

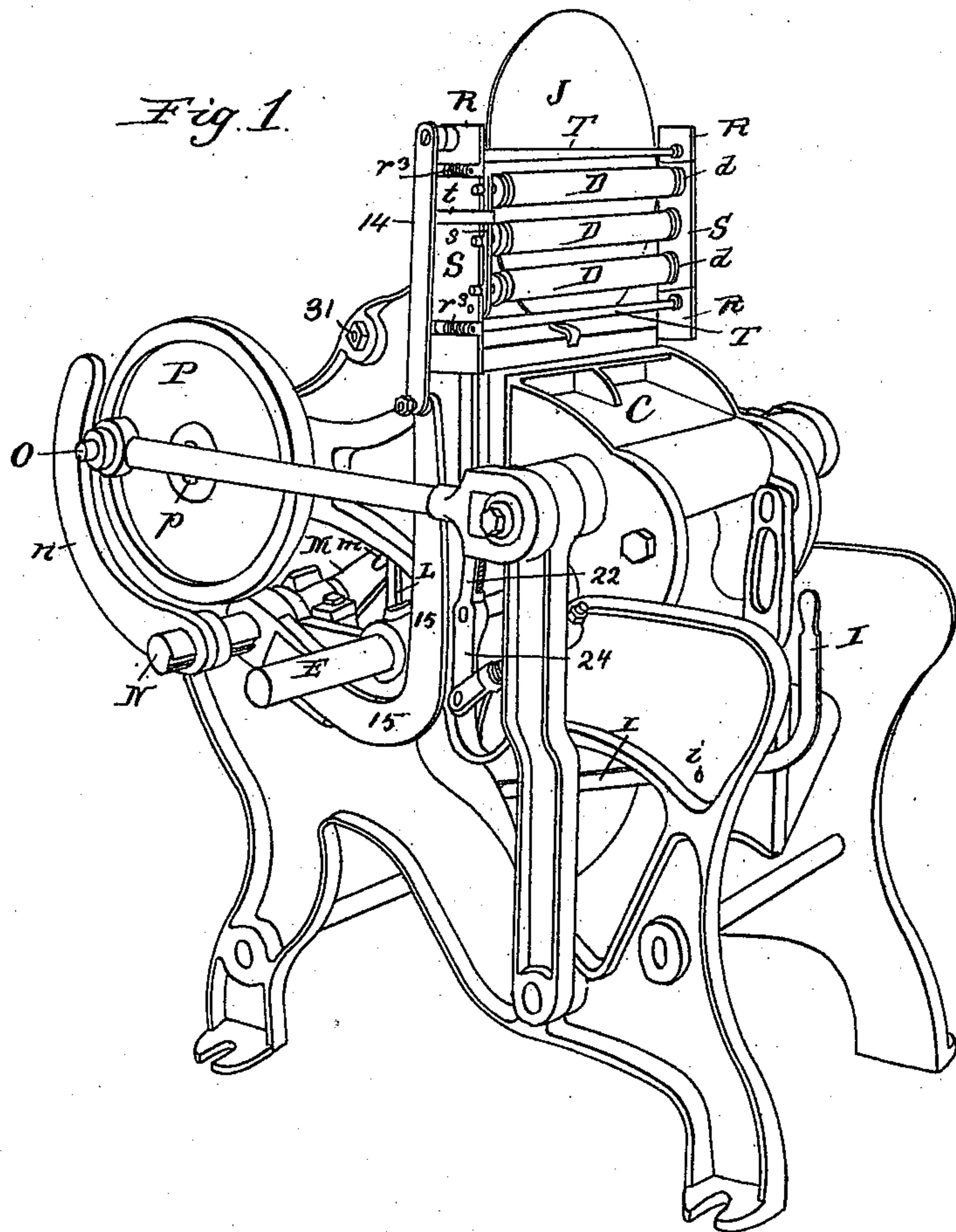
(No Model.)

4 Sheets—Sheet 1.

F. G. WILLARD.
JOB PRINTING PRESS.

No. 486,312.

Patented Nov. 15, 1892.



Witnesses:

Lew. E. Curtis
Emma Stark

Inventor:

Frederick G. Willard.

By Munday Evans Radcock

His Attorneys.

