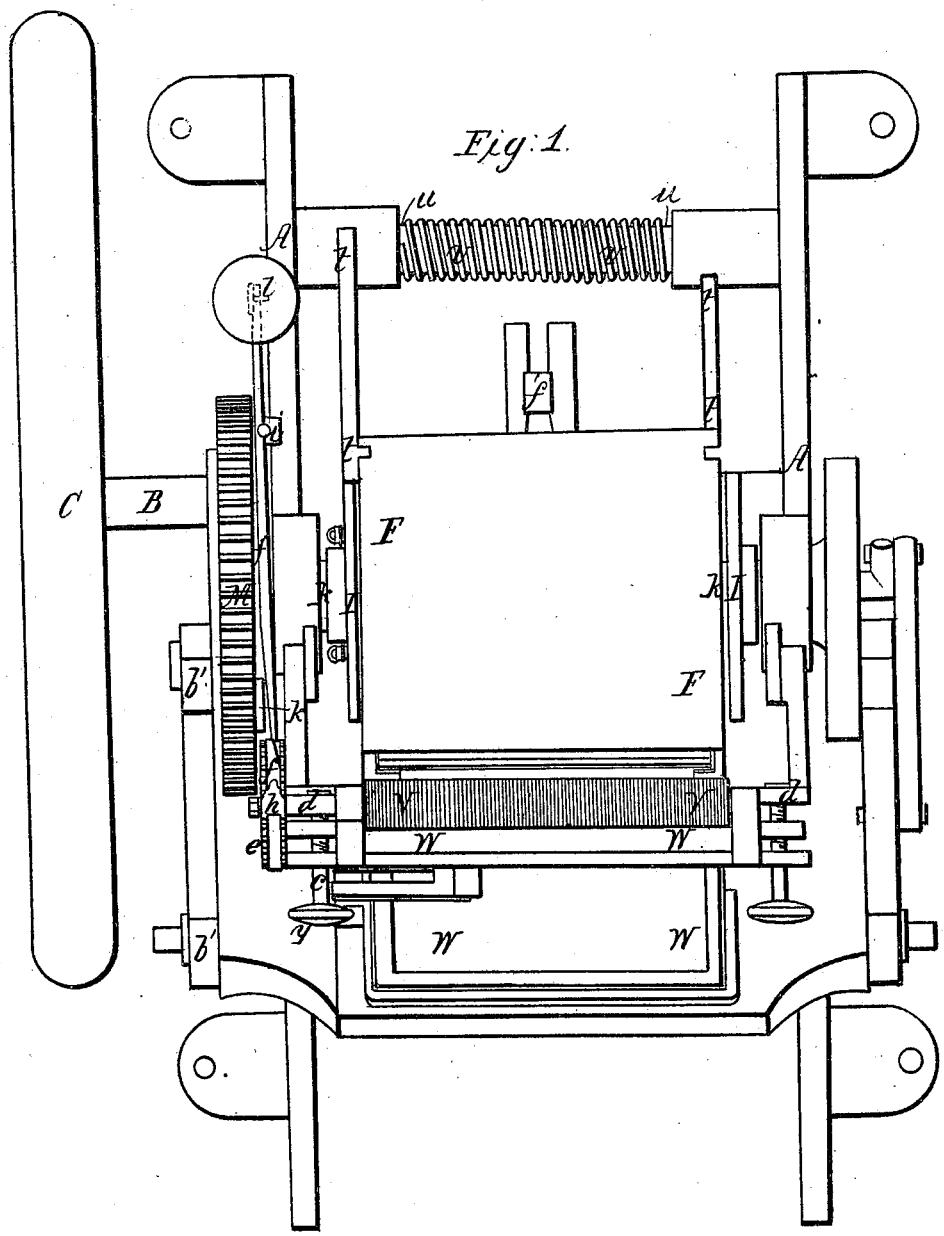
Sheet 1, 4 Sheets.

S. P. Ruggles.

Printing Press.

No. 7,878. Patented Jan. 1, 1851.

Fig: 1.



Sheet 2, 4 Sheets.

S. P. Ruggles.

Printing Press.

