H. F. ANDERSON.

PRINTING PRESS.

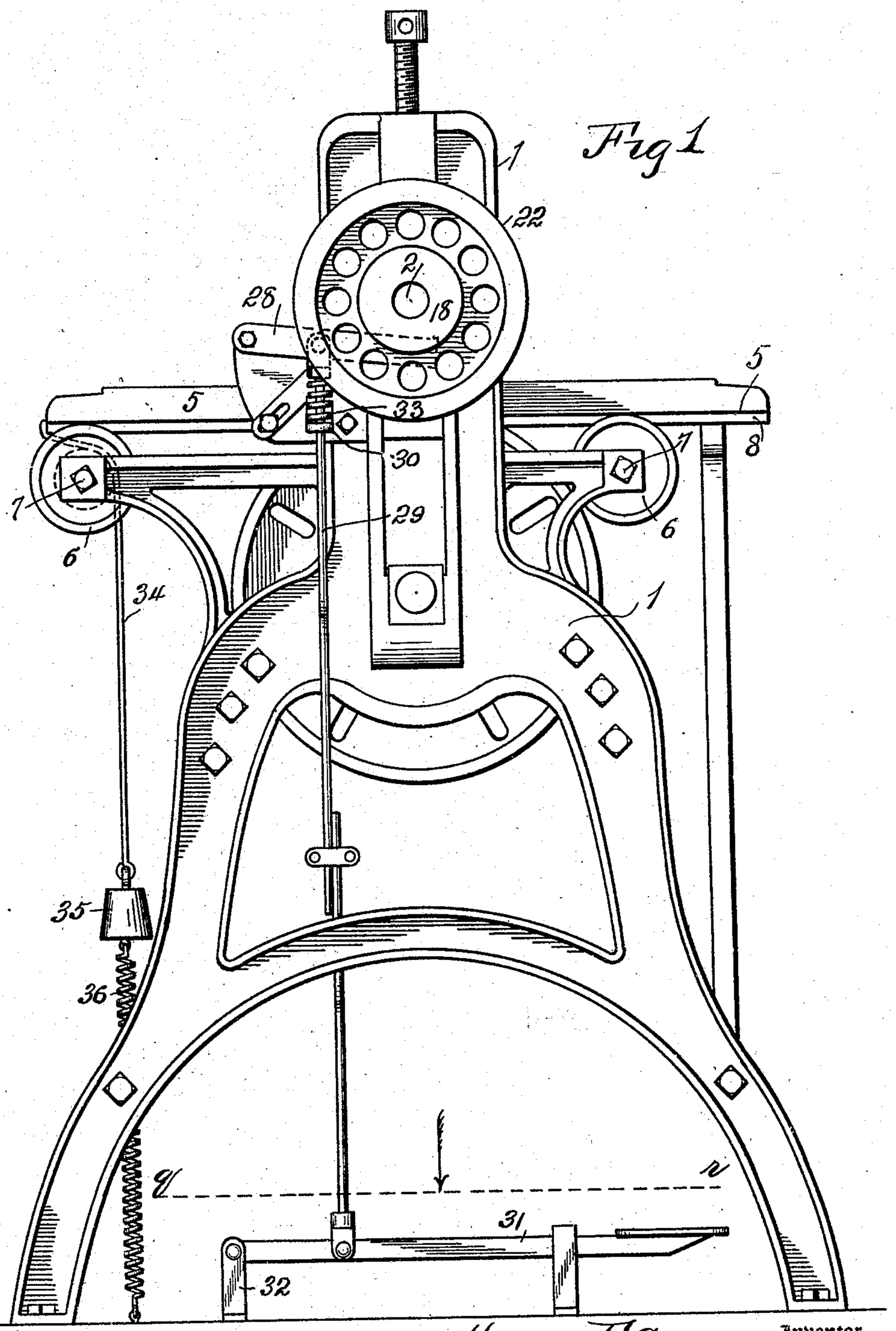
APPLICATION FILED JULY 16, 1906.

911,930.

Patented Feb. 9, 1909.

4 SHEETS—SHEET 1.

Fig 1



Witnesses:
R. E. Hamilton.
E. B. House

Harry F. Anderson Inventor
By His Attorney Warren O. House

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4 SHEETS—SHEET 2.

