

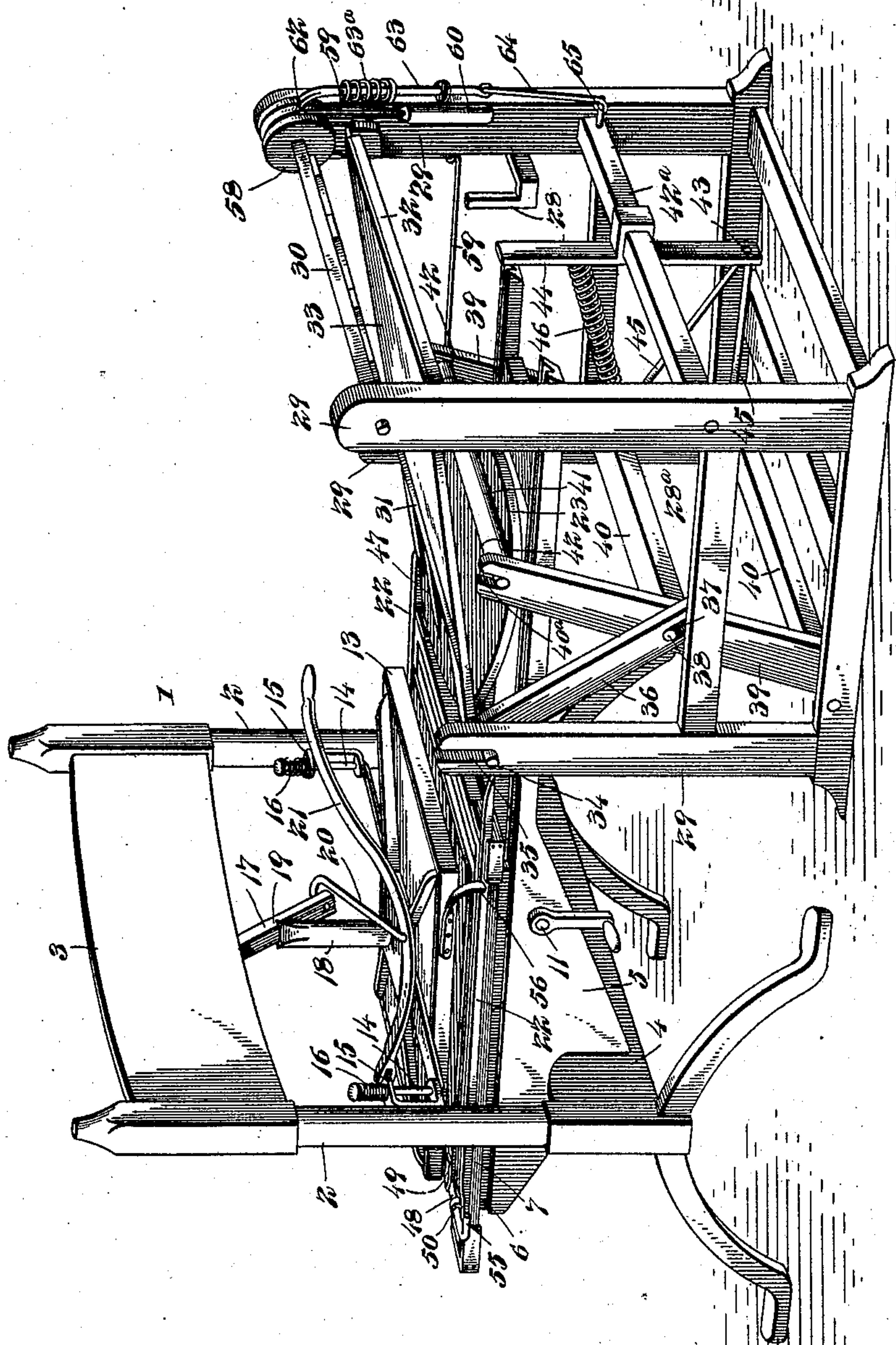
(No Model.)

3 Sheets—Sheet 1.

E. CURNUTT.
PRINTING PRESS.

No. 577,011.

Patented Feb. 16, 1897.



Inventor

Witnesses
E. H. Stewart
R. M. Smith

Elmer Curnutt
By *his* Attorneys,
C. A. Snow & Co.

