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PATENTED FEB. 13, 1906.

C. A. SMITH.
CORE MAKING MACHINE.
APPLICATION FILED NOV. 20, 1905.

2 SHEETS—SHEET 1.

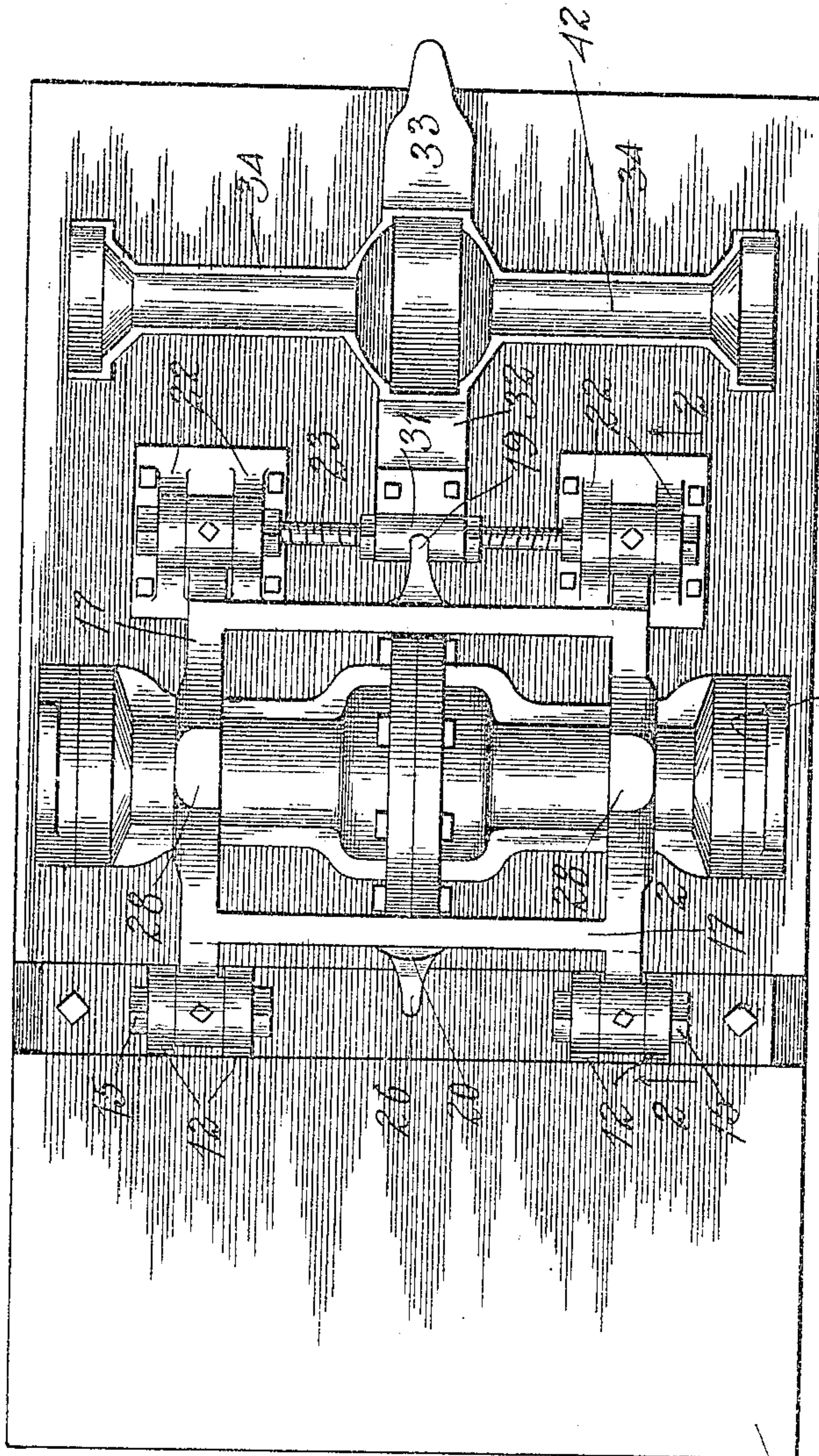


Fig. 1.

