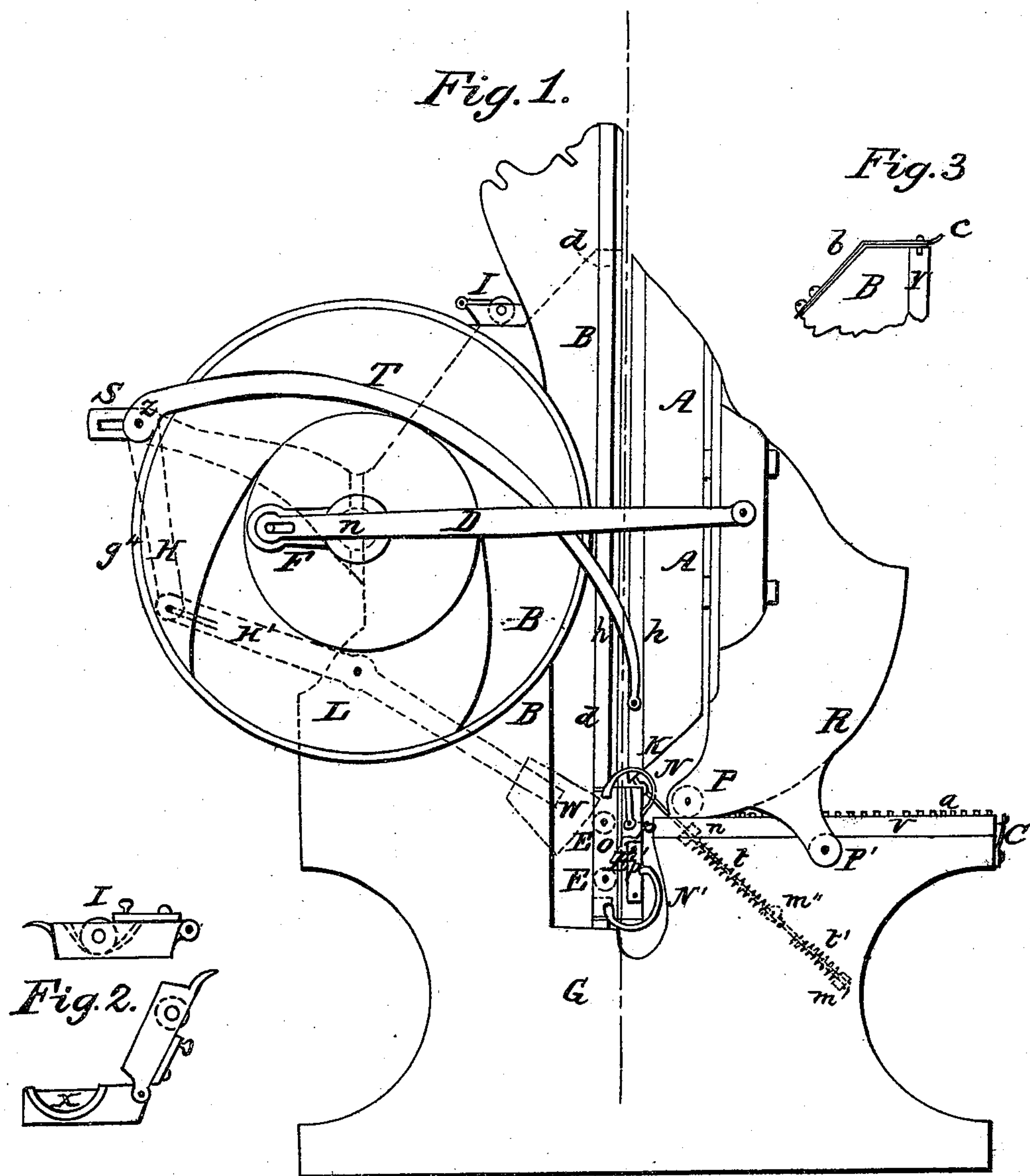
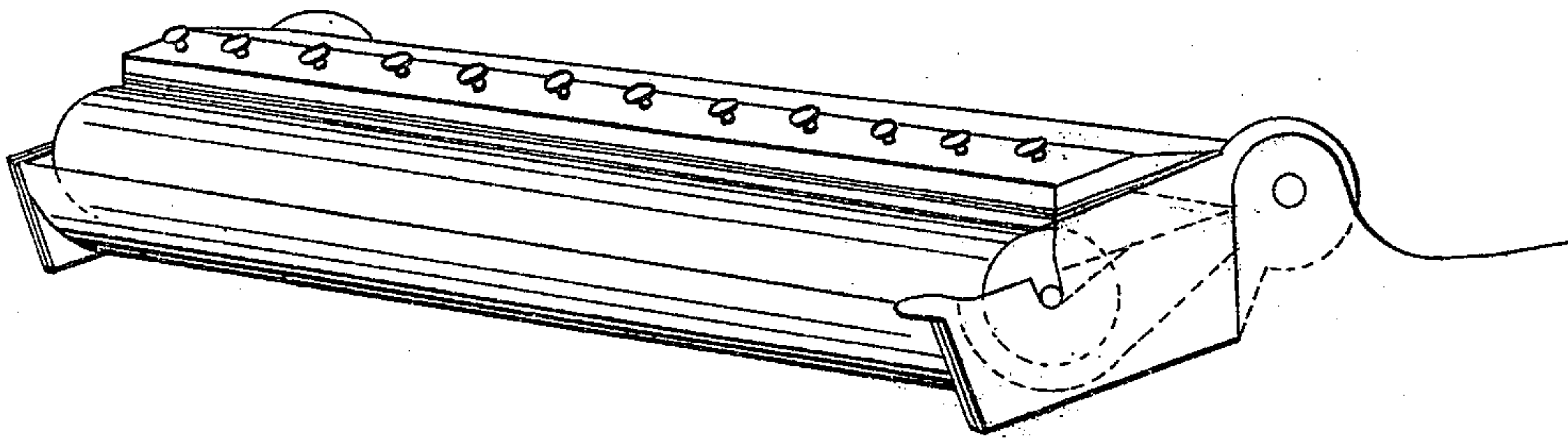


