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PATENTED OCT. 23, 1906.

E. W. CARPENTER.  
SUPPORT FOR PAPER FED TO PRINTING PRESSES.

APPLICATION FILED MAY 26, 1906.

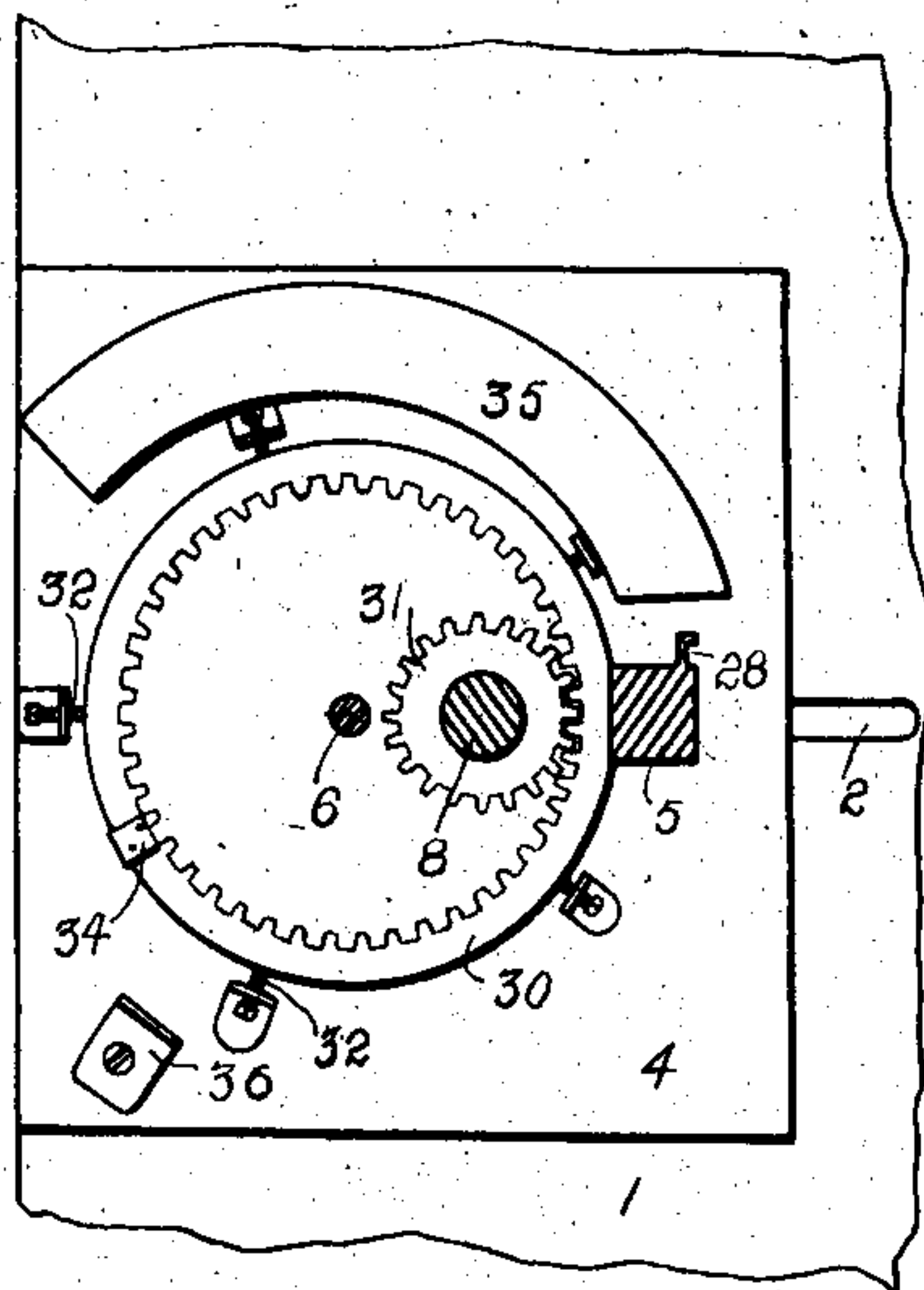


Fig. 3.