Fig 2

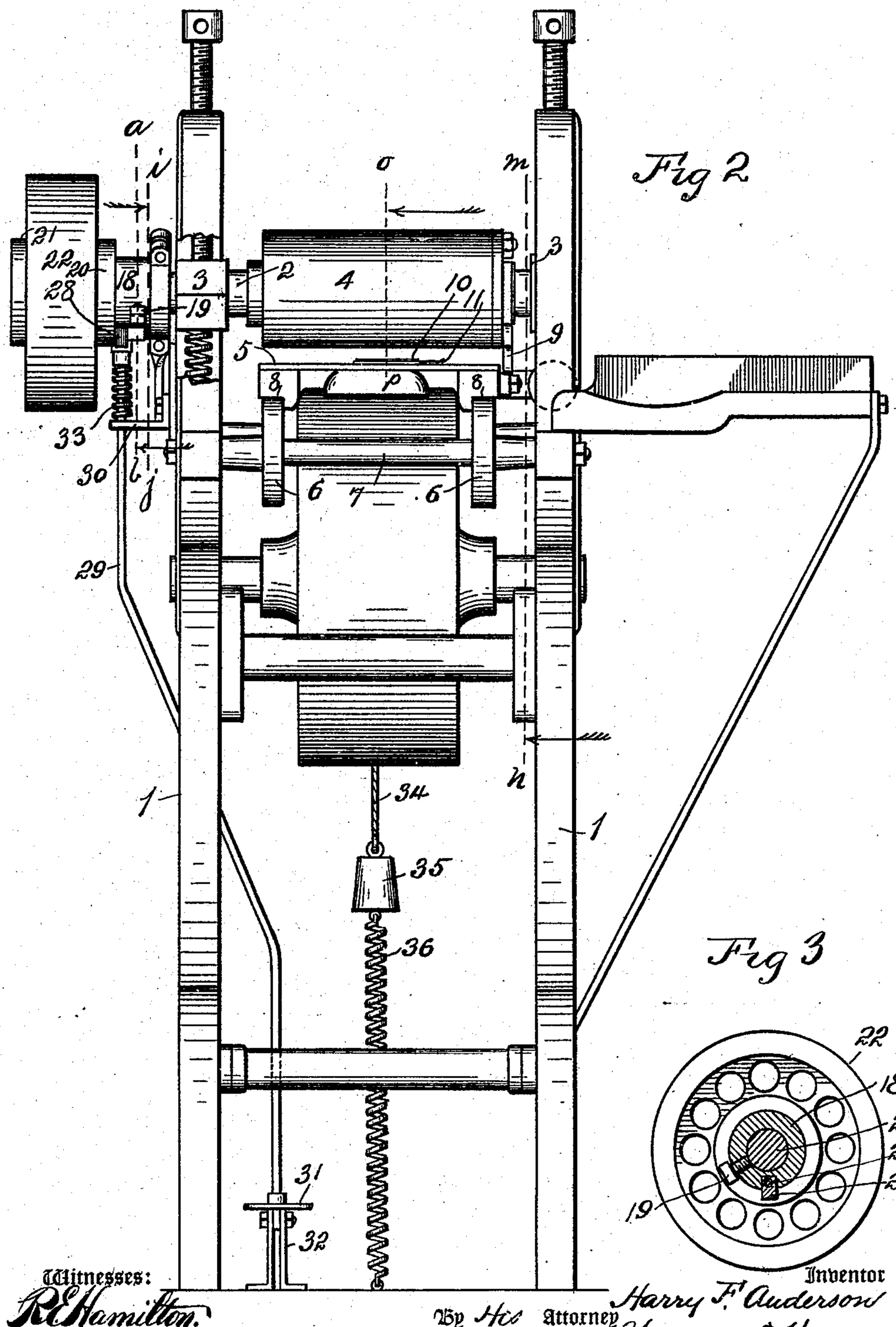

Fig 3

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4 SHEETS—SHEET 3.

