E. H. FREY.

TYPE CASTING AND TUBING MACHINE.

APPLICATION FILED MAR. 28, 1908. RENEWED DEC. 14, 1909.

965,448.

Patented July 26, 1910.

5 SHEETS—SHEET 1.

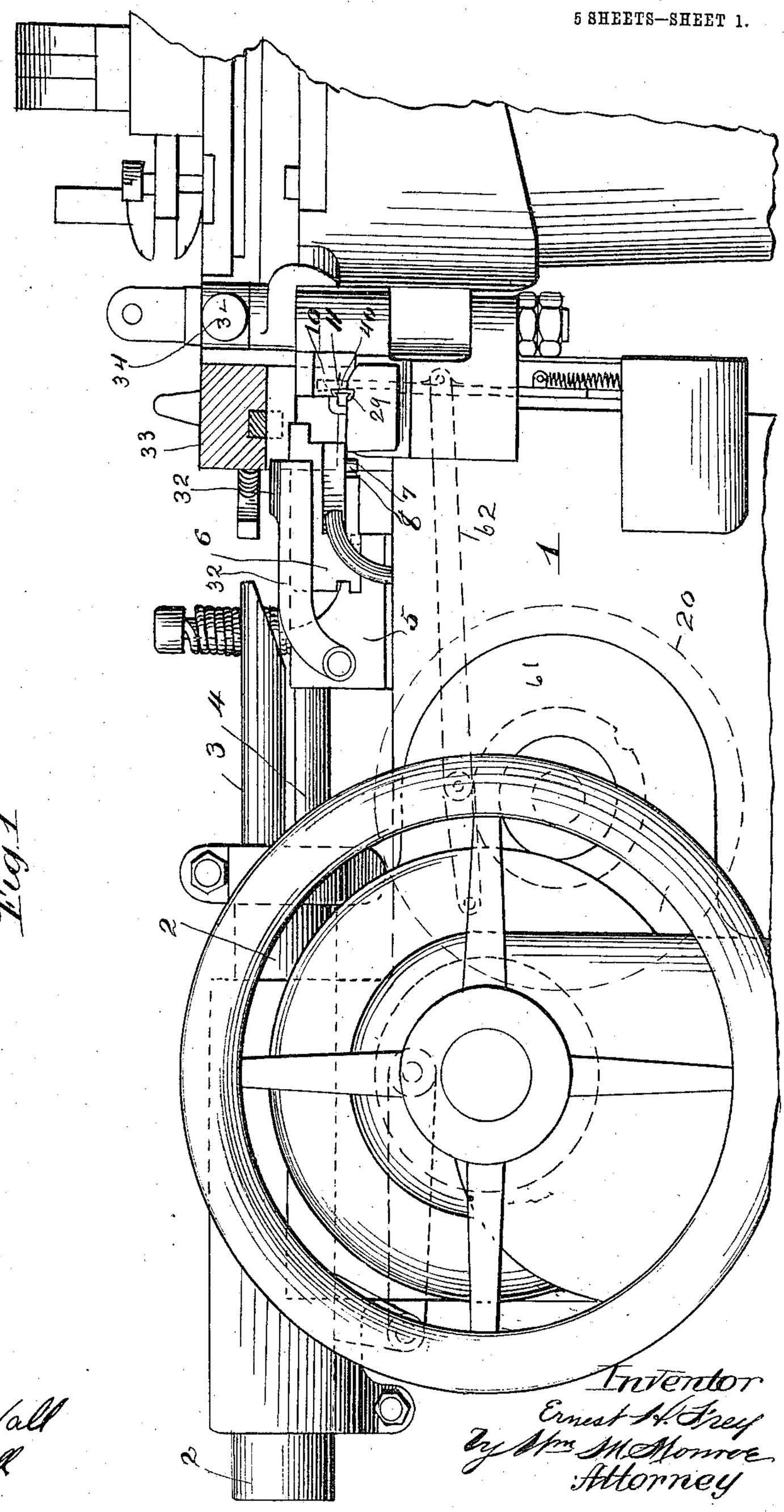

Fig. 1.

