2 Sheets—Sheet 1.

E. HELY.

PRINTING-PRESS.

No. 181,073. Patented Aug. 15, 1876.

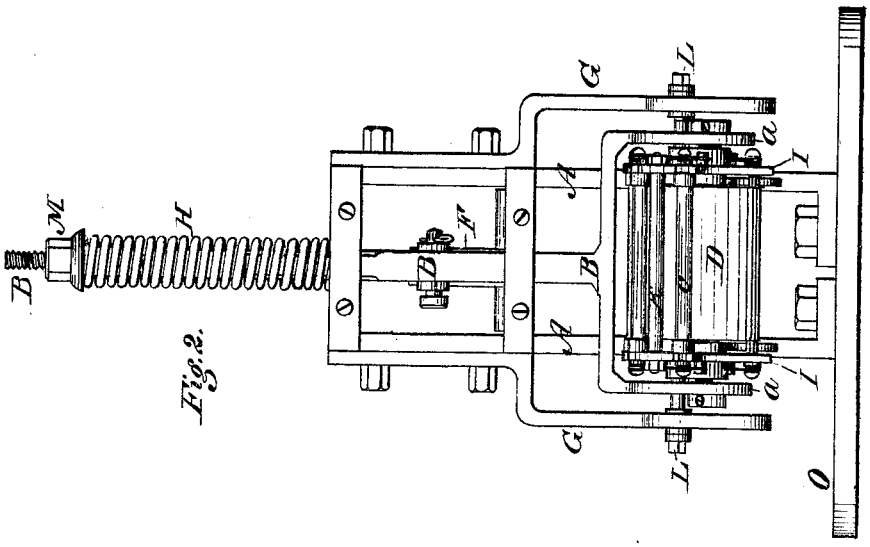


Fig. 2.

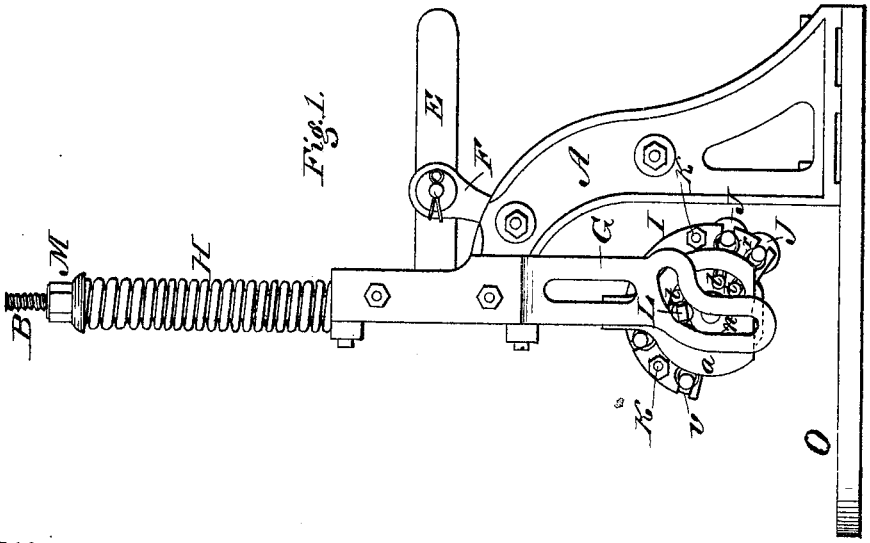


Fig. 1.

Witnesses:
Donn F. Twitchell.
Will H. Dodge.

Inventor:
E. Hely.
by Dodger & Son.
Attys.