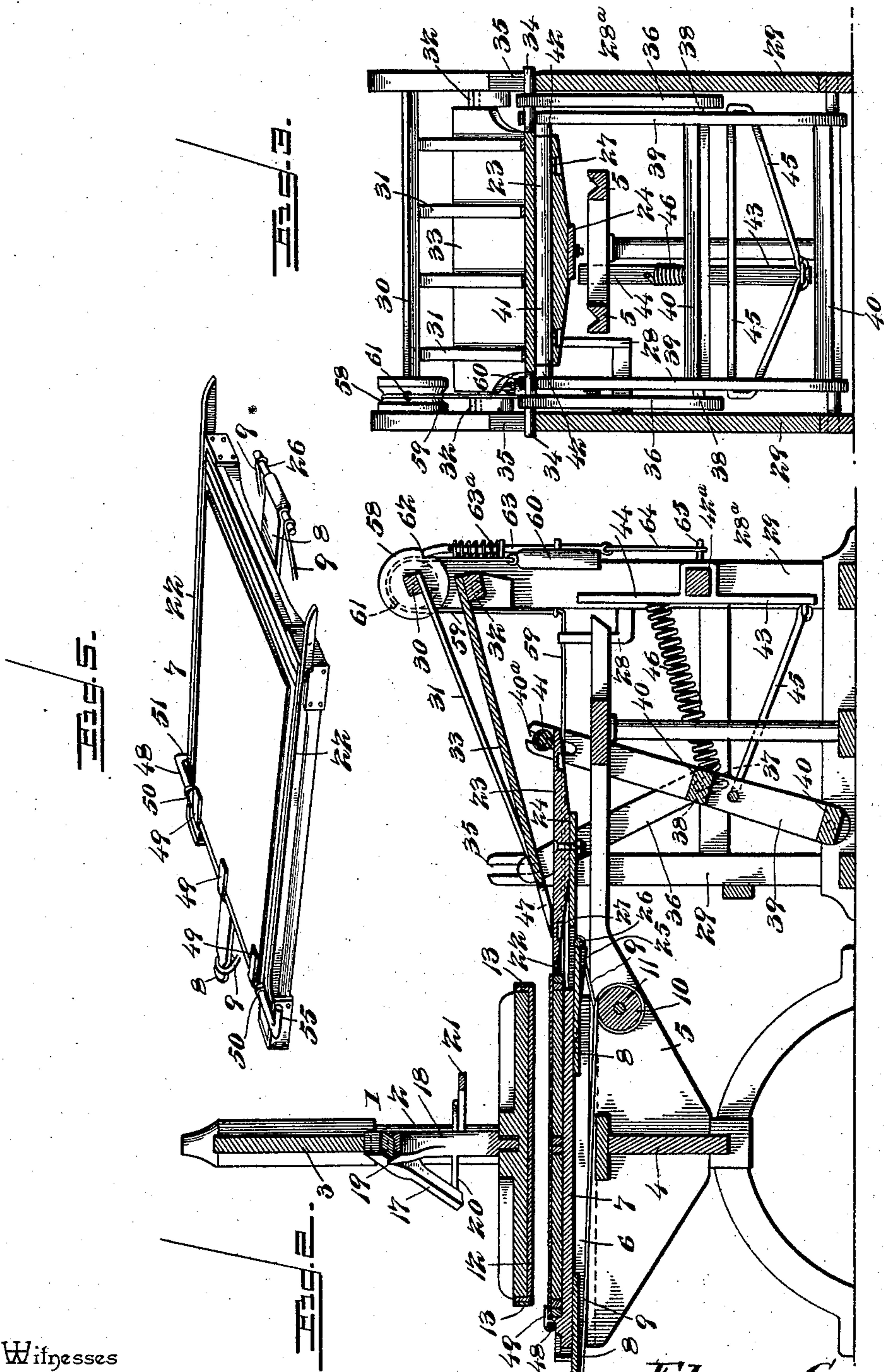
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