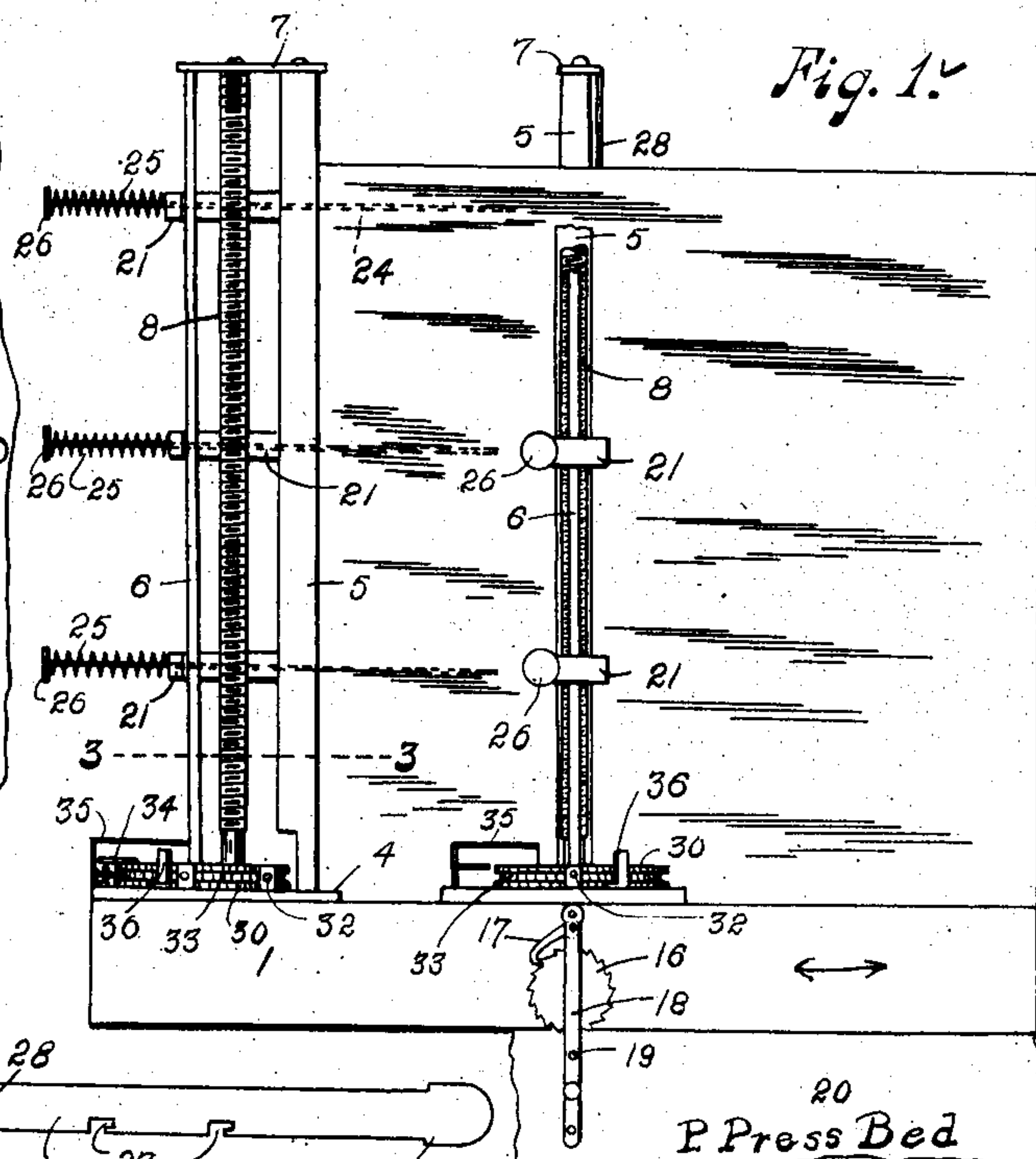


Fig. 1.

