

No. 654,907.

Patented July 31, 1900.

W. MIDDLEDITCH.
PILL MAKING MACHINE.

(Application filed May 24, 1899.)

(No Model.)

2 Sheets—Sheet 1.

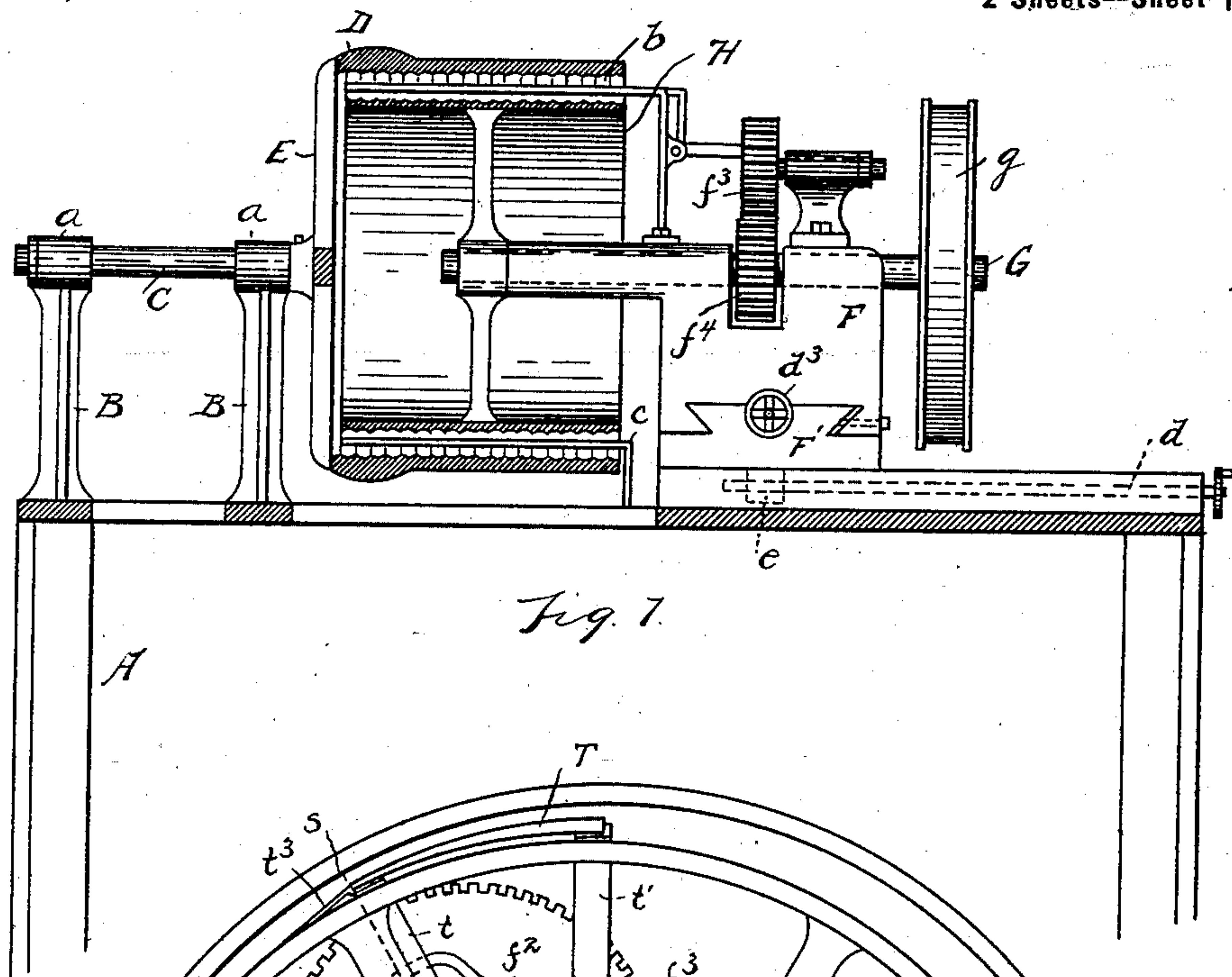


Fig. 1.