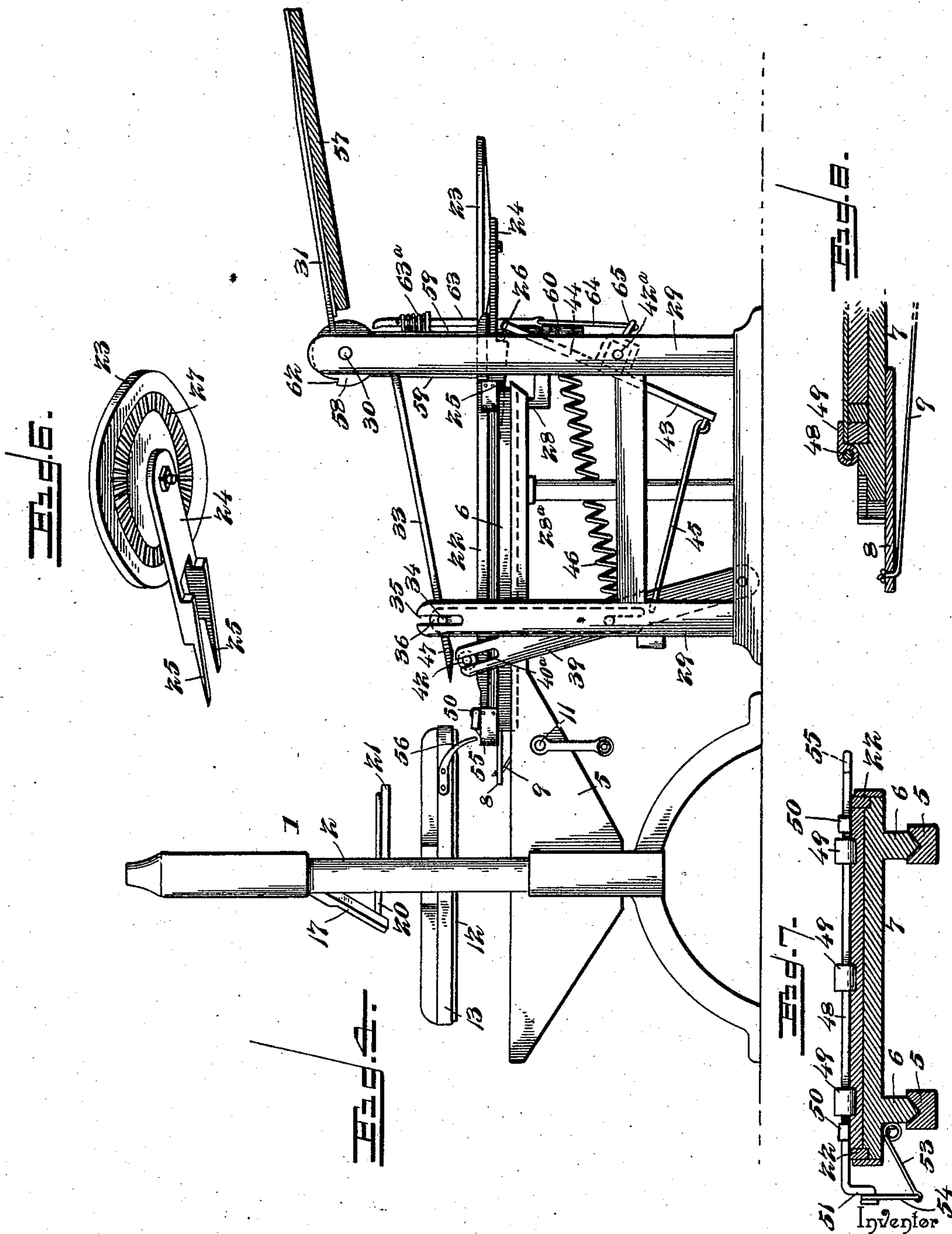
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UNITED STATES PATENT OFFICE.