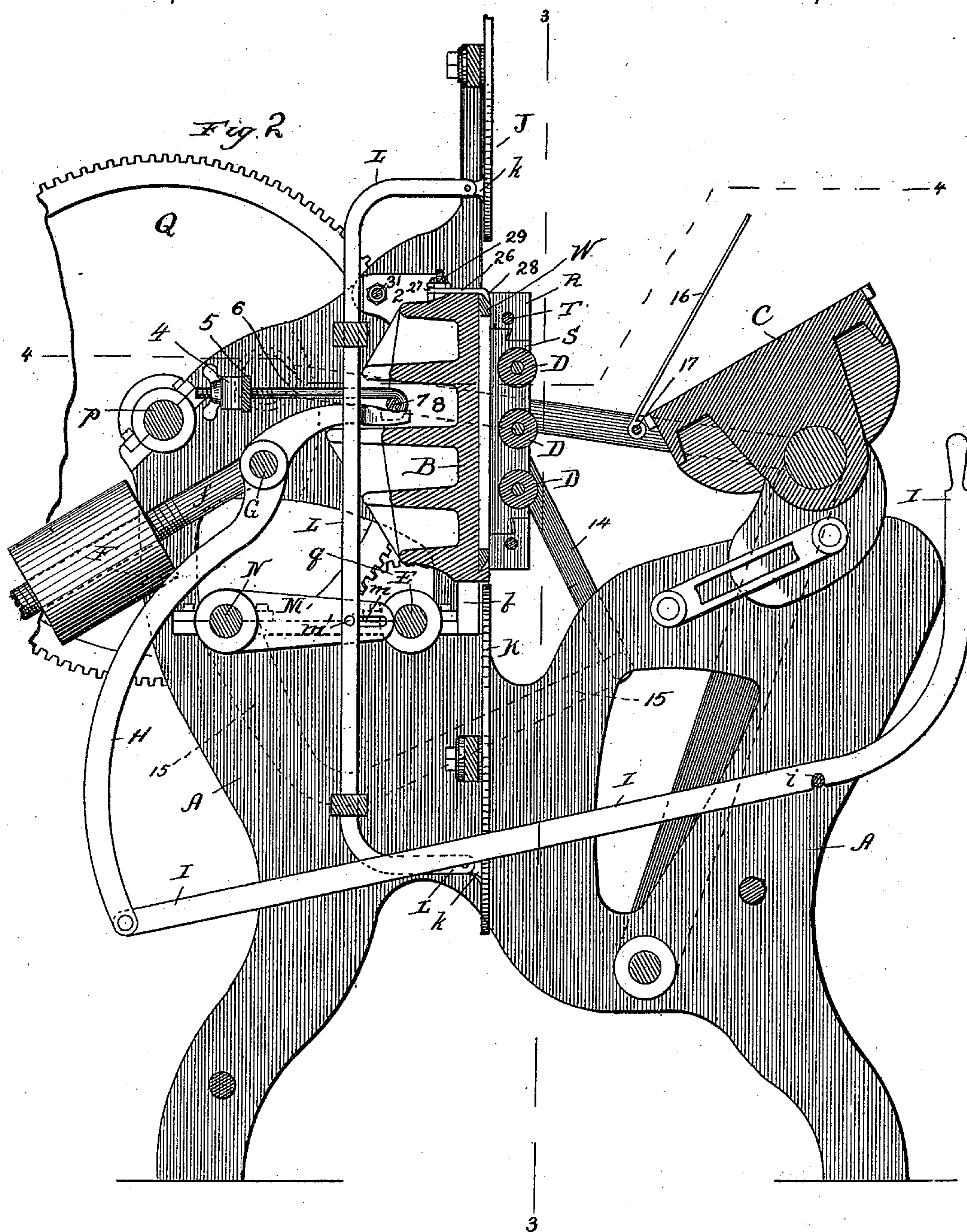
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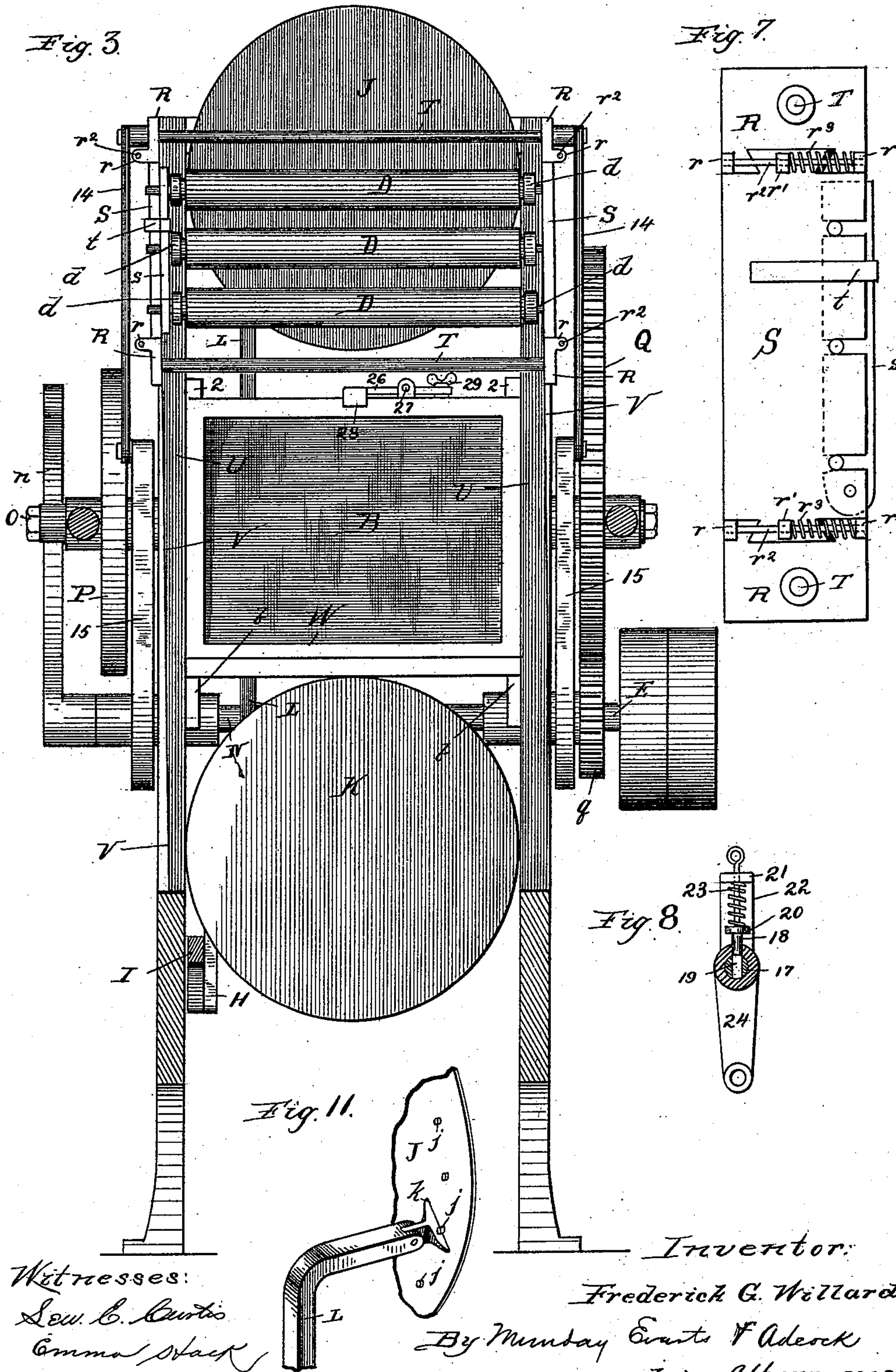