Fig 4

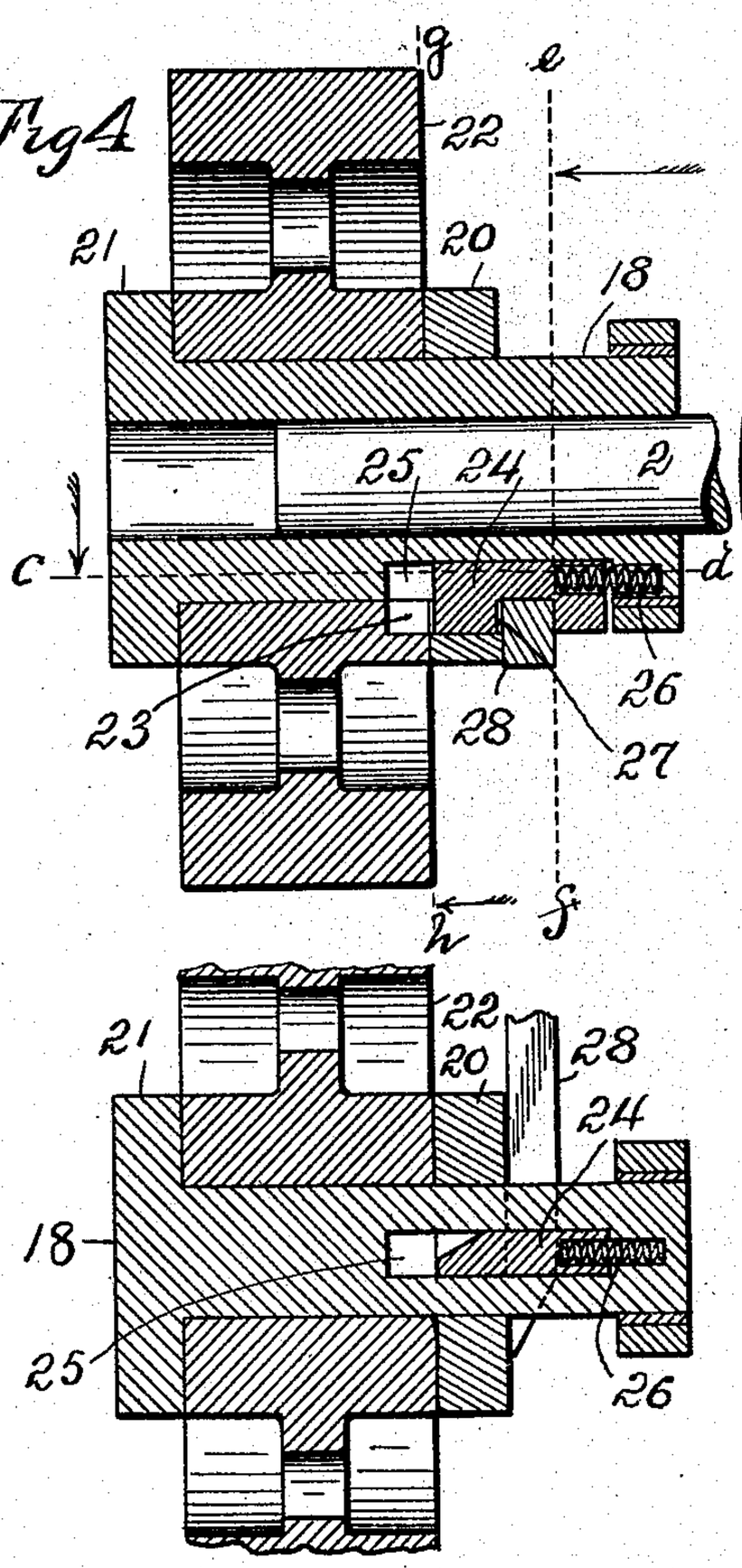


Fig 6

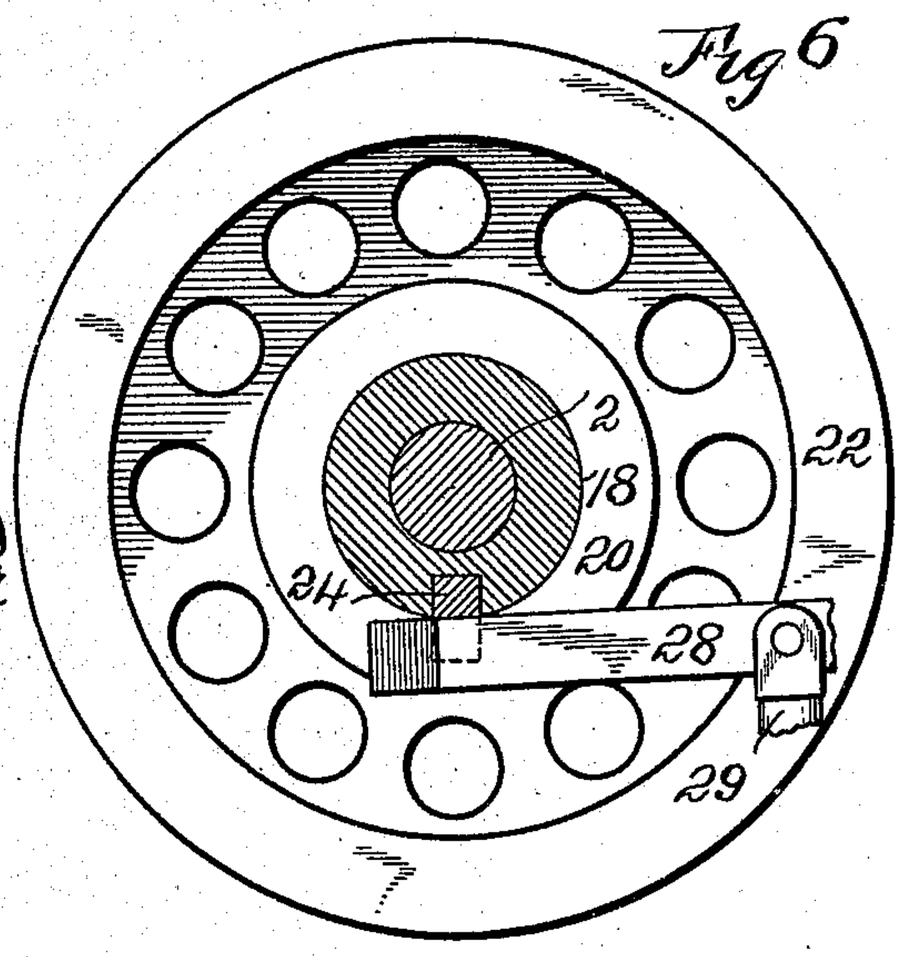


Fig 5

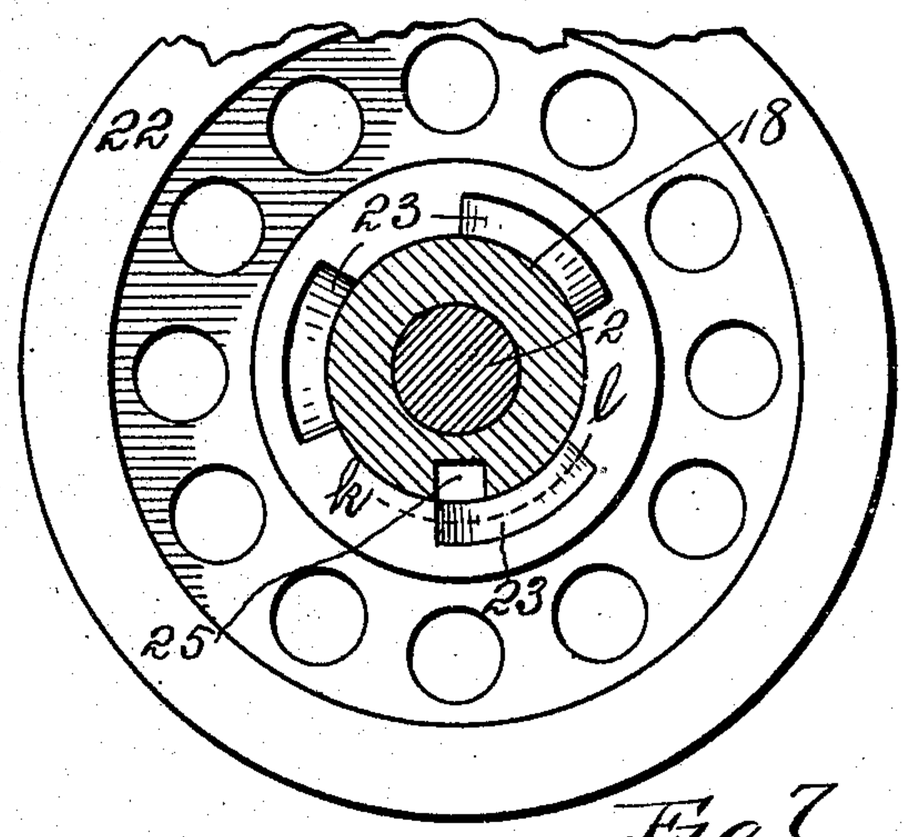


Fig 7

Fig 8