3

11

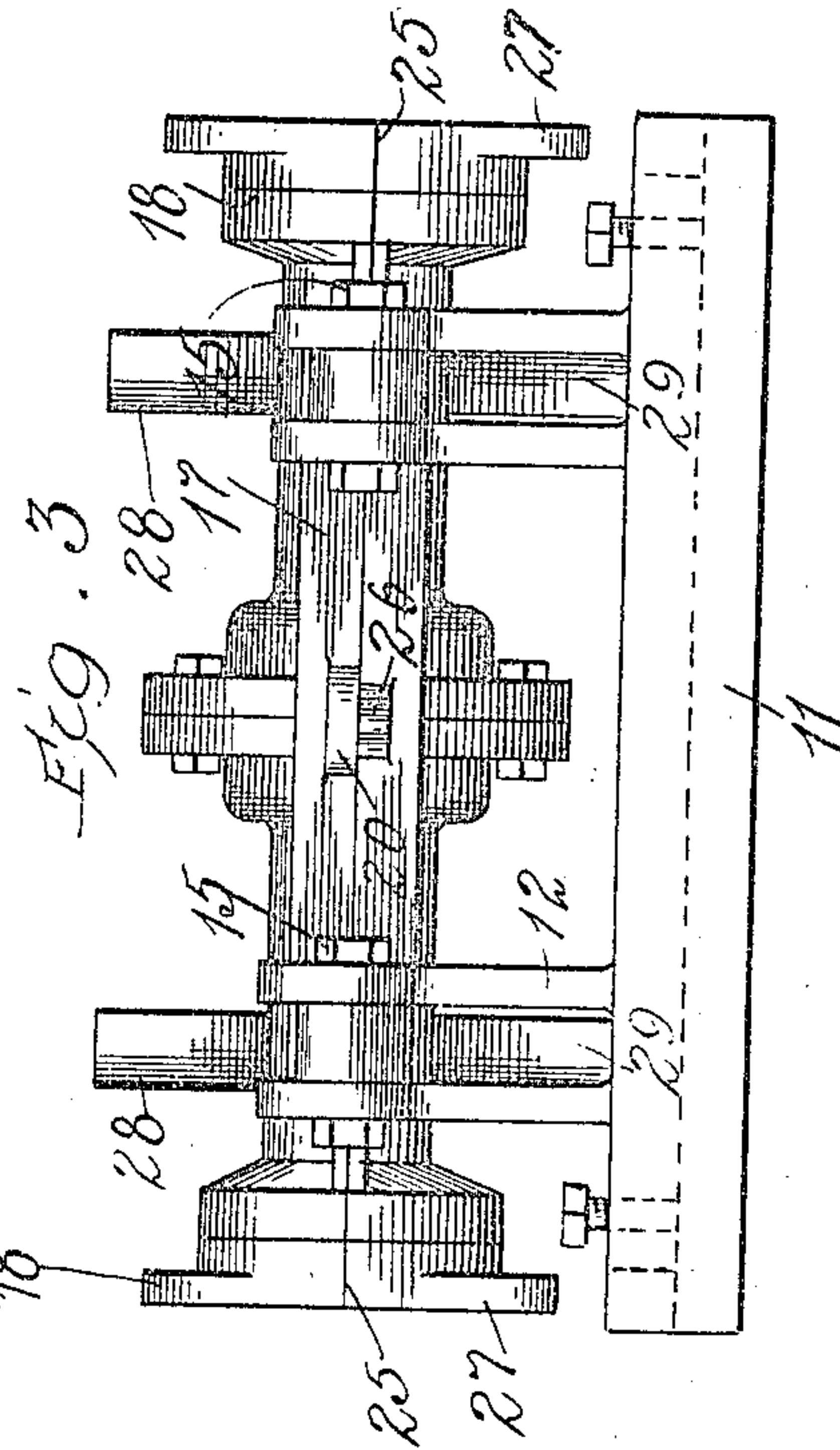
