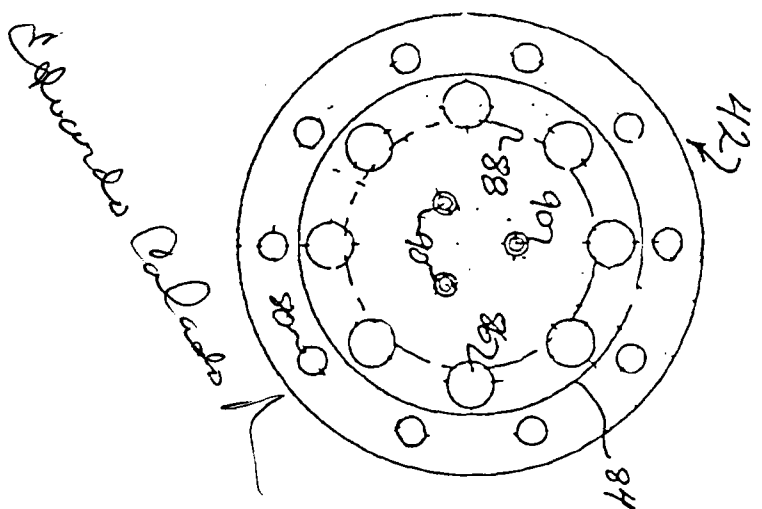




GRAFICA 5

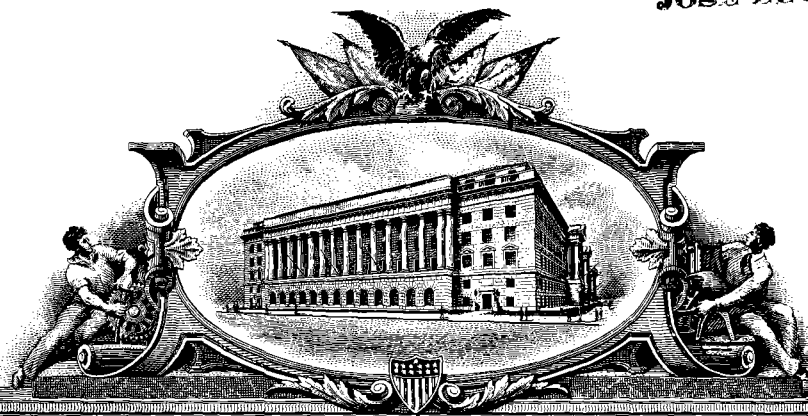


GRAFICA 6



GRAFICA 7

PA 253909



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

May 25, 2000

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 60/142,827

FILING DATE: July 08, 1999



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

T. Lawrence

**T. LAWRENCE
Certifying Officer**

A / PROV

PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53 (b)(2).

Docket Number		P99,1419		Type a plus sign (+) inside this box →		+	
INVENTOR(s)/APPLICANT(s)							
LAST NAME		FIRST NAME		MIDDLE INITIAL		RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)	
Farnsworth		John		T.		St. Joseph, Missouri	
Boatman		Jack		K.		St. Joseph, Missouri	
TITLE OF THE INVENTION (280 characters max)							
EXTRUSION DIE PLATE AND CUTTER ASSEMBLY WITH HYDRAULIC MOTOR							
CORRESPONDENCE ADDRESS							
HILL & SIMPSON 233 South Wacker Drive, 85th Floor Sears Tower Chicago							
STATE		Illinois		ZIP CODE		60606	
				COUNTRY		USA	
ENCLOSED APPLICATION PARTS (check all that apply)							
☒ Specification		Number of Pages		10		☐ Small Entity Statement	
☒ Drawing(s)		Number of Sheets		4		☐ Other (specify) _____	
METHOD OF PAYMENT (check one)							
☒ A check or money order is enclosed to cover the Provisional filing fees						PROVISIONAL FILING FEE AMOUNT (\$)	
☒ The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: 08-2290						\$150.00	

This invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are _____

Respectfully submitted,

SIGNATURE

Date

7-8-99

TYPED or PRINTED NAME ROBERT M. BARRETT

REGISTRATION NO. (if appropriate) 30,142

☐ Additional inventors are being named on separately numbered sheets attached here to

PROVISIONAL APPLICATION FILING ONLY

Burden Hour Statement: This form is estimated to take .2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Office of Assistance Quality and Enhancement Division, Patent and Trademark Office, Washington, DC 20231, and to the Office of Information and Regulatory Affairs, Office of Management and Budget (Project 0651-0037), Washington, DC 20503. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

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EXTRUSION DIE PLATE AND CUTTER ASSEMBLY WITH HYDRAULIC MOTOR

FIELD OF THE INVENTION

5 This invention relates to extrusion apparatus which includes a die plate through which extrudate is received and shaped, the extrudate being severed into discrete pieces as it emerges from the die plate by a cutter assembly having a blade that is rotated into the path of movement of the extrudate.

10 BACKGROUND OF THE INVENTION

15 The cutter assembly for cutting extrudate has, in the past, been associated with an electrically-driven motor. The cutter assembly will rotate about a fixed shaft mounted to the extruder and the coupling to a motor for rotation may be via a spool attached to a belt driven by the motor, as in US 5,641,529, or via a universal drive connection that is itself coupled to another drive. Such assemblies are cumbersome because of the space occupied by the electric motor, the associated coupling means, and the framework necessary to support the motor unit.

20 An object of this invention is to provide means for rotating a cutter blade that may be integrated into the cutter assembly to thereby save space and facilitate maintenance of the extrusion apparatus.

SUMMARY OF THE INVENTION

25 In accordance with this invention, a die plate for an extruder is modified to be coupled directly to a fluid-driven motor on one side and to an extruder on the other side. Suitable fluid inlet and outlet passages are formed in the die plate to

supply the motor with fluid and withdraw fluid. The cutter assembly includes a housing which receives the motor within and is coupled for rotation to an output shaft from the motor.

5 BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention is described below with reference to the accompanying drawings, in which:

Fig. 1 is a schematic perspective view showing an extruder coupled to an electrically-driven motor;

Fig. 2 is a similar view to Fig. 1 showing an extruder coupled to a hydraulic motor in accordance with the invention;

Fig. 3 is an exploded perspective view showing a housing for the cutter assembly of Fig. 2 spaced from the hydraulic motor;

Fig. 4 is an enlarged view of circled area 4 in Fig. 3;

Fig. 5 is a front plan view of a die plate comprising the invention;

Fig. 6 is a side elevation view of the die plate of Fig. 5; and

Fig. 7 is a back plan view of the die plate of Fig. 5.

DESCRIPTION OF PREFERRED EMBODIMENT

An extruder generally indicated by reference numeral 20 in Fig. 1 comprises a longitudinally-extending housing which is coupled at one end to a die plate 22. The die plate 22 has a plurality of die openings 24 through which extrudate is received during operation of the extruder 20. A cutter assembly 26 is rotatably mounted to a shaft (not shown) and includes a plurality of radially-extending blades

28 which, when rotated, sever the extrudate into discrete pieces 30. An electrically-driven motor 32 with axially-extending driveshaft 34 is coupled to the cutter assembly 26 via a universal drive connection 36 mounted to one end of the cutter assembly 26 remote from the extruder 20. It will be understood that the motor 32 must be supported, for example, with an associated framework, in order to operate the cutter assembly without becoming unbalanced.

In accordance with the invention, the installation and operation of the extrusion apparatus is simplified considerably by integrating a hydraulically-driven motor into the cutter assembly. In Fig. 2 of the drawings, there is shown a conventional extruder 40 which includes a longitudinally-extending housing and is coupled at one end to a die plate 42 made in accordance with the invention. The die plate 42 has a plurality of die openings 44 for receiving extrudate from the extruder 40, in accordance with normal practice. A cutter assembly 46 is associated with the die plate 42 and includes a plurality of radially-extending blades 48 for cutting the extrudate into discrete pieces 50.