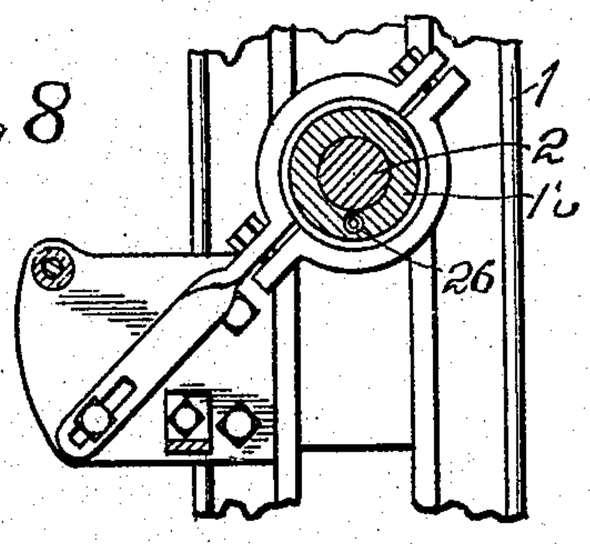
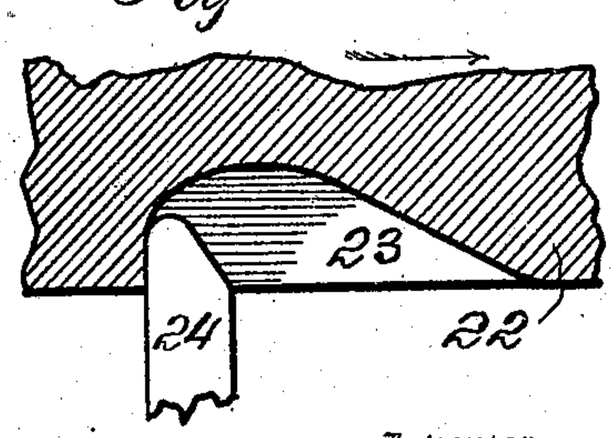


Fig 9



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4 SHEETS—SHEET 4.