ELMER CURNUTT, OF COLONY, KANSAS.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 577,011, dated February 16, 1897.

Application filed June 6, 1896. Serial No. 594,593. (No model.)

To all whom it may concern:

Be it known that I, ELMER CURNUTT, a citizen of the United States, residing at Colony, in the county of Anderson and State of Kansas, have invented a new and useful Printing-Press, of which the following is a specification.

This invention relates to printing-presses of the hand-operated type particularly adapted for use in small newspaper-offices.

The object of the present invention is to simplify and improve the ink-distributing mechanism, to provide an automatic grip for holding the sheets of paper upon the form, and to furnish simple and efficient mechanism for actuating the fly, so that its movements will be timed to correspond with the movement of the form.

Other objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in an improved printing-press embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally incorporated in the claims hereto appended.

In the accompanying drawings, Figure 1 is a perspective view of a press constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is a vertical cross-section through the same. Fig. 4 is a side elevation of the press, showing the form drawn forward under the paper-holding table. Fig. 5 is a detail perspective view of the reciprocating type-bed, showing the automatic paper-grip carried thereby. Fig. 6 is a reverse perspective view of the revoluble ink-plate. Fig. 7 is a detail cross-section through the type-bed, &c., showing the gripping-fingers and their actuating-shaft. Fig. 8 is a detail longitudinal section through the same.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the accompanying drawings, 1 designates the press-frame, comprising the spaced pedestals or standards 2, connected at the top by a cross-head or yoke 3 and near their lower ends by a cross-beam 4, which

forms the main support for the bed of the press. This bed consists of a pair of horizontal beams 5, spaced any desired distance apart and having rigid connection with the other parts of the press-frame. These beams are also provided in their upper edges with longitudinal grooves, which form tracks or guides for depending ribs 6 on the bottom of the reciprocating type-bed 7.

The type-bed 7 is provided at each end or at front and rear with longitudinally-extending arms 8, from each of which a flexible connection 9, of heavy cord, rope, or wire, extends around a drum 10, mounted between the beams 5 upon a revoluble crank-shaft 11, journaled in said beams. The flexible connection at one end of the type-bed is wound around the drum 10 in one direction, while the flexible connection at the other end of the bed is wound around the drum in a reverse direction, or, if desired, but a single flexible cord or wire may be employed, the same extending from one end of the bed toward the drum, then extending several times around the drum, and finally running off and attaching to the opposite end of the bed. By rotating the drum 10 with the aid of the crank-shaft it will be seen that the type-bed will be reciprocated alternately beneath the press-platen and the paper-table hereinafter described.

The press-platen 12 is disposed horizontally and provided with the usual bail-shaped clamps 13 for securing the tympan, and said platen is normally upheld clear of the form by means of vertically-extending arms 14, which slide through perforated brackets 15, attached to the pedestals 2. Spiral springs 16 are interposed between the upper portion of said brackets and the headed upper ends of the vertical arms 14, the tension of said springs being exerted to hold the platen normally elevated, while the arms 14 serve to guide the platen. The platen is depressed by means of a pair of toggle-levers 17 and 18, the lower one, 18, being connected loosely to the center of the platen, so that it may have a slight rocking movement thereon, while the upper lever 17 is fulcrumed against the under side of the cross-head or yoke 3 by having its tapered or beveled end inserted in a recess in such cross-

head or yoke. The lever 17 is provided intermediate its end with a notch 19, in which the upper end of the lever 18 is received, while said lever 17 connects at its lower end with one end of a link 20, the latter connecting pivotally at its opposite end with a platen-operating lever 21, fulcrumed for convenience on one of the brackets 15 at one side of the press and bearing near its handle end against the pedestal 2 at the opposite side of the press, such pedestal serving to limit the vibration of the lever and thus preventing disengagement of the toggle-levers with each other and the press-frame. By moving the lever 21 forward the link 20 will operate upon the toggle-levers, causing them to depress the platen and make an impression.

The type-bed is provided at each side with longitudinal tracks 22, which project beyond the front end of the bed and upon which the end rollers of the inking-roller travel.

23 indicates the ink-plate, which is in the form of a horizontal disk mounted upon a vertical pivot or axis in the front end of a bracket 24, the rear end of which is forked to form parallel arms 25, which will straddle the longitudinal extension or arm 8 at the front end of the type-bed. The arms 25 are notched or cut away upon their upper side to allow them to pass beneath the type-bed, and they are also notched upon their under side to engage a cross-head or T extension 26 on the front end of the arm 8. This construction supports the bracket 24 and ink-plate 23 in horizontal position and also prevents longitudinal movement of said parts relatively to the type-bed. The upper surface of the ink-plate is arranged in the proximate horizontal plane of the type-bed. The ink-plate 23 is provided on its under side with a circular series of notches forming ratchet-teeth 27, which in the forward reciprocation of the type-bed are engaged by a finger attached to the press-frame and shown at 28. This effects a partial rotation of the ink-plate and presents a new surface of ink to the ink-roller in each reciprocation of the type-bed.

