July 22, 1958 M. BRAIBANTI ET AL 2,844,110

DEVICE FOR RAPIDLY AND EASILY INTERCHANGING THE DRAWPLATE IN AUTOMATIC PRESSES FOR SOFT MATERIALS, PARTICULARLY FOR ALIMENTARY PASTE

Filed June 20, 1955

Fig.1

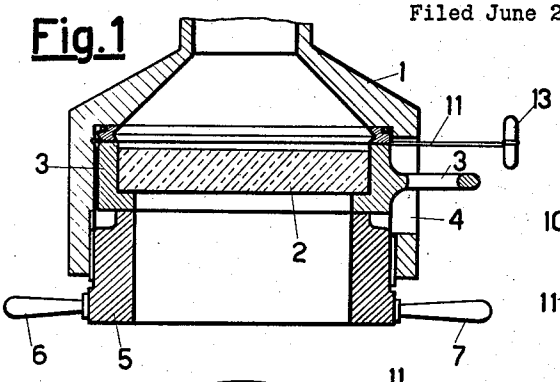


Fig.2

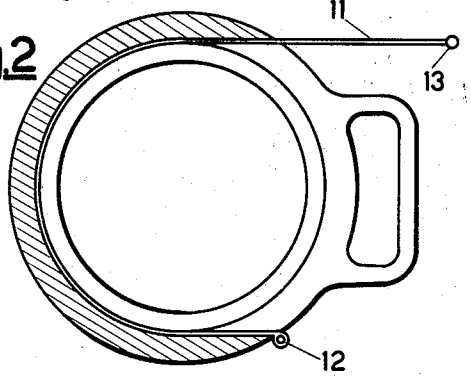


Fig.3

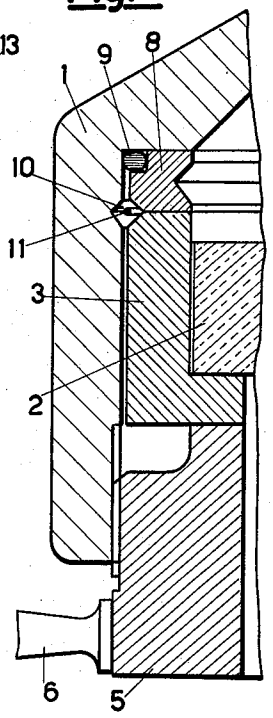
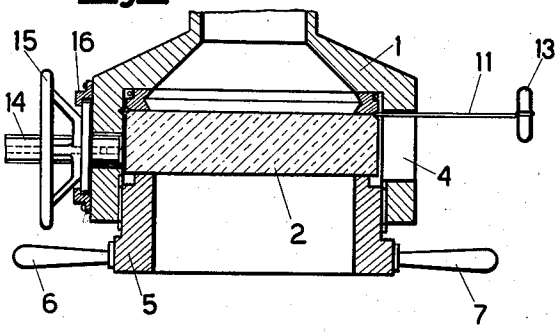


Fig.4



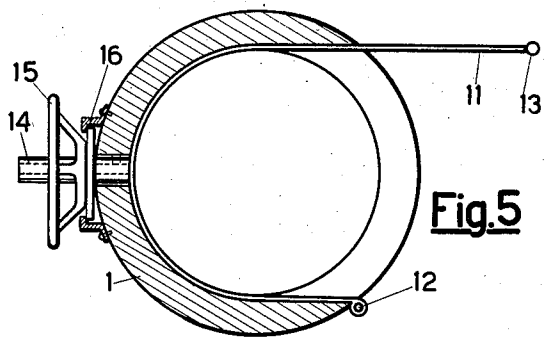
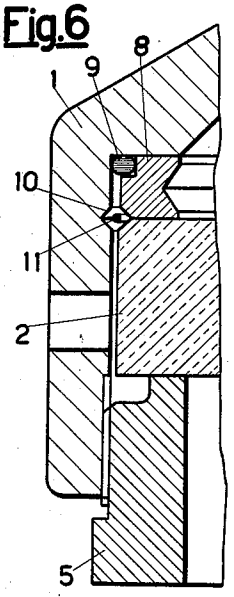


Fig.5

Fig.6



United States Patent Office 2,844,110 Patented July 22, 1958

2,844,110

DEVICE FOR RAPIDLY AND EASILY INTERCHANGING THE DRAWPLATE IN AUTOMATIC PRESSES FOR SOFT MATERIALS, PARTICULARLY FOR ALIMENTARY PASTE

Mario Braibanti and Giuseppe Braibanti, Milan, Italy

Application June 20, 1955, Serial No. 516,694

Claims priority, application Italy July 26, 1954

1 Claim. (Cl. 107—14)

The present invention concerns a device for interchanging easily and rapidly the drawplates in automatic presses for soft substances, particularly for alimentary paste.