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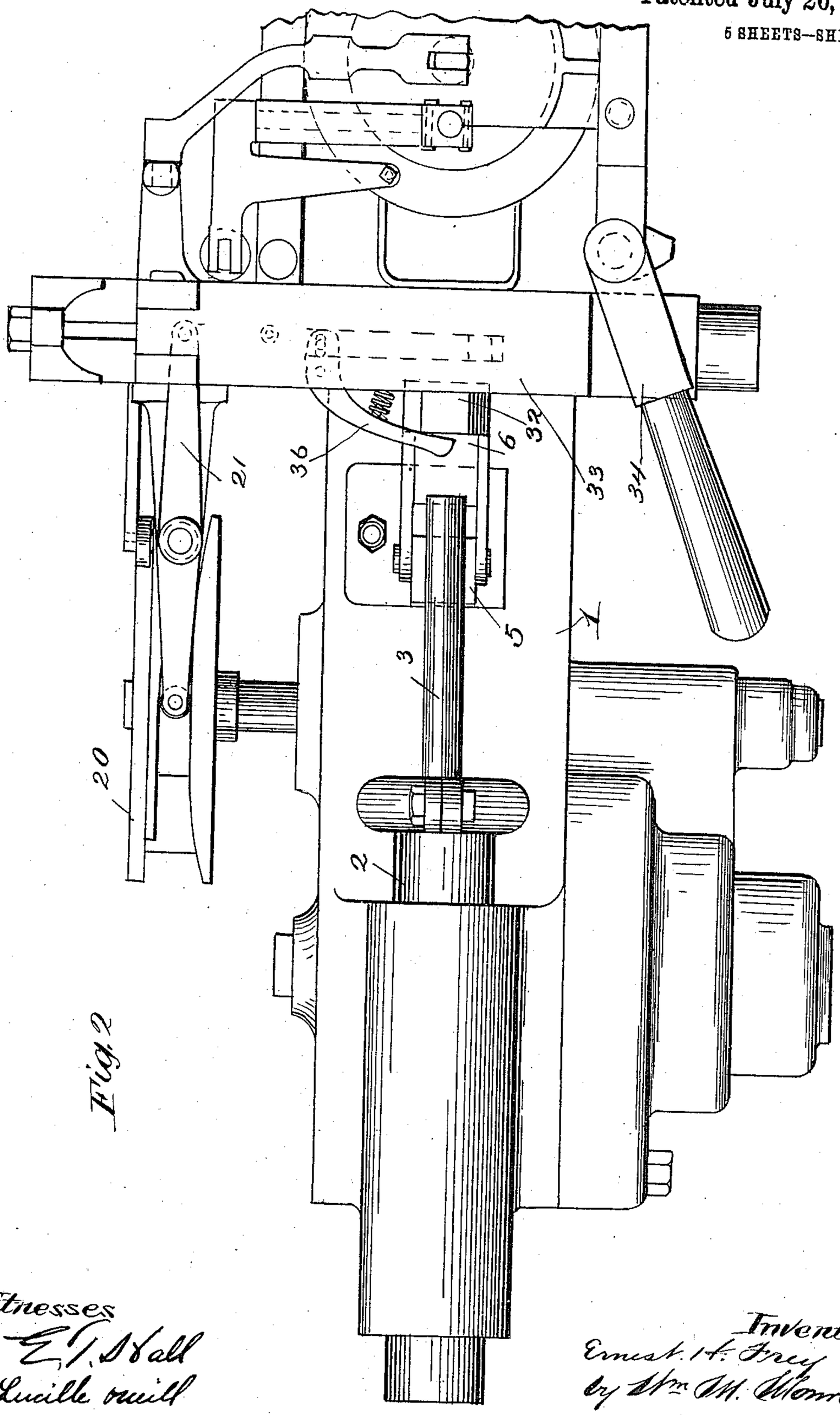

