A. KRIBS.

MACHINE FOR MAKING CASTINGS.

APPLICATION FILED SEPT. 8, 1909.

959,557.

Patented May 31, 1910.

2 SHEETS—SHEET 1.

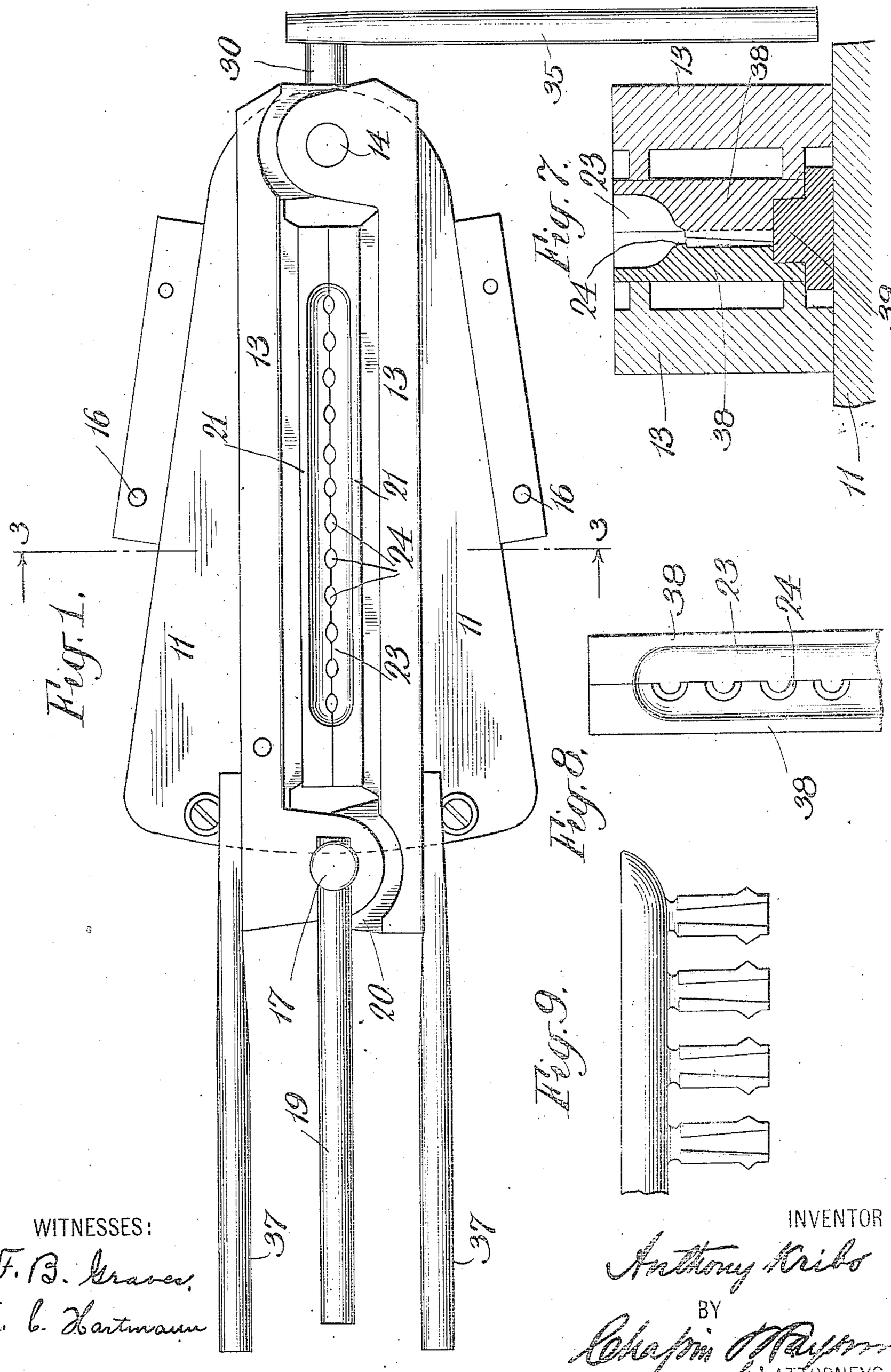

Fig. 1.