No. 7,878. Patented Jan. 1, 1851.

Fig. 2.

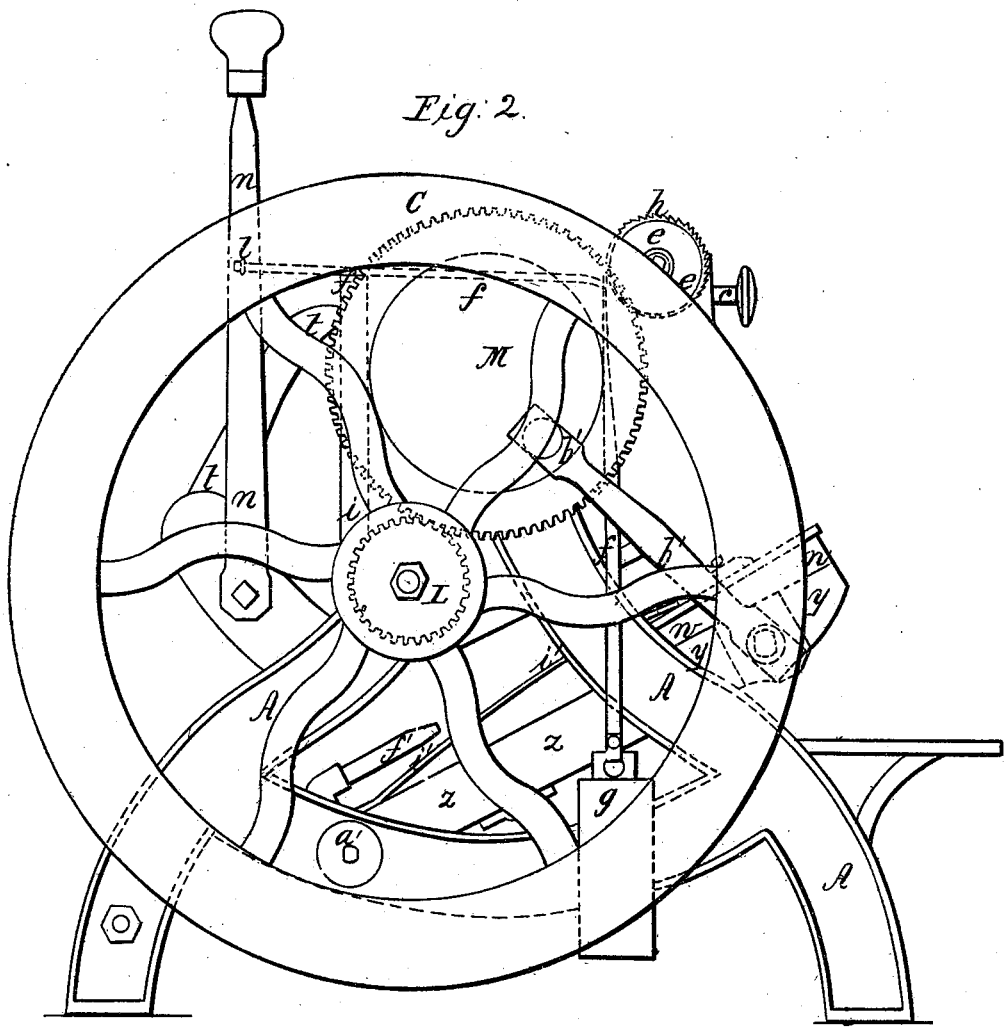
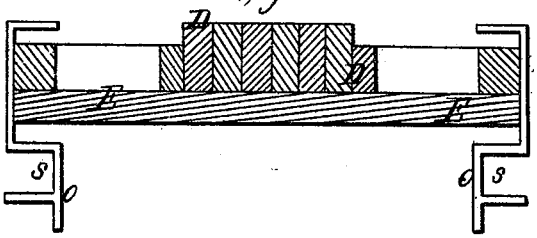


Fig. 8.



Sheet 3, 4 Sheets.

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Printing Press.

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Fig: 3.

