B. F. A. COURTINE.

DIE FOR FORMING PLASTIC MATERIAL INTO THREADS OR RIBBONS.

APPLICATION FILED SEPT. 12, 1912.

**1,143,510.** Patented June 15, 1915.

Fig. 1

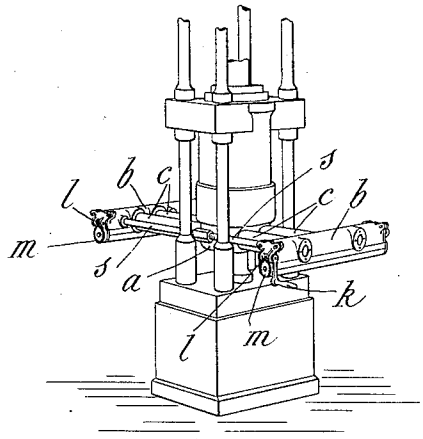



Fig. 2

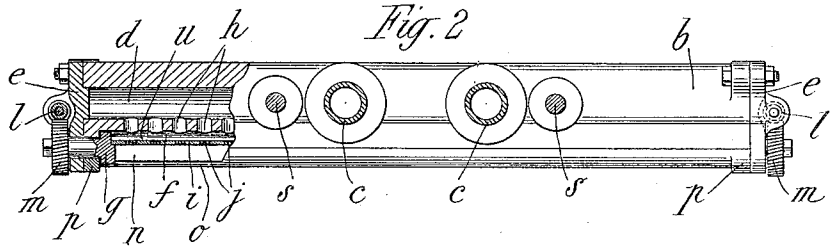



Fig. 3

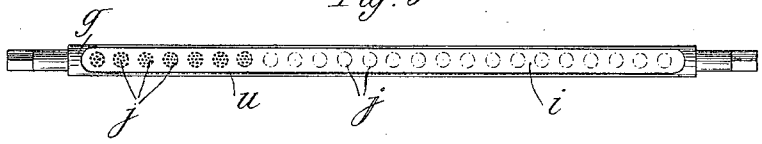



Fig. 6

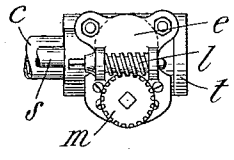



Fig. 4

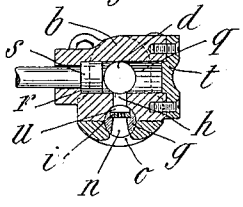
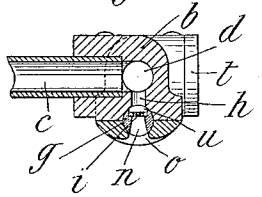



Fig. 5




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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

BENJAMIN FERDINAND AUGUSTE COURTINE, OF MAISONS-ALFORT, FRANCE.

## DIE FOR FORMING PLASTIC MATERIAL INTO THREADS OR RIBBONS.

1,143,510. Specification of Letters Patent. Patented June 15, 1915.

Application filed September 12, 1912. Serial No. 720,015.

*To all whom it may concern:*

Be it known that I, BENJAMIN FERDINAND AUGUSTE COURTINE, citizen of the Republic of France, and residing at Maisons-Alfort, Seine, in the said Republic, manufacturer, have invented certain new and useful Improvements in Dies for Forming Plastic Material into Threads or Ribbons; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

It is found in practice that pastry, vermicelli or similar substances can only be folded together mechanically if the paste threads come out from the press as bundles each comprising the number of threads necessary for making a skein, and if these bundles of threads fall vertically in a straight line before the head of the folding machine. This necessitates the use of a horizontal tube (or several similar tubes if the press employs several folders) communicating with the receiver of the press and this tube, whose lower open face is provided with a plate called a molding or die plate, is pierced with groups of holes of the same number as the bundles of paste threads, which are to be formed.

The object of the present invention is to enable this perforated plate to be removed in a few seconds and to be replaced by another with different perforations, also to insure an equal distribution of the paste between all the groups of perforations by means of a continuous space above them, also to prevent in any case any waste of paste, finally to insure that the tube shall be properly fixed to the receiver of the press and can be easily dismounted.