Fig. 7.

Fig. 8.

Fig. 9.

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2 SHEETS—SHEET 2.

Fig. 2.

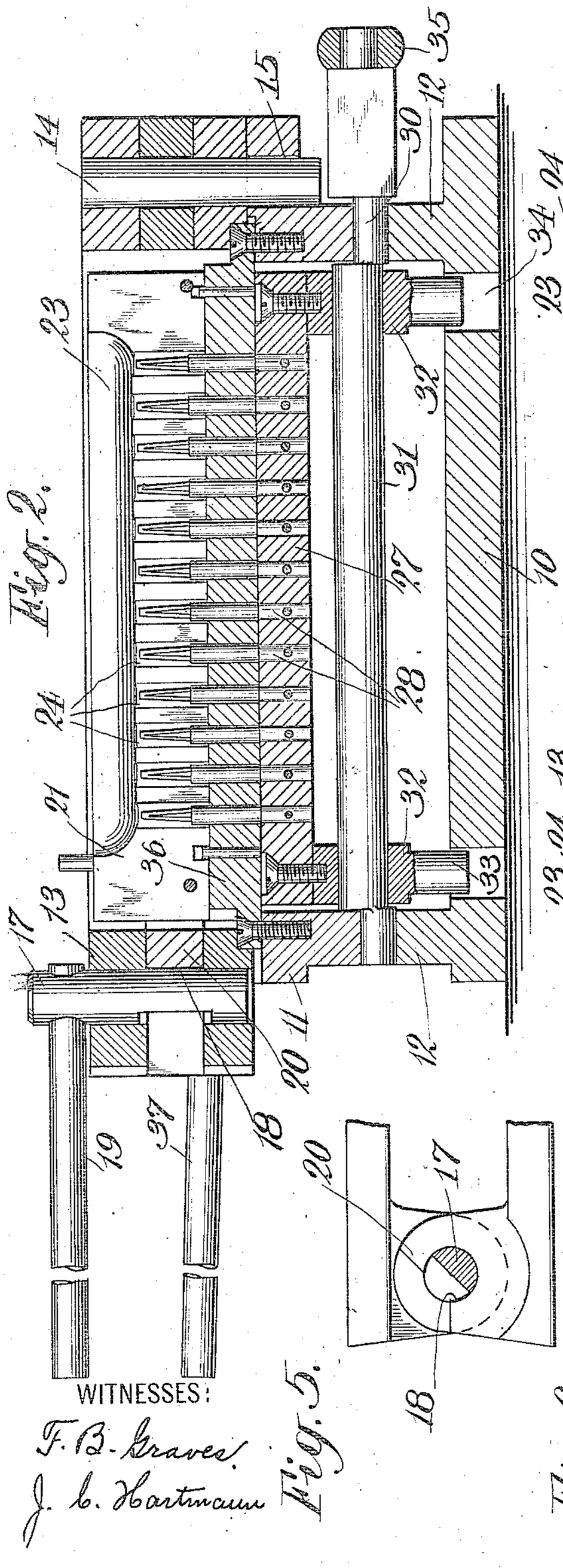


Fig. 3.

