

(No Model.)

V. ROYLE.
MACHINE FOR MANUFACTURING TUBING.

No. 574,577.

Patented Jan. 5, 1897.

Fig. 1.

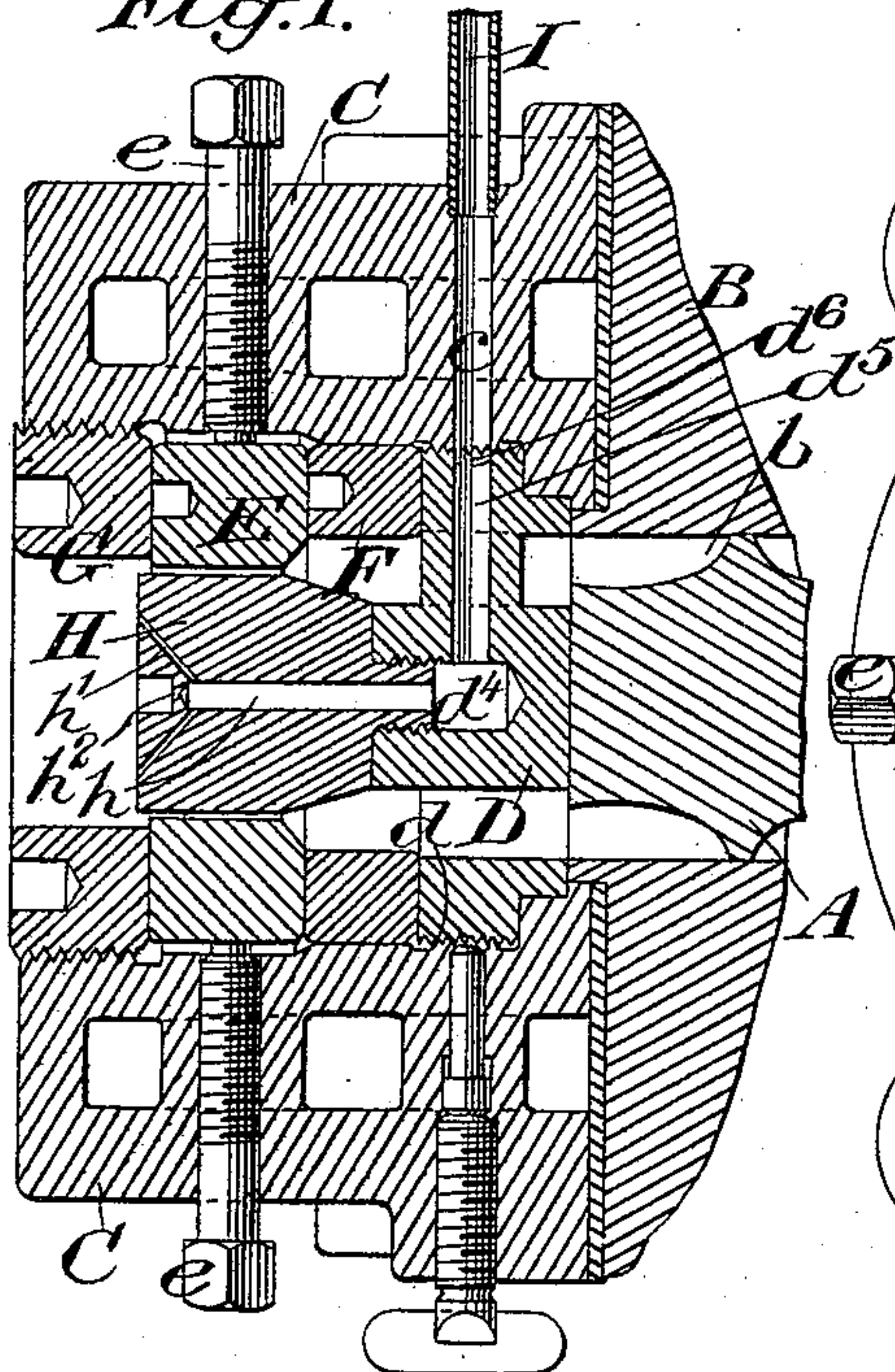


Fig. 2.

