

No. 625,348.

Patented May 23, 1899.

A. R. MORRIS.  
TABLET FORMING MACHINE.

(Application filed Dec. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

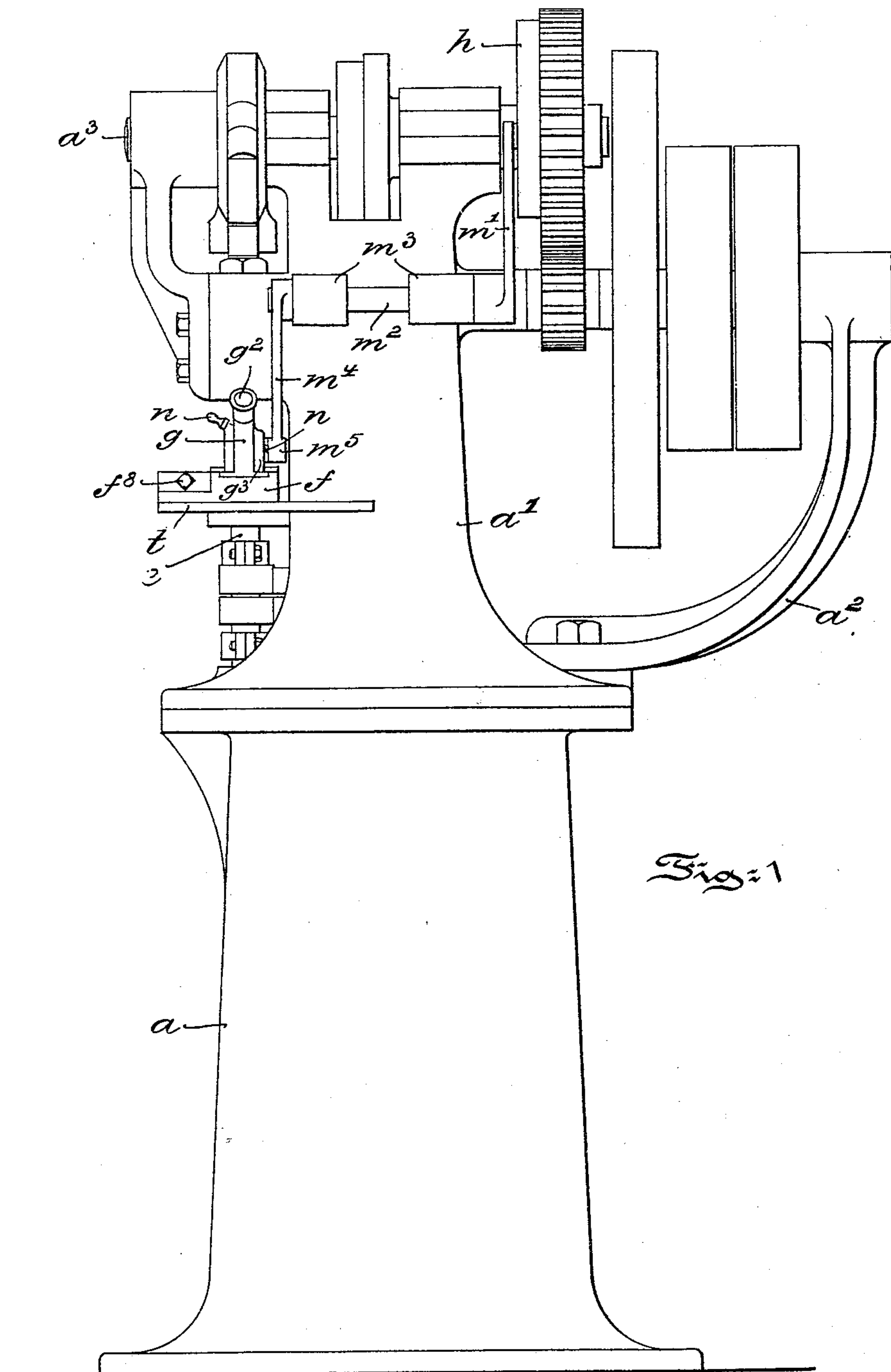


Fig. 1

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