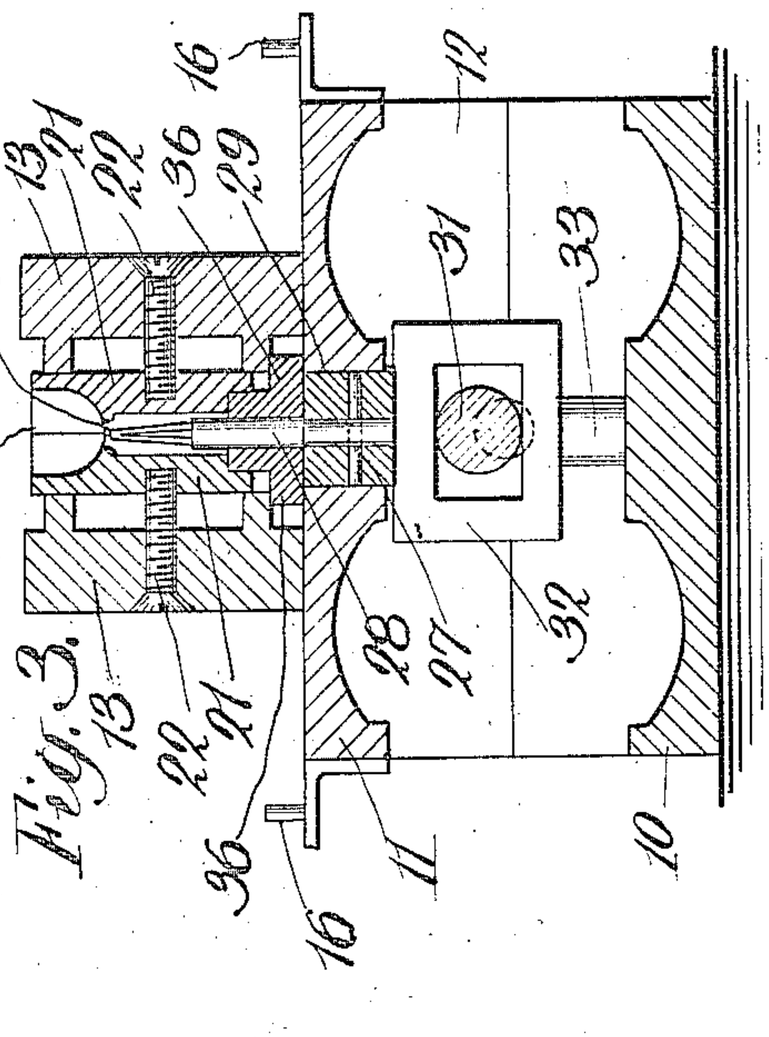


Fig. 4.

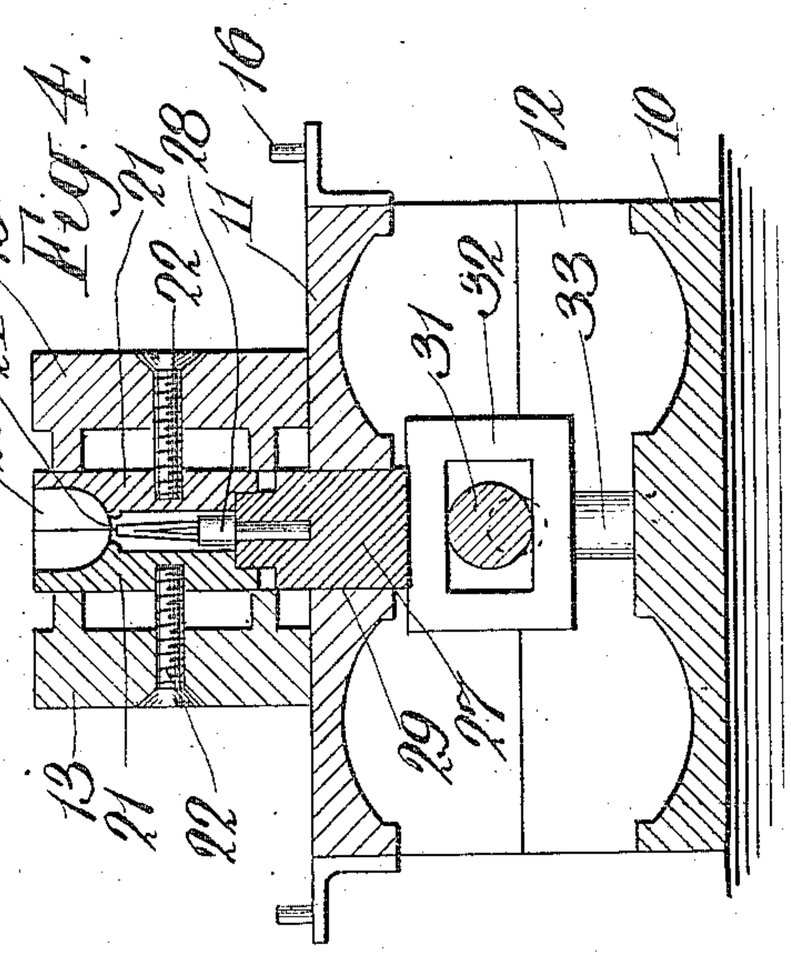
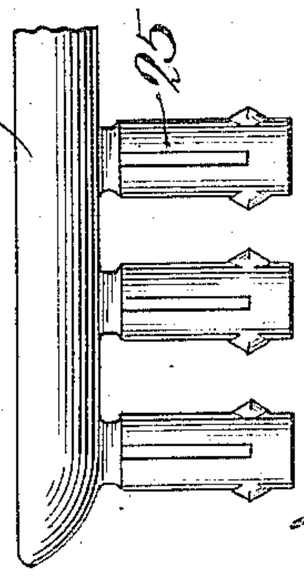