Fig. 2

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Fig. 3

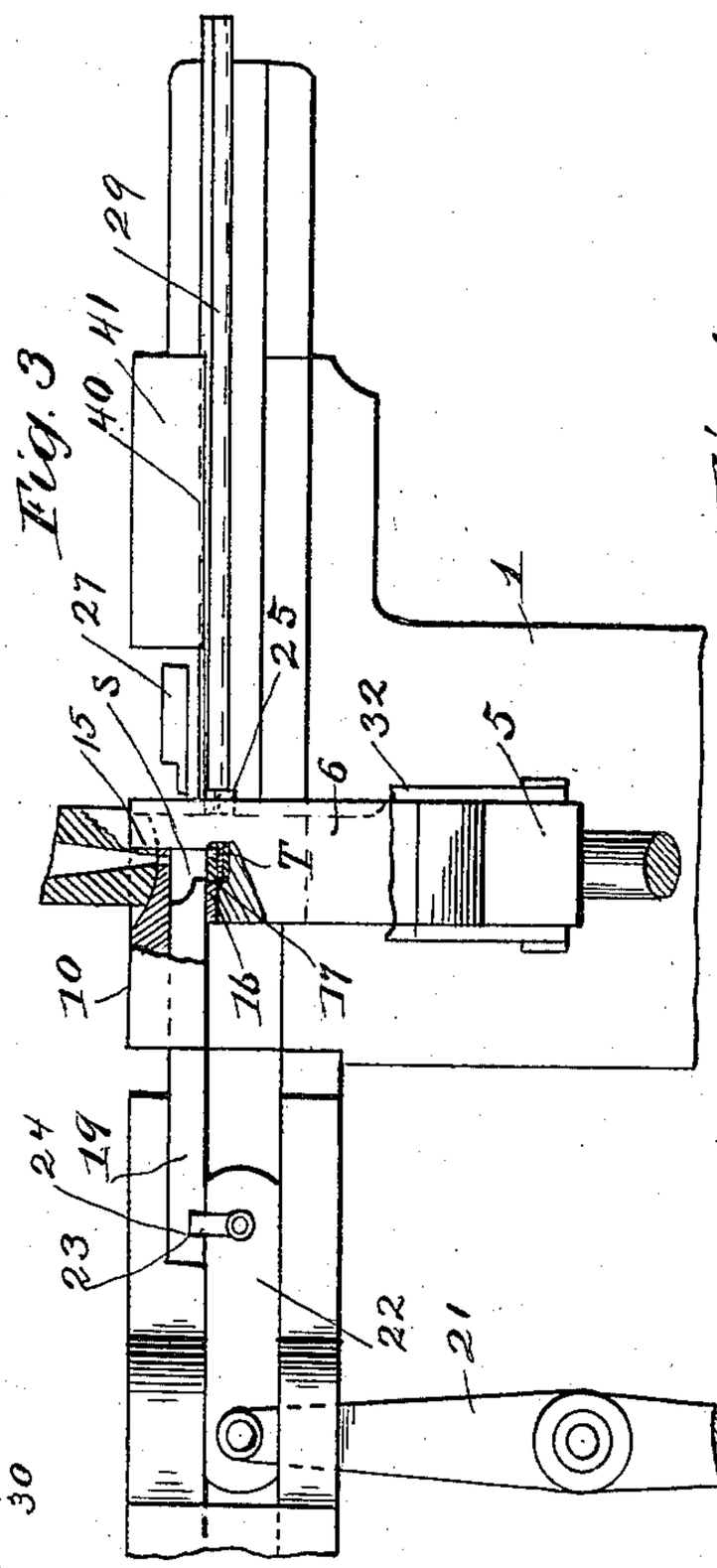


Fig. 4

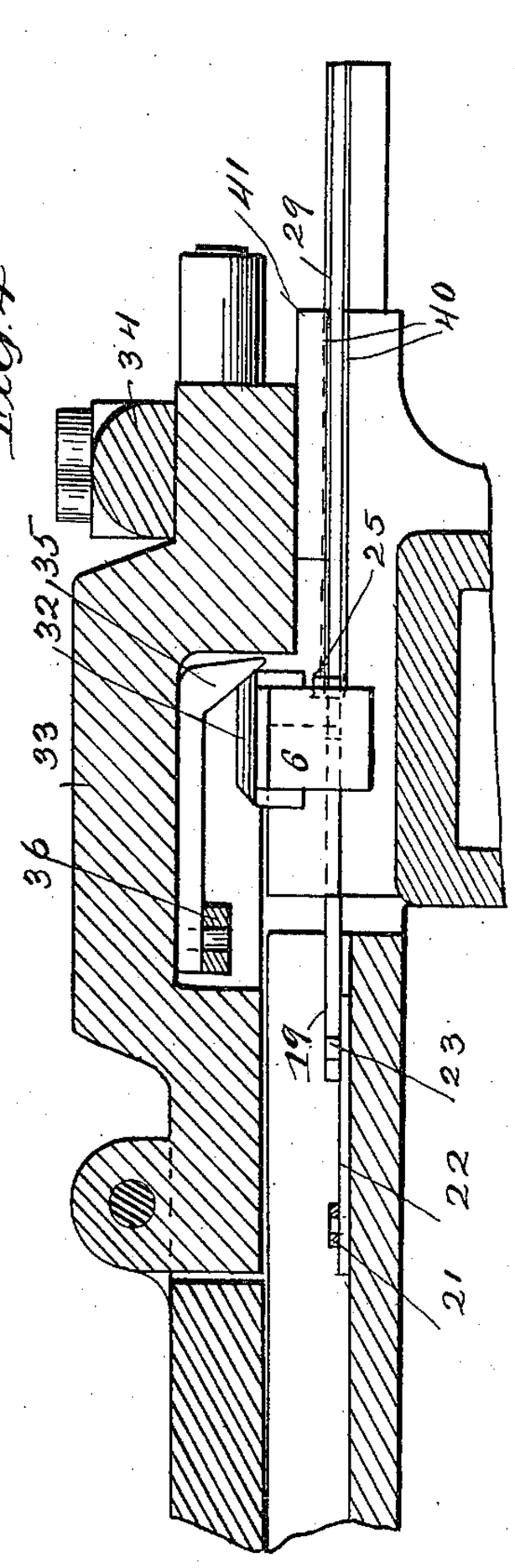


Fig. 6

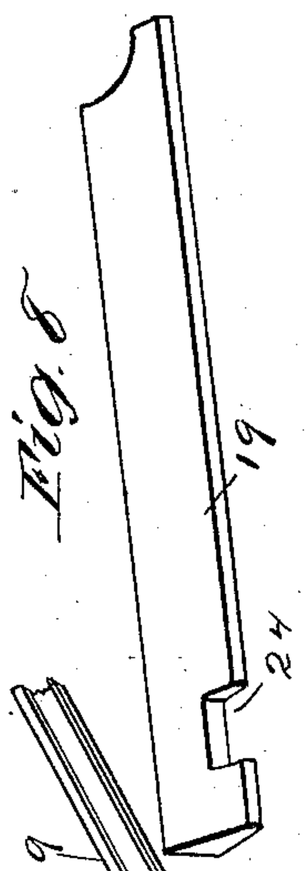


Fig. 7.