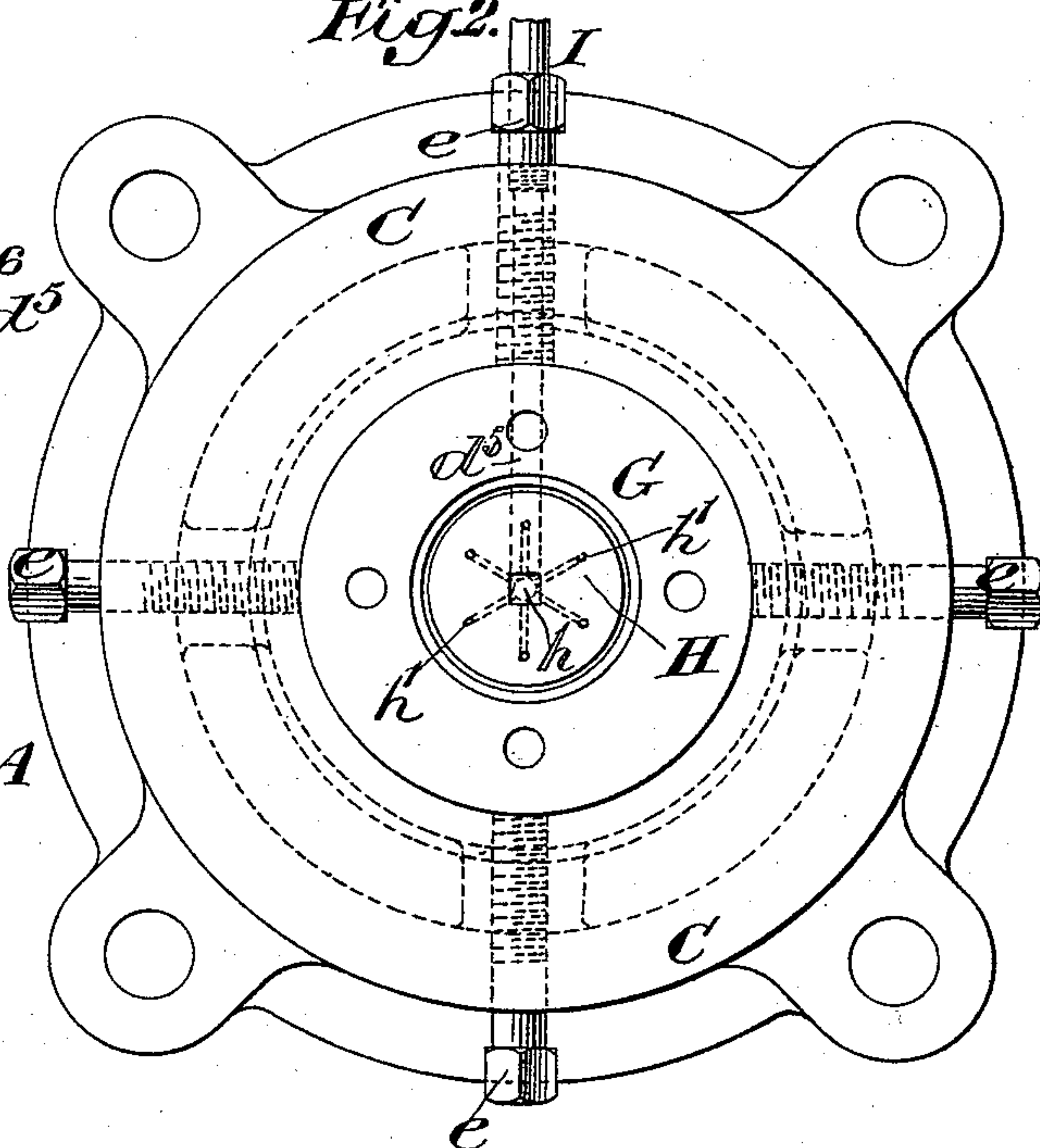


Fig. 3.