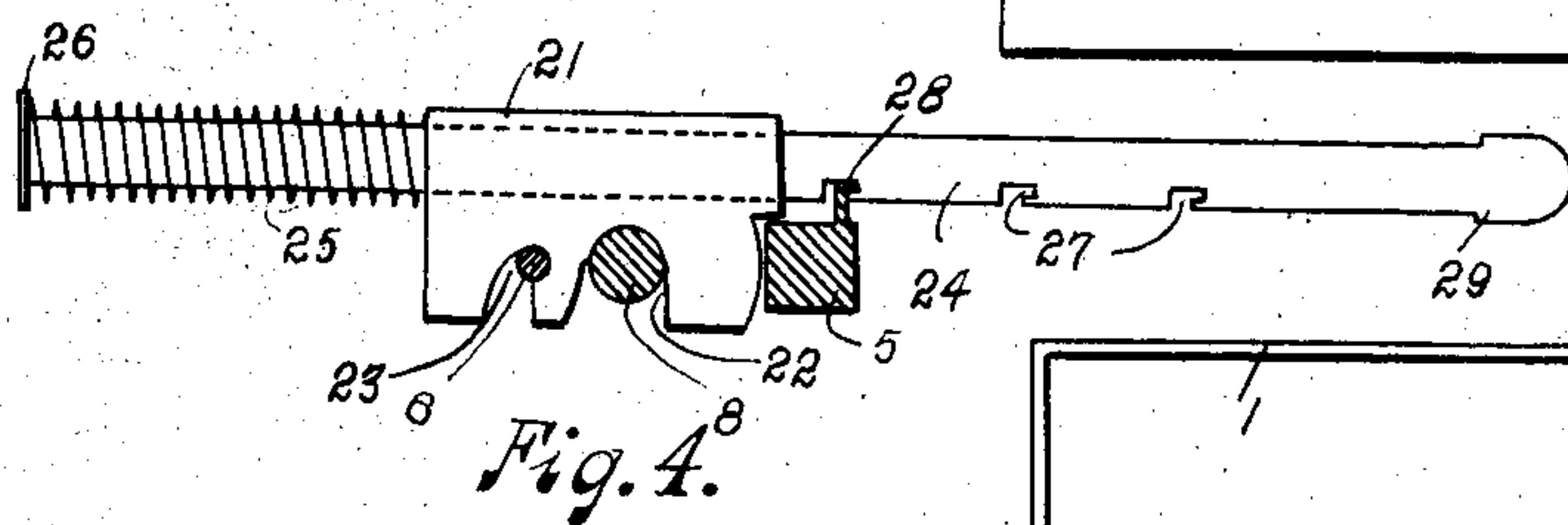


Fig. 4.