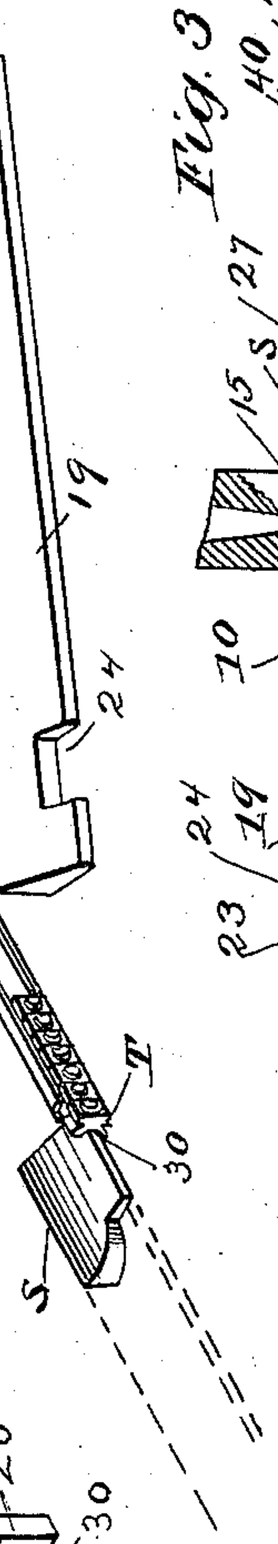
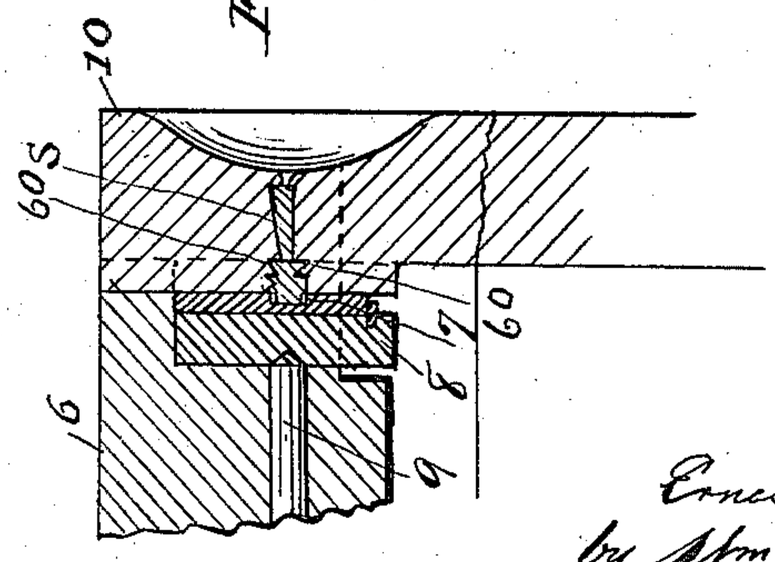


Fig. 8.

Fig. 5



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5 SHEETS—SHEET 4.

Fig. 9.