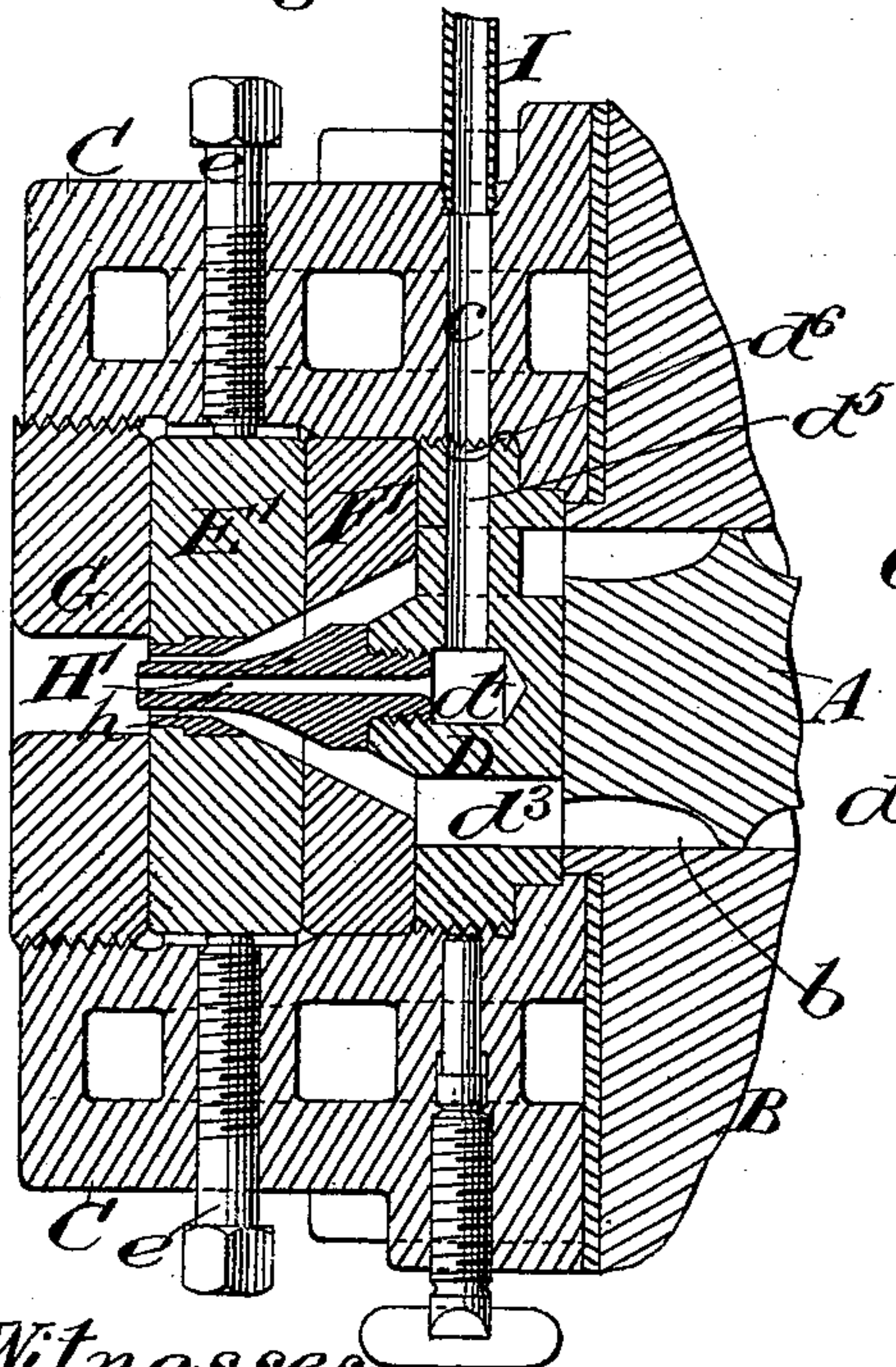


Fig. 4.