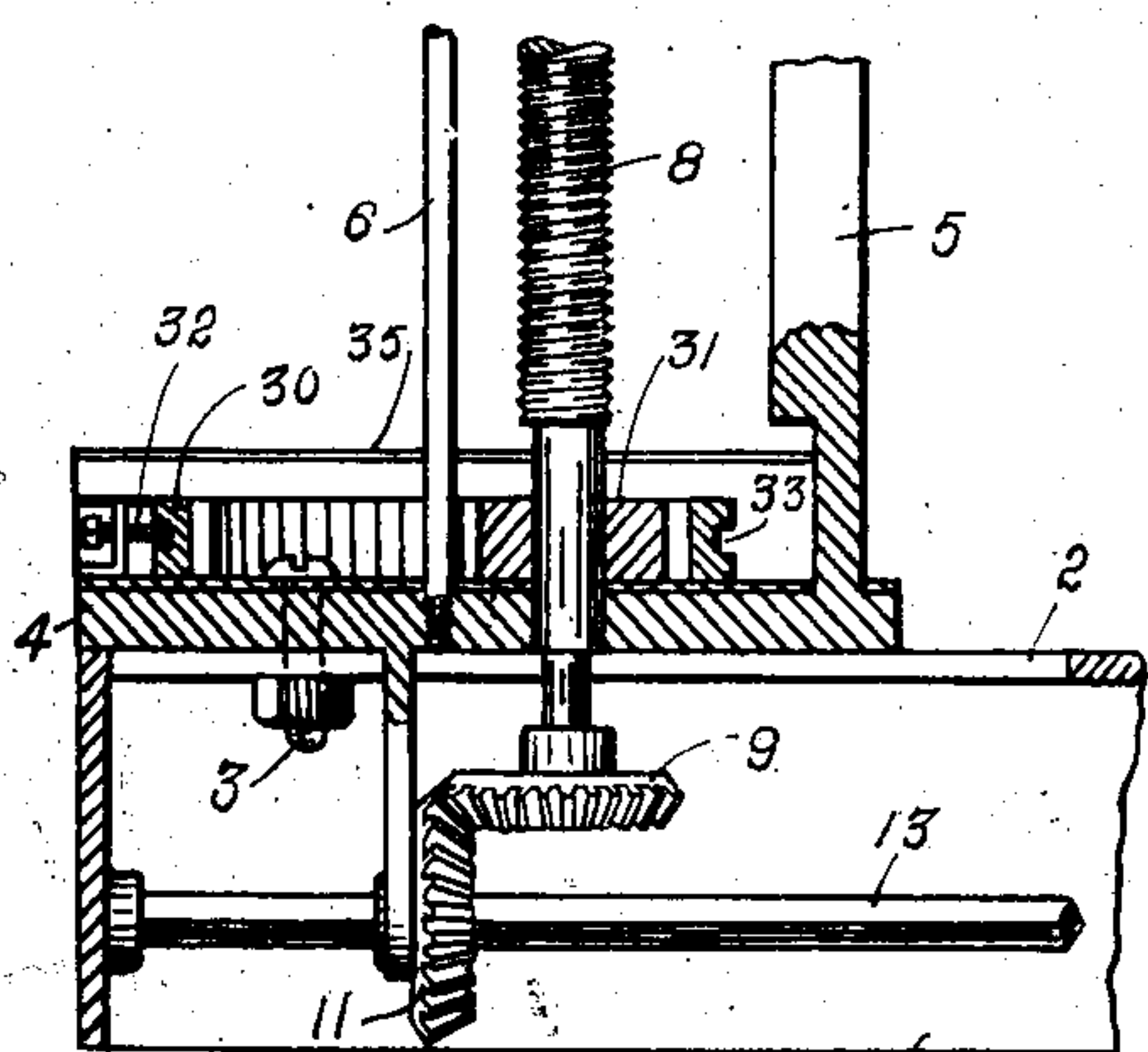


Fig. 5.