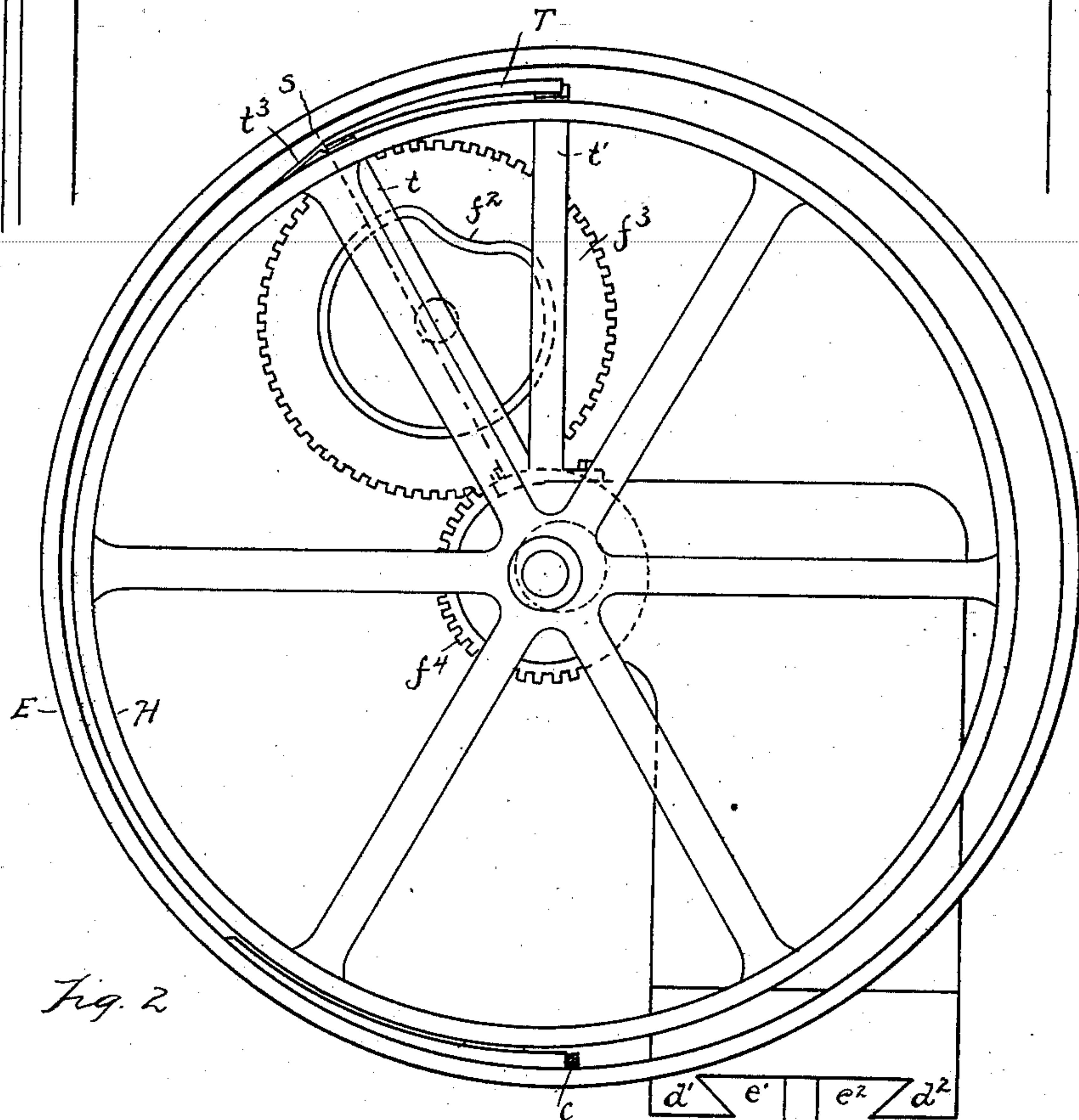


Fig. 2.