As can be seen more clearly from Fig 3, the cutter assembly 46 includes a cylindrical housing 47 which houses a hydraulically-driven motor 52. The motor 52 is centrally mounted to the die plate 42 with mounting bolts 54 (only one of which is shown in Fig. 3). Alternatively, the motor 52 could be located eccentrically with respect to the die plate 42. A hydraulic fluid inlet passage 56 in fluid communication with a hydraulic fluid supply hose 58 is formed in the die plate 42 and is in fluid communication with the hydraulic motor 52. A hydraulic outlet passage 60 is also formed in the die plate 42 and is in fluid communication with a hydraulic fluid outlet hose 62 so as to withdraw hydraulic fluid from the hydraulic

motor 52.

The hydraulic motor 52 has an output shaft 64 which extends longitudinally from the extruder 40 and has a longitudinally-extending key way 66. The output shaft 64 is received through an opening 68 formed in a boss 70 which extends longitudinally from the housing 47 for the cutter assembly 46 at one end opposite from the extruder 40. A second key way 72 is formed in the opening 68 and slidably receives a key 74. The key 74 is located between key ways 66, 72 and set screw 76 received through an aperture 78 formed in the boss 70 bears upon the key 74 to prevent longitudinal displacement of the key. This arrangement secures the cutter assembly 46 to the output shaft 64 of the hydraulic motor 52 so that, upon actuation of the motor, the blades 48 will rotate to sever the extrudate. It will be understood that there is a pre-determined separation between the cutter blades 48 and the outer surface of the die plate 42.

The die plate 42 is shown in more detail in Figs. 4 through 6. As will be common in the art, the die plate 42 has coupling means for coupling the die plate on an inner side thereof to the extruder 40 and these comprise a series of counter-sunk openings 80 equally spaced around the periphery of the die plate 42 through which mounting bolts 82 (Fig. 3) are received and threaded into cooperating threaded apertures (not shown) provided on the extruder 40.

The die plate 42 includes an inner ring 84 which has a series of equally-spaced openings 86 which define respective die nozzles through which extrudate is received and extruded. In a central area 88 of the die plate 42, three counter-sunk openings 90 are formed to receive the mounting bolts 54 that secure the die plate 42 to the hydraulic motor 52 (Fig. 3). It will be noted that counter-sunk openings 80 and 90

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are oppositely directed in order to allow the die plate to be coupled to the extruder 40 and to the hydraulic motor 52 on respective sides thereof.

Both the hydraulic inlet passage 56 and hydraulic outlet passage 60 (only one of which is shown in ghost outline in the side elevation view of Fig. 5) comprise a radial portion which extends radially from a peripheral edge 92 for the die plate 42 towards the central area 88 where the passages terminate in respective longitudinally-extending portions that terminate on the front side of the die plate 42 so as to communicate with respective passages provided in the hydraulic motor 52. Respective O-ring seals 94, 96 are seated in the openings defining the hydraulic inlet passage and outlet passage 56, 60.

By integrating the hydraulic motor into the cutter assembly, the extruder installation is considerably simplified with attendant advantages in minimizing space required for installation and ease of maintenance.

It will be appreciated that several variations may be made to the above-described preferred embodiment of the invention within the scope of the appended claims. In particular, it will be noted that, while a hydraulic motor has been described, any fluid-driven motor may be accommodated into the above-described arrangement and could, for example, comprise a pneumatically-driven motor. It will also be appreciated that the key way coupling of the output shaft from the hydraulic motor to the cutter assembly may be modified, as required, as will be appreciated by anyone skilled in this art.