Fig 10

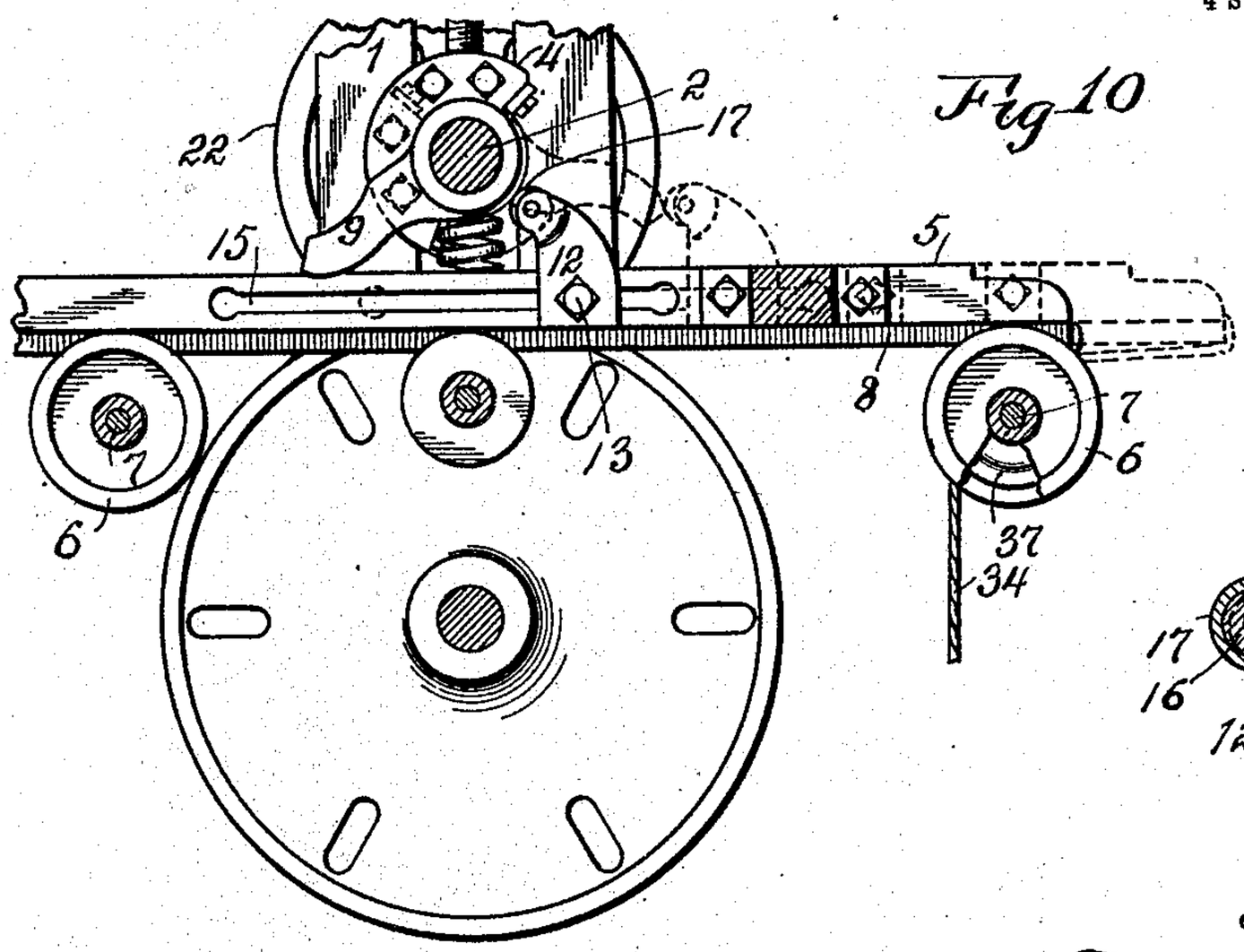


Fig 12

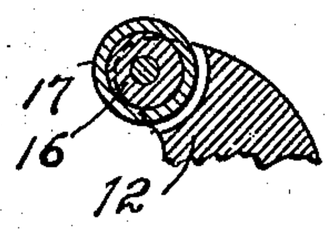


Fig 13

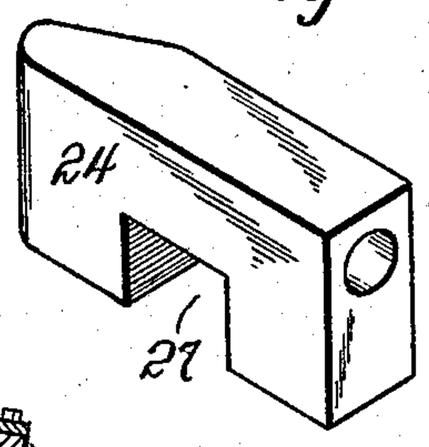
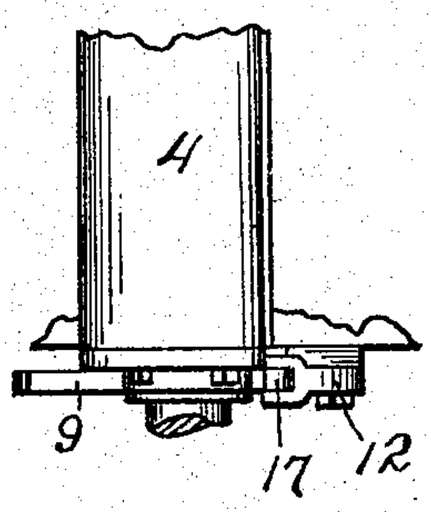


Fig 11



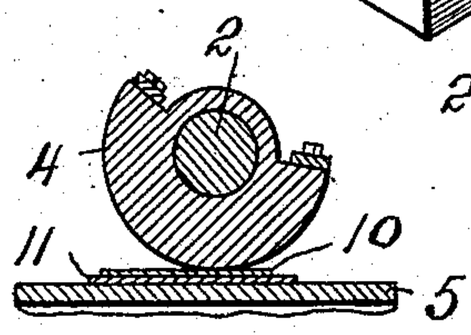