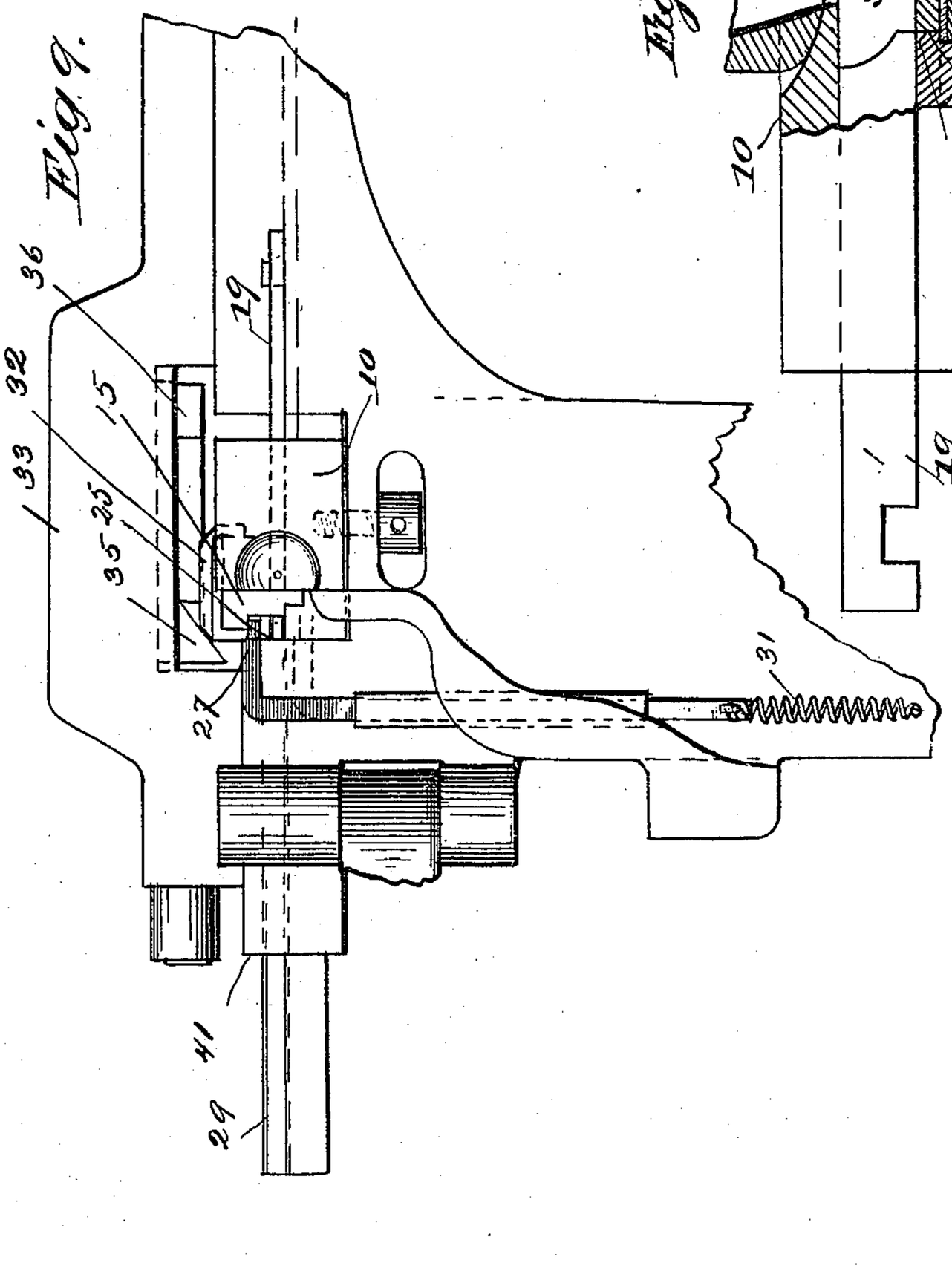
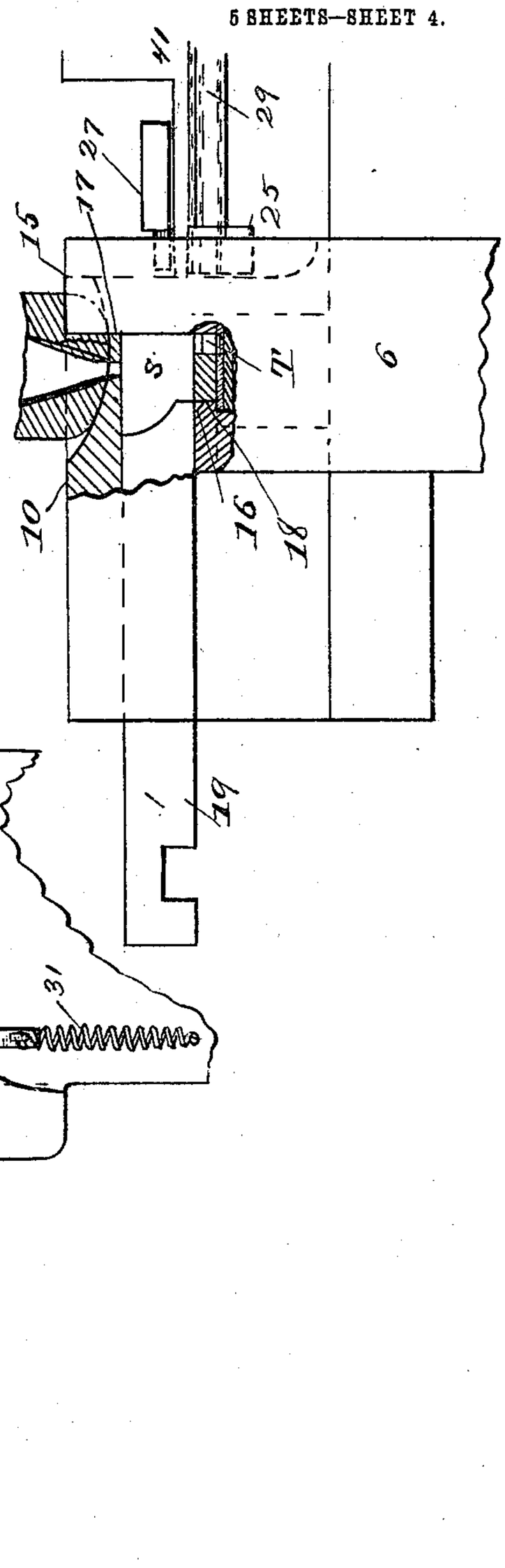


Fig. 10.