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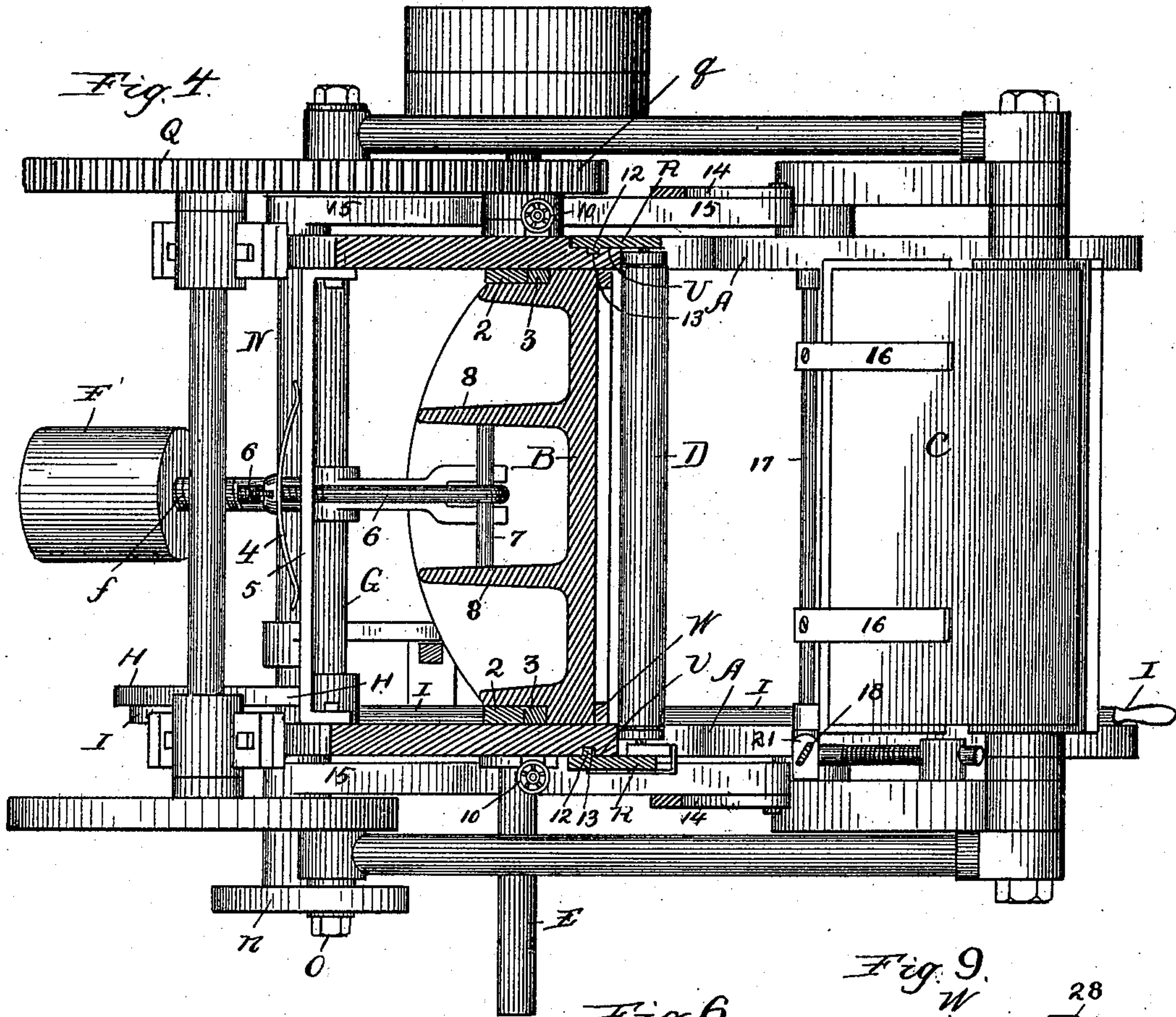