28^a designates a supplemental frame located in advance of the main frame of the press and comprising four uprights or corner-posts 29. The front corner-posts are taller than the rear ones, and in their upper ends is journaled the rock-shaft 30 of the fly 31. Just beneath the rock-shaft 30, and formed in the inner adjacent faces of the uprights 29, are bearing sockets or seats for the opposite ends of a transverse shaft 32, upon which the front edge of the paper-table 33 is supported, the said shaft forming the fulcrum upon which the table 33 may be vibrated. The table 33 is provided at or near its swinging end with laterally-projecting pins or studs 34, which work up and down in open slots 35 in the upper ends of the rear post 29 referred to. Arms 36 are pivotally mounted on the pins or studs 34 at opposite sides of the table 33, from whence they extend downward and forward,

being provided at their lower ends with open slots 37, within which work pins 38, projecting laterally from the ink-roller carriage.

The ink-roller carriage comprises the side arms 39, connected at suitable points by cross-bars 40 and fulcrumed at the bottom of the frame 28^a, the upper end of said carriage being free to vibrate in a longitudinal direction.

The arms 39 of the ink-roller carriage are provided at their upper ends with open slots 40^a, in which work the ends of the spindle of the inking-roller, (indicated at 41,) the roller being thus free to rise and fall relatively to the carriage. The inking-roller 41 is provided at each end with a roller 42, which rests upon the track 22 at its respective side of the type-bed.

42^a designates a rock-shaft arranged at the front end of the press and fulcrumed in the corner-posts 29. This rock-shaft is disposed horizontally and is provided with a depending crank-arm 43 and an upwardly-projecting crank-arm 44. The lower crank-arm 43 is connected to the roller-carriage by means of one or more rods or links 45, so that when the rock-shaft 42 is turned the carriage will be vibrated. The upper crank-arm 44 is connected with the carriage by means of an interposed spring 46, which operates to draw said parts toward each other, and the upper end of the crank-arm 44 is arranged in the path of the type-bed, so that when the type-bed moves forward the advance end of the arm or extension 8 will strike against said crank-arm and thereby operate the rock-shaft 42 and cause the same, by means of the crank-arm 43 and rods or links 45, to vibrate the ink-roller carriage rearward, causing the inking-roller also to move rearward over the form. As the ink-roller carriage moves rearward the pins 38 thereof upon reaching the inner ends of the slits 37 of the arms 36 serve to move the lower ends of said arms rearward, thereby causing said arms to lift the rear end of the paper-table 33 for the purpose of allowing the inking-roller to pass beneath the lower end of such table.

The table 33 is provided at its lower swinging edge with longitudinally-extending fingers 47, which project in close proximity to the upper surface of the form and which are adapted to engage beneath the printed sheet of paper for directing the same up onto the fly. At the rear end of the type-bed is a transverse rock-shaft 48, provided intermediate its ends with gripping-fingers 49, rigid thereon. This shaft is mounted in suitable bearings 50 on the type-bed and is provided at one end with a crank-arm 51, between which and the laterally-projecting arm of a spring 53 is interposed a link or other connection 54. The tension of the spring 53 is exerted upon the crank-arm 51 for the purpose of holding the gripping-fingers in engagement with the paper covering the form. At its opposite end said rock-shaft is provided with

another crank-arm 55, which in the extreme forward movement of the type-bed comes in contact with a hook or catch 56, attached for convenience to the side of the press-platen.

5 By this construction just as the type-form passes out from beneath the platen the gripping-fingers are vibrated for releasing the paper. As the type-bed begins to move from beneath the platen the advance edge of the
10 paper is directed up upon the fly 31, and after the type-bed has completed its movement and the paper is released from the gripping-fingers the fly takes the printed sheet and throws the same over upon a receiving-table 57 at the
15 front end of the press. The fly is operated in the following manner: At one end the shaft 30 has a grooved pulley 58 fast thereon, and over this pulley runs a cord, rope, or other flexible connection 59, one end of which is at-
20 tached to the reciprocating type-bed, the other end being supplied with a weight 60, the cord or rope 59 being fastened at the point 61 to the pulley 58, so that it cannot slip around the same. One of the side flanges or
25 edges of the pulley 58 is formed with a notch 62, with which a sliding rod or pawl 63 engages when the fly is thrown rearward and rests upon the table 33. This rod or pawl is actuated upward and normally held in en-
30 gagement with the pulley 58 by means of a spring 63^a, while the lower end thereof is connected by means of a cord or other flexible device 64 with a pin or hook 65 on the rock-
35 shaft 43. By means of this arrangement the fly will be held in position to receive the paper during the major portion of the forward move-
40 ment of the type-bed, but as such type-bed reaches the extreme point of its forward movement and just after the gripping-fingers have released the printed sheet the type-bed strikes
45 against the crank-arm 44, thereby turning the rock-shaft 42, which operates to withdraw the pawl or rod from engagement with the pulley 58, whereupon the weight 60 and its
cord 59 operate to rotate the fly, the printed sheet being thereby carried forward and de-
posited upon the receiving-table.