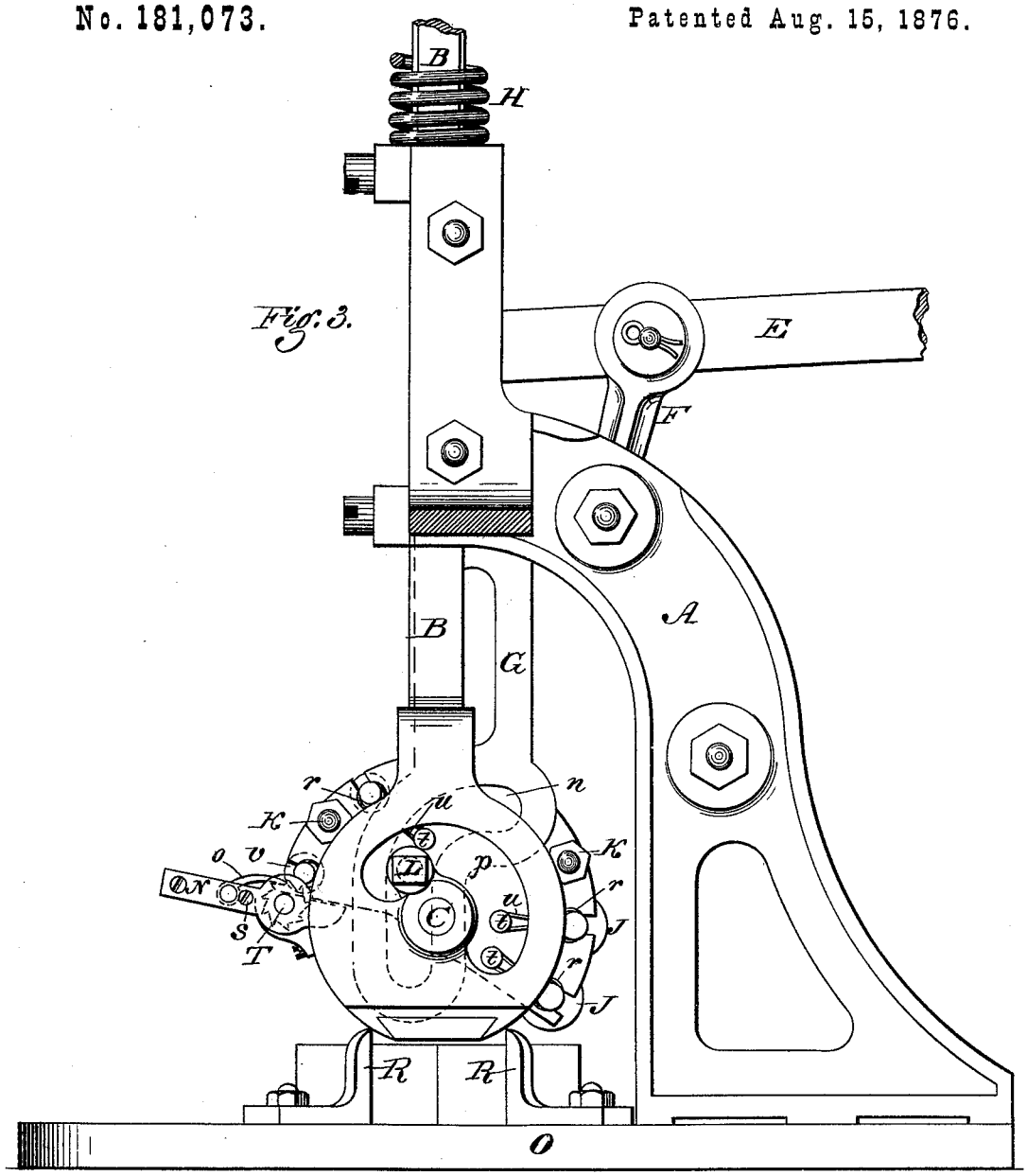
2 Sheets—Sheet 2.

E. HELY.

PRINTING-PRESS.

No. 181,073. Patented Aug. 15, 1876.

Fig. 3.



Witnesses:
Will R. Dodge
Donn S. Twitchell.

Inventor:
E. Hely
by Dodge & Son
Attys.

UNITED STATES PATENT OFFICE.

EDWARD HELY, OF DUBLIN, IRELAND.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **181,073**, dated August 15, 1876; application filed October 5, 1875.