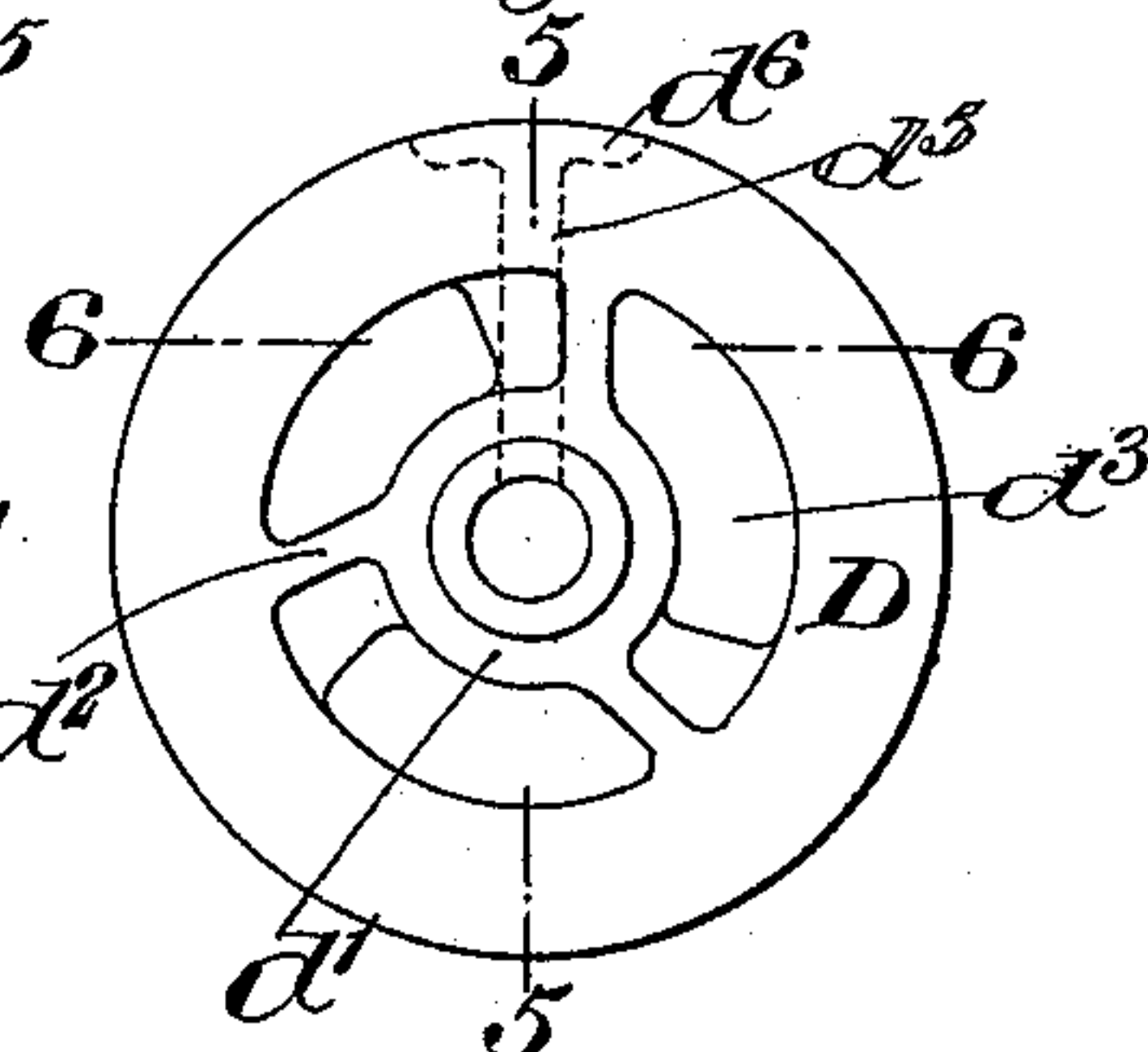


Fig. 5.