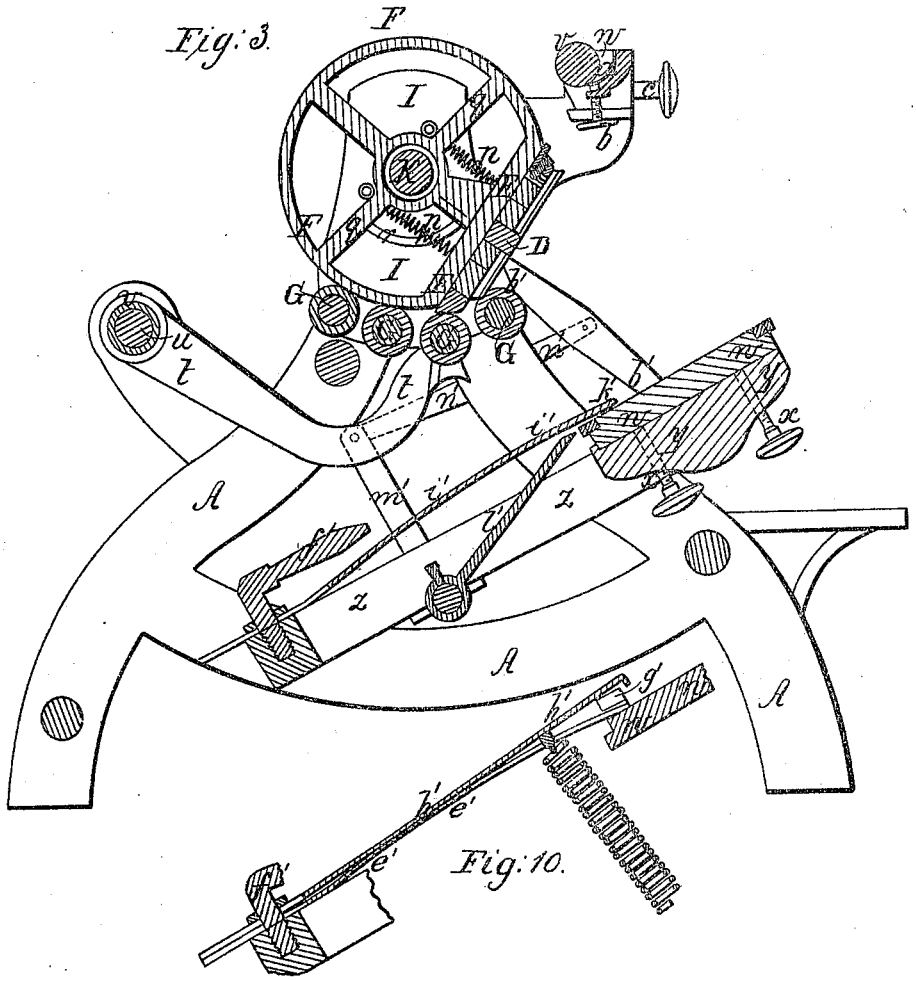
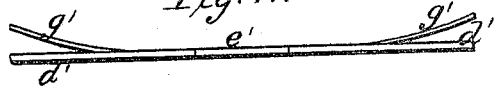


Fig: 10.

Fig: 11.



Sheet 4, 4 Sheets.

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Printing Press.

No. 7,878. Patented Jan. 1, 1851.

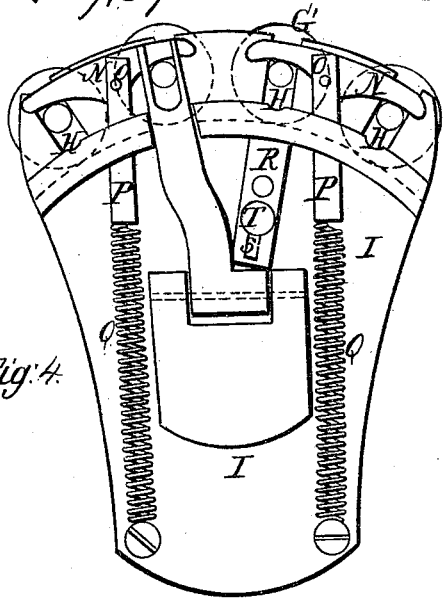


Fig: 4.