*M. Gally. Sheet 1. 3 Sheets*  
*Printing Press.*  
*Nº 96579. Patented Nov. 9. 1869.*

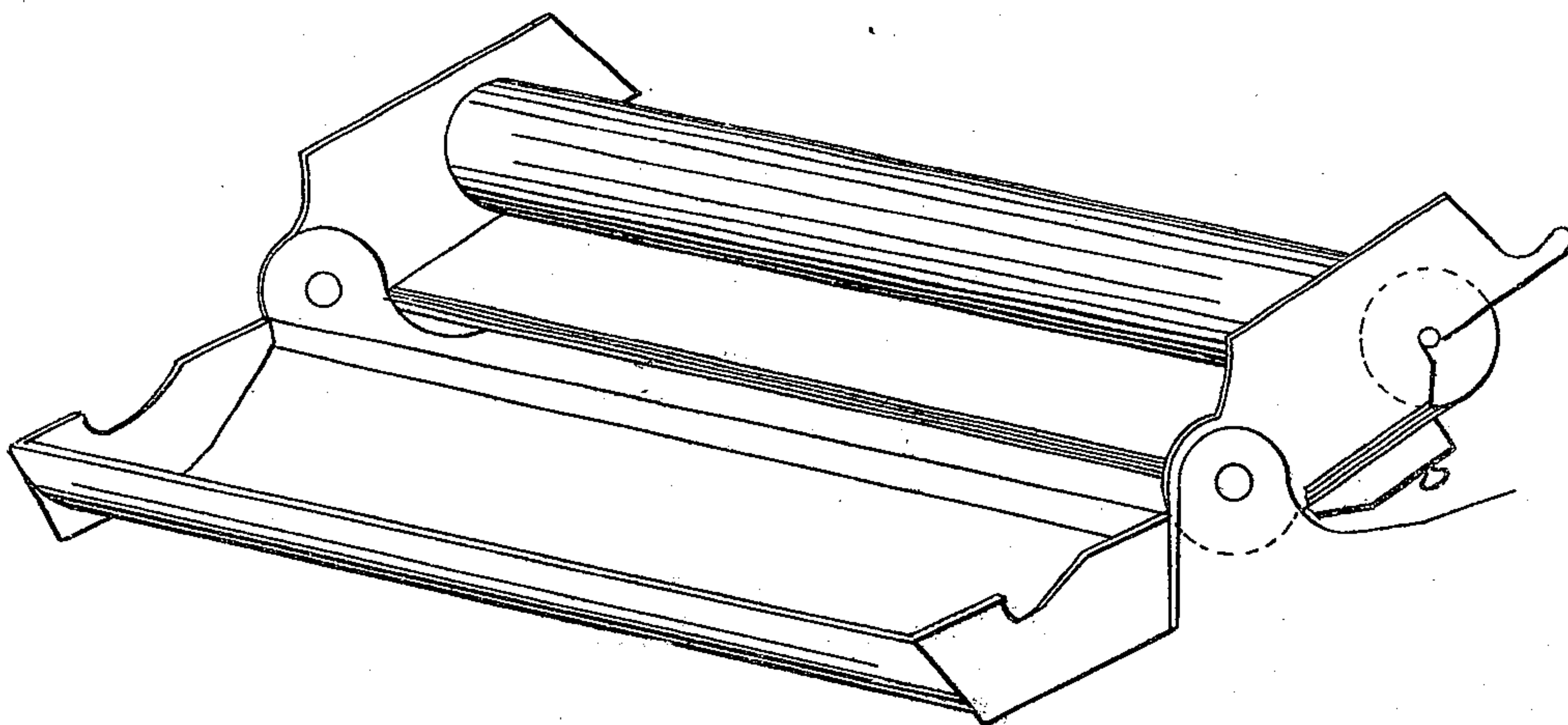


*Witnesses.*  
*George W. Carpenter.*  
*Allen P. Carpenter.*  
*Inventor.*  
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*M. Gally. Sheet 2. 3. Sheets.*  
*Printing Press.*  
*N<sup>o</sup> 96579. Patented Nov. 9. 1869.*  
*Fig. 1<sup>a</sup>*