The object in providing the movable ink-roller carriage is to enable the inking-roller
50 to pass over and ink the rear portion of the form without unduly lengthening the frame of the machine. This also affords a shorter movement of the type-bed, thus saving time and the expenditure of power.

55 By the construction described twice the amount of work may be performed in the same time ordinarily required by presses of the character or type described. The table 33 may be easily removed for giving access to
60 the form, and the inking-roller and ink-plate may also be readily removed when desired for any purpose, said parts being only loosely mounted in place. It will be seen that the fly and the gripping-fingers for holding the
65 paper on the form are operated automatically, it being only necessary for the operator to turn the crank-shaft 11 and to feed the lower

edges of the unprinted sheets to the gripping-fingers just as the form starts under the platen.

The mechanism described is of course susceptible of various changes in the form, proportion, and minor details of construction, which may accordingly be resorted to without departing from the spirit or sacrificing any
75 of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a printing-press, the combination with a reciprocating type-bed having a longitudi- 80
nally-projecting arm and a cross-head thereon, of a detachable bracket having one end forked to form substantially parallel portions adapted to straddle the arm on the type-bed and project under said bed, shoulders on said
85 portions for engaging the cross-head, and an inking-plate mounted on and removable with said bracket, substantially as described.

2. In a printing-press, the combination with a reciprocating type-bed, of a vibratory ink- 90
roller carriage, an inking-roller mounted loosely therein, a transverse rock-shaft having a crank-arm, a connecting rod or link interposed between the carriage and said crank-
95 arm for moving the carriage in one direction, a spring for returning the carriage to its normal position, and means on the rock-shaft arranged in the path of the type-bed for moving the carriage and inking-roller, substantially
100 as described.

3. In a printing-press, the combination with a reciprocating type-bed, and a vibratory ink- 100
roller carriage, of a movable table arranged above the plane in which the type-bed moves, and connections between said carriage and
105 table, whereby the table is lifted out of the path of the inking-roller, substantially as described.

4. In a printing-press, the combination with a reciprocating type-bed, of a paper-holding 110
table arranged above the plane in which the type-bed moves, a fly journaled at or near one end of the table, a cord or cable connected with said fly and having one end attached to
115 the type-bed and a weight at the opposite end, and means for reciprocating the type-bed, the fly being actuated simultaneously therewith, substantially as described.

5. In a printing-press, the combination with the reciprocating type-bed and the vibratory 120
ink-roller carriage, of the pivoted and inclined table arranged above the plane in which the type-bed moves and the arms or connections interposed between said carriage and
125 the table for the purpose of lifting the table out of the path of the inking-roller, substantially as described.

6. In a printing-press, the combination with the reciprocating type-bed, of the paper-hold- 130
ing table arranged over the same, the fly located above the table and journaled near one end thereof, a pulley fast on one end of the fly-shaft, a cord or cable running over said pulley and attached at one end to the type-

bed and having a weight at its opposite end, and means for reciprocating the type-bed, the fly being actuated simultaneously therewith, substantially as described.

- 5 7. In a printing-press, the combination with the reciprocating type-bed, of a fly, a pulley fast on the shaft of said fly, a cord or cable running over said pulley and attached at one end to the type-bed and having a weight at
10 its opposite end, the said cord being fastened permanently at one point on the pulley, and a pawl engaging said pulley for preventing its rotation and having connection with a rock-shaft having an arm located in the path of
15 the type-bed, whereby in the operation of the type-bed, the pawl is thrown out of engagement with the pulley, substantially as and for the purpose described.

8. In a printing-press, the combination with the reciprocating type-bed, of the fly, a pulley 20 fast on the fly-shaft, a cord or cable connected to the type-bed and running around said pulley and attached thereto, and a pawl for engaging and holding said pulley stationary, said pawl being operatively connected with 25 the press mechanism whereby it is adapted to be moved out of engagement with the pulley for releasing the fly, substantially as described.

In testimony that I claim the foregoing as 30 my own I have hereto affixed my signature in the presence of two witnesses.

ELMER CURNUTT.

Witnesses:

A. J. DOUGLASS,
E. E. VARNER.