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5 SHEETS—SHEET 5.

Fig. 14

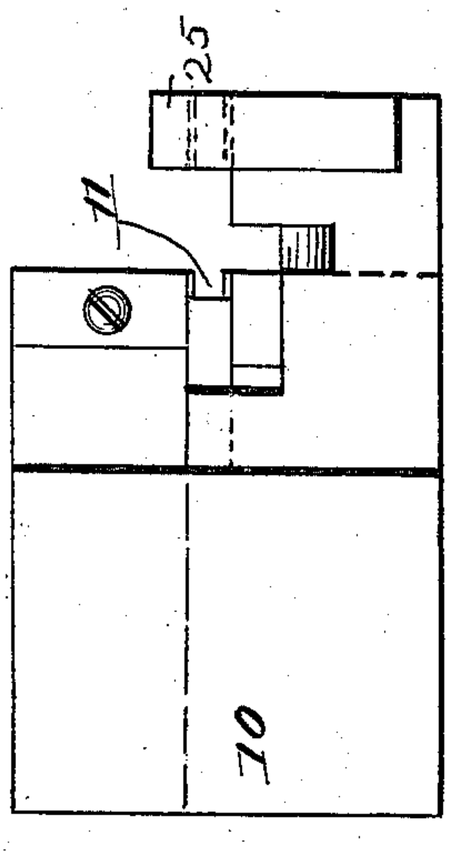


Fig. 15

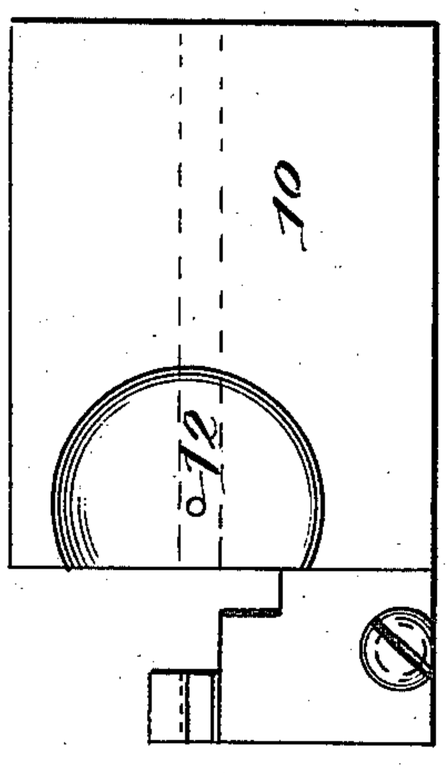


Fig. 16

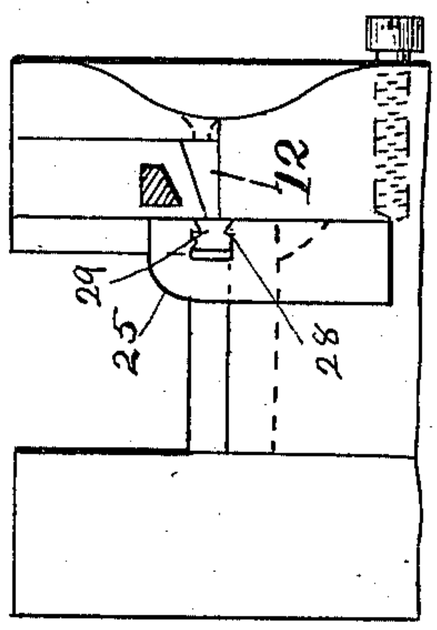


Fig. 17

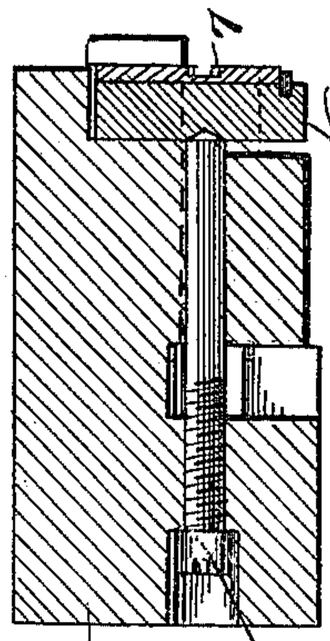


Fig. 11

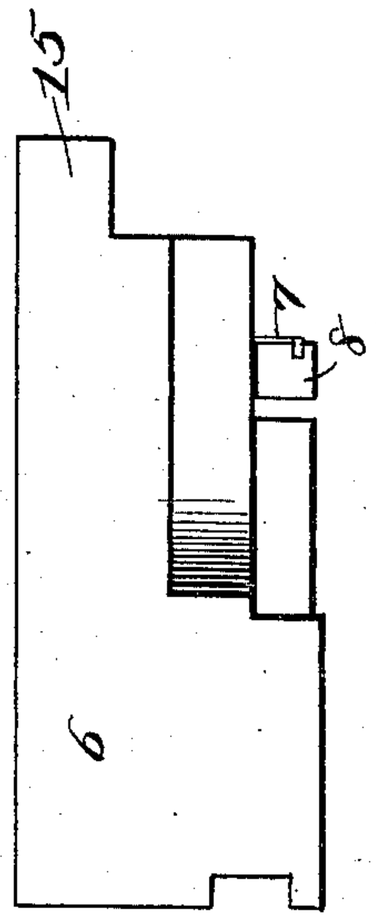


Fig. 12

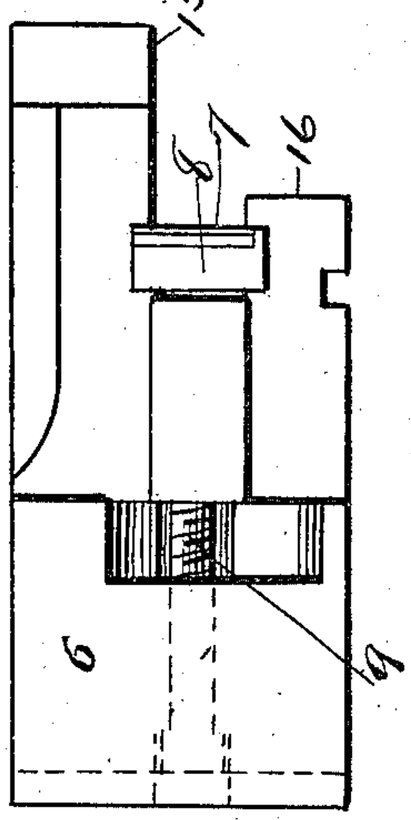
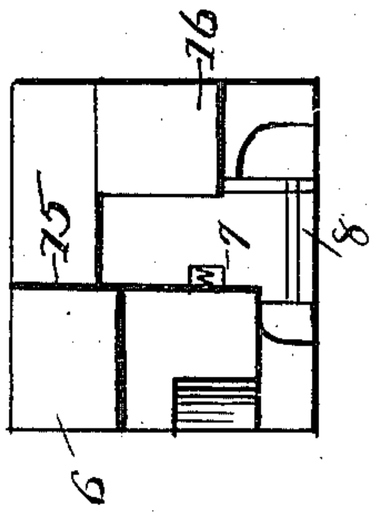


Fig. 13



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UNITED STATES PATENT OFFICE.

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TYPE CASTING AND TUBING MACHINE.

965,448. Specification of Letters Patent. Patented July 26, 1910.

Application filed March 28, 1908, Serial No. 423,800. Renewed December 14, 1909. Serial No. 533,114.

To all whom it may concern:

Be it known that I, ERNEST H. FREY, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Type Casting and Tubing Machines, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide instrumentalities in a type casting machine for storing the type when cast within a removable tube or channel bar, so that they are portable in that condition, and can readily be applied to a type setting device adapted for use in setting the type in the card of an addressing machine or for analogous uses.

A further object is to provide molds of such a form of construction as to cast a very short type suitable for setting up in such cards and to provide means for temporarily receiving them, and for removing the gate which must necessarily be cast with the type, and afterward be broken away in such a manner as not in any way to roughen the smooth engaging lower surface of the type, which must slide easily in the card grooves and rests flatly upon the bottom thereof, as shown in my Letters Patent Number 871,581 and date of Nov. 19, 1907, for a card for an addressing machine.