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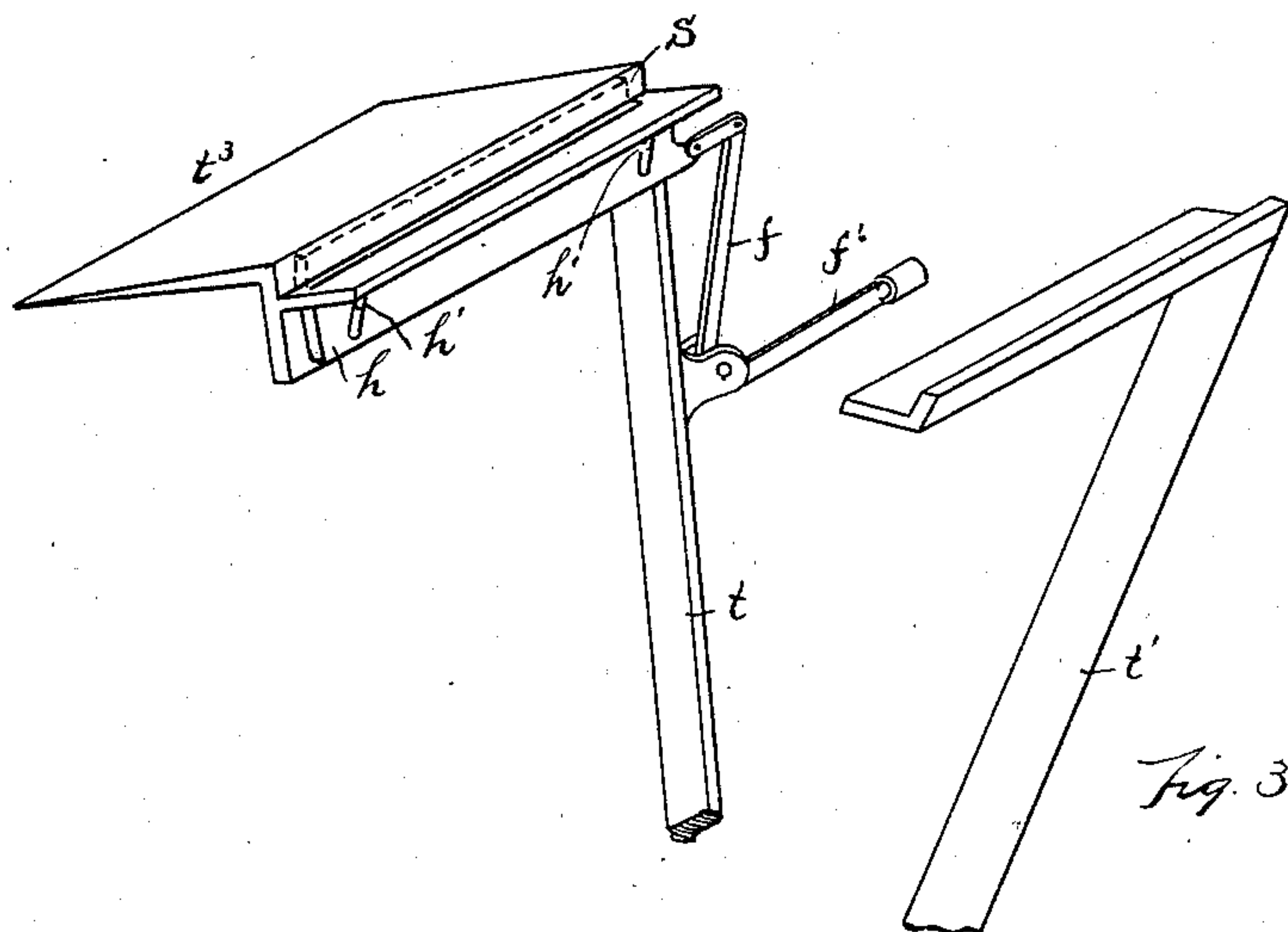


Fig. 3.