*Fig. 2<sup>a</sup>*

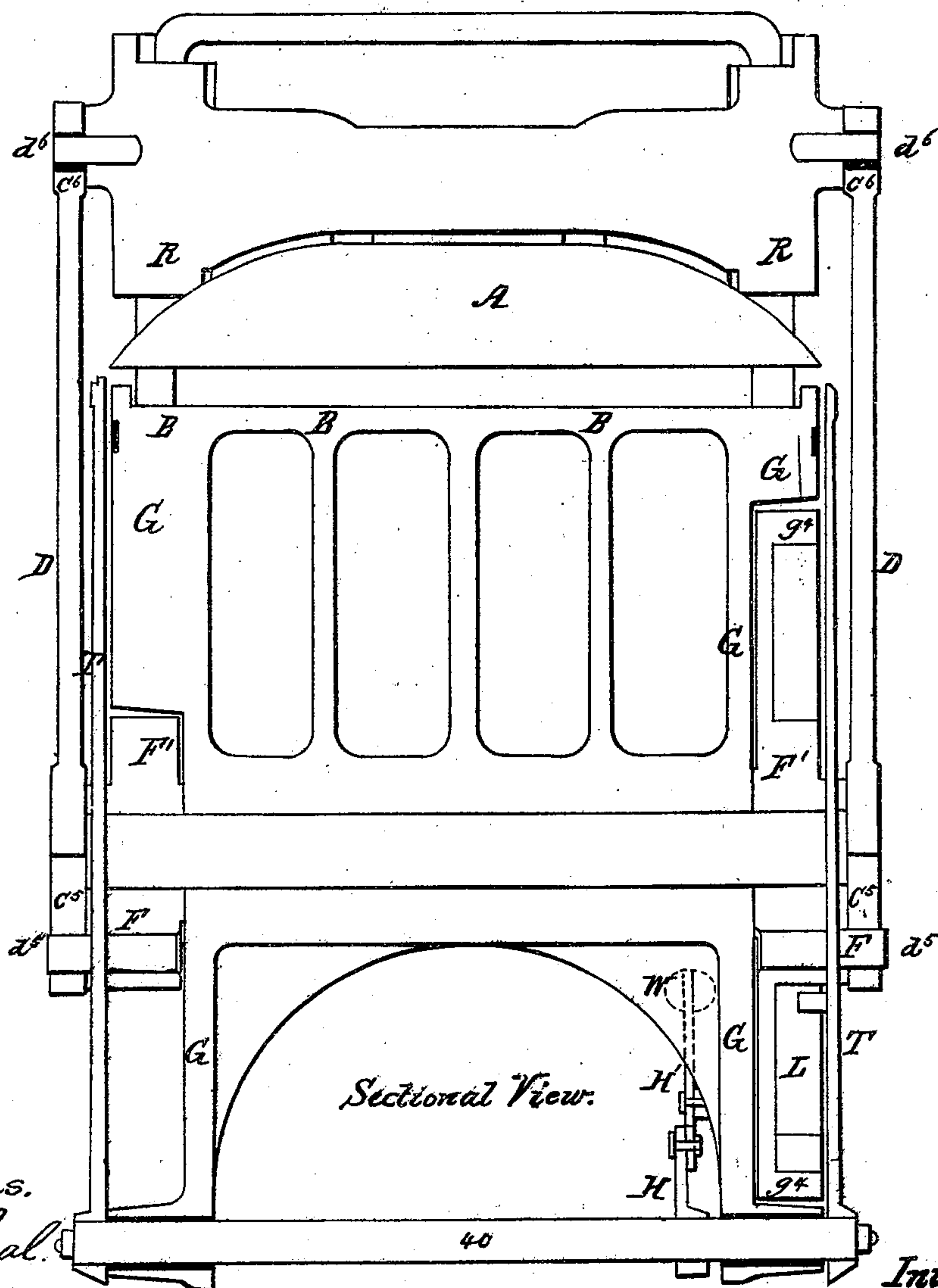


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*George W. Carpenter.*  
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Nº 96579.

*Patented Nov. 9, 1869.*



*Sectional View.*

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# UNITED STATES PATENT OFFICE.

MERRITT GALLY, OF RYE, ASSIGNOR TO ALLEN CARPENTER, OF ROCHESTER,  
NEW YORK.

## IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. 96,579, dated November 9, 1869.

*To all whom it may concern:*

Be it known that I, MERRITT GALLY, of Rye, in Westchester county, and State of New York, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a side view of the press, showing the parts claimed, both sides being substantially alike in construction. Fig. 2 represents a changeable ink-fountain for different kinds or colors of ink. Fig. 3 represents the method of holding the chase in place against the bed. Fig. 1<sup>a</sup>, Sheet 2, represents a perspective view of the ink-fountain with the shell or tank and gage in working position. Fig. 2<sup>a</sup> represents a perspective view of the ink-fountain with the tank or shell relieved from the gage. Fig. 4, Sheet 3, represents a plane sectional view of the press, dividing-bed and platen (when in position for the impression) through their centers, showing the depressions of the sides of the bed and frame-work for letting in the cranks or crank-wheels F F behind the face of the bed, also showing the position of compound lever and weight H H' W and the relative position of the levers T T with respect to the cranks F F. Fig. 5, Sheet 3, represents a face view of the platen, together with the apparatus for working the gripers or frisket-fingers.

I will now describe more fully the several parts represented, together with the several results obtained.

The plate A is supported on curved supports or rockers R, resting upon rocker-seats *a*, as in my "Universal Printing-Machine," for which application for Letters Patent was filed November 18, 1867. By properly shaping the curves of the supports or rockers R with respect to the center of gravity of plate A, said plate may be made to remain perfectly self-balanced at every point in its movement without the aid of springs, guides, counter-weights, or any appliance using force or weight, so long as the rockers remain fixed in position and the curves of the faces of said supports or rockers remain unchanged. Therefore, to prevent the wearing away or flattening of the curved faces of

the rockers R at their points of contact with the rocker-seats at the time the direct impression of the paper is made upon the types by plate A, I attach a hardened friction-roller, P, to each rocker, the face of said friction-roller being slightly flush with the curved faces of the rockers R, thus preserving the curves of said rockers, and thereby retaining their proper relation to the center of gravity of plate A.