Fig. 5.

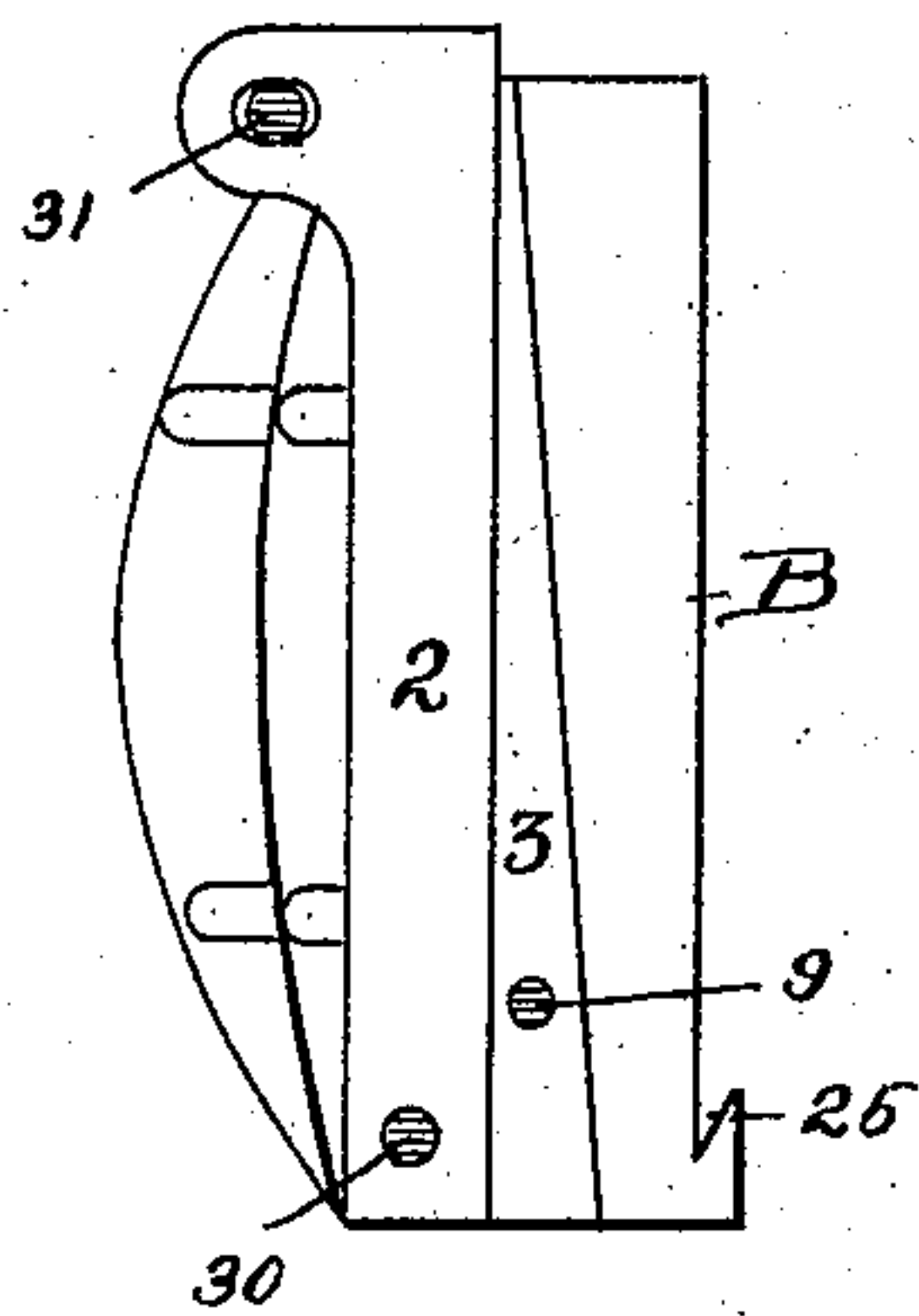