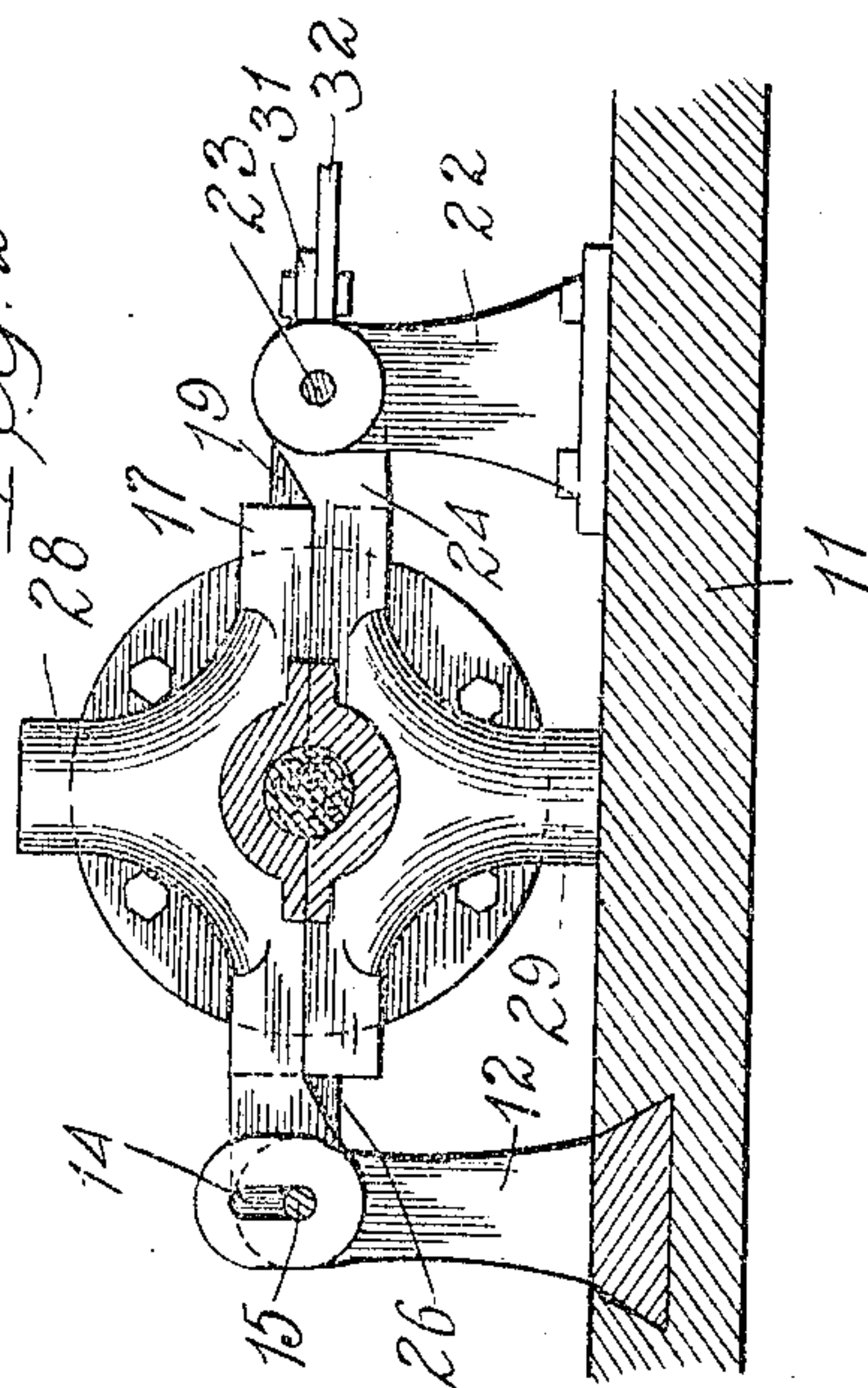