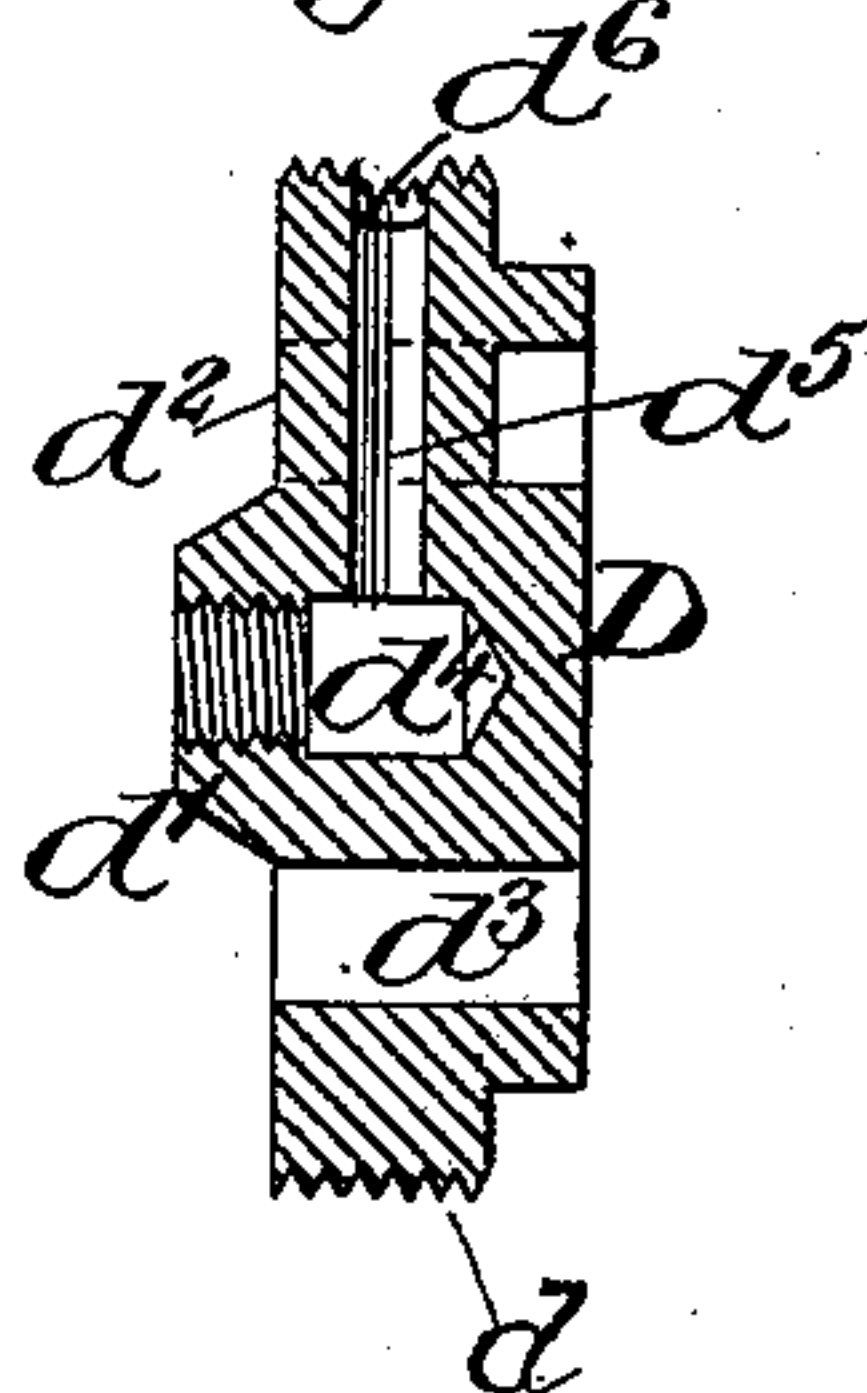
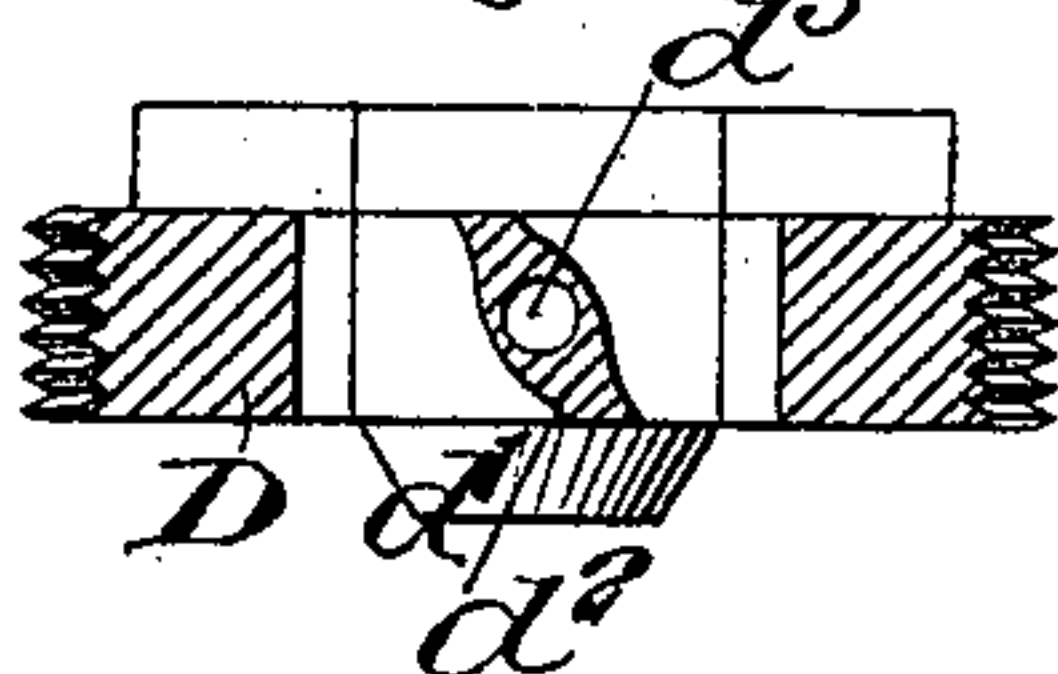