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING CASTINGS.

959,557. Specification of Letters Patent. Patented May 31, 1910.

Application filed September 8, 1909. Serial No. 516,677.

To all whom it may concern:

Be it known that I, ANTHONY KRIBS, a citizen of the United States of America, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Making Castings, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in machines for making castings, and particularly to machines for making castings of soft metal.

The objects of my invention are to facilitate the making of the castings and the handling of the same when made, and to these ends my invention consists in certain novel details of construction and combinations of parts such as will fully appear hereinafter.

In order that my invention may be thoroughly understood, I will now proceed to describe in detail an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a top view of a machine constructed in accordance with my invention. Fig. 2 is a view in central vertical longitudinal section therethrough. Fig. 3 is a view in central vertical transverse section therethrough. Fig. 4 is a similar view in vertical transverse section showing, however, a modified construction in which the stationary table or support for the castings is omitted. Fig. 5 is a detail view of a locking device for the mold sections. Fig. 6 is a view in side elevation of a casting formed in the machine. Fig. 7 is a view in transverse section of a modified form of the machine which may be used when no core is employed. Fig. 8 is a detail top view of the mold elements of such a machine. Fig. 9 is a detail view in side elevation of a casting produced in such a machine.

The bed plate of the machine comprises a base piece 10, a top plate 11, and end walls 12. The said bed plate forms a support for two horizontally movable mold elements 13—13, the said elements being pivoted together at the rear end thereof by means of a pivot pin 14, the lower end of the said pin being received within an opening 15 in the top plate 11, whereby the said mold elements are not only pivotally connected together but are also pivotally connected to the said bed plate. The said elements rest and move upon the face of the top plate 11, their outer movements being limited by means of stops 16 carried by the said bed plate.

The mold elements 13 carry at their forward ends a locking device comprising a cam 17 pivotally supported in one of the mold elements and arranged to engage a recess 18 in the other mold element. The cam is provided with a handle 19 by which it may be operated. The opening 18 is arranged in a lug 20 carried by one of the mold elements 13, having a lateral opening therein of a size to admit the cam when it is properly positioned to receive it, the proper positioning being, of course, accomplished by manipulation of the hand lever 19. When the cam is received within the opening 18 a turning of the lever in the proper direction will tend to draw the mold elements tightly together and will secure them fast in their closed position.

The molds proper 21 are secured in the mold elements conveniently by means of screws 22 whereby they may be readily mounted in position and removed as may be desired. These molds in the present instance are constructed to produce a gang of similar connecting castings, each individual casting being the shell of an expansion bolt. The upper portions of the molds are recessed as at 23 to provide a run for the metal to be cast, connecting passages 24 constituting a series of gates for admitting the molten metal to the various individual mold recesses to form the individual castings. In Fig. 6 three of the individual castings 25 are shown, the same being gated to a sprue 26 formed in the run-way 23; these individual castings may be readily broken at their gated portions.