Finally, it will also be immediately apparent that the manner of mounting the cutter blades to the cutter assembly may be modified, as required, to suit the intended application and that a single cutting plate may be substituted for a plurality

WE CLAIM

1. Die plate for extrusion apparatus, the die plate having:

first coupling means for coupling the die plate on a first side thereof to an
5 extruder defining a longitudinal axis,

second coupling means for coupling the die plate on a second side thereof to
a cutter assembly disposed on said longitudinal axis,

apertures through which extrudate is received from the extruder and extruded
for cutting into predetermined lengths by said cutter assembly,

10 a fluid inlet passage for receiving fluid into the die plate for delivery to said
cutter assembly, and

15 a fluid outlet passage for receiving fluid from said cutter assembly for
discharge from the die plate, the cutter assembly having a fluid driven motor for
rotating a cutter transversely to said longitudinal axis into the path of movement of
extrudate so as to sever the extrudate.

2. Die plate according to Claim 1 having a peripheral edge adjoining said first
and second sides, said first and second coupling means comprising a plurality of
mounting apertures for receiving respective fasteners through the die plate, the fluid
20 inlet passage and fluid outlet passage each having a radial portion extending radially
through said peripheral edge toward a central area of the die plate where each
passage terminates in a respective longitudinal portion extending through said second
side of the die plate.

3. A die plate and cutter assembly, the die plate having first coupling means for coupling the die plate on a first side thereof to an extruder, defining a longitudinal axis,

second coupling means for coupling the die plate on a second side thereof to

5 a cutter assembly disposed on said longitudinal axis,

apertures through which extrudate is received from the extruder and extruded for cutting into predetermined lengths by said cutter assembly,

a fluid inlet passage for receiving fluid into the die plate for delivery to said cutter assembly, and

10 a fluid outlet passage for receiving fluid from said cutter assembly for discharge from the die plate,

the cutter assembly having a hydraulic motor coupled to said second side of the die plate and adapted to receive hydraulic fluid from said fluid inlet passage and to discharge hydraulic fluid into said fluid outlet passage, and

15 a rotatable cutter driven for rotation transversely to said longitudinal axis by said hydraulic motor, into the path of movement of extrudate so as to sever the extrudate.

4. Assembly according to Claim 3 in which the rotatable cutter includes a
20 housing coupled for rotation to said hydraulic motor, the motor being received within said housing, and the housing having blade mounting means for supporting at least one radially extending blade having a predetermined separation from said second side of the die plate and adapted to sever extrudate.

5. A die plate and cutter assembly, the die plate having first coupling means for coupling the die plate on a first side thereof to an extruder, defining a longitudinal axis,

second coupling means for coupling the die plate on a second side thereof to

5 a cutter assembly disposed on said longitudinal axis,

apertures through which extrudate is received from the extruder and extruded for cutting into predetermined lengths by said cutter assembly,

a fluid inlet passage for receiving fluid into the die plate for delivery to said cutter assembly, and

10 a fluid outlet passage for receiving fluid from said cutter assembly for discharge from the die plate,

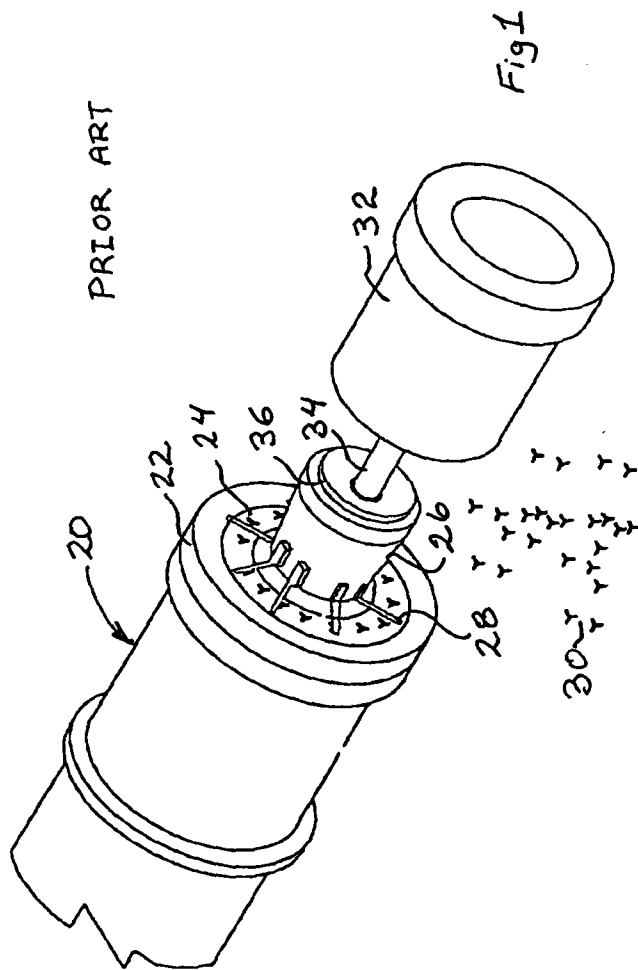
the cutter assembly having a hydraulic motor coupled to said second side of the die plate and adapted to receive hydraulic fluid from said fluid inlet passage and to discharge hydraulic fluid into said fluid outlet passage,