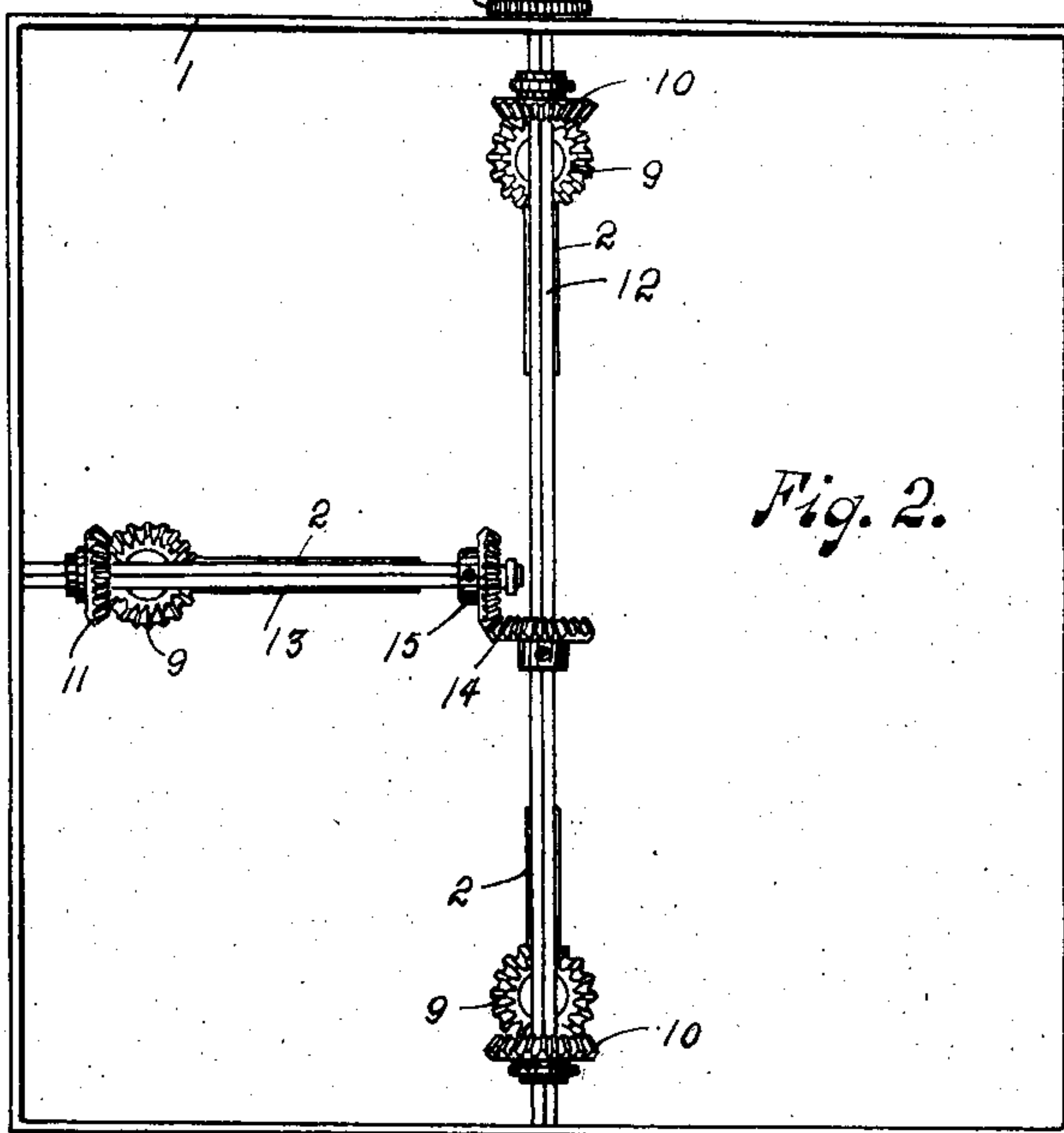
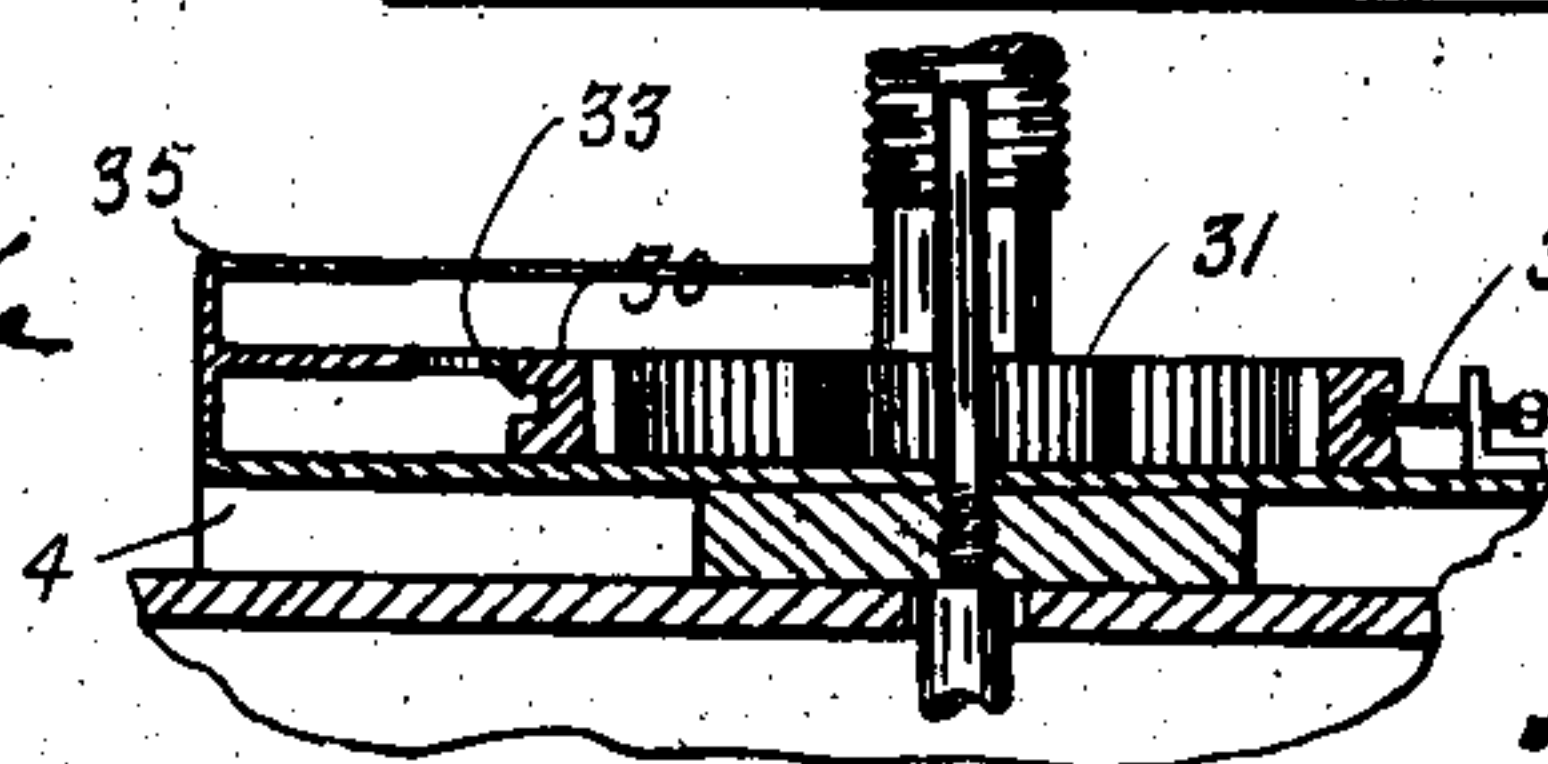