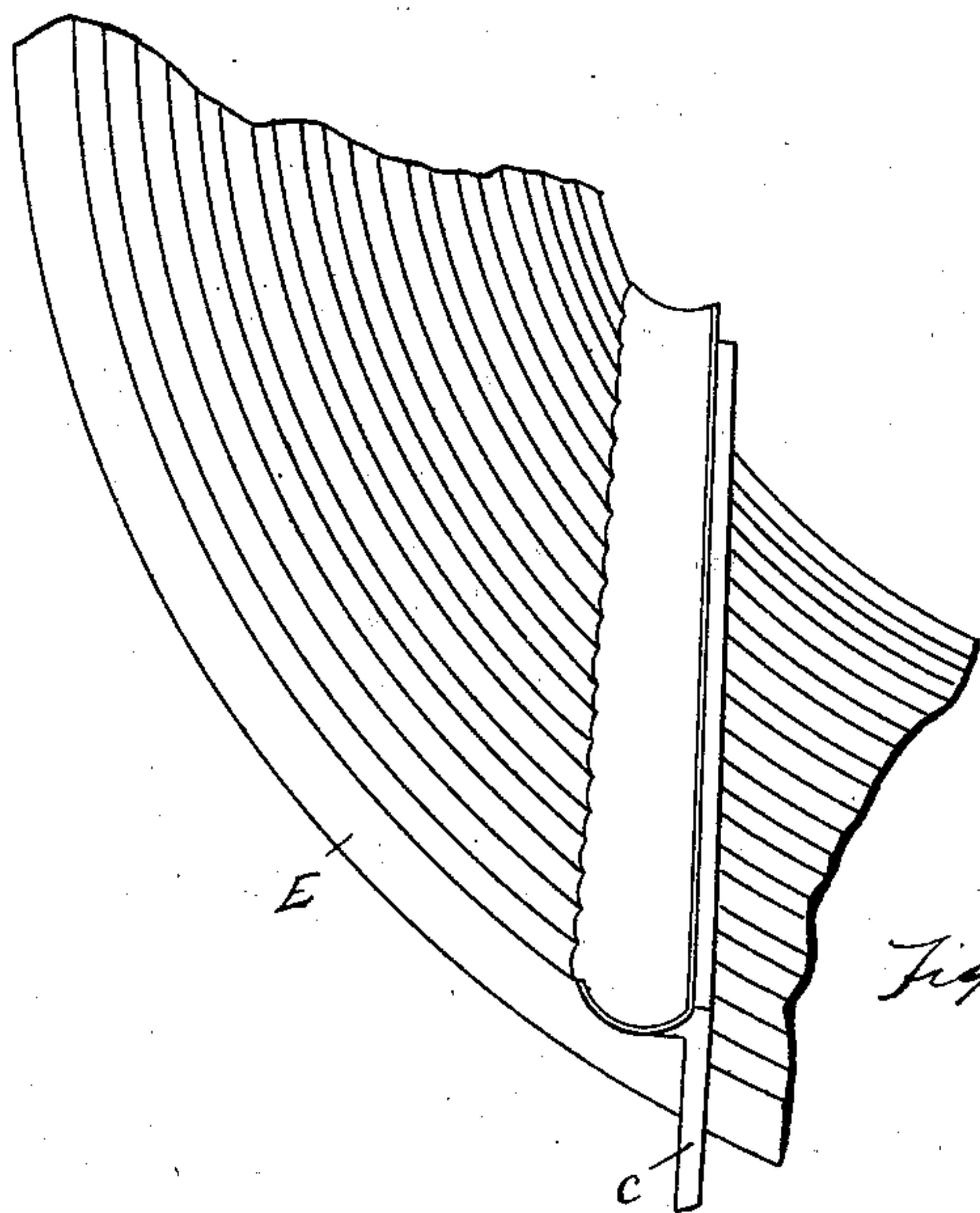


Fig. 4.

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UNITED STATES PATENT OFFICE.

WALTER MIDDLEDITCH, OF DETROIT, MICHIGAN.

PILL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,907, dated July 31, 1900.

Application filed May 24, 1899. Serial No. 718,018. (No model.)

To all whom it may concern:

Be it known that I, WALTER MIDDLEDITCH, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Pill-Making Machines; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to pill-making machines, and has for its object an improved machine by means of which pills, either round or ovate, may be rolled from a pipe of pill mass.

In the drawings, Figure 1 shows an elevation lengthwise the shaft of the machine. The drawing is partly in section. Fig. 2 shows an end elevation of the rollers and of the cam which actuates the feeding device. Fig. 3 is an enlarged perspective of the parts of the feeding device. Fig. 4 is an enlarged perspective of the conduit by which the pills are carried out from the machine.

A indicates a frame or table.