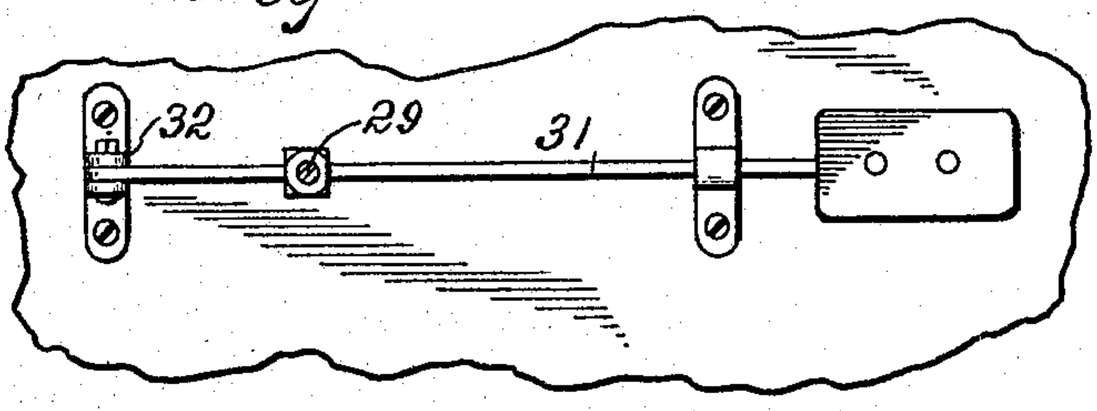


Fig 14

Fig 15



Witnesses:
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E. B. House

Harry F. Anderson,
Inventor
By His Attorney Warren B. House,

UNITED STATES PATENT OFFICE.