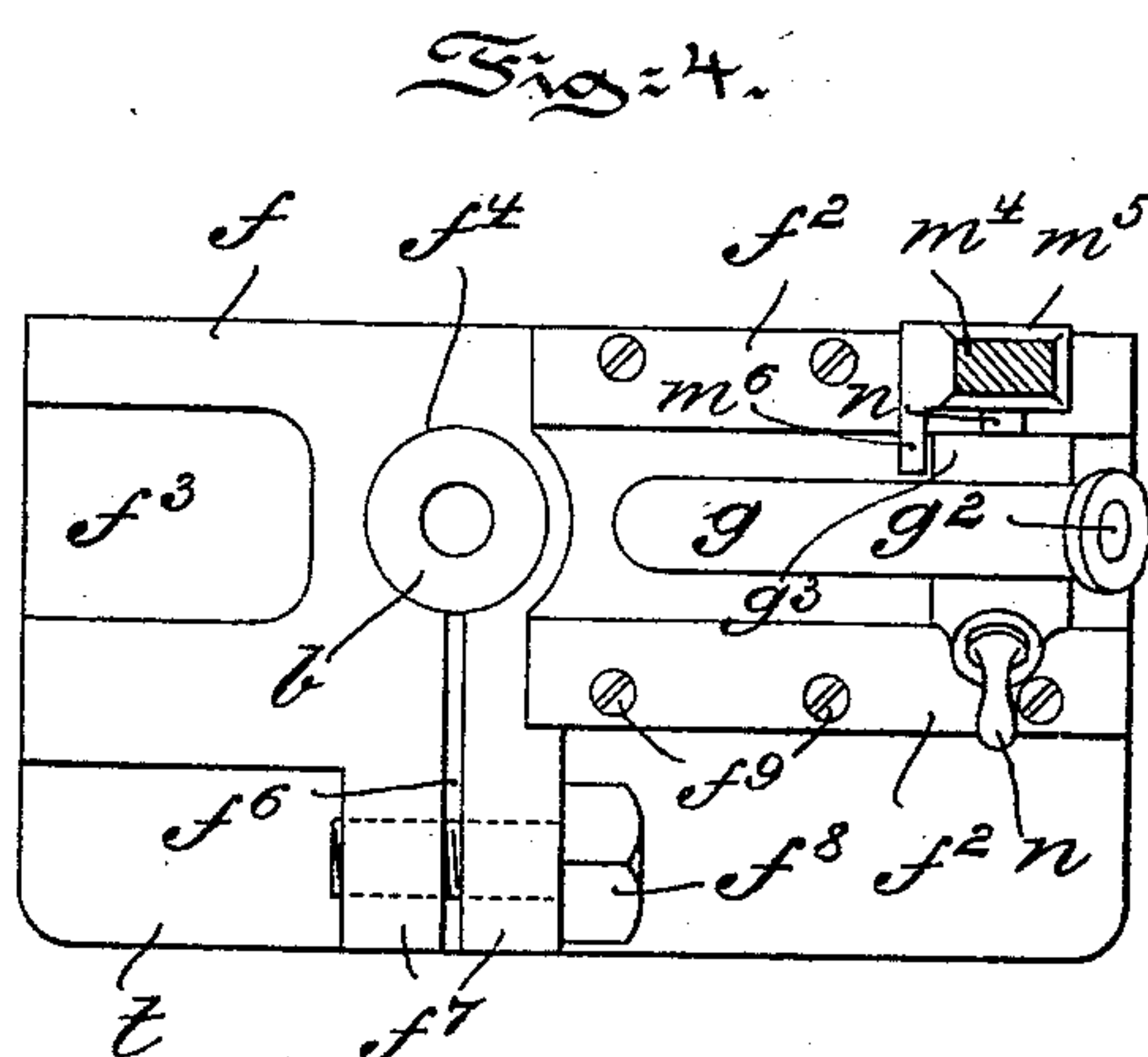
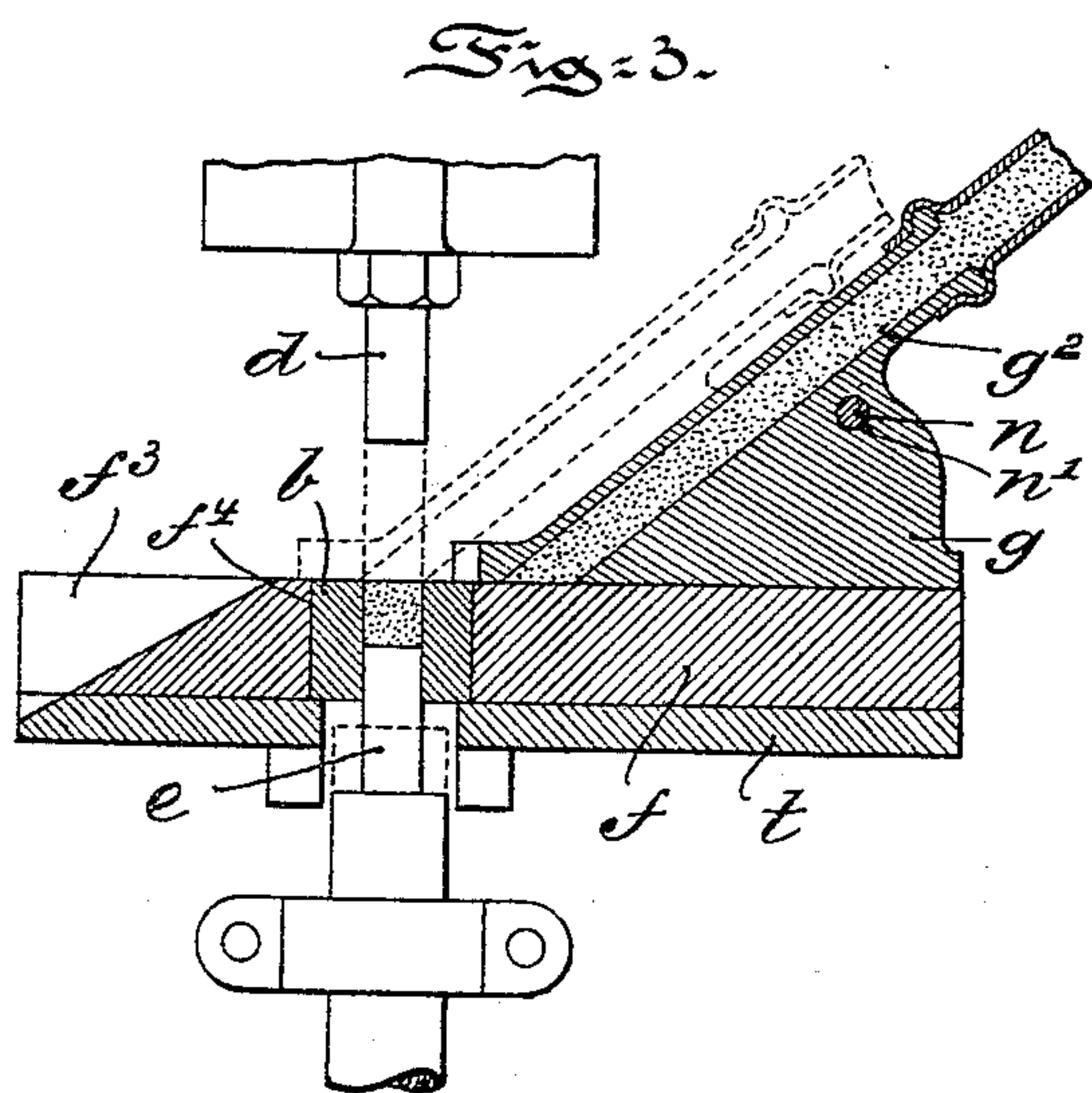