Fig. 6.

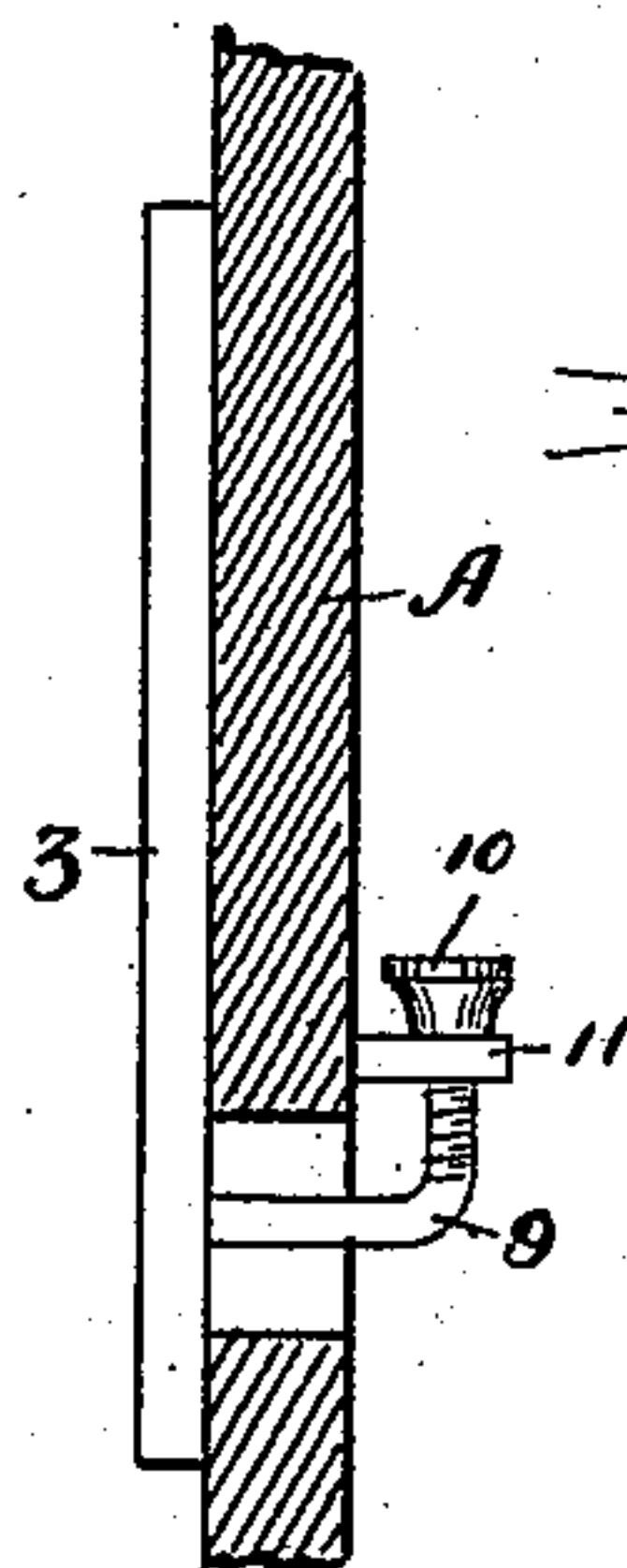


Fig. 9.