Further objects are to provide a suitable support for a channeled storage "tube" or type holder in communication with the temporary type receiver and in exact alinement therewith and in which the channeled "tube" is removably held, so that as each tube is filled another one can be substituted for it and filled in turn.

Further features of the invention comprise automatically operating means for ejecting the type and gate from the molds and for filling the tubes and the invention consists further in the combination and arrangement of the various parts and construction of details as hereinafter described, shown in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the machine; Fig. 2 is a plan view of the same; Fig. 3 is a plan view of the molds showing the inserted type holding tube and the molds in the closed position; Fig. 4 is a transverse section on line *a*—*a* Fig. 2; Fig. 5 is a longitudinal central section of the molds; Fig. 6 is a perspective view of a type; Fig. 7 is a similar view of the type holding tube and type just before entering the same; Fig. 8 is a perspective view of the type ejector; Fig. 9 is a rear elevation of stationary gate showing the device for closing the molds, the type ejector and gate breaker; Fig. 10 is an enlarged sectional view of the molds in their closed position; Fig. 11 is a side elevation of insert gate; Fig. 12 a bottom view thereof; Fig. 13 a front elevation thereof; Fig. 14 is a front elevation of the stationary mold; Fig. 15 is a rear elevation thereof; Fig. 16 an end elevation thereof, and Fig. 17 is a longitudinal section of the insert mold.

It may be prefaced that the main portions of the machine and working mechanism employed relate to former inventions in type casting machinery and hence form no feature in this invention, the patentable features of which are confined to the molds and type holding and loading devices.

