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S. O'HARA

MACHINE FOR PRINTING OR EMBOSSING

Filed May 20, 1927

Fig. 2.

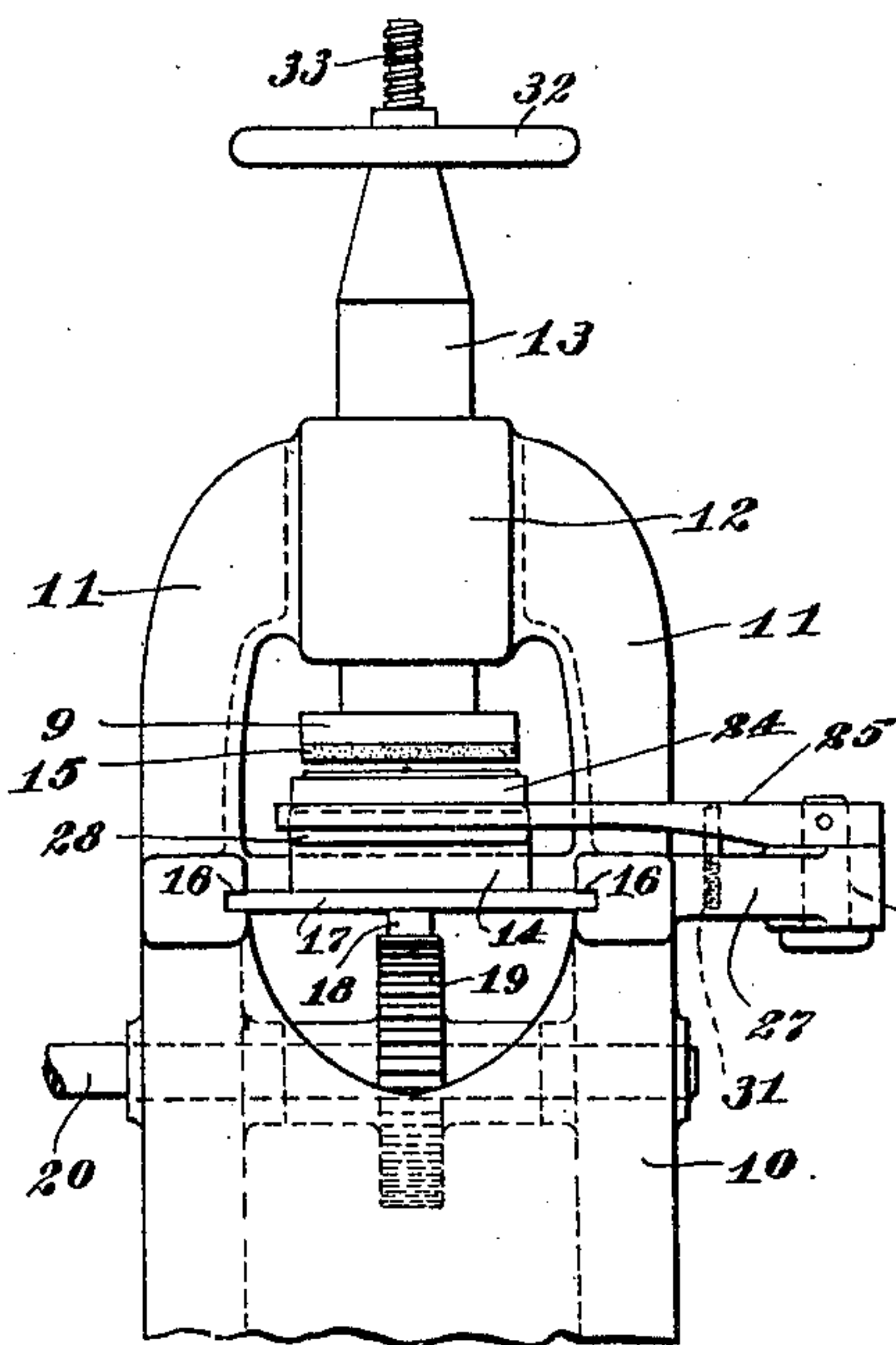


Fig. 1.