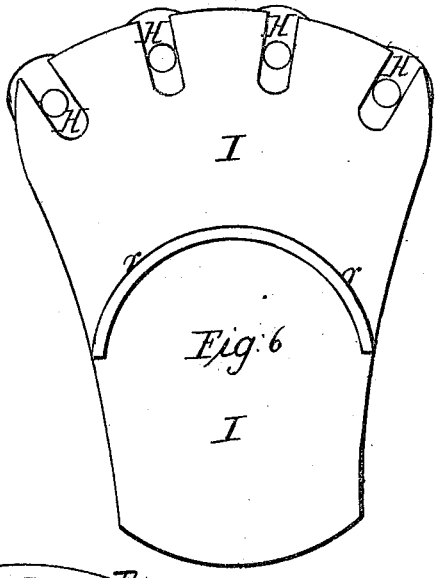


Fig: 6

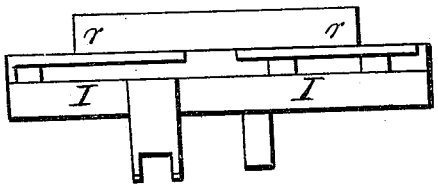


Fig: 5

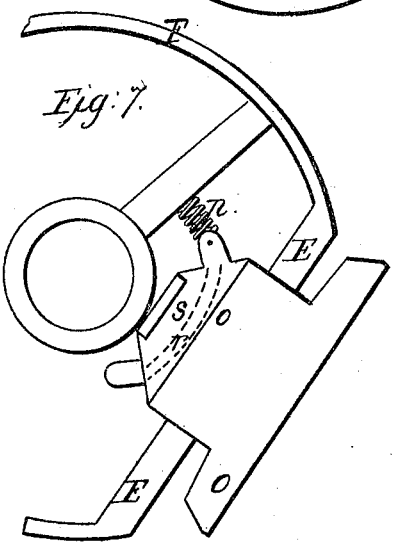
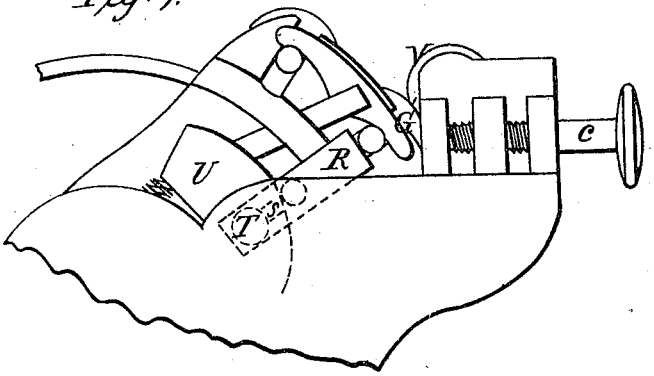


Fig: 7.

Fig: 9.



UNITED STATES PATENT OFFICE.

STEPHEN P. RUGGLES, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification forming part of Letters Patent No. 7,878, dated January 1, 1851; Reissued January 19, 1858, No. 519.

To all whom it may concern:

Be it known that I, STEPHEN P. RUGGLES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Printing-Presses, and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plates of drawings represent my improvements.

In Plate 1, Figure 1 is a plan of my improved press, and Fig. 2 is a side elevation of the same. In Plate 2, Fig. 3 is a central vertical section. Fig. 4 is a detail sectional view showing the mode of holding the journals of the inking rollers; Fig. 5 is a detail plan of the same, Fig. 6, is a detail side view of the same. Fig. 7 is a detail sectional view, showing the apparatus for working the moving beams on the side of the form bed, as hereinafter explained; Fig. 8 is another detail sectional view of the same and of the form bed; Fig. 9 is a detail sectional view of the apparatus for raising one of the inking rollers, so as to make it take the ink from the delivering roll of the fountain; Fig. 10 is a detail sectional view of the platen and spring holders, to be hereinafter explained, and Fig. 11 is a detail view of the peculiar gage which I use.

A A A A, &c., in the several drawings, is the framework of the press, which may be shaped as represented or in any other way to sustain the operative parts of the machine.