Fig. 3.

Fig. 2.



Witnesses:
Harry R. L. White
Ray White

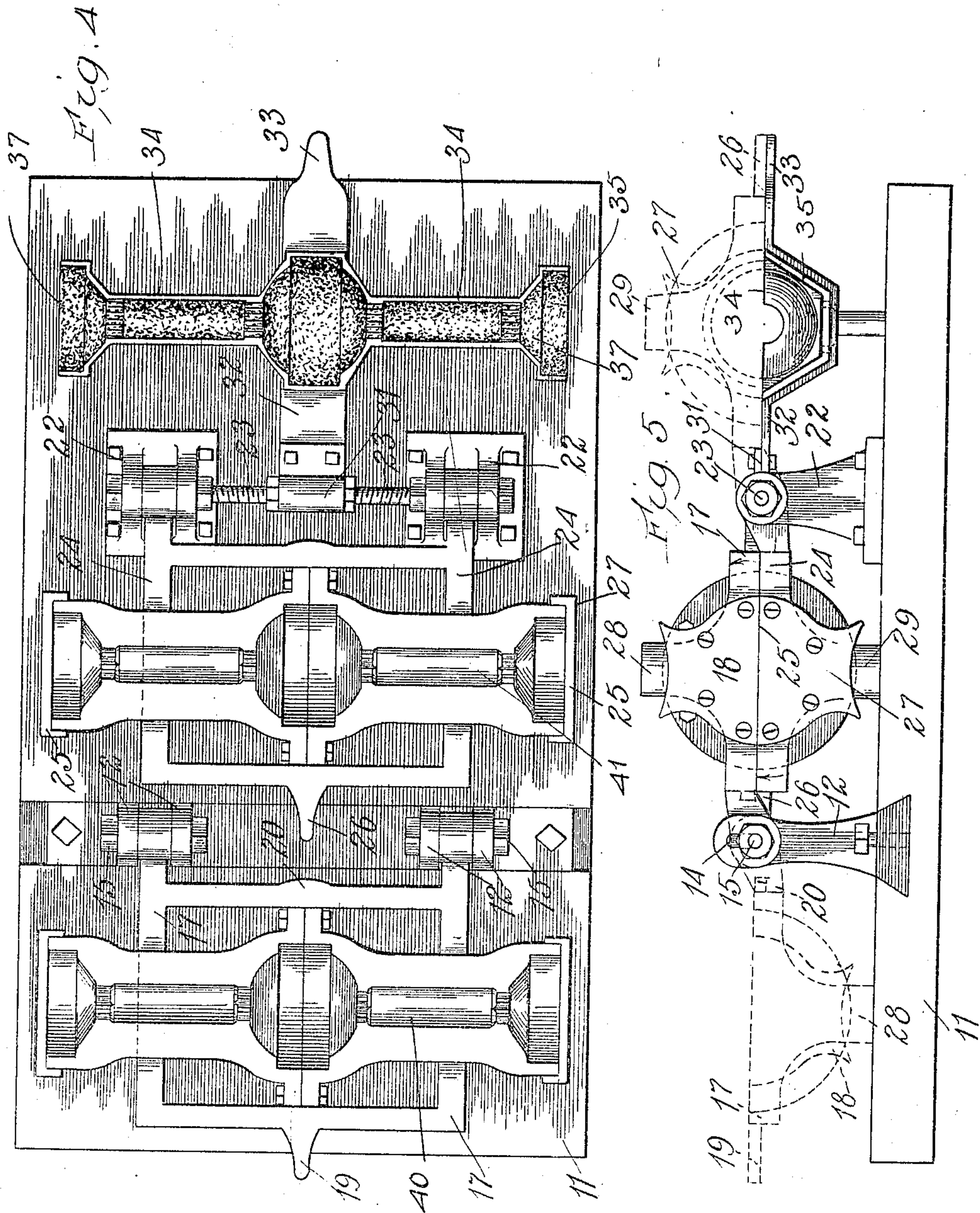
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UNITED STATES PATENT OFFICE.

CHARLES A. SMITH, OF CHICAGO, ILLINOIS.

CORE-MAKING MACHINE.

No. 812,606.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed November 20, 1905. Serial No. 288,224.

To all whom it may concern:

Be it known that I, CHARLES A. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Core-Making Machines, of which the following is a specification.

My invention relates to core-making machines, or particularly to machines designed to be operated by hand for the making of cores.

The object of my invention is to provide a very convenient machine by means of which the core can be easily made and when made removed from the machine without injury.

My invention in its specific embodiment here shown consists in the use of a mold for the core divided in two parts, hinged upon opposite sides of its center, so that the two parts of the mold will each swing in opposite directions—this in combination with a supplemental retaining device for the core which is adapted to register with one of the parts of the mold and to be swung with it to a new position in which the core will rest upon its retaining device, said device being open at various points in which the mold is closed, so that the core can be readily grasped by the fingers or hands of the operator to be removed from the device.

It also consists in the details of construction which will be hereinafter more fully described and claimed as the specification proceeds.

Figure 1 is a plan view of mechanism illustrating my invention in its preferred form, the mold proper being closed and the supplemental retaining device, heretofore referred to, appearing at one side of the mold. Fig. 2 is a vertical section of the device of Fig. 1, taken on lines 2 of that figure. Fig. 3 is a side view taken in the direction indicated by the arrow 3 of Fig. 1. Fig. 4 is a plan view of the device with the upper half of the mold open, the lower half of the mold in normal position, and the supplemental retaining device in its normal position with a core 37 in it ready to be removed from the machine. Fig. 5 is a front view of the entire machine, taken in the position of Fig. 1, showing by dotted lines the positions to which the various parts are capable of being moved.