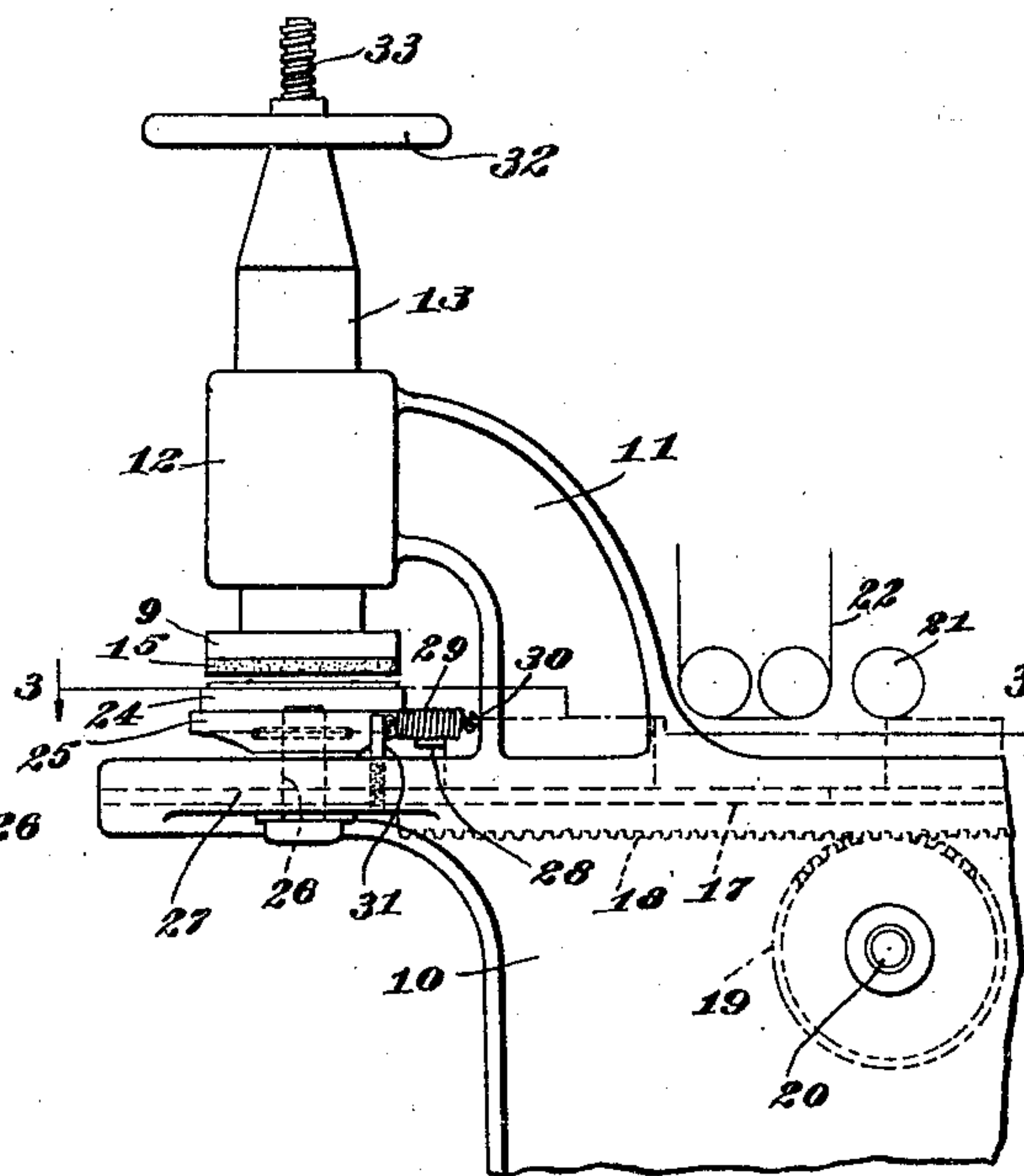


Fig. 4.