HARRY F. ANDERSON, OF KANSAS CITY, MISSOURI.

PRINTING-PRESS.

No. 911,930. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed July 16, 1906. Serial No. 326,428.

To all whom it may concern:

Be it known that I, HARRY F. ANDERSON, citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention relates to improvements in printing presses.

My invention is particularly adapted for use in connection with D roller plate printing presses. As commonly used these presses are hand driven, that is the shaft which forces the reciprocative bed forward is rotated by hand, for the reason that so far as I am aware no means have been provided by which presses of this character may be power driven and produce results as satisfactory as hand driven presses.

The object of my invention is to provide driving mechanism by which the reciprocative bed of a D roller plate press may be started without perceptible jar, thus eliminating the principal objection to the use of power for driving presses of this type.

My invention provides further a novel clutch mechanism hereinafter described and claimed.

Other novel features are hereinafter fully described and claimed.

In the accompanying drawings, illustrative of my invention, Figure 1 is an end elevation view of a D roller plate printing press provided with my invention. Fig. 2 is a front elevation view of what is shown in Fig. 1. Fig. 3 is a cross section taken on the dotted line *a*—*b* of Fig. 2. Fig. 4 is a central vertical sectional view of the clutch mechanism and parts connected thereto. Fig. 5 is a horizontal sectional view taken on the dotted line *c*—*d* of Fig. 4. Fig. 6 is a cross section taken on the dotted line *e*—*f* of Fig. 4. Fig. 7 is a cross section taken on the dotted line *g*—*h* of Fig. 4. Fig. 8 is a cross section taken on the dotted line *i*—*j* of Fig. 2. Fig. 9 is a sectional view taken on the curved dotted line *k*—*l* of Fig. 7, showing the shape of one of the notches in the driving pulley. Fig. 10 is a vertical sectional view taken on the dotted line *m*—*n* of Fig. 2. Fig. 11 is a top view of one end of the D roller and some of the parts connected therewith, also a portion of the bed and abutment carried thereon. Fig. 12 is a vertical sectional view of the abutment carried by the bed. Fig. 13 is a perspective view of the bolt carried by the sleeve. Fig. 14 is a vertical sectional view taken on the dotted line *o*—*p* of Fig. 2, showing the D roller in contact with a card mounted on the engraved plate carried on the bed. Fig. 15 is a horizontal sectional view taken on the dotted line *q*—*r* of Fig. 1.

Similar characters of reference denote similar parts.

1 denotes the two vertical ends of the frame of an ordinary D roller plate press.

2 is the horizontal rotary roller shaft rotatively mounted in bearings 3 mounted one in each end 1 of the frame. Intermediate the ends 1 a D-roller 4 is secured to the shaft 2. Below the D roller 4 is the horizontal bed 5 reciprocative under the roller 4 and supported by rollers 6 of which there are four rotatively mounted two upon each of two horizontal tie rods 7 connecting the ends 1, said rollers 6 being mounted two in each of two longitudinal grooves 8 on the under side of the bed 5. On the shaft 2 at one end of the D roller 4 is secured a cam 9 adapted, when the shaft 2 is rotated to strike an abutment carried by the bed 5 for forcing the bed forward a part of its forward stroke, the bed being carried the remainder of its forward stroke by the pressure of roller 4 upon the card 10 resting upon the engraved plate 11 carried upon the upper side of the bed 5. It is of course understood that the card 10 after each printing operation is replaced by a fresh card.

The abutment comprises preferably a member 12 the lower end of which is provided with a transverse hole in which is mounted a bolt 13 adjustable lengthwise of a slot 15. The upper end of the member 12 is bifurcated and has rotatively mounted between the arms a wheel 16 the periphery of which is encircled by a resilient tire 17, of rubber or leather. The cam 9 strikes the tire 17 thus starting the bed forward without jar.