Fig. 2.

WITNESSES:

*Carl Warnicke*  
*Jesse P. Coff*



INVENTOR  
*E. W. Carpenter*  
BY *J. M. Wright*  
ATTORNEY

Fig. 6.



# UNITED STATES PATENT OFFICE.

EDWIN W. CARPENTER, OF OAKLAND, CALIFORNIA.

## SUPPORT FOR PAPER FED TO PRINTING-PRESSES.

No. 833,997.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed May 26, 1906. Serial No. 318,886.

*To all whom it may concern:*

Be it known that I, EDWIN W. CARPENTER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Support for Paper Fed to Printing-Presses; of which the following is a specification.

This invention relates to means for supporting any number of upper sheets of a pile of paper fed to a printing-press from the bottom by suction or otherwise, the object of the invention being to provide an apparatus for this purpose which will be simple in construction and require little attention.

In the accompanying drawings, Figure 1 is a side view, partly broken, of the apparatus in use with a pile of sheets. Fig. 2 is a bottom plan view thereof. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1. Fig. 4 is a plan view of one of the separators. Fig. 5 is a vertical section of the lower part of the apparatus. Fig. 6 is a similar section at right angles to Fig. 5.

Referring to the drawings, 1 indicates a paper-feed frame adapted to support a pile of sheets for feeding them to a printing-press. This frame is caused to reciprocate with the reciprocating cylinder at the rear end of the movement of the latter—that is, when taking the paper. The construction necessary for producing this movement of the frame being in common use is not here shown.

The frame 1 is formed with three slots 2, extending centrally and at right angles to the back and two sides of the frame, the front side thereof, at which the paper is taken, being unslotted. Secured by clamp-screws 3 in said slots are bases 4, upon each of which stand a stout square inner post 5 and a slender round outer post 6. These are connected at the top by a cross-piece 7 to form an upper bearing for a shaft 8, which extends down through the base and carries at its lower end a bevel-gear 9. These three bevel-gears 9 mesh with bevel-gears 10 11, the two bevel-gears 10 being adjustably mounted on a square transverse shaft 12, extending under the frame 1 and entirely across the same, and the bevel-gear 11 being mounted on a shorter square shaft 13, also beneath the frame 1, but at right angles to the shaft 12, said shaft 13 being driven from the shaft 12 by a pair of bevel-gears 14 15. The bases 4 are moved along the slots 2, and the bevel-gears 10 11 are correspondingly moved along

the shafts 12 13 and readjusted to correspond with the dimensions of the sheets in the pile of paper to be fed.

To revolve the shaft 12 intermittently in unison with the operation of the press, there is mounted upon the end of said shaft a ratchet-wheel 16, which is advanced by a pawl 17, pivoted on a lever 18, having holes 19, whereby it may be connected with the bed 20 of the printing-press. By the above means intermittent revolution, to keep pace with the feed of the sheets to the press, is imparted to all of the shafts 8 simultaneously.