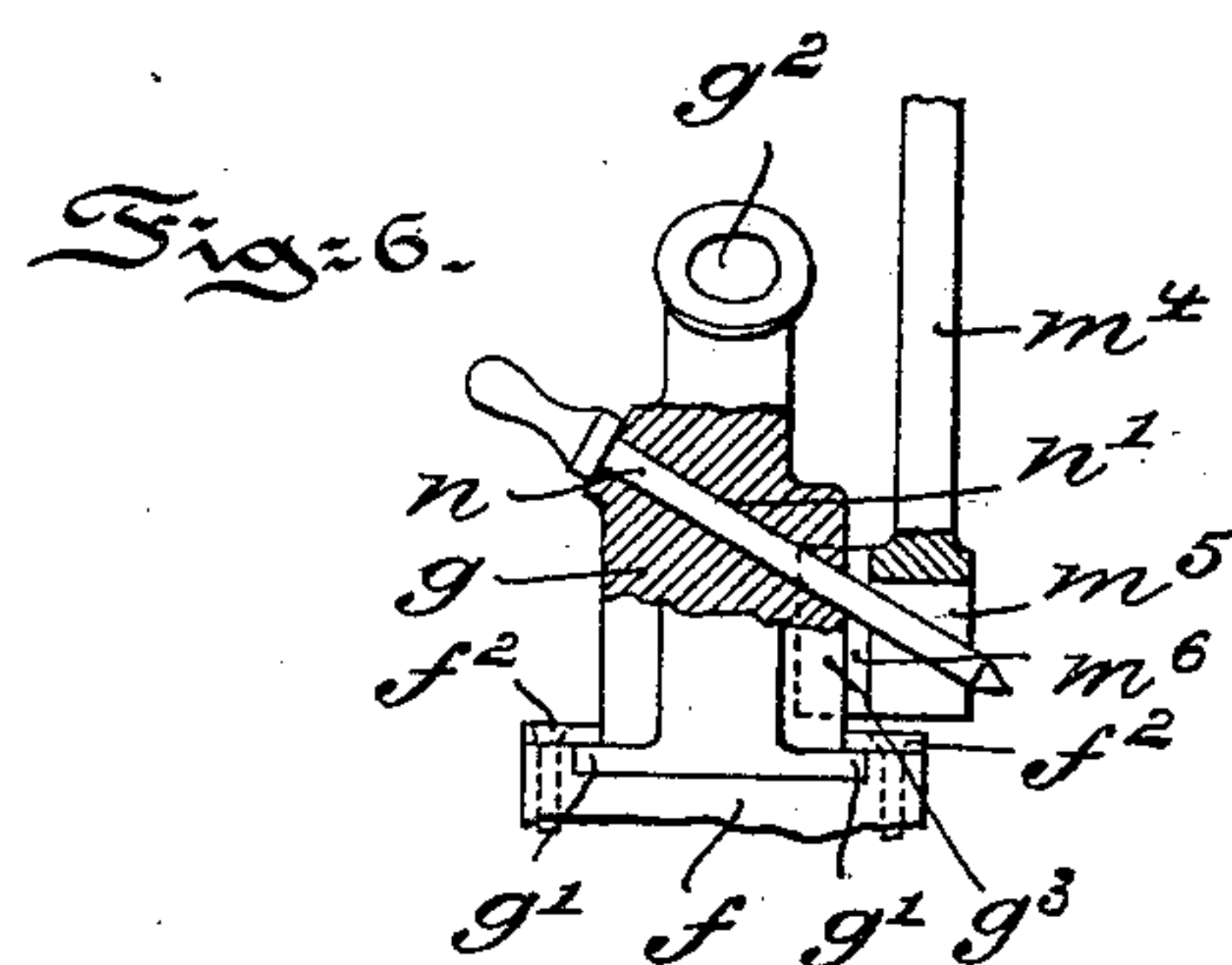