In the accompanying drawings, 1 is the machine bed plate, 2 is the reciprocating bar, provided with projecting rods 3 and 4, upon one of which 4 is secured the chair 5 for the insert or movable mold, 6, in which are secured the matrix 7 and matrix holder 8.

9 is the adjusting screw for the matrix and holder.

10 is the stationary mold block provided with the dovetailed mold recess 11 and which is provided with the gate opening 12 in the rear in which is cast the proportionally large gate or flattened casting S by means of which the very short type is moved from one point to another.

The insert mold is provided with projecting portions 15 and 16 which exactly engage with similar shoulders 17 and 18 in the stationary mold and the plane surfaces tightly engage so as to prevent the formation of a fin in the type cast therefrom. In the plan views the adjacent overlapping edges of the insert and stationary molds are seen to meet exactly so that no leakage can occur.

Within the stationary mold block is seen the type ejector bar 19 which is of exactly the same shape as the gate, which is cast in

one end of the opening in which the ejector travels. In Figs. 7 and 10 this construction is clearly shown and a gate S is shown cast therein and the type T is shown attached thereto. It will be seen that the projecting part 15 of the movable insert mold covers the inner end of the gate opening until the type is cast. As soon as the type and slug are cast the insert mold retires and the gate is pushed outward by means of the bar 19 operated by means of a cam wheel 20, rock arm 21 and sliding bar 22, which is provided with a lug 23 adapted to engage with the notch 24 in the ejector bar. This bar moves the type and gate forward until the type enters the temporary holder or retainer 25 and both type, die and temporary holder are provided with corresponding retaining devices shown as dovetailed edges, so that the type is firmly held by the temporary holder. When in this position, a knife or knocker bar 27 descends quickly and separates the gate from the type.

By reference to Fig. 6 the overhanging or dovetailed edges 26 of the type are plainly shown and in Figs. 5 and 16 the dovetailed edges 60 of the mold recess are shown and the recess 28 in the temporary holder and the dovetailed recess 29 therein.

The gate is shown in Fig. 7 attached to the type, just before detachment thereof and just before the type is moved forward to enter the open end of the type holding tube or channel bar 29.

In Fig. 7 the point of attachment 30 of the gate is shown to be in a line transverse to the type and recessed below the plane of the bottom of the type so that when the gate is broken off, the rough edges will not project beyond the plane of the bottom edge. The point of attachment of the gate is also very slight so that it is easily broken off, and no further dressing is required to remove the rough bur from the type.

The exact shape or size of the gate is unimportant but it will be seen that it is of great importance in the handling and guiding of the type to the temporary holder. When broken off it can be thrown away or thrown into the fire pot to be remelted.

The knocker or gate removing knife 27 is raised by any suitable device, such as the cam 61 and rock arm 62 shown in Fig. 2 and depressed by means of the spring 31 at the proper moment. See Fig. 9.

A locking device for the molds is shown in the pivoted wedge plate 32 and hinged bar 33 which is clamped over the wedge plate and insert mold by means of the pivoted arm 34. A sliding wedge bar 35 is operated to secure the molds tightly together by means of the angular lever 36 and upper reciprocating rod 3.

At Fig. 7 is shown a portion of one of the dovetailed "tubes" or channel bars in which the type are stored. This is shown also in Figs. 1, 3, 4, and 10 and is slidingly inserted in the dovetail groove 40 in the back plate 41, so as to be in alinement with the type receiver or temporary holder, and is adapted to receive the type one at a time directly therefrom, and as one type succeeds another in the type receiver the one therein will be pushed forward into the "tube" or type holder, until the holder is full, when the full holder can be removed and an empty one substituted therefor, and the process can be indefinitely continued.

I believe myself to be the first to provide a type casting machine with mechanism for automatically storing the type in holders, or "tubing" them, and therefore broadly claim all devices for accomplishing this object to be of the spirit of this invention.

Having described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a type casting machine, the combination with a frame, of a stationary mold, a removable insert mold, a reciprocatory chair in which the insert mold is mounted, a back plate having a dove-tailed groove formed therein adapted to receive a type storage tube, a type receiver, an ejector adapted to eject the cast type from the stationary mold into said receiver, said mold having a recess therein of such shape as to form a type having a dovetail gate thereon and a spring and cam actuated striker arm adapted to break said gate from said type.

2. In a type casting machine, the combination with a frame, of a stationary mold, a removable insert mold, a reciprocatory chair in which the insert mold is mounted, a back plate having a dove-tailed groove formed therein adapted to receive a type storage tube, a type receiver, an ejector adapted to eject the cast type from the stationary mold into said receiver, said mold having a recess therein of such shape as to form a type having a dovetail gate thereon, a striker arm adapted to break said gate from said type, a locking member for said molds and a reciprocatory cam rod 3 adapted to engage said locking member.

In testimony whereof I hereunto set my hand this 25 day of March 1908.

ERNEST H. FREY.

In presence of—
GEO. O. WILLET,
WM. M. MONROE.