Feb. 6, 1940. E. H. PETTLER 2,188,984

CORE STRUCTURE FOR CLAY EXTRUDING DIES

Filed Dec. 2, 1938

Fig. 1

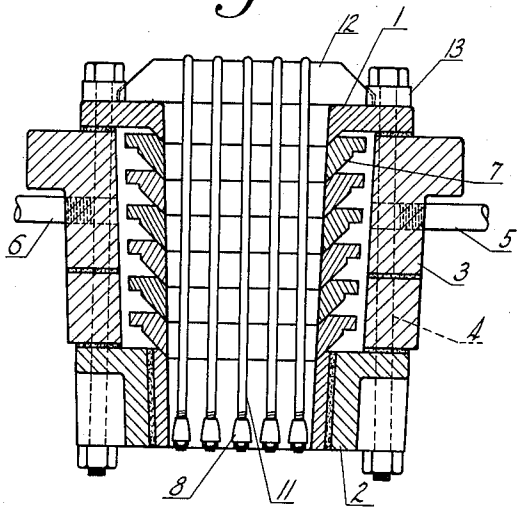


Fig. 2

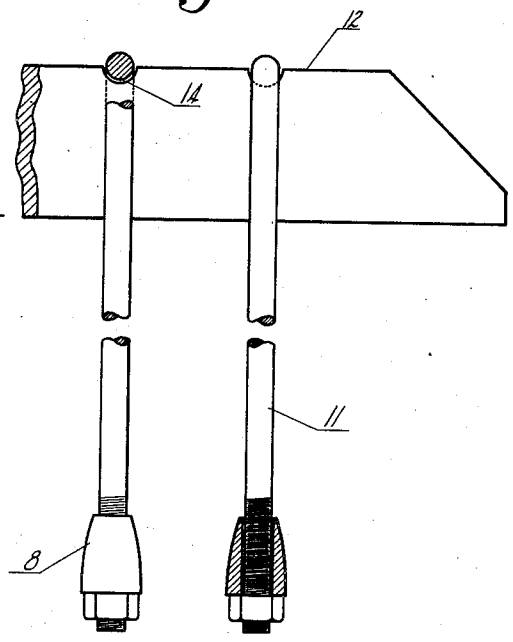


Fig. 3

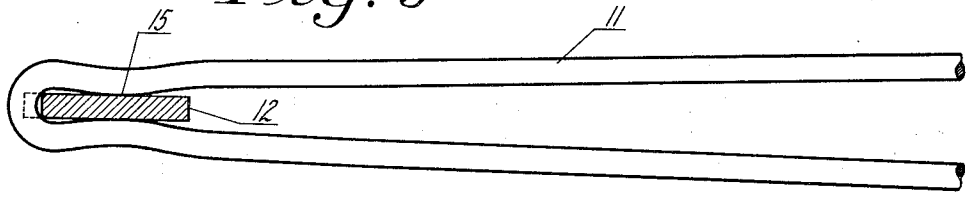


Fig. 4

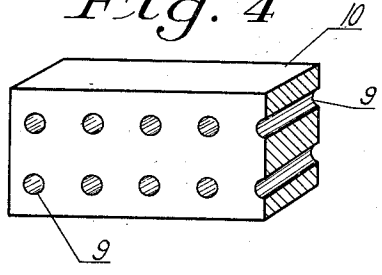
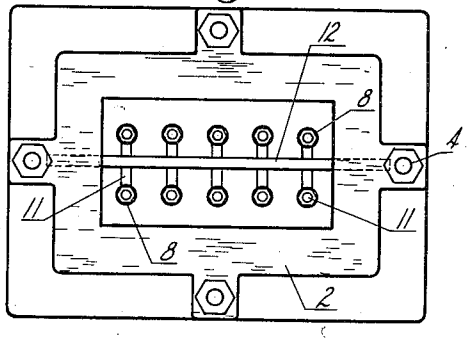


Fig 5



INVENTOR.
Eugene H. Pettler

BY William B. Jaspert

ATTORNEY.

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CORE STRUCTURE FOR CLAY EXTRUDING DIES

Eugene H. Pettler, Beaver, Pa.

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3 Claims. (Cl. 25—17)

This invention relates to new and useful improvements in clay extruding dies, more particularly to a method of supporting cores within the extruding area of such dies, whereby the extruded product is perforated or provided with one or a multiplicity of cells.