Upon one end of the shaft 2 is mounted a sleeve 18 preferably circumferentially adjustable on the shaft 2 to enable the adjustment of the sleeve relative to the D roller 4, and rigidly secured to the shaft by any suitable means, such as a set screw 19. On the sleeve 18 is rigidly secured a collar 20. The outer end of the sleeve has a peripheral flange 21 between which and the collar 20 is rotatively mounted a driving pulley 22. The inner end of the pulley 22 is provided with one or more notches 23, each of which inclines inwardly relative to the adjacent end of the pulley and then curves outwardly to

an abrupt end which serves as a seat for a bolt 24 longitudinally movable in a longitudinal groove 25 in the periphery of the sleeve 18. The bolt 24 is moved in the groove 25 against the bottom of each notch 23 by a coil spring 26 one end of which is mounted in a hole in the sleeve and the other end of which is mounted in a hole in the inner end of the bolt 24. The under side of the bolt 24 is provided with a transverse notch 27 adapted to receive the beveled end of a horizontal bar 28, the other end of which is pivoted to the adjacent end 1 of the frame. When the bar 28 is raised as shown in Fig. 6 it will remain in the notch 27 and prevent the bolt 24 being forced into the notches 23 when the driving pulley is rotated on the sleeve 18. To depress the bar 28 to release the bolt 24, it has pivoted to it the upper end of a vertical connecting rod 29, which extends through a vertical hole in a bracket 30 secured to the adjacent end 1. The lower end of rod 29 is pivoted to a pedal 31 which is pivoted to a support 32 secured to the floor. A coil spring 33 encircling the rod 29 has one end bearing upon the bracket 30 and the other end upon the bifurcated upper end of said rod. The tension of the spring 33 normally forces the bar 28 toward the position shown in Fig. 6. The starting end of each notch 23, that is the end which first passes before the end of the bolt 24, is the inclined end.

After a card 10 has been properly positioned on the engraved plate 11, the pedal 31 is depressed thus withdrawing bar 28 from notch 27 and permitting the spring 26 to force the bolt 24 against the adjacent end of the driving pulley 22. As soon as a notch 23 passes before the bolt 24, the bolt will follow the inclined bottom and will then be forced along the curved bottom outward against the pressure of the spring 26, thus causing the bolt by its pressure on the curved bottom to slightly start the sleeve 22 before the bolt comes against the abrupt end of the notch 23, and thus taking off the jar of starting. At the same time the cam 9 will strike the resilient abutment or tire 17 and will thus start the bed 5 forward without jar. By the time the parts will have moved to the position shown in dotted lines in Fig. 10, the roller 4, or D roller, will bear upon the card 10 and by its pressure thereon and upon the plate 11 will continue the forward movement of the bed 5 until the D roller has rotated so as to clear the card 10. The bed 5 will then be retracted to its original position by any suitable means. In the drawings I have shown a rope 34 having one end attached to one end of the bed, the rope then passing over a pulley, shown in dotted lines in Fig. 1, the lower end of the rope being secured to a weight 35. To the rope may be attached the upper end of a spring 36, the lower end of which coil spring is attached to the floor. The coil spring 36 may be dispensed with, but I have found that it quickens the starting of the bed 5 on its return movement. It will be understood that the rope 34 is attached to the end of the bed adjacent the member 12, the rope 34 passing over the pulley 37 in a direction such that the weight 35 and spring 36 will retract the bed 5 in a direction opposite that in which the cam 9 forces it.

With a D roller plate press equipped with my invention, cards may be printed from the engraved plate as satisfactorily relative to execution as can be done by hand driven presses, and with much more rapidity.

My invention may be modified in many ways within the scope of the appended claims without departing from its spirit.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. The combination with the D roller, of the rotary roller shaft to which the D roller is secured, a cam secured to the roller shaft, the reciprocative bed, a resilient roller abutment carried by the bed and adapted to be struck by the cam for carrying the bed a part of its forward stroke, the bed being carried the remainder of its forward stroke by pressure of the D roller upon the engraved plate and card carried by the bed, a driving pulley, and releasable clutch mechanism connecting the roller shaft and driving pulley.

2. The combination with the D roller, of the rotary roller shaft to which the D roller is secured, a cam secured to the roller shaft, the reciprocative bed, an abutment comprising a member secured to the bed and a wheel rotatively mounted on said member and having a resilient tire adapted to be struck by said cam for carrying the bed a part of its forward stroke, the bed being carried the remainder of its forward stroke by pressure upon the engraved plate and card carried by the bed, a driving pulley, and releasable clutch mechanism connecting the roller shaft and driving pulley.

3. The combination with the D roller, of the roller shaft on which the D roller is secured, the reciprocative bed, a resilient abutment carried by the bed, a cam carried by the said shaft and adapted to strike said abutment for carrying the bed a part of the forward stroke, the bed being carried the remainder of the forward stroke by pressure of the D roller upon a card and plate adapted to be supported by the bed, a driving pulley, and releasable clutch mechanism connecting the driving pulley and said roller shaft.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY F. ANDERSON.

Witnesses:
R. E. HAMILTON,
E. B. HOUSE.