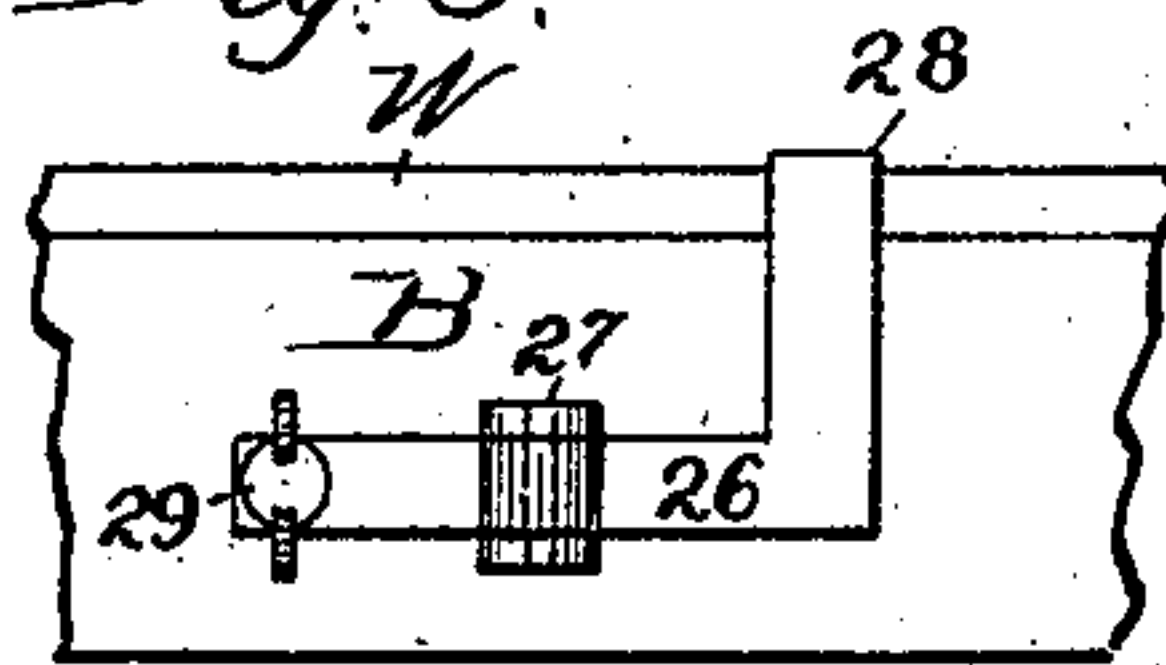
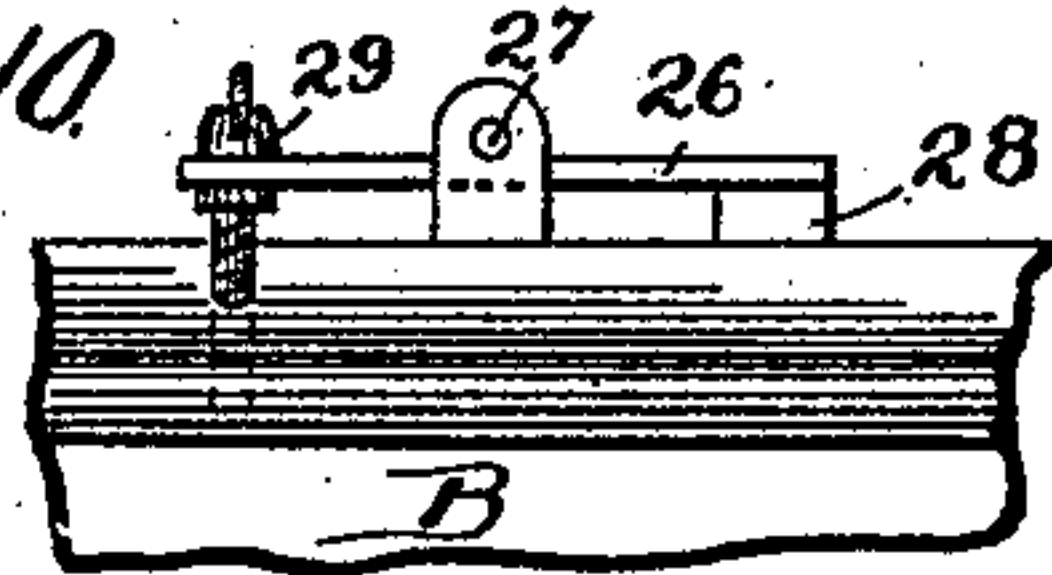


Fig. 10.



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UNITED STATES PATENT OFFICE.

FREDERICK G. WILLARD, OF AUSTIN, ILLINOIS.

JOB-PRINTING PRESS.

SPECIFICATION forming part of Letters Patent No. 486,312, dated November 15, 1892.

Application filed March 14, 1891. Serial No. 385,014. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. WILLARD, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Jobbing Printing - Presses, of which the following is a specification.

The object of this invention is the production of a jobbing-press which shall be simple in its construction, durable, and noiseless, and be capable of better work than the ordinary construction of press, and also be capable of greater speed.

The principal feature of the invention relates to the inking devices, whereby the ink is more evenly distributed than has heretofore been possible and all parts of the form are equally supplied.