B, Fig. 1, is the driving shaft, having a fly wheel C to regulate its motions, and power is usually applied to this shaft, by a treadle.

D D, Figs. 3 and 8, Plate 2, is the form, which is secured to a stationary bed E E, formed on the plane face of a segment of a cylinder, F F F, which is arranged so as to remain stationary while the inking rollers revolve and move around it continuously, so as to effectually distribute the ink. The position of the bed E E, may be as shown in Fig. 3, Plate 2, or more nearly vertical if desired.

The inking apparatus consists of a series of rollers G, G, G, G′, Fig. 3, Plate 2, arranged side by side in the slotted boxes H, H, H &c., in each of the rotating cheek plates, I, I—I, I, Figs. 3, 4 and 5, Plate 2, which plates are firmly connected to the revolving shaft K K, which passes through the axis of the cylinder segment F F F, and is driven by means of a pinion L, on the driving shaft, which engages with a gear wheel M on the end of said shaft K K. The journals of these inking rollers, are kept in their boxes, and yet allowed to move, so as to permit said rollers to pass over the form, by means of the bent turning buttons N, N, N &c., which turn loosely on the pins O, O, O, in the ends of the rods P, P, which rods are connected to the spiral springs Q, Q, arranged as shown in Fig. 4 so as to permit the desired play of said buttons.

The journals of one of the inking rollers G′, rest upon sliding bearers R, R, which move up and down and are guided by the slots S, S and pins T, T, Figs. 4 and 9, Plate 2. The sliding motion of these bearers is effected by means of a horizontal stud attached to the exterior of said bearers, which, as the rollers turn around on the cylinder F F F, come in contact with the stationary cams U, U, on the side framework, and press the roller G′ upward, so as to bring it in contact with the ink delivering roll V V, in the fountain W W, after each passage of the rolls over the form. The raising of this roll G′ from the distributing cylinder F F F, enables it to take the ink from the delivering roll and leaves said roll G′ free to turn and take the layer of ink from the delivering roll of the full width which it is permitted to give out.

The delivering roller V V, is scored transversely, in the way now commonly practised by me, and has combined with it, an adjustable scraper *a a*, regulated by the screws *b b*, &c., so as to deliver a thin film or sheet of ink to the roller G′. The fountain W W and roller V V, may be moved horizontally toward the distributing cyl-

inder, by means of the stationary screws *c*, *c*, operating with the nut plates *d*, *d*, attached to said fountain in a manner which will be readily understood by inspection of Fig. 1, Plate 1.

The delivering of the ink from the fountain, or the turning of the delivering roll V V, is regulated or varied, by the following arrangement or combination of mechanical devices. On one journal of said delivering roll, a grooved ratchet wheel *e e*, (Figs. 1 and 2, Plate 1) is firmly fastened, having teeth on each side of the groove. A band *f f*, passes over and under this wheel and has a weight *g* attached to its lower end and pawl *h* secured to that part which passes over said wheel, which pawl engages with the teeth of the ratchet wheel as shown in said figures. Near its other end, said band is attached to the top of a lever stud *i*, which is moved by a roll *k*, fastened to the inner face of the gear wheel M, before referred to. The extreme end of said band, passes through a staple *l*, on the side of the stop lever *n n*, the band having a proper stop on its end, which engages or abuts against the staple *l* of the stop lever. The said stop lever *n n* and the lever stud *i*, have proper fulcra on the framework, and by pushing the former forward or backward, the weight *g* will pull the pawl *h* over a lesser or greater number of teeth on the ratchet wheel *e e;* and the lever stud *i* operated by the roll *k* on the gear M will turn said wheel, and the delivering roll, correspondingly, the stop on the end of the band *f f*, which engages with the staple *l* of the stop lever, arresting the descent of the weight *g*, and, consequently, at each revolution of the inking apparatus regulating the "take up" of the pawl on the ratchet wheel *e e*.