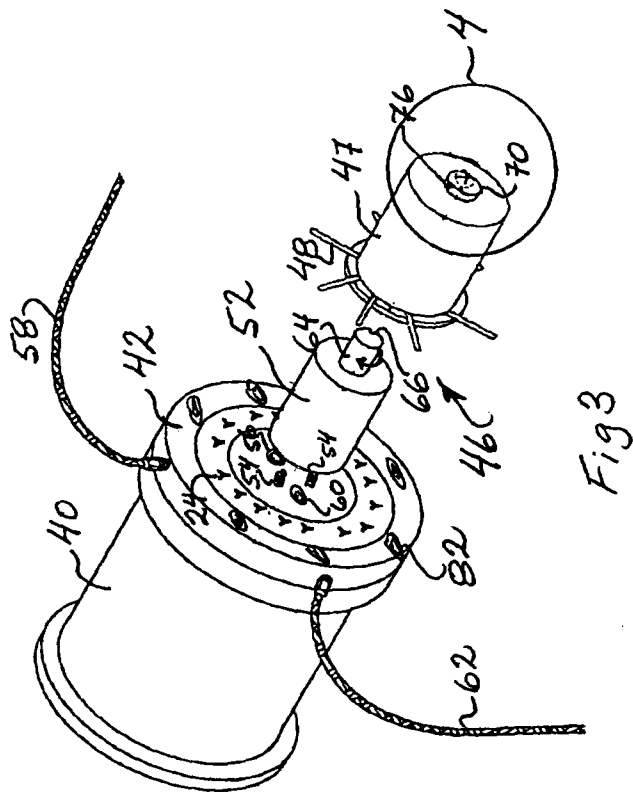
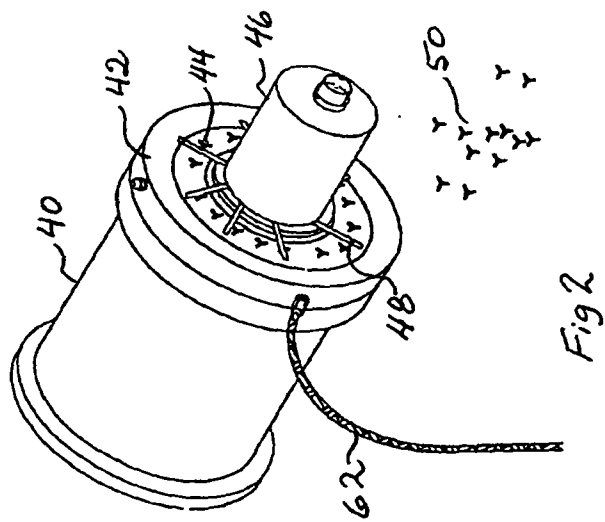
15 a housing coupled for rotation to said hydraulic motor, the motor being received within said housing, and

at least one radially extending blade mounted to said housing and having a predetermined separation from said second side of the die plate, said at least one blade being driven for rotation transversely to said longitudinal axis by said
20 hydraulic motor, into the path of movement of extrudate so as to sever the extrudate.