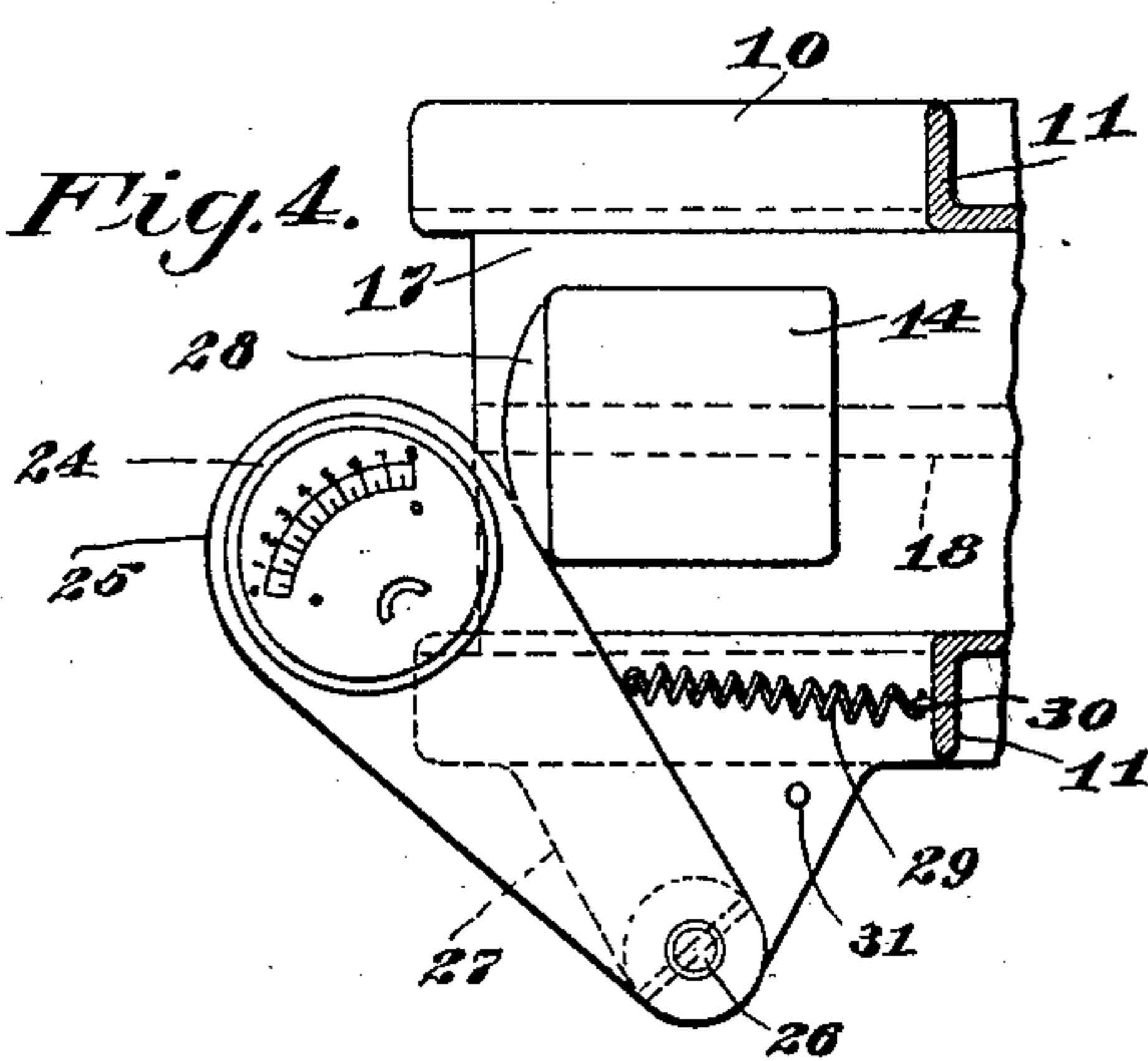
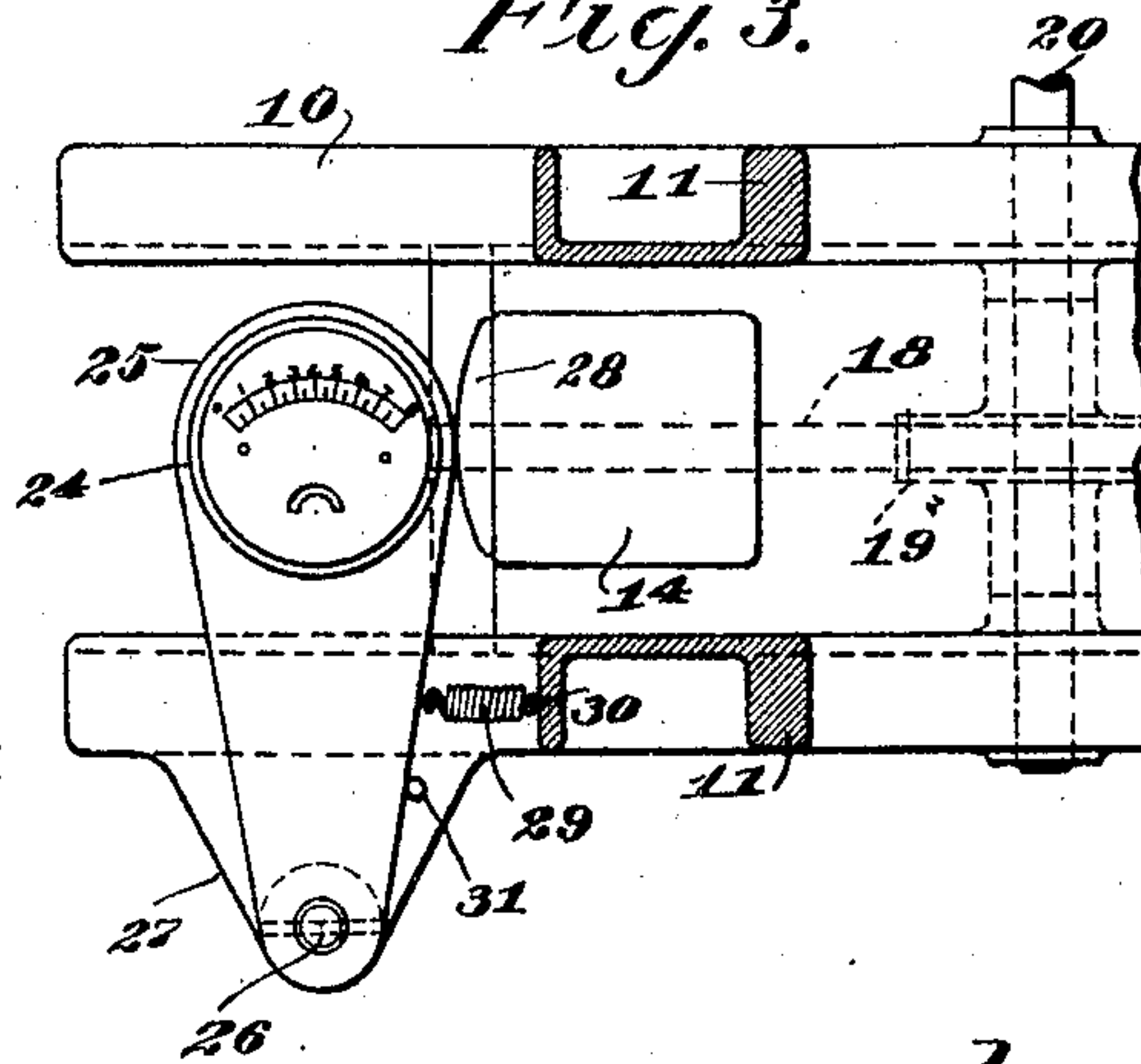