B B indicate posts which rise from the table and which are provided with journaled boxes *a a* for a shaft C. On one end of the shaft is a hollow roller or barrel E, and a part of the outer surface D of this hollow roller or barrel is arranged for the reception of a belt. The hollow roll or barrel E is finished on the inside with circumferential groovings *b*.

F and F' indicate a journal-bearing support that is mounted on the table A in such a way that the shaft carried by it may have an adjustment or motion across the axis of the shaft and an adjustment or motion lengthwise the axis of the shaft. The longitudinal adjustment or movement of the journal-bearing and the shaft is effected by means of a runner-nut *e* and a screw *d*, and the runner-nut is integral with or forms a part of the base part F' of the pillar. The runner-nut engages between two gibs *e'* and *e''*, that are bolted or secured to the table between overlapping dovetail projections *d'* and *d''*. On the pillar F' the screw *d* is journaled so that it may revolve on its axis, but remain otherwise fixed with reference to the table, and it serves to actuate the pillar F F'. The upper

part F of the pillar F' is held to the lower part F' by a construction similar in essential particulars to that just described and is capable of adjustment, by means of the screw *d''*, across the axis of the shaft G. The shaft G is provided at one end with a driving-wheel *g*, and on the other end of it is mounted a roller H, provided with circumferential grooves on its outer surface. The roller H is located within the hollow of the roller E and is adjustable with respect thereto by the means just described, so that on one side of the axis of the shaft G the inner surface of the outer roller and the outer surface of the inner roller may be brought closely together, and the surfaces of the two rollers may be correspondingly spread on the opposite side of the shaft G. Above the shaft and below the shaft the space between the surfaces of the rollers will be intermediate the narrow and the wide space.

The feeding device is inserted between the two rollers above the shaft, and it consists of a tray T, on which the pipes of material are laid, which rest on the frame-pieces *t* and *t'*. At the front end of the tray and connected with the framework is a stop *s*, behind which is a lifting-bar *h*, that normally rests under the farthest advanced of the pipes and at intervals determined by a mechanism to be next described. The lifting-bar rises and lifts a pipe of pill mass over the stop *s* and onto a guide-tray or tail-tray *t''*, down which the pipe rolls by gravity to the roller H. The roller H and the roller E are both revolving in opposite directions and at different rates of speed. The outer roller E is revolving faster and revolving in a direction to carry the pill mass forward and downward into the narrow space between the rollers, and as the material is carried forward it is cut into pieces and the pieces rolled into pills, the exact shape of each pill being determined by the shape of the grooves.

The device which actuates the lifting-bar *h* is a lever *f*, which is reciprocated by the end *f'* of the lever engaging in a cam-groove *f''* in wheel *f'''*, that meshes with a driving-pinion *f''''* on the shaft G. The lifting-bar *h* is held by pins *h'*, that pass through diagonal slots in the bar and project from the lower part of the stop *s*. As the lifting-bar reciprocates it

risers and falls and each time it rises lifts a pipe of pill material onto the tail-tray ¹³.

The pills are delivered from the machine by means of a spout, (shown in Fig. 4,) and this
5 spout is corrugated on one side to engage closely in the grooves of the outer roller E. It is held against rotation by a stop c, which is secured to the framework and reaches into the space between the rolls below the shaft.

10 What I claim is—

In a pill-making machine, the combination of a hollow roll, E, circumferentially grooved on its inner surface, a cylindrical roll, H, circumferentially grooved on its outer surface,
15 the roll, H, being located within the roll, E, with its axis parallel to the axis thereof, and with each of its circumferential grooves in the same vertical plane as one of the circumferen-

tial grooves of the roll, E, said rolls being located eccentric to each other so that the salient 20 portions of their surfaces shall be approximately tangent at one point, and shall be a distance apart as great as the diameter of the pipes of material to be used at another point, means for rotating said rolls at different ve- 25 locities, means for feeding the pipes of material at a point ahead of the point of tangency and means for withdrawing the formed pills at a point beyond the point of tangency, substantially as described. 30

In testimony whereof I sign this specification in the presence of two witnesses.

WALTER MIDDLEDITCH.

Witnesses:

JOHN N. GOODRICH,
MAY E. KOTT.