Another feature of the invention concerns the throw-off, the construction being adapted to quickly and easily remove the bed from danger of contact with the platen. There are also other features of novelty embraced in the press, for a description of which, as well as of those above alluded to, I refer to the description given below, in conjunction with the accompanying drawings, in which latter—

Figure 1 is a perspective view of my improved jobber. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a transverse vertical section on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section. Fig. 5 is a side view, enlarged, of a portion of the throw-off devices. Fig. 6 is a vertical section of the parts shown at Fig. 5 at right angles to the view given in said Fig. 5. Fig. 7 is a side view of the inking-roller carriage. Fig. 8 is a vertical sectional view showing the manner of releasing the shaft carrying the paper-grippers during the making of adjustments. Figs. 9 and 10 are detail views of the chase-latch. Fig. 11 is a detail of the disk-actuating pawl.

In the drawings, A represents the side uprights or frames of the press.

B is the type-bed, C the platen, D the inking-rollers, and E the driving-shaft. The bed is movably supported upon stops *b* at its ends between the frames A, and is held against the stationary guides 2 and wedges 3, interposed between said guides and the bed by a spring 4, bearing against a cross-brace 5 and connected

to the bed by the hook-bolt 6, engaging with a cross-bar 7, secured in the stiffening-ribs 8 of the bed. The wedges 3 are movable and may be drawn up when the bed needs to be adjusted by bent screws 9, secured in the wedges and the thumb-nut 10, engaging the ends of screws 9 and bearing against the projecting brackets 11, supported on the frames A. By means of these wedges the bed is very accurately adjusted and so that all parts of the form will be presented to the platen with the same amount of pressure, all sides of the form being moved forward and backward to precisely the same extent, or, in other words, the parallelism of the bed is maintained during the adjustments, it being understood, of course, that the two wedges are moved alike.

To throw off the bed when it is desired to avoid contact with the platen, I provide the following devices: At F is a weight mounted upon the end of a threaded bar *f*, secured in a rocking shaft G. The weight F is preferably adjustable and is heavy enough to overcome the gravity of the bed and the form which may be upon it. H is a lever rigid upon shaft G, with its upper end extended, so as to lie under the cross-bar 7, and its lower end flexibly joined to a hand-lever I, notched to engage a pin upon the frame located at *i*. The levers H and I prevent the weight F from acting upon the bed when lever I is in engagement with the pin *i*; but whenever occasion arises to throw the bed back the operator releases lever I from pin *i*, and thereby allows the weight F to act and lift the bed along the inclined face of the wedges 3. This action is instantaneous and allows the bed to be thrown back or out of the plane of action. To bring it back again into operative position, the lever I is forced back by the operator and again engaged with the pin *i*, while the bed descends to its former position.

In this press I obtain a more perfect charging of the type with ink and a more even distribution of the ink over the entire form in the manner following: I employ with the press duplicate ink-charging disks, one located at each side of the form, or above and below the same, and between the impressions the rollers pass over both these disks and charge the type in their travel both ways with freshly-

received ink. In this manner the bottom of the form is made to receive as much of the ink as the top, which has not been the case with previous presses. These ink-distributing disks are shown at J and K, respectively, and they are rotated, when it is desired to rotate them, by power applied directly to them near their peripheries by pawls acting upon the teeth *j* formed upon their backs. These pawls are shown at *k*, and they are borne upon the ends of a frame L, which is intermittently actuated by a lever M, having a slot *m*, receiving the pin *m'* upon the frame L. Lever M is mounted upon a rocking shaft N, actuated by contact with the cam-arm *n* of the roller upon the wrist-pin O, borne upon the crank-wheel P, said wheel being mounted upon a shaft *p*, receiving motion from a gear Q, meshing with the pinion *q* upon the drive-shaft E.

The inking-roller carriage consists of sides made up of end pieces R and center pieces S and cross-bars T. The pieces S furnish the bearings for the rollers, one being provided with open-slot bearings to permit the easy insertion of the rollers and the other with closed bearings. A supplemental retaining-plate *s* is employed to hold the rollers in position in the open-slotted plate, and such retaining-plate is secured by a clip *t*, which allows it to be removed whenever necessary. The parts R and S are so joined as to permit the parts S to yield outwardly when passing over the type. To this end the construction I have adopted is as follows: The parts R are provided with projecting ears *r* and the parts S with a like ear *r'* at each end. Rods *r²* pass through registering openings in the ears mentioned, and springs *r³* encircle these rods and are confined between the ears *r'* upon the parts S and one of the ears *r* upon the parts R. The construction allows the rollers to yield slightly when passing over the type and brings them back and holds them in their normal plane at all other times. The abutting edges of the parts may be made in dovetail fashion, with the undercut sides of the dovetails at a sufficient distance from each other to permit the part S to move in and out, as will be understood from Figs. 2 and 7.