In order to prevent the ink from getting on the tympan, at each impression, I make the bearers, so as to move in when the impression is being produced, and out when the inking rollers are passing over the form. This is effected, by making said bearers of the shape shown at O, O, O, in Figs. 3, 7 and 8 Plate 2, and arranging them so as to slide forward and back, the backward motion being accomplished by the spiral springs PP—PP, which pass from one bearer to the other, around the arms *g g* of the distributing cylinder, and the forward motion being produced by the cam ledges, *r r* Fig. 6, on the revolving cheek plates II, which play in the grooves *s s* of said bearers, and press them out at the proper time to sustain the inking rollers, when they pass over the form.

By the use of a stationary distributing cylinder, as above described, the inking rollers have a continuous rotary motion, in lieu of a reciprocating motion, as is usual in presses, by which improvement, much time and power is saved. The said cylinder is held in position, by means of the bent levers or dogs, *tt—tt*, which project from each end of the shaft *u u*, on which they turn, each being attached to the end of a spiral spring *v v* which operates, so as to turn them always to one position when they have been moved from the same. The ends of the dogs *tt—tt* have proper studs, which engage with slots on the side of the distributing cylinder, and the check plates I, I in revolving throw each of said levers out of connection with said cylinder, alternately, so as to let the inking rollers pass around and always keep in contact with said cylinder.

It only remains for me now to describe the platen, and the mode of operating the same, together with the means used for holding the paper down on the same. The platen *w w* Figs. 1 and 2 Plate 1, and Fig. 3 Plate 2, is arranged, so as to be adjustable, by means of the screws *xx—xx* in the plate *y y* of the vibrating frame *y y z z*, which frame turns on the shaft *a'*, having proper bearings in the framework, and is hung by means of the connecting arms *b' b'—b' b'*, to the eccentric points on the exterior faces of the revolving circular plate *c'*, and the gear wheel M, both of which are fixed to the revolving shaft K K. The revolutions of the said plate *c'* and wheel M, it will be seen, will cause the platen to vibrate or move alternately to the form to get an impression, and from the same, to get a new sheet or card, the lowest inclined position which it takes, being the most convenient for placing the sheet. A gage plate *d'*, extending across the end of an arm *e' e'*, (secured by the screw clamp at *f'* to the vibrating frame *y y z z*), has diverging springs *g' g'* Fig. 11, secured to its upper side, which catch the edge of the sheet; and a spring holder, *h' h'*, secured by the same clamp to the vibrating frame, directly over said gage, forms, with the vibrating platen, a pair of nippers as it were, to hold the sheet firmly against the tympan (supported by the platen plate) so as to disengage it from the form.

In printing cards, I use a gage bar, *i' i'*, with a projecting lip *k'*, under which the card slides, the arm of which bar is secured by the screw clamp *f'*, to the vibrating frame, so as to move up to the form with the platen: but when the platen is receding, the underside of the arm *i' i'*, abuts against a finger *l'* on the crank *m'*, which allows the platen to open or descend from it, and let the card, which has been printed, slip down into a proper receptacle beneath the press. The crank *m'* is then turned by means of the arm *n' n'*, which connects said crank with one of the connecting arms *b' b'*, before referred to, and by so turning said crank, the finger *l'* is moved downward and

permits the descent of the gage bar *i' i'*, against the platen so as to receive another card.

Having thus described my improvements in printing presses, I shall state my claims as follows:

What I claim as my invention and desire to have secured to me by Letters Patent, is—

1. The gage bar for cards, herein above referred to, in combination with the vibrating platen and stop finger, and crank which operates the same, in the maner and for the purpose herein above described.

2. I also claim the use of a segment of a cylinder, in combination with the stationary form bed, so that the rotary inking apparatus may move over the form, and then after taking ink from the fountain, distribute it on said cylinder as herein above set forth.

3. I also claim the movable bearers on the side of the form bed, arranged and operated substantially as herein above described, so as to be moved outward when the inking rollers are passing over the form, and drawn inward when the sheet or tympan is moved up to said form.

4. I also claim regulating the delivery of the ink, by combining with the delivering roller, a grooved ratchet wheel and weighted pawl band, operating with the lever stud, cam roller and stop lever, substantially as herein above specified.

STEPHEN P. RUGGLES.

Witnesses:
EZRA LINCOLN,
ROBERT L. HARRIS.

[FIRST PRINTED 1913.]