Each shaft 8 is threaded, except for a short distance immediately above the base, and cooperating with said shaft are a number of suitably-spaced separator-carriers 21, each having a half-round internally-threaded socket or recess 22 to fit the threaded shaft 8 and act as a half-nut. The carrier has at the rear of the recess 22 a curved recess 23 to receive the post 6. In the carrier slides a separator 24, normally retracted by a spring 25, coiled around the separator and compressed between the carrier and the head 26 of the separator. The separator has a series of notches 27, any one of which can engage a laterally-extending lip 28 at the front face of the square post 5. To place the separators in position, they are placed on the top of the pile of sheets, and other sheets are then placed upon them, the separators being correspondingly moved into such position that their desired notches 27 engage the edges of the lips 28. Each separator is then held in position by the engagement of the notch 27 with the lip 28, of the threaded recess 22 with the threaded shaft 8, of the recess 23 with the post 6, and by the pressure of the spring 25. Thereafter as the shafts 8 intermittently revolve the separators slowly descend, keeping pace with the feed of the sheets from the bottom.

By means of the separators on the three sides at suitable vertical distances the weight of the upper sheets is removed from the lowest sheet, so that the latter can easily be drawn out. At the same time the separators can easily be put in or taken out at any time in case of emergency.

When the separator arrives at the bottom of the shaft 8, it is no longer upheld by the threads of the shaft, and since the notch no longer engages the lip 28, which does not reach to the base 4, the separator is free to move out or back, which it does under the ac-



tion of the spring 25, until stopped by shoulders 29 on the separator coming to the front face of the carrier. The separator is then discharged by means of an internal gear-wheel 30, revolved by a gear 31 on the shaft 8, said gear 30 being mounted in peripheral bearings consisting of pins 32 entering a groove 33 in the periphery of the gear-wheel. Said gear-wheel 31 carries a lug 34, which as it revolves engages the separator and moves it with it, the tongue of the separator then entering a curved channel or guideway 35. As the separator is carried around with the gear 30 its rear end engages a stop 36, arresting the revoluble movement of said rear end, so that the front end still being carried round the separator is discharged to the rear. Thus all the separators are so discharged automatically until all the paper is used. By this means one man can attend to three or four machines. While one press is working he can be filling up the paper-feed of the next machine and at the same time placing the separators in position.

Any number of such separators can be used and any amount of paper placed upon the feed-frame conditioned upon the power used to draw the sheets of paper from the bottom.

I claim—

1. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, posts thereon, separators extending by the sides of said posts inward into the pile of sheets, means for supporting said separators in such position, and means for lowering the separators, while so supported, said latter means being operated in unison with the reciprocatory element, substantially as described.

2. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, vertical screws supported thereby, separators extending inward to penetrate the pile of sheets, means whereby said separators are supported by said screws, and means for turning said screws, in unison with the movement of the reciprocatory element, to lower said separators, substantially as described.

3. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, vertical

screws supported thereby, means whereby said screws can be adjusted to different locations on said frame for different sizes of paper, separators extending inward to penetrate the pile of sheets, means whereby said separators are supported by said screws, and means for turning said screws, in unison with the movement of the reciprocatory element, to lower said separators, substantially as described.

4. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, vertical screws supported thereby, separators extending inward to penetrate the pile of sheets, means whereby said separators are supported by said screws, means for turning said screws, in unison with the movement of the reciprocatory element, to lower said separators, and means whereby said separators are automatically discharged on arriving at the bottom of the screws, substantially as described.

5. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, vertical screws supported thereby, separators extending inward to penetrate the pile of sheets, carriers for supporting said separators, formed with a half-nut to engage the corresponding screw, and means for turning said screws, in unison with the movement of the reciprocatory element, to lower the separators, substantially as described.

6. In an apparatus of the character described, in combination with a reciprocatory element of a printing-press, a frame, vertical screws supported thereby, separators extending inward to penetrate the pile of sheets, means whereby said separators are supported by said screws, means for turning said screws, in unison with the movement of the reciprocatory element, to lower the separators, and means, operated by the continued movement of the latter means, for discharging said separators when arriving at the bottom of the screws, substantially as described.

Signed at San Francisco, California, this 16th day of May, 1906.

EDWIN W. CARPENTER.

Witnesses:

FRANCIS M. WRIGHT,  
J. E. GRANT.