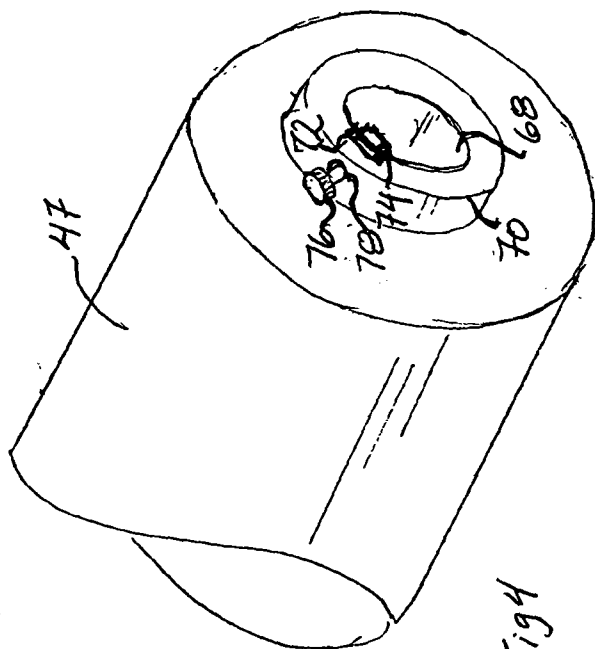
ABSTRACT OF THE DISCLOSURE

A die plate for an extruder is coupled directly to a fluid-driven motor on one side and to an extruder on the other side. Suitable fluid inlet and outlet passages are
5 formed in the die plate to supply the motor with fluid and withdraw fluid. The cutter assembly includes a housing which receives the motor within and is coupled for rotation to an output shaft from the motor.





A
(9h)



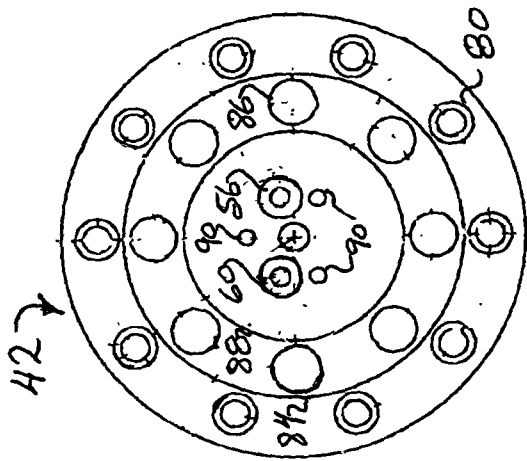


Fig 5

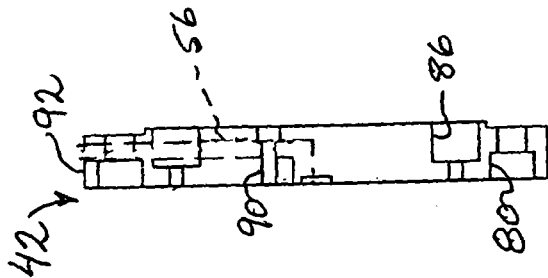


Fig 6

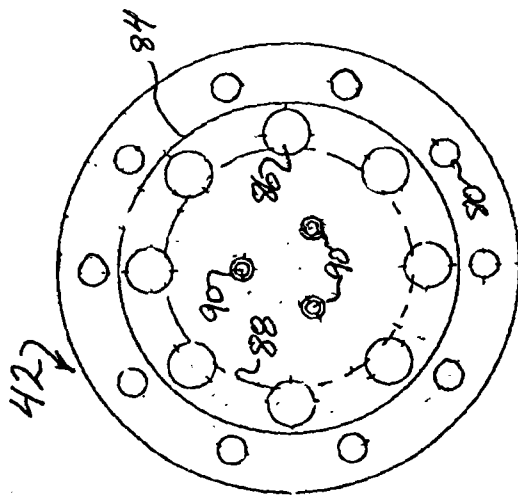


Fig 7