In automatic presses for the continuous production of plastic materials in general and of alimentary paste in particular, there is great interest for a possibility of quickly interchanging the drawplates (the die plates) through which the paste is extruded in various shapes.

To attain this object, various mechanisms have been proposed which however are all very complicated and costly.

It is an object of the present invention to provide a device permitting to interchange the draw plates easily and quickly, although simple and cheap in construction.

In fact the invention relates to a device for interchanging easily and rapidly the draw plates in automatic presses for soft substances, particularly for alimentary paste, characterized in that the head carrying the draw plate is provided with an opening radial and perpendicular to the axis of the draw plate, and through which said draw plate is introduced into and extracted from the said head carrying it, said draw plate coming to rest on a circular border of a threaded ring mounted screwable in the lower part of said head carrying the draw plate, in such a way that by screwing on and by unscrewing said threaded ring, said draw plate is tightened against the upper part of said head and unlocked for extraction respectively. To make the invention more fully clear, two preferred embodiments are illustrated diagrammatically, merely by way of example, in the accompanying drawing wherein:

Fig. 1 represents an axial section of the head carrying the draw plate of one first embodiment according to the invention;

Fig. 2 represents a section of Fig. 1 along a plane normal to the axis of the draw plate;

Fig. 3 represents a particular in enlarged scale of Fig. 1; and

Figs. 4, 5 and 6 represent sections respectively analogous to Figs. 1, 2 and 3, of the heads carrying the draw plate of a second embodiment of the invention.

With reference to the drawing, where equal reference numerals indicate equal or corresponding parts, in the embodiments represented in Figs. 1, 2 and 3 it will be seen that with **1** there is indicated the head of the automatic press; with **2** the draw plate; with **3** the draw plate carrier equipped with handle **3'**; with **4** a radial opening provided in the head **1** perpendicular to the axis of the draw plate **2** and through which said draw plate is interchanged; with **5** a conveniently threaded circular counter-member adapted to be screwed on or unscrewed by acting upon the handles **6** and **7** in the lower part of the head **1** which too is conveniently threaded; with **8** an elastic ring provided with a peripheral groove in which there is housed a ring **9** of elastic material interposed between the upper face of the draw plate carrier **3** and an annular groove provided in the lower part of the head **1**; and with **10** a groove provided in the head **1**

wherein there is accommodated slidable the steel wire **11** fixed in the seat **12** and provided with a handle **13**.

In the embodiment here above described, it will be seen that the circular counter member **5**, provided with threading, rises and lowers if screwed on or if unscrewed respectively in the lower part of the head **1**, locking or releasing the drawing plate carrier **3** the upper border of which in turn comprises or releases the elastic ring **8**. If the piece **5** is screwed upwards, the elastic ring **8** ensures perfect tightness at bottom by the coincidence between the surface of the upper border of the draw plate carrier **3** and the surface of the lower border of the elastic ring **8**, said surfaces being perfectly plane and machined.

Instead, the tightness between the surface of the upper border of the elastic ring and the circular seat provided in the head **1** for accommodating said ring **8**, is ensured by the ring of elastic material **9** which is deformed under the thrust of the paste that possibly might be extruded between the lower border of said annular seat and the upper border of said elastic ring **9**, and adheres strongly to the walls of both the seat provided in the head **1** and of the seat provided in the elastic ring **8**.

If, instead, the piece **5** is screwed downwards by a few millimetres, it becomes easy to draw the steel wire **11** by means of the handle **13** and thus to cut the cone of paste contained in the head **1**. With this rapid operation, the draw plate **2** and the respective draw plate carrier **3** can be easily extracted from the head of the press and replaced with another draw plate and respective draw plate carrier previously made ready, through the radial aperture **4** provided in said head **1**.