For these purposes, according to the invention the mold or perforated plate is placed in a cylindrical member capable of turning in a boring of the tube like the plug of a cock, so that by turning this member half around from its working position, the die plate can be brought into the bottom of the tube and then easily withdrawn; above each group of delivery holes the boring in which the die plate carrier turns communicates with a horizontal pipe in which the hot paste arrives from the receiver by two branches. If the press has two delivery tubes for the paste on the right and left of the receiver, the two tubes are connected by bolts provided with a sleeve with a right and left hand thread to allow of their being secured to the receiver.

In the accompanying drawings, Figure 1 is a perspective view on a small scale representing a press provided with delivery tubes for the paste according to the invention. Fig. 2 is a longitudinal elevation of the side of one of these tubes adjacent to the press. Fig. 3 is a view of the die plate carrier. Fig. 4 is a transverse section of the tube through one of the securing bolts. Fig. 5 is a transverse section through one of the pipes for supplying the paste. Fig. 6 is an end view showing the worm and worm wheel for rotating the die plate carrier.

As shown in Fig. 1, the receiver *a* of the press communicates with each paste delivery tube *b* by two pipes *c* (but this number may be more or less) and the hot paste is forced by the pressure into the longitudinal passage *d*, which is closed at each end by plates *e*. Below this first passage, the tube has a second cylindrical passage *f*, open below, in which the mold carrier *g* can turn like the plug of a cock. The passages *d* and *f* are connected by passages *h* directly above each of the groups of holes *j* in the steel die plate *i* (Figs. 2, 3, 4 and 5).

The plate *i* is placed in a recess *u* in the mold carrier *g*, and is kept down in the latter by the pressure of the paste, when the parts are in the positions shown in Figs. 4 and 5; it is only necessary to turn the mold carrier half around, in order to bring the plate *i* into the lower part in order to remove it, when it is required to replace it by another plate.

The depth of the recess *u* is greater than the thickness of the plate *i*, so that there remains above the latter a continuous space, which insures a regular distribution of the paste between all the groups of holes. Also the sharp edges above the plate cut the paste and facilitate the rotation of the mold carrier *g*. The member *g* is turned by a crank *k* (Fig. 1) attached to a worm *l* engaging a worm wheel *m* keyed on *g*. The worm *l* turns in two lugs carried by the end plate *e*.

The opening *n* of the plate carrier is enlarged below the plate and this opening is continued by the space *o* provided in the

bottom of the tube as far as the mold extends, that is to say between the ends $p$, $p$ of the tube (Fig. 2).

It will be seen from Figs. 4 and 5, that the space $o$ is wider than the die plate $i$ so that when the carrier $g$ is rotated 180° from the position shown, the die plate is brought to the bottom and may be readily removed and replaced by another.

For fixing the two delivery tubes $b$, $b$ for the paste to the receiver of the press, holes $q$, $q$ are provided in these tubes, at right angles to the upper passage in each tube and in these holes which have a bearing surface $r$, headed bolts $s$ are placed; the ends of the two bolts in the same line on either side of the receiver are threaded on opposite hands, and by turning a sleeve with right and left handed threads, which engages with both bolts, the pipes $c$ are securely attached to the receiver, and the tubes $b$, $b$ consequently secured in their places. The mouths of the holes $q$ which allow the bolts $s$ to be put in place are closed by a plate $t$ secured by screws.

It has been assumed in the description that the tube is used for the delivery of an edible paste, but it is equally well adapted for any plastic material, which is to be forced by pressure from a receiver and reduced to the form of a thread or ribbon.

I claim:—

In a die for forming plastic materials into threads or ribbons, a pressure reservoir for the material, a tube having an upper and a lower longitudinal passage formed therein, conduits connecting the upper passage with the reservoir, vertical channels connecting the upper and lower passages, a cylindrical member rotatably mounted in the lower passage and having a transverse passage adapted to connect the vertical channels with a longitudinal opening in the bottom of the lower passage, and a perforated die plate adapted to pass through said opening and removably mounted on shoulders formed in the cylindrical member, below the periphery of the latter thereby forming sharp edges on said member above the die plate.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

BENJAMIN FERDINAND AUGUSTE COURTINE.

Witnesses:

H. C. Coxe,

Alcide Fabe.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**