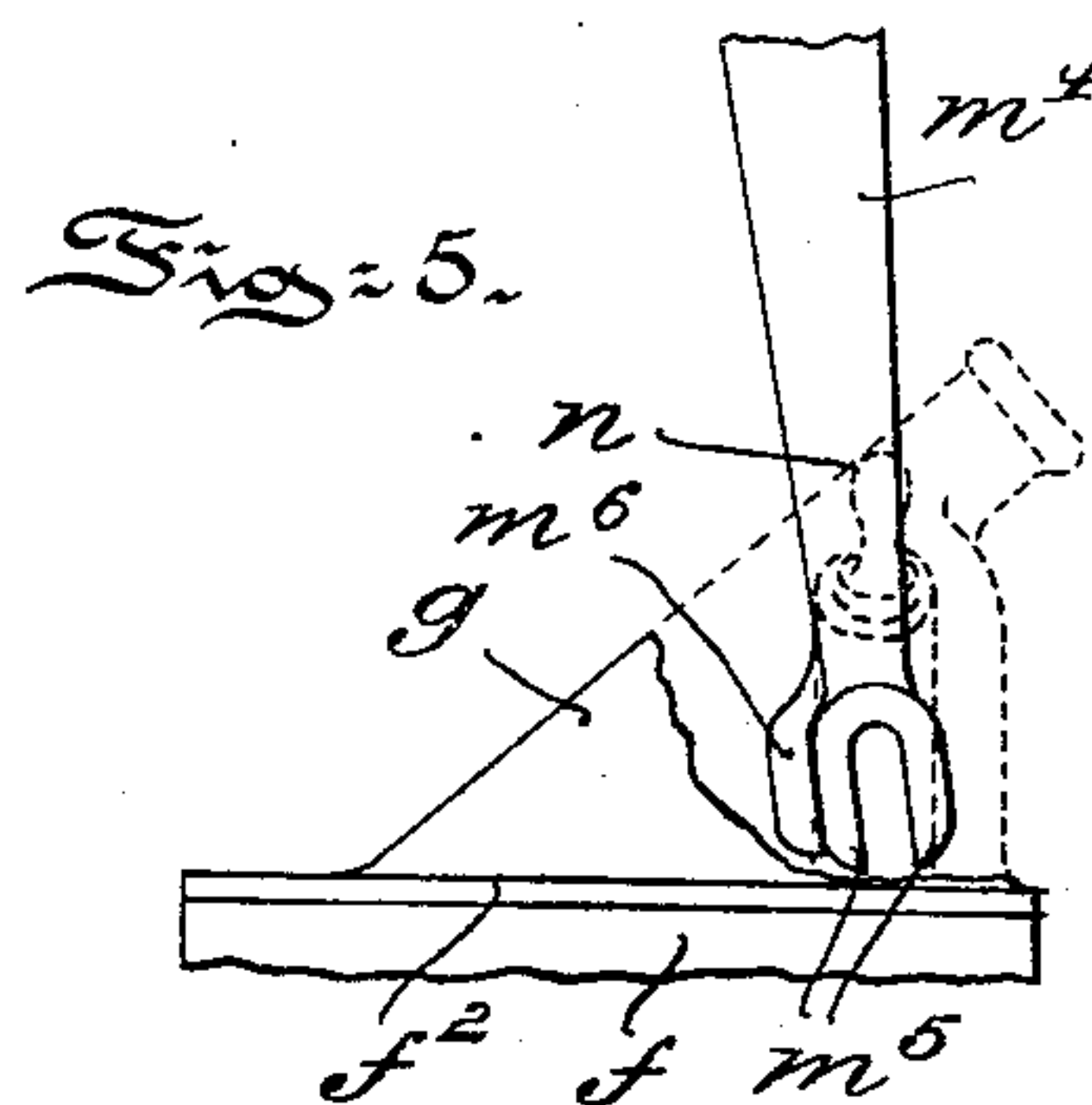
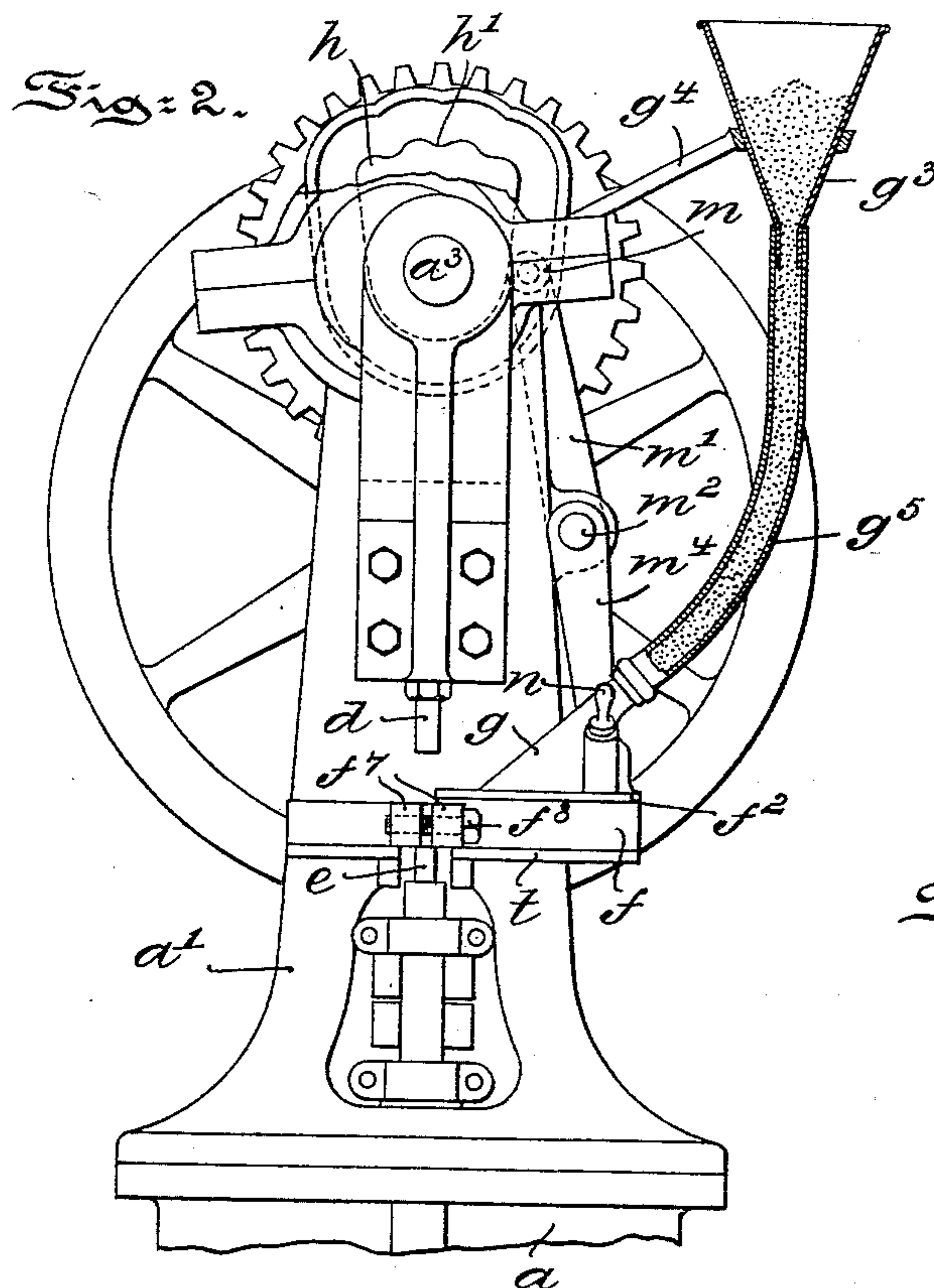
**A. R. MORRIS.**