While the paper is being pressed against the types the rockers R are held in position by a lever or levers projecting from said rocker or rockers, which lever is provided with a friction-roller or equivalent lug, stop, or stud, P', which comes in contact with the under surface of the flange V.

I make the rocker-seat *a* either plain-faced or toothed, or both, or plain-faced with a rack in combination, meshing with a toothed segment on the rocker or rockers R. I make the rocker seat or seats in any of the above methods, and render rocker-seat or rack, or both combined, self-adjusting by the addition of the spring *c*, which allows slight movement under pressure.

Motion is given to the rockers R, and thus to plate A, for making the impression and carrying the paper to and from the types, by means of cranks or crank-wheels F F upon a driving-shaft behind the counter-plate B, acting through connection-rods or draw-bars D D, as fully shown in Fig. 4.

As great power is required for the impression, the cranks or crank-wheels F must necessarily be made very strong and thick. On printing-presses in common use, on which similar cranks or crank-wheels are used for a like purpose, said cranks or crank-wheels are placed so as to extend entirely beyond the sides of the bed, making the driving-shaft of greater length, and increasing the length of the collar of plate A, (where the draw-bars take hold) to such an extent as to subject both driving-shaft and collar to great strain. To prevent this unnecessary strain, I depress the sides of the bed and frame-work behind the face B of said bed, and let in the crank-wheels F F', Fig. 4, in such a manner as to allow but a small portion of the crank to extend beyond the sides of the bed. This shortens both driving-shaft and collar, and brings the draw-bars D D much closer; and, as I



leave no space for roller-levers between the crank-wheels and frame-work, or between draw-bars and cranks, or between draw-bars and platen-collar, the draft of the draw-bars D D is brought close to the journal-bearings of the driving crank-shaft, making the machine much stronger than if constructed in the common manner. The bed is not weakened by depressing the sides for the crank-wheels, as said depressions lie behind that portion of the face of the bed on which the chase and furniture rest, and where no pressure is ever applied.

The cranks F project beyond the side of the bed only far enough to allow free passage for the roller-carriage, and the levers T T are pivoted behind, and in line with, said cranks, outside of the body F' of the crank-wheels, requiring no space between the crank-wheels and bed or frame-work. Said levers are so shaped by a curve passing above and partly around the cranks as to allow them full sweep without contact with said levers. I work the levers T T by an outside cam or traverse on one of the crank-wheels. One of the crank-wheels, F', is enlarged, so as to form the large driving gear-wheel  $g^4$  of the press, and the shaft 40, through which the levers T T act in unison, passes through the frame-work behind said gear-wheel, bringing the said gear-wheel between one of the levers and the side of the frame-work. The end  $h$  of the lever T may be made to move in a direct line parallel with the face of the types, or at any angle from such line, instead of describing an arc of a circle. This I do by allowing the pivot  $z$  to traverse the slotted fulcrum S, instead of making it a fixed center. I balance the inking-rollers by using the double lever and weight H H' W, which projects forward between the sides of the supporting frame-work, not increasing the dimensions of the press.

The face of the type-bed B always inclines backward between a vertical and an angle of forty-five degrees from a vertical, so that the types rest upon said face without danger of being drawn out of the form by the inking-rollers or "bagging the form," as is common in presses where the face of the bed is at any time vertical or leaning forward. As the form inclines backward, no device is necessary for holding the chase against the bed to prevent the form from tipping forward. The spring  $b$   $e$ , to which is attached a small pin, grasps the chase Y, holding it against the face of the bed B, to prevent its being forced forward by accident. By pressing the spring upward the catch is withdrawn and the chase is relieved.

The backward inclination of the face of the bed B is sufficient for the perfect safety and proper working of most forms when said inclination varies from a vertical at an angle of from one to three degrees only; but it may be extended to a much greater angle without disturbing the self-balancing properties of the counter-plate A. This is done by either one of the two following methods: First, by simply

extending the curves of the rockers R farther forward, which will allow the plate A to tip farther forward without affecting the equilibrium. The second method is, by either inclining the rocker-seats  $a$  from a horizontal or varying the curve of the rockers R, or both. Plate A may be made to preponderate either forward or backward, or vary in preponderance at different points in its movement, if desired, by varying the curve of rockers or inclination of rocker-seats, without the aid of springs or counter-weights or the application of any force. In this way momentum may be overcome or used at any point of movement; and, by making rockers or rocker-seats, or both, adjustable, the momentum of plate A may be exactly overcome at any given rate of velocity in its movement. Plate A may be used either as bed or platen.