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

MACHINE FOR MANUFACTURING TUBING.

SPECIFICATION forming part of Letters Patent No. 574,577, dated January 5, 1897.

Application filed April 17, 1896. Serial No. 587,920. (No model.)

To all whom it may concern:

Be it known that I, VERNON ROYLE, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Machines for the Manufacture of Tubing, of which the following is a specification.

My invention relates to an improvement in machines for the manufacture of tubing and more particularly to machines adapted to the making of tubes by forcing a soft mass of material, such, for example, as india-rubber, through a die around a core. In making tubes of this character there has been a tendency of the walls to collapse and become cemented along their inner surfaces before the walls become sufficiently cool to cause them to retain their position in circular form or to prevent them from attaching themselves to an adjacent wall.

My present invention is directed particularly to means for supplying the interior of the tube as it is formed and passes from the die with some suitable powder or other substance which will prevent the walls from becoming attached.

In the accompanying drawings I have represented only such portions of a tubing-machine as are deemed necessary to a full understanding of my present invention.

Figure 1 represents in vertical longitudinal section the end of the machine at which the die is located. Fig. 2 is an end view. Fig. 3 is a vertical longitudinal section showing a modified form of discharge-nozzle for the discharge of the powder. Fig. 4 is an end view of the core-supporting piece. Fig. 5 is a central transverse section through the said core-supporting piece in the plane of the line 5 5 of Fig. 4, and Fig. 6 is a transverse section through the same in the plane of the line 6 6 of Fig. 4.

The pressure-screw or plodder for forcing the material to the die is denoted by A and is mounted in any well-known or approved manner within a hollow chamber *b* of the barrel or casing B.