To all whom it may concern:

Be it known that I, EDWARD HELY, of Dublin, in the county of Dublin, Ireland, have invented a Printing-Machine, of which the following is a specification:

My invention consists in a novel construction of printing-machines, and is designed more especially for small jobs, such as envelopes, letter-heads, cards, &c., the same having been patented in England, 1874.

In the drawing, Figure 1 represents a side view of my improved device, with the block or type partially raised; Fig. 2, a face view with the parts in the same position; and Fig. 3, a side view, showing the position of the parts at the instant of printing, a portion being broken away to show more clearly the working parts.

The apparatus consists essentially of a metallic bed-plate, O, to which near its rear side is secured a vertically-projecting curved standard, A, in which is mounted a vertically-moving slide, B, which slide is divided at its lower end into two arms, *a*, as shown in Fig. 2, extending outward and downward. Extending between these arms is an axle, C, the ends of which are rigidly secured to said arms. Between the arms *a* and upon the axle C is mounted, in a fixed position, a cylindrical ink-table, D, concentric with the axle C, and shorter than said axle, as shown. Bolted, or otherwise firmly attached to the frame A, are two arms, G, which are carried outward from the frame, and thence downward, as shown in Fig. 2, said arms being provided at their lower ends with curved slots *n*, as shown in Figs. 2 and 3. At each end of the ink-table D is a plate, I, said plates being concentric with the axle C, on which they are free to turn, and being connected with each other by bolt-rods K, thus causing them to move simultaneously when operated. The plates I are each furnished with an outwardly-projecting crank-arm, L, said arms extending outward through slots *p* in the arms *a*, and into the curved slots *n*, of the arms G, as shown. The slide B is carried up above the top of the frame A a considerable distance, as shown, and is encircled by a strong spring, H, which is kept in place by a screw cap or nut, M, against the under side of which the spring H presses, thus tending to keep the slide B in an elevated position. The slide B is operated by a lever, E, pivoted in a swinging link, F, attached to the frame A. In practice this lever is connected with a treadle, by which it is operated.

As shown in Fig. 2, a series of inking and distributing rolls are arranged across the face of the ink-table D, and are loosely mounted at their ends in the plates I, their bearings in said plates consisting merely of the recesses or notches cut in the periphery of the same. In order to prevent the rolls from dropping out, and at the same time allow them to adjust themselves to the face of the ink-table and type, I pass metal rings *r* over their ends, which project a short distance beyond the plates I for this purpose, and connect these rings with pins or studs *t*, on the plates I, by means of elastic bands *u*, and as the recesses in which the rolls are mounted are carried somewhat below the face of the ink-table D, it will be seen that the rolls will thus be kept against the ink-table and type, even when considerably worn.

As seen in Figs. 1 and 3, the slots *n* in the arms G, in which the crank-arms L move, are curved at their upper ends, while the lower portion of each is left straight and vertical, the upper part of said slots being in rear and the lower part forward of the axle C. When at rest, the spring H, operating on the slide B, causes it to be elevated, together with the mechanism attached to it, in which position the parts are held.

Rigidly secured to the ink-table D is an ink-fountain, the construction of which will be seen by reference to Fig. 3. It consists of an ink trough or box, in which is arranged a roller, T, the journal of which extends outward through the end of the ink-trough and is provided with a ratchet-pinion, as shown. Turning freely on the axle of the roller T is a lever, N, the outer end of which is heavier than the inner end, and, consequently, hangs down when not acted upon. Pivoted to the lever N is a pawl, *o*, which drops of its own weight into the notches or teeth of the pinion on the roller T, the lever N being prevented from dropping too low, and thus allowing the pawl *o* to fall back out of place, by means of a screw, S, which comes in contact with the

ink-trough, when the lever has moved the proper distance.

As shown in Fig. 3, the under face of the ink-table D is cut away, leaving a smooth, flat face, in which is formed a dovetail recess, into which the block, or the chase containing the type, when type are used, is shoved from one end.