After replacing, it suffices to screw the circular piece **5** in two or three turns, to take up work again.

In the embodiment represented in Figs. 4, 5 and 6, with **1** is indicated the head of the automatic press; with **2** the draw plate; with **4** the radial aperture provided in the head **1** normal to the draw plate **2** and through which said draw plate is interchanged; with **5** the circular counter piece supporting the draw plate **2**; said counter piece is suitably threaded so that it can be screwed in or unscrewed by actuating the handles **6** and **7**, in the lower part of the head **1** which too is conveniently threaded; with **8** an elastic ring provided with a peripheral threading wherein there is accommodated a ring **9** of elastic material; with **14** a worm screw actuated by a handwheel **15** rotatable but not translatable owing to the stop **16** which causes with its rotation advancement or backward movement; with **11** a steel wire provided with a handle **13** and accommodated in the groove **10** provided in the head **1** of the automatic press and pivoted in the seat **12**.

It is evident that if the counter piece **5** is screwed upwards, it locks the draw plate **2** against the lower perfectly plane border of the elastic ring **8** thus ensuring the perfect tightness of the head.

The elastic ring **8** in turn is provided with an external peripheral seat in which there is housed the ring of elastic material **9** and, therefore, if during working there should occur outflow of paste between the upper border of the elastic ring **8** and the seat provided in the head **1** wherein said ring is accommodated, it would deform said ring of elastic material **9** which, coming to stick against the seat provided in the ring **8** and in the head **1**, would ensure perfect tightness.

If the piece **5** is unscrewed downwards it becomes possible to cut the cone of paste contained in the head **1** by pulling the steel wire **11** by means of the handle **13**. Having carried out said operation, it becomes easy to extract the draw plate **2** by having it pushed by the threaded pin **14** by effect of the rotation of the handwheel **15**. When the draw plate is extracted from the

head by some centimetres, it becomes easy to grip it with one's hands and to carry out the interchanging with another draw plate.

Having accommodated the new draw plate at the place of the preceding one, after previous retraction of the threaded pin **14**, obtained by acting in reverse sense on the handwheel **15**, it suffices to turn the piece **5** by means of the handles **6** and **7** by some turns, to put the automatic press in condition for taking up working again.

From the above description it appears very clear how simple and rapid the operation of interchanging the draw plates are although employing mechanical means of easy and cheap make.

We claim:

A device for the extrusion of plastic substances comprising a hollow head defining a cylindrical opening and having an internally threaded portion, the interior profile of said hollow head defining a shoulder at which the cylinder terminates, a support plate adapted to be accommodated in said cylindrical opening, said head defining a radial aperture for the insertion and withdrawal of said support plate, means for manually inserting said plate into and withdrawing said plate from the cylindrical opening through the said radial aperture, an extrusion die loosely supported by said support plate but restricted by said support plate against movement due to the movement of extruded substances, a first resilient ring interposed between said shoulder and said support plate with said support plate positioned in the cylindrical opening, a second resilient ring, said first resilient ring defining an annular groove adjacent said head for housing said second resilient ring for preventing the extrusion of substances between the first said resilient ring and said head, said support plate and the first said resilient ring abutting along a plane and cooperatively defining a second annular groove adjacent said head and including the plane, said head defining a groove corresponding with said second annular groove, a cutting wire pivoted at one end to said head and positioned in the second annular and the corresponding grooves and in said plane, the other end of said cutting wire extending through said radial aperture, a handle on said other end for pivoting said cutting wire for cutting through the extruded substances along said plane, and a threaded ring for engaging said internally threaded portion and urging said support plate against said resilient ring thereby locking said support plate in position.

References Cited in the file of this patent

UNITED STATES PATENTS

642,813	Cowen	Feb. 6, 1900
1,768,790	Royle	July 1, 1930
2,257,695	Lihotzky	Sept. 30, 1941
2,480,442	Booth	Aug. 30, 1949
2,543,679	Van Riper	Feb. 27, 1951
2,607,954	Schneider et al.	Aug. 26, 1952
2,661,497	Birmingham	Dec. 8, 1953
2,713,698	Danby et al.	July 26, 1955

FOREIGN PATENTS

676,377	Great Britain	July 23, 1952