It is a primary object of the invention to provide means for supporting the cores in extruding dies in a manner to make them self-aligning, readily adjustable as to their relative positions to each other and to the mouthpiece of the die, conveniently accessible for replacement or repair and subject to arrangements, singular or in multiples, without necessitating removal of the entire core supporting member.

These and other objects of the invention will become more apparent from a consideration of the accompanying drawing constituting a part hereof in which like reference characters designate like parts and in which:

Fig. 1 is a vertical cross-sectional view partially in elevation of an extruding device embodying the principles of this invention;

Fig. 2 a side elevational view partially in section of a portion of a core bridge and core member for use as shown in Fig. 1 of the drawing;

Fig. 3 a cross-sectional view of the core bridge showing a portion of a core rod in side elevation;

Fig. 4 a view in perspective of the extruded clay product resulting from the operation of the die of Fig. 1; and

Fig. 5 a front elevational view of the mouthpiece of the extruding device.

With reference to the several figures of the drawing, the structure therein illustrated comprises a back plate 1, a mouthpiece 2 mounted on the ends of a barrel 3 by means of through-bolts 4, the barrel being hollow and provided with conduits 5 and 6 for the passage of steam through the barrel chamber, which acts to lubricate the clay passing therethrough. A series of frames 7 are arranged in superposed relation as shown, the frames being unsealed to permit the passage of steam through the joints in contact with the clay passing therethrough, the direction of travel of the clay being from the opening through the back plate through the frames and the opening of the mouthpiece. The structure thus far described is conventional and constitutes no part of the present invention, which deals only with the manner of mounting and supporting a plurality of cores 8, which form the perforations or cells 9, Fig. 4, in the block 10, which is the product of the extrusion device of Fig. 1, cut-off after it emerges from the mouthpiece 2.

In acccordance with the present invention, the cores 8 of streamline shape, as shown in the enlarged detail of Fig. 2, are loosely mounted on core rods 11, which are substantially of hair-pin shape as shown in Fig. 3, the core rods being looped over a core bridge 12 which extends across and substantially centrally of the opening in the back plate 1. The core rods are preferably threaded at their ends to provide axial adjustment of the cores relative to the mouthpiece, as shown in Fig. 1, wherein the cores are spaced a supplied distance inward from the outer face of the mouthpiece 2. The core bridge 12 is secured to the back plate 1 by a clamping bracket 13 which is fastened by the through-bolt 4 when the extruding device is asssembled as shown in Fig. 1.

The core bridge 12 is provided with indents or grooves 14 spaced in accordance with the desired spacing of the cells 9 in the finished product. As shown in Fig. 3, the core rods are indented at 15 to provide contacting areas with the side faces of the core bridge 12 to give them support with a minimum area of contact to render the core rods freely movable relative to the core bridge, permitting self-alignment of the rods with the flow stream of the clay or other plastic material. As is further apparent from Fig. 3 of the drawing, the core rods 11 may be adjusted by spreading or contracting them to adjust the spacing of each pair of cores 8 in accordance with the desired spacing of the cells in the extruded product.

In the operation of the hereinbefore described extruding device, the core rods are, in effect, floating members which permit self-alignment of the cores 8 relative to each other and the mouthpiece 2. This is of considerable importance in the use of a device as it eliminates the inaccuracy resulting from the use of core pieces having their supports rigidly secured to the core bridge as by welding or other expedients employed in conventional practice. It is also apparent that the replaceable core rods effect great economy in use of such device by avoiding the necessity for replacing a complete core bridge and core members where such are integrally formed structures. These and other advantages of the invention will be self-evident to those skilled in the art.

Although one embodiment of the invention has been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction, as for example in the shape of the

cores and the number of core members employed or in the manner of attaching the core bridge, and in the adaptation of the self-aligning core members to different types of extruding devices, without departing from the principles herein set forth.

I claim:

1. A core structure for extruding dies for plastic materials comprising a barrel having a back plate and mouthpiece, a core bridge extending across the back plate, one or more core rods looped over the leading edge of the core bridge and extending into the flow passage of the extruding device, said core rods loosely abutting the leading edge of the core bridge and being adapted for self-alignment with the flow stream of the material passing therearound and cores mounted on the free ends of said core rods.

2. Apparatus as set forth in the next preceding claim characterized by a core bridge having a plurality of spaced grooves in the leading edge thereof constituting seating abutment for the looped ends of the core rods.

3. Apparatus as set forth in claim 1 characterized by the core rods being of substantially hair-pin shape, having indented portions for engagement with opposite faces of the core bridge, whereby the cores of the rods may be adjusted relative to each other.

EUGENE H. PETTLER.