The machine is provided with a vertically movable core element herein shown as comprising a bar 27, and a plurality of individual cores 28 carried thereby; there is one

core 28 for each individual mold, there being twelve such individual molds and cores shown in the drawings herein. The bar 27 is mounted in a slot 29 in the bed plate 11, being permitted to move freely in a vertical direction therein, and the said bar is thus moved vertically by means of a crank shaft 30, the crank portion 31 of which is received within yokes 32 secured to the opposite ends of the said bar, the said yokes having dependent studs 33 which are received and guided in openings 34 in the base plate 10. The shaft 30 is extended rearwardly and is provided with an operating lever 35. In the example of my invention shown in Figs. 2 and 3, the individual cores 28 pass through a table or support 36, their upper ends being received within the mold recesses in the molds 21. The core element is shown in its uppermost position in Figs. 2 and 3 of the drawings, and at this position the machine is ready for the casting to be made. The casting is made by pouring molten metal into the run-way 23 whence it will flow through the various gates 24 into the individual mold recesses around the cores. After the casting has been made and the metal has been allowed to "set", the locking cam 17 may be rotated by proper manipulation of the handle 19 so as to release the mold elements, and the two mold elements may be horizontally moved in opposite directions, conveniently by manipulation of the handles 37 connected thereto. After the mold sections have thus been drawn apart the operating handle 35 may be manipulated to the end that the core element will be depressed and the cores withdrawn from the castings. The castings are meanwhile sustained by the support 36, the said support holding the casting against downward movement while the cores are being thus withdrawn. In the machine illustrated the cores are moved downward about half the length of the individual castings, but as the cores are tapered they will thereby be entirely freed from the casting and thereafter it will only be necessary to pick up the casting and remove it freely.

In Fig. 4 I have shown a slightly modified construction in which the stationary table or support 36 has been omitted. In this case the mold elements may conveniently be kept in their closed position while the core element is being depressed, and the said mold elements may thereafter be laterally moved for the purpose of removing the casting.

In Figs. 7 and 8 I have shown a form of mold which may be employed where the individual castings are in the form of shell sections, each constituting one-half of a complete shell. In such case there is no need to use a core element independent of the mold elements, as the entire casting may be made by properly forming the molds themselves. Such molds 38 are shown in Figs. 7 and 8, and the table or support 39, corresponding to the table or support 36 of the embodiment of my invention shown in Figs. 2 and 3, is imperforate, and the core element has been omitted entirely. Fig. 9 shows a portion of the gated casting produced in such a machine.

It will be readily understood that castings may be very rapidly made in machines constructed in accordance with the foregoing; the locking and unlocking of the mold sections, their lateral relative movement, and the vertical movement of the core elements are all produced by rapid and simple movements of the various operating handles and levers so that no time is wasted,—moreover, there is a wide open run-way for receiving the molten metal such as requires the minimum care to be expended in pouring the metal. It will readily be perceived, moreover, that the molds will be accurately and positively locked together by the locking device before each casting operation so that there will be no danger of forming fins upon the sides of the individual castings such as would have to be later removed.

What I claim is:

1. In a casting machine, the combination with two mold elements relatively movable in a horizontal direction, and means for securing them together, of a core element for coöperation with the said mold elements, a shaft having a crank portion engaging the said core element, and means for rotating the said shaft to raise or lower the core element, substantially as set forth.

2. In a casting machine, the combination with two mold elements relatively movable in a horizontal direction, and means for securing them together, of a core element for coöperation with the said mold elements, a shaft journaled in a portion perpendicularly stationary with respect to the first said mold elements, the said shaft having an extended crank portion, yokes connected with the said core element at opposite ends thereof arranged for engagement with the said crank portion of the shaft, and means for imparting movements of rotation to the shaft to raise or lower the core element, substantially as set forth.

3. The combination with a bed plate comprising a hollow structure having a base piece, end walls, and a top plate, of two horizontally movable mold elements pivotally connected to the said bed plate and mounted to move horizontally upon the said top plate, each of the said elements containing a mold section having a plurality of individual mold recesses, a core element comprising a

bar and a plurality of individual cores arranged to be received within the said mold recesses, the said bar being mounted within the said bed plate, a shaft journaled in the end walls of the said bed plate and having a crank portion between the said end walls, yokes secured to the ends of the said bar and engaging the crank portion of the said shaft, and means for vertically guiding the said yokes.

In witness whereof I have hereunto set my hand this 3rd day of September, 1909.

ANTHONY KRIBS.

Witnesses:

MAX FOERNSLER,

EMILE A. KRIBS.