**TABLET FORMING MACHINE.**

(Application filed Dec. 30, 1898.)

(No Model.)

**2 Sheets—Sheet 2.**



2 Witnesses:

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# UNITED STATES PATENT OFFICE.

ABRAHAM ROWLAND MORRIS, OF PHILADELPHIA, PENNSYLVANIA.

## TABLET-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 625,348, dated May 23, 1899.

Application filed December 30, 1898. Serial No. 700,706. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM ROWLAND MORRIS, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Tablet-Forming Machines, of which the following is a specification.

My invention has relation to a tablet-forming machine.

The principal objects of my invention are, first, to provide, in a tablet-forming machine, a cup adapted to feed material to a die, mechanism for reciprocating the cup, and means for instantly disconnecting the cup from the reciprocating mechanism without stopping the machine; second, to provide, in a machine of the character described, a cup adapted to feed material to a die, a rocker-arm having a forked end and adapted to reciprocate the cup, means for rocking the arm, and means adapted to pass freely through the cup and to enter the forked end of the rocker-arm, and, third, to provide, in a machine of the character described, a cup adapted to feed material to a die, a plunger with a punch, mechanism for reciprocating the cup, means for instantly disconnecting the cup from the reciprocating mechanism without stopping the machine, and a safety device connected with the said reciprocating mechanism for preventing the shifting of the cup under the punch of said plunger after disconnection of the cup from said reciprocating mechanism.

My invention, stated in general terms, consists of a tablet-forming machine constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a rear elevational view of a tablet-forming machine embodying the main features of my invention. Fig. 2 is an end elevational view of the same, partly broken away and sectioned. Fig. 3 is a longitudinal sectional view, enlarged, of the feeding-cup, the trough, and the table. Fig. 4 is a top or plan view of Fig. 3. Fig. 5 is an end elevational view, enlarged, of the cup and trough, the cup

being broken away and dotted to show the operating-arm for the cup; and Fig. 6 is a rear elevational view of Fig. 5, partly sectioned to show the pin for connecting the arm to the cup.

Referring to the drawings, *a* represents the pedestal or base of the machine, supporting the main framework *a'* and curved standard *a<sup>2</sup>*, supporting the main shaft *a<sup>3</sup>* and counter-shaft of the machine. In machines of this character there are two reciprocating plungers *d* and *e*, adapted, in conjunction with a stationary die *b*, to form the tablet or lozenge. In a companion application filed under date of December 30, 1898, and serially numbered 700,705 the plungers *d* and *e*, together with their operating mechanism and adjustments, are particularly described. In the present application the arrangement and construction of the die *b*, the trough *f*, table *t*, and the feeding mechanism are designed to be covered, in connection with any reciprocating plungers provided with punches and operating mechanism as are necessary for the formation of a tablet, and hence further detailed description of the plungers, with their punches and operating mechanism, is not deemed herein necessary.

The framework *a'* supports a stationary table *t*, upon which is located a trough *f*, having a chute *f<sup>3</sup>* at its front end and a recess *f<sup>4</sup>* of preferably circular outline designed to receive and retain the correspondingly-shaped die *b*. It is to be understood, however, that the shape of the recess *f<sup>4</sup>* may vary with the shape of the die *b* to be used. The trough is transversely split, as at *f<sup>6</sup>*, and provided with two spring extensions *f<sup>7</sup>*, which are adapted to be clamped together by suitable means, which may consist, as illustrated in the drawings, of bolts *f<sup>8</sup>*. The die *b* is first inserted in its proper position in the recess *f<sup>4</sup>* of the trough *f*, and thereafter the bolts *f<sup>8</sup>* are tightened to clamp the trough tightly upon the die. Upon the upper surface of the trough *f* are secured by pins or screws *f<sup>9</sup>* or any suitable means the two guide-rails *f<sup>2</sup>*, adapted to receive and guide the flanges *g'* at the base of the cup *g*. The cup *g* has an inclined tubular channel or way *g<sup>2</sup>*, terminating at the base of the cup a slight distance from the forward end of said cup, and to this channel or way *g<sup>2</sup>* the material in the form of powder is fed