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR PRINTING OR EMBOSSING.

Application filed May 20, 1927. Serial No. 193,039.

The invention relates to a new and useful improvement in machines for printing or embossing. It relates especially to machines in which the printing or embossing member is vertically reciprocable and has a printing surface which receives a design from a die, and then transfers the design to the work, the die and work holder being alternately brought into alinement with the printing member which is actuated to be pressed into engagement with the die and then raised and then the die is moved out from alinement therewith and the work holder containing the work is moved into alinement with the printing member which is then operated to print the work on the holder, then the printing member is raised and the work holder is withdrawn.

The invention is especially applicable to machines for printing or embossing on glass, china, porcelain, enamelled goods or other brittle or frangible articles although it is not limited to machines for printing on articles of that character.

The present invention relates especially to the means for actuating the work holder.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings, and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings:

Fig. 1 is a side elevation of a fragmentary portion of a machine embodying the invention, showing the parts in position when the work holder is positioned beneath the printing member and the die has moved on its forward stroke far enough so that in its further forward movement it will turn the work holder out of alinement with the printing member.

Fig. 2 is an end view as viewed from the left of Fig. 1.

Fig. 3 is a section on line 3—3, Fig. 1.

Fig. 4 is a section on the same line as Fig. 3, but showing the die moved to its full forward position beneath the printing member and showing the work holder moved out of alinement.

Referring to the drawings, there is shown at 10 a frame or casting to hold the working parts, said frame having overhanging arms 11 supporting a bearing 12 in which a plunger 13 is vertically reciprocable. Said

plunger carries on its lower end a member 9 to which is secured a pad 15 of gelatin or other suitable material having a surface adapted to take ink or other printing substance from a die adapted to transfer the design to the work when the printing pad is brought into engagement with the work. The said plunger may be operated by any suitable means for raising and lowering it.