Again referring to the drawings, it will be seen that I provide a suitable base 11, of wood or other suitable material, on which the device of my invention is mounted. Rising

from this base 11 and secured thereto by any suitable means is a pair of upright supports or standards 12, in the upper ends of which are vertical elongated slots 14. (Best shown in Figs. 2 and 5.) Mounted in these slots 14 of the standards 12 are bolts or pins 15, adapted to slide up and down in said slots and also to rotate in said slots as a bearing. Mounted on these bolts or pins 15, either rigidly secured thereto or not, as desired, is an upper frame 17, carrying in its center, secured to it by suitable means, the upper half 18 of the mold in which the core is to be formed.

On the opposite side of the frame 17 from the pins or bolts 15 is a handle 19, adapted to be grasped by the operator to rotate this upper frame 17 on the pins 15 in the slots 14, heretofore described. On the opposite side of the frame 17 from this handle 19 and adjacent to the pivot-pins 15, heretofore described, is a short handle 20, adapted to be grasped by the ends of the fingers of the operator. From this it will be seen that the operator can by taking hold of the two handles 19 and 20 lift the frame 17 upward in substantially a horizontal position from the position of Fig. 2 to a position in which the pins or bolts 15 are in the upper ends of the slots 14 and may then by continually lifting upon the handle 19 rotate the upper frame in the slots 14 from the position of Fig. 1 to the position of Fig. 4 and that he may then in the same manner lower the frame in the slots 14 to the dotted-line position at the right of Fig. 5. Also mounted upon the frame 11 at a distance from the supports 12, heretofore described, and on the opposite side of the frame 17 when in normal position, Fig. 1, from the supports 12 I secure by any suitable means other supports 22. Mounted in these supports 22 at a height substantially equal to the height of the pins 15 when in normal position in the supports 12 is a shaft 23. On this shaft 23 is journaled a lower frame 24, carrying in its center the lower half 25 of the mold. This half-mold 25 is so located upon the frame that, as shown in all the figures, it exactly registers with the upper half-mold 18, mounted on the upper frame 17, heretofore described, so that the two half-molds when in normal position form, as shown, a complete mold in the ordinary way. On this lower frame 24 is a handle 26, adapted to be grasped by the operator to rotate this frame, with the half-mold 25 upon it, about the axis of the shaft 23 from the position shown in

full lines of Fig. 5 to the dotted-line position shown in the upper half of the right-hand portion of that figure.

The upper half-mold 18 has projecting upward from it a suitable leg or support 28, adapted to support that half-mold approximately horizontally with its molding-face 40 upward when it is rotated to the position of Fig. 4 or in the dotted-line position at the left of Fig. 5, as described. Similarly, the lower half-mold 25 has projecting downward from it a similar leg or support 29, on which the mold rests in a substantially horizontal position with its molding-face 41 upward when the parts are in normal position, as described.

Journalled upon the shaft 23 in the bearings 31 is a strap or frame of metal 32, having on its opposite end the handle 33. Rigidly secured to this strap or frame 32 is a supplemental retaining device 34, corresponding in outline to the core 37, molded in the machine. This supplemental retaining device 34, while conforming in general to such core, is open at its ends 35, so that the operator can take hold of any portions of the ends of the core while it is lying in the mold-formed face 42 of the retaining device, and thus conveniently lift it from the retaining device. This retaining device 34 may be made with openings at other points, so that the core may be conveniently grasped at such points while in the retaining device without departing from the spirit of my invention.