The inking-roller carriage is given a movement in a straight vertical plane, which I conceive to be an important improvement over the ordinary jobbing-press wherein the carriage moves in a circular or irregular line. This movement is imparted by providing the frames A with guideways, which may consist of the front faces U and the side faces V. The former of these are plain surfaces and adapted to actuate the inking-rolls by means of the friction-wheels *d*, with which the rolls are provided at their ends. The parts R of the carriage are provided with internal tenons 12, which traverse corresponding grooves 13 in the side faces V, thereby confining the carriage to and upon the frames A and compelling it to

move in a straight vertical plane. The actuating devices by which the carriage is moved over the disks and form consist of pitmen 14 and bent levers 15, the latter rigid upon the rocking shaft N. A further feature of value in these inking devices is due to the fact that the inking-carriage while it moves in a straight vertical plane across the form and parallel with the plane of its face is also caused to diverge to a slight extent in a lateral direction, so that the line which it traverses is slightly inclined from the perpendicular in the lateral direction. This divergence is slight, so that it will not have any harmful effect upon the action of the machinery, but it is at the same time sufficient to insure a perfect charging of the type without the necessity which now prevails of placing the form in a diagonal position in the chase. A continually-fresh portion of the inking-rollers is thus brought in contact with the type during their entire passage over the form, so that the type last charged receives as full a complement of ink as those first charged. This diverging path I obtain by inclining the faces V, as illustrated at Figs. 3 and 4.

At 16 I show the grippers and at 17 their operating-shaft. This shaft is released whenever necessary by lifting the spring-depressed pin 18 from its slot 19 in the shaft and rotating the shaft to carry the slot out of register. The point of the pin will now rest upon the surface of the shaft, so that the latter can be turned at will. The pin 18 is provided with a collar 20, and between this collar and the projections 21 upon the upwardly-extending arm 22 is confined a spring 23, designed to automatically force the pin into the slot whenever the shaft is turned to the proper position to bring the slot into register. The shaft 17 is carried and operated by arms 24 in the usual manner when not released by the withdrawal of the pin. This ability to release the shaft at will is of great service whenever a new form is put into the press, as it permits the grippers to be brought against the platen, whatever the position of the latter may be, and then to be adjusted accurately to the position of the form as such position is shown by the trial impression on the tympan-sheet.

At W is the chase, which is secured to the bed between the undercut ledge 25 and a chase-latch. (Shown in detail at Figs. 9 and 10.) This chase-latch consists of a lever 26, pivoted to the ears projecting up from the bed at 27 and carrying at one end the retaining-lip 28, which engages and holds the chase, and at the other end a set-screw 29 for tightening and releasing it. Said screw is loosely journaled in the lever and confined in its bearing by upper and lower enlargements or collars, as shown at Fig. 10. It has a threaded engagement with the bed, as also shown at said figure. It will be noticed that any tendency which this screw may exhibit to loosen or work out of its threaded engagement with the

bed will tend to tighten its grip upon the chase. The loosening of these latch-screws in the old construction of presses has been a fruitful source of trouble, which by my invention is wholly avoided.

The guides 2 are secured to the frames by means of pivots 30 and set-screws 31, the latter passing through elongated openings in the guides, so as to permit the upper ends thereof to be adjusted for the purpose of throwing the upper edge of the bed in or out. The back of the bed, where it bears against the wedges 3, is also inclined, as shown in Fig. 5, so that when lifted by the weight it moves backward as well as upward.

The springs r^3 upon the inking-roller carriage, in addition to the function above set forth, serve the further function of securing contact by the bearing-wheels d with the ways u , so that the rollers are kept in constant rotation. In this way I prevent the serious evil known to the printers as "pounding the form." The springs are subject to but slight compression and are consequently long lived.

I claim—

1. The jobbing-press having inking-rollers moving in a straight path parallel with the face of the form and inclined laterally and devices for guiding the rollers in such path, substantially as set forth.

2. The jobbing-press whose inking-rollers are combined with devices whereby they are given a path inclined laterally over the face of the form to bring fresh portions of their

surface in contact with the type, substantially as set forth.

3. The jobbing-press having inclined ways V for the inking-roller carriage, in combination with such carriage, substantially as set forth.

4. The combination, in a printing-press, of the type-bed resting against an inclined support, such as 3, an overbalancing-weight connected to the bed, and releasable devices for normally preventing action by said weight, substantially as set forth.

5. The combination, with the type-bed, of the wedges 3, guides 2, a spring 4, and devices connecting said spring with the bed, substantially as set forth.

6. The combination of the type-bed, inclined back supports for the bed, and the spring and connecting devices for holding the bed against said supports, with the overbalancing-weight and releasable devices for preventing the weight from acting, substantially as set forth.

7. In a printing-press, the grippers and their shaft 17, in combination with its actuating-arms, and a pin 18, making the shaft rigid in the arms, said pin being adapted to be withdrawn when it is desired to release the shaft, substantially as set forth.

FREDERICK G. WILLARD.

Witnesses:

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EMMA HACK.