from preferably a funnel-shaped hopper or receptacle  $g^3$ , flexibly supported by a bracket  $g^9$  from the framework  $a'$  and connected by a rubber or similar flexible tube  $g^5$  with the top of the cup. The cup  $g$  is caused to slide over the trough  $f$  to fill the die  $b$  and to push a previously-formed lozenge or tablet into the chute  $f^3$  by means of the following preferred mechanism. Upon the main shaft  $a^3$  is secured a suitably-formed cam  $h$ , having throw and dwell surfaces, as well as the irregular surface  $h'$  on one part of the dwell, for a purpose to be hereinafter described. On the surface of the cam  $h$  rides a roller  $m$ , carried at one end of a rocker-arm  $m'$ , the other end of which is secured to a rock-shaft  $m^2$ , oscillating in suitable bearings  $m^3$  in the framework  $a'$ . To the rock-shaft  $m^2$  is also secured a second rocker-arm  $m^4$ , depending from the shaft and having a forked or slotted free end  $m^5$  adjacent to the side of the cup  $g$ , and which arm has a projection  $m^6$ , engaging a projection  $g^3$  of the cup  $g$ , as fully illustrated in Figs. 4 and 6, for the purpose of serving as a safety-lug for preventing the cup after the withdrawal of the pin  $n$  from being shifted or pushed under the punch, thus preventing breakage of certain parts of the machine.

In machines of this character it frequently happens that the feeding mechanism clogs up or feeds imperfectly, and hitherto to repair or clean the feeding mechanism it was necessary to first stop the machine before the mechanism could be removed. Before, however, the machine stops a number of tablets would be formed, which, as they were imperfect, were thrown away and entailed considerable loss in the operation of the machine. The present invention is designed especially to so connect the cup  $g$  with the operating mechanism that the cup may be instantly disconnected from the said mechanism without stopping the machine, whereby the loss of material above explained is avoided and also rendering it absolutely impossible to push the cup under the punch of the plunger after the pin is withdrawn from the cup. One way of so connecting the cup to the rocker-arm  $m^4$  is illustrated in the drawings, and it consists of a pin  $n$ , inserted in a channel  $n'$ , drilled through the cup at an angle of approximately sixty degrees to the base of the cup or at such an angle of inclination as will permit the pin  $n$  to be readily dropped into the channel  $n'$  or to be quickly removed therefrom. The lower end of the pin

$n$  projects beyond the cup  $g$  and is adapted to enter the forked end of the arm  $m^4$ , as is indicated in Fig. 6, when said arm registers with the channel  $n'$  of the cup. To disconnect the cup from its operating mechanism, the pin  $n$  is lifted out of the cup and the slotted end of the arm  $m^4$ , whereupon the cup will at once cease to reciprocate, although the arm  $m^4$  may continue to rock until the repairs to the cup are completed. The irregular surface  $h'$  of the cam  $h$  causes the roller  $m$  riding thereon to be slightly elevated and depressed a number of times, whereby the rocker-arms and rock-shaft are slightly actuated or rocked, and thereby agitate the cup  $g$  and assist the powder to flow more freely through the channel-way  $g^2$  of the said cup.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, a cup adapted to feed material to the die, mechanism for reciprocating said cup, and means for instantly disconnecting said cup from said reciprocating mechanism without stopping the machine, substantially as and for the purposes described.

2. In a machine of the character described, a cup adapted to feed the material to the die, a rocker-arm having a lower forked end and adapted to reciprocate the cup, means for rocking said arm, and a pin adapted to pass freely through the cup and to enter the forked end of the rocker-arm, substantially as and for the purposes described.

3. In a machine of the character described, a cup adapted to feed material to the die, a plunger with a punch, mechanism for reciprocating said cup, means for instantly disconnecting said cup from said reciprocating mechanism without stopping the machine, and a safety device connected with said reciprocating mechanism for preventing the shifting of said cup under the punch of said plunger after disconnection of said cup from said reciprocating mechanism, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ABRAHAM ROWLAND MORRIS.

Witnesses:

J. WALTER DOUGLASS,  
THOMAS M. SMITH.