I make the part of the ink-fountain which supports the gage separate from the trough or shell, that it may be easily thrown backward, or be detached from the trough. The trough can then be easily cleaned or exchanged for another containing a different kind or color of ink. Fig. 2 represents an end view of the ink-fountain, partially showing the same in position for changing the trough.

I work the frisket-fingers by means of a rod and coiled springs  $t$   $t$ , in connection with a lever,  $d^4$ , which lever is attached to the finger-bar S<sup>2</sup>, as shown in Fig. 5, Sheet 3. The rod is furnished with nuts or stops  $m$   $m'$ , and also passes through the swivel-eye  $m''$ , which is attached to the frame-work of the press. The spring at  $t$  closes the frisket-fingers against the platen as the platen moves forward, and the spring at  $t'$  opens the same when the platen moves backward.

As previously stated, the draw-bars D D are used to give motion to plate A in carrying the sheet to be printed to and from the types, and also to make the impression. It is also desirable to have a period of rest given to plate A, to allow time for properly placing the sheet upon it.

To accomplish this object I use either of two methods: first, a slot,  $c$ , is made in each of the draw-bars D, and, as the diameter of the sweep of the cranks F is greater than the required lateral motion of the draw-bars D in moving plate A forward or back, the crank-pins D<sup>5</sup> are allowed to traverse the slots  $c^5$  during a part of the time of the sweep of the cranks, thus giving a period of rest to plate A. The second method is by slotting the opposite ends of the draw-bars D D and allowing said draw-bars to slide, during a part of their lateral movement, upon the pins or journals  $d^6$ . In the first method the draw-bars D D have no lateral movement during the time of rest of plate A. In the second method the draw-bars D D have a constant lateral motion during the time of rest of plate A, but are allowed to slide upon the pins or journals  $d^6$   $d^6$ .

What I claim as my invention, and desire to secure by Letters Patent, is—



1. The plate A, used either as bed or platen of a printing-press, in combination with the friction roller or rollers, or equivalent studs, stops, or lugs P', flange V, or its equivalent, and curved support or rocker R, substantially as herein described, and for the purpose herein set forth.

2. The spring C, in combination with a toothed rocker-seat, or plain rocker-seat and rack combined, substantially as herein described, and for the purpose herein set forth.

3. The supporting frame-work G, or combined frame-work and bed G B, when the sides of said frame-work or combined frame-work and bed are depressed, for letting in the cranks or crank-wheels F, substantially as herein described, and for the purpose herein set forth.

4. The levers T T, when said levers are pivoted behind the cranks or crank-wheels F F, in line with said cranks, and so curved as to allow full sweep of cranks F F without contact of said cranks and levers, substantially as herein described, and for the purpose herein set forth.

5. The levers T, in combination with the slotted fulcra S, substantially as herein described, and for the purpose herein set forth.

6. The levers H and H' and weight W, combined and arranged substantially as herein described, and for the purpose herein set forth.

7. The method herein described for perfectly balancing or varying the counterpoise of plate A, (used either as bed or platen of a printing-press,) avoiding the necessity of the use of counter-weight springs or the application of force, for the purposes specified, substantially as herein set forth.

8. A changeable ink-fountain, with changeable linings, shells, or tanks, for different kinds or colors of ink, whether constructed in the precise manner herein described or in any other manner, to produce the same result.

9. The combination of rods and springs  $t t$ , nuts or stops  $m m'$ , griper-bar  $s^2$ , with lever  $d^4$ , and swivel-eye  $m''$ , substantially as herein described, and for the purpose herein set forth.

10. The draw-bars D, with slots  $e^5$ , in combination with crank-pins  $d^5$ , substantially as and for the purpose set forth.

MERRITT GALLY.

Witnesses:

WM. A. GALLY,  
L. C. McNEAL.