When ready to operate, the blanks to be printed are placed in the proper position under the type or block, where they are held by clamps or guides, it being best to have a sufficient quantity of the blanks always under the type to form an elastic cushion. This being arranged, a downward pressure on the treadle operates the lever E, causing it to move the slide B and its mechanism downward, the crank-arms L moving in the slots *n* of the arms G, and thereby causing the plates I to rotate and carry the inking-rollers J (which are forward of the type when the machine is at rest or when the slide is elevated) downward under and across the type or block and upward on the opposite side of the ink-table D a sufficient distance to clear the blanks to be printed. As the rollers J thus come in contact with the ink-table they receive a fresh supply of ink, and as the plates I rotate, the forward roll *v* of the distributing-rolls comes in contact with the roll T of the inking-fountain, thereby receiving a fresh supply of ink for the ink-table D. As the outer end of the lever N is heavier than the inner end, it is obvious that the inner end will be elevated above the roll T when at rest, and, consequently, the plate I, in coming around toward the inking-fountain, will strike the inner end of the lever, and the pawl *o*, engaging in the ratchet of the roll T, will cause the fountain-roll to turn, presenting each time a new surface to the roll *v* and bringing up at each turn a fresh supply of ink.

As the roll *v* comes in contact with the roll T of the inking-fountain, the crank-arms L come into the straight or vertical part of the slots *n*, and thus prevent any further movement of the plates I or of the rolls. The slide B continues its movement, however, until the type come in contact with the blank, and the necessary impression is obtained, when the pressure is removed from the treadle, and the spring H causes the slide to ascend and carry with it the inking mechanism, thus leaving the printed blank free to be removed. As the slide B ascends, the crank-arms L, working in the curved slots *n*, cause the plates I to rotate in the reverse direction to that just described, thus carrying the inking-rolls J under and across the type again to the position first described, the ink received from the fountain being distributed by the rolls in passing back and forth over the table D. As the plates I move away from the ink-fountain the lever N drops down, causing the pawl *o* to engage with the ratchet-pinion of the roll T at a lower point, thus being ready to give the roll another turn when acted upon by the plate I.

When it is desired to prevent any more ink from being taken from the fountain it is only necessary to turn the outer end of the lever up in a vertical position, which will prevent the roll T from turning.

It will be observed that the bed O extends forward under the type-holding cylinder D, and is provided with adjustable brackets R, as shown in Fig. 3, between which the blanks, cards, or other articles to be printed are placed, and the slots *n* are made of such a length that the cylinder D, with the type attached, may descend a greater or less distance after the cranks L enter the straight portion of slots *n*, thus enabling the operator to print on a pile of blanks of continually-lessening thickness or height.

As one blank is printed it is only necessary to remove it, leaving the next one ready to be printed, and this is the case as long as there is a sufficient quantity of blanks under the type to form a cushion, the necessity of feeding the machine each time being entirely obviated.

It is apparent that the crank-arms L must enter the straight portion of the slots *n* before the impression is given, in order that the rolls may be kept from moving, and that after they have entered this portion of the slots the movement of the slide B has no effect upon them; consequently they will remain in the same position, whether there be a large or small bundle of blanks under the type at the moment of printing.

The lever and treadle being connected at the rear side of the machine, it will be seen that the front of the machine is left entirely clear, allowing the operator to remove the blanks with great facility.

The pressure of the spring H is regulated by the screw cap or nut M, which, as shown, may be raised or lowered at will.

This construction enables me to make a very simple, cheap, and efficient device, and one in which the necessity of continuous feeding is dispensed with, and the operation of printing thereby greatly facilitated.

Having thus described my invention, what I claim is—

1. The cylindrical inking-table D, secured in the sliding frame B, in combination with the plates I, provided with the crank-arms L, and the arms G, provided with the slots *n*, all constructed to operate substantially as described.

2. The combination of the stationary bed O with the circular ink-table D, mounted in a vertically-reciprocating frame, and the roller-carrying plates I, provided with the crank-pins L working in the slots *n*, all constructed and arranged to operate substantially as described.

Witnesses: EDWARD HELY. [L. S.]

P. HAYES,
1 *Anglesea Street, Dublin, Stock Broker.*
T. P. HAYES, Jr.,
Dublin, Notary Public.