The end of the machine which carries the die and core is denoted by C and may be secured to the barrel or casing B in any well-known or approved manner, so as to bring its

hollow interior in alinement with the hollow chamber *b*, in which the plodder works. Immediately adjacent to the end of the screw or plodder A the core-sustaining piece D is located and is preferably provided with an exterior screw-thread *d*, adapted to register with an interior screw-thread in the end piece C. The piece D is provided with a central hub *d'*, connected with the rim by winding-webs *d''*, in the present instance three in number, leaving between them and the exterior of the hub winding passage-ways *d'''* for the material which is to form the tube.

The die (denoted in Fig. 1 by E and in Fig. 3 by E') is spaced from the core-sustaining piece D by a spacing block or ring, (denoted in Fig. 1 by F and in Fig. 3 by F'.) The dies E E' are held in their position and centered by means of set-screws *e* in any well-known or approved manner, and exterior to the die there is located in the end of the piece C an annular nut G, which by screwing into the end of the piece C holds the die and spacing-piece snugly against the core-sustaining piece D.

A core (denoted in Fig. 1 by H and in Fig. 3 by H') is screwed into the end of the hub *d'* of the piece D and projects through the hollow interior of the spacing-ring and through the interior of the die, leaving between its exterior and the interior wall of the die a space the thickness of which it is intended the wall of the tube shall have.

Within the hub *d'* of the core-supporting piece D there is formed a chamber *d⁴*, which communicates by a conduit *h* through the core with the space in its end and by a conduit *d⁵* through one of the ribs *d''* of the piece D and a registering-conduit *c* through the piece C with a pipe I, leading to a suitable supply of powdered soapstone or other suitable powdered material. (Not shown.)

In the form of core shown in Fig. 1 the conduit *h* within the core is provided with several branches *h'*, which radiate from it near its end, so as to scatter the powder throughout the interior of a tube of large size, the conduit *h* being partially obstructed at *h²* to cause a portion of the powder to travel through the said radiating-passages *h'*.

In the form shown in Fig. 3 the conduit *h* extends unobstructedly through to the end

of the core, and the form in this particular illustration is that which is adapted to the making of tubes of small diameter.

In order to provide for free communication
5 of the conduit *c* in the end piece C with the conduit *d*⁵ in the core-supporting piece, the latter may be chambered for a short distance along its periphery, as shown at *d*⁶, whereby the latter may be rotated in either direction
10 past the point where the axis of its conduit will be in alinement with the axis of the conduit in the end piece C, and at the same time the communication between the two conduits will not be cut off.

15 In operation as the tube is formed by the forcing of the material around the core between it and the die the powder which is to prevent the sides of the tube from adhering or cementing themselves to each other is
20 forced through the conduits *c*, *d*⁵, and *h* and *h'* from the supply-pipe I into the interior of the formed tube, so that the latter may be continuously made and its sides allowed to collapse without liability of their becoming ce-
25 mented together.

What I claim is—

1. The combination, with a tube-forming die and means for forcing the material which is to compose the tube, to the die of a core
30 around which the material to form the tube passes, the said core being provided with a conduit therethrough for supplying a sub-

stance to the interior of the tube as it is formed and a second conduit extending across the path of the tube forming material into
35 communication with the conduit in the core, substantially as set forth.

2. The combination with the plodder and a suitable supporting-casing at the end of the plodder, of a die located within said casing, 40 a core-supporting piece provided with open passage-ways therethrough for the material to form a tube and having a conduit extending from its periphery to its central portion, a core provided with a conduit in communi- 45 cation with the aforesaid conduit within the core-supporting piece and means for conducting a substance through the said conduits to the interior of the formed tube to prevent its sides from becoming cemented together when
50 they collapse, substantially as set forth.

3. The combination with the skeleton core-supporting piece provided with a conduit leading from its periphery to its central por- 55 tion and a die of the core provided with a conduit in communication with the conduit within the core-supporting piece and passage-ways radiating from the conduit in the core and communicating with the space at the free end of the core, substantially as set forth.

VERNON ROYLE.

Witnesses:

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