Mounted in guideways 16 in the frame is a slide 17 on which is mounted the die 14 on which is formed the design to be printed or embossed on the work. Said carrier is slidable in said guideways to bring the die into and out of alinement with the printing member. Any suitable mechanism may be employed for this purpose. As shown in the drawings the die carrier 17 has secured to its underside a rack 18 which engages with a gear 19 mounted on a rotary shaft 20. Said shaft 20 may be driven by any suitable means to rotate the shaft first in one direction and then in the opposite direction to move the slide forward and back at the proper times for moving the die into its forward position beneath the printing member and back out of such position to be inked.

An inking roll 21 is provided above the path of movement of the die so that the die will engage with said inking roll when the die is moved to and from its operative position with relation to the printing member. A wiper 22 is provided which engages with the die in its forward movement to wipe off the surplus ink.

A work holder 24 is mounted on a swinging arm 25 which at one end is fixedly mounted on a stud 26 pivoted in a bracket 27 so that said arm 25 is adapted to swing in a horizontal plane.

A bumper 28 is attached to the forward end of the die in position adapted to engage said holder arm 25 when the said die moves forward. A spring 29 is connected at one end with the said arm 25 intermediate the pivot end of said arm and the work support end of the arm, the other end of said spring being connected with a fixed portion 30 of the frame. Said spring is normally in contracted position as shown in Figs. 1 and 3 and holds the work holder arm in the position for the work holding portion to be in alinement with the printing member. A stop pin 31 prevents the

said arm from swinging too far to the right as viewed in the drawings.

When the die is moved by its carrier from the retracted position shown in dotted lines in Fig. 1 as far forward as shown in full lines in Figs. 1 and 3, the said bumper 28 will engage the said swinging arm 25 and in its continued forward movement to bring the die into alinement with the printing member it will turn the said work holder arm out of alinement with the printing member as shown in Fig. 4, thereby expanding the spring 29 and putting the spring under tension ready to turn the said work holding arm back into position shown in Figs. 1 and 3 as shown as the die is retracted. The said arm will be positively held by the bumper 28 in the position shown in Fig. 4 until the gear 19 rotates in the reverse direction to retract the rack 18 and the die carrier with its die 14.

The shaft 20 may be driven by any suitable mechanism (not shown).

The plunger 13 may be operated by any suitable mechanism to adjust the range of movement, the mechanism shown in the drawings being a hand wheel 32 and a worm 33. Any suitable mechanism, either hand or power driven may be employed to operate the plunger for alternately engaging the die and the work. The actuating mechanism is not shown in the drawings as the particular mechanism for that purpose does not form a part of the present invention.

What I claim is:

1. A machine of the character described having a vertically reciprocable printing member, a work holder mounted on an arm pivotally mounted adjacent the path of movement of the printing member and adapted to swing in a horizontal plane on its pivot to bring the work into and out of alinement with the printing member, a die having thereon the design to be printed, a reciprocable die carrier, means for reciprocating the die carrier to move the die into and out of alinement with the printing member, and a bumper carried by the die carrier which when the die is moved into operative position beneath the printing member engages the said work holder arm and turns it on its pivot to move the work holder out of alinement with the printing member.

2. A machine of the character described having a vertically reciprocable printing member, a work holder having an arm pivotally mounted adjacent the path of movement of the printing member and adapted to turn on its axis to bring the work into and out of alinement with the printing member, means for normally retaining the said arm in position to hold the work in alinement with the printing member, a reciprocable die carrier, means for moving the carrier to move the die into and out of alinement with the printing member, and a bumper carried by the die which when the die is moved into operative position beneath the printing member engages the said work holder arm and turns it on its pivot to move the work holder out of alinement with the printing member.

3. A machine of the character described having a vertically reciprocable printing member, a work holder pivotally mounted adjacent the path of movement of the printing member, means for normally retaining the said work holder in position to hold the work in alinement with the printing member, a die having thereon the design to be printed, means for moving the die into and out of operative position with relation to the printing member and means whereby when the die is moved into operative position with relation to the printing member it will turn the work holder on its pivot and move the work holder out of operative relation to the printing member.

In testimony whereof I affix my signature.
SKIDMORE O'HARA.