In the operation of the device I first place the frames 17 and 24, with the half-molds attached thereto, in the position shown in Fig. 4 and fill each mold with the molding material of which the core is made, tamping it in as necessary and leveling off the upper surface of each half-mold. I now place upon the upper surface of the core material in each half-mold a suitable paste or cement, such as is well known in the core-making art. I now take hold of the handle 19 on the frame 17 and rotate the half-mold 18 upon the pins or bolts 15 from the position of Fig. 4 to the position of Fig. 1 and press down the frame 17 in this new position, thereby causing a portion of the core in the half-mold 18 to adhere to the portion of the core in the half-mold 25. When the device has remained in the position of Fig. 1 a sufficient length of time to allow the two half portions of the core 35 to adhere together, I by striking or tamping the outside of the half-mold 18 loosen the mold from this portion of the core. I now take hold of the handles 19 and 20, heretofore referred to, and lift the upper frame 17, with the half core-mold 18 attached, vertically upward off from the core a distance equal to the length of the slots 14, as heretofore described, this to prevent danger of injury to the core 35 due to horizontal motion of the upper half-mold before it is clear of the core. I then continue rotating the handle 19 about the pivots 15

until I have returned the frame 17 to the position of Fig. 4. When the operation is thus far completed, the mold-core lies in the half-mold 25 in the middle of the device, as shown in Fig. 4, without any cover upon it. I now take hold of the handle 33 and rotate the supplemental retaining device 34 from the position of Figs. 4 and 5 to a position in which the supplemental retaining device 34 is directly over the mold 25 and in contact with the core in said half-mold 25, the retaining device 34 being so located upon the strap 32 that this is possible. In this position the handles 33 and 26 are in contact with each other, and I take hold of them and rotate both the supplemental retaining device and the half-mold 25 until they assume the position shown by the dotted and full lines in the right-hand one-third of Fig. 5. I now strike or tap the outside of the half-mold 25 sufficiently to loosen it from the core within it, and as soon as this is done I rotate said half-mold from the dotted-line position at the right of Fig. 5 to the normal position, (shown in Fig. 4,) thus leaving the molded core 37 in the supplemental retaining device, as shown in Fig. 4. I now take hold of the ends of the core and remove it from the supplemental retaining device. I then repeat the operation.

Having thus described my invention, what I claim is—

1. In a core-making machine in combination with suitable supports two separable half-molds normally registering with each other, means for moving one of said half-molds out of engagement with and away from the other, a retaining device corresponding to the form of the half-mold just removed and means, for moving said retaining device into engagement with the second half-mold, for then moving the two parts to a position in which the molded core rests in the retaining device and for then removing the second half-mold away from the retaining device back to normal position.

2. In a core-making machine, in combination with a suitable support, two separable half-molds normally registering with each other, means for moving one of said half-molds out of engagement with and away from the other, a pivoted mounting on which the second half-mold is adapted to swing and a supplemental retaining device of the general form of the half-mold pivotally mounted upon the same axis as said second half-mold and adapted to register and rotate with said half-mold as described.

3. In a core-making machine, in combination with a suitable support, two half-molds normally in register with each other, pivotally mounted upon opposite sides of said normal position, and a supplemental retaining device of the general form of a half-mold pivotally mounted upon the same axis as one of said

half-molds and adapted to register and rotate with said half-mold.

4. In a core-making machine, in combination with a suitable support, a mold made in two parts normally registering together, each pivotally mounted upon opposite sides of the mold, when the parts are together; and a supplemental retaining device of the form of a half-mold having openings in it in portions in which a half-mold is inclosed, pivotally mounted upon the same axis as one of said half-molds and registering with it and adapted to swing with it to each of two different positions.

5. In a core-making machine, the combination of a suitable base; a half-mold normally in upright position with reference to said base pivotally mounted upon suitable supports rising from the base; another half-mold adapted to cover said first half-mold when in normal position, also pivotally mounted upon supports rising from said base on the opposite side of the normal position of the mold from the supports on which the first half-mold is pivoted; and a supplemental retaining device pivotally mounted upon the axis of the first half-mold adapted to register with it and to swing with said first half-mold be-

tween two positions upon opposite sides of the supports as described.

6. In a core-making machine, the combination with a supporting-base; a normally upright half-mold pivotally mounted to a support upon said base; a supplemental retaining device corresponding to and registering with said half-mold, pivotally mounted upon the same axis as said half-mold and adapted to swing with it about its pivotal axis between positions upon opposite sides of the supports; other supports rising from said base on the opposite side of the normal position of said first half-mold; a second half-mold adapted to normally register with and cover said first half-mold, mounted upon pivots connected to the said second supports; and a mechanism for permitting said second half-mold to move up and down through a short vertical distance with reference to said first half-mold as described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

CHARLES A. SMITH.

Witnesses:

CAROLYN RAFTERY,
DWIGHT B. CHEEVER.