(No Model.) 6 Sheets—Sheet 1.

J. C. FOWLER & E. A. HENKLE.

PRINTING MACHINE.

No. 373,355. Patented Nov. 15, 1887.

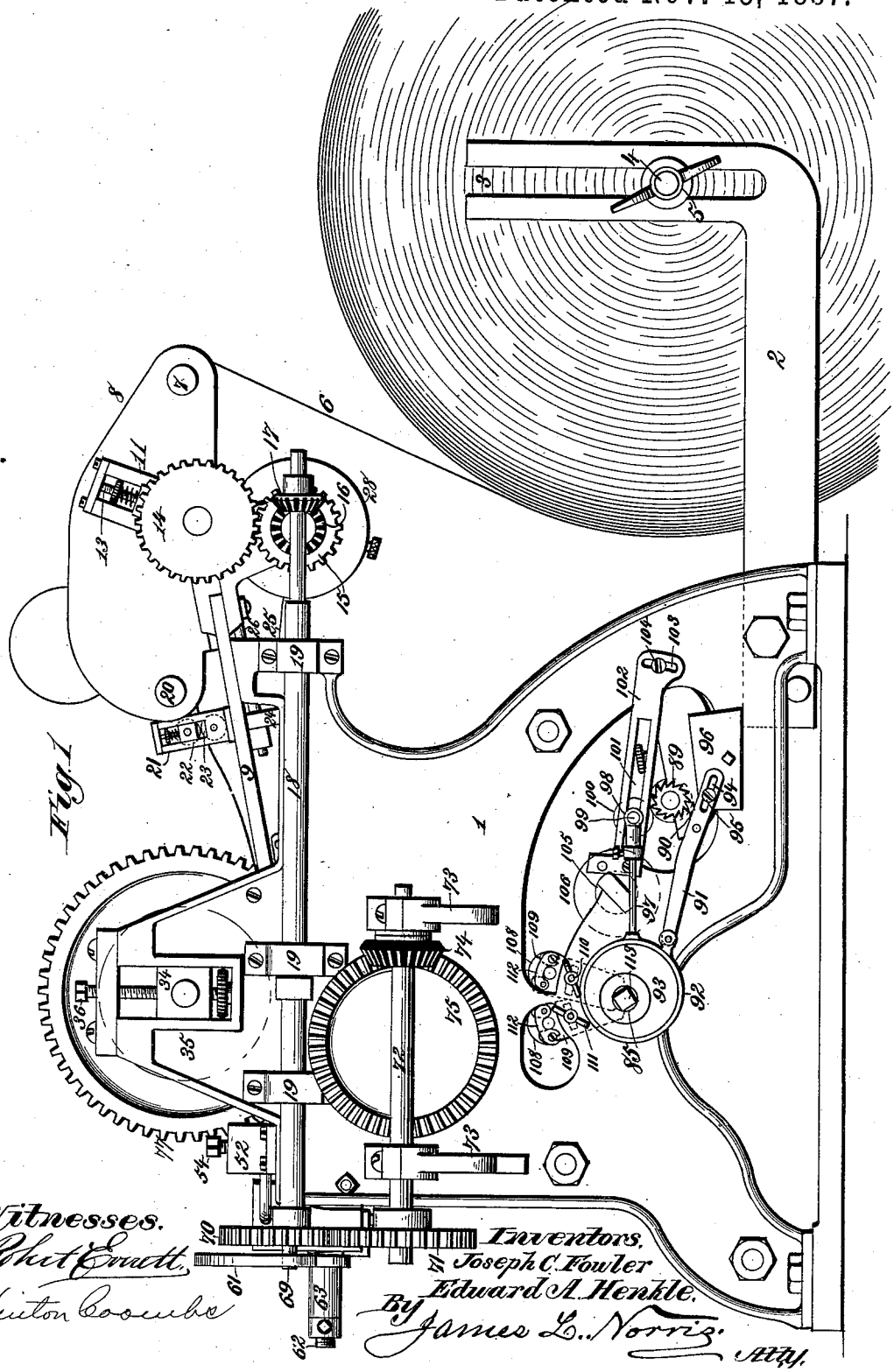


Fig. 1.

Witnesses.
Robt Ernett.
Vinton Coombs

Inventors,
Joseph C. Fowler
Edward A. Henkle.
By James L. Norris.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 6 Sheets—Sheet 2.

J. C. FOWLER & E. A. HENKLE.

PRINTING MACHINE.

No. 373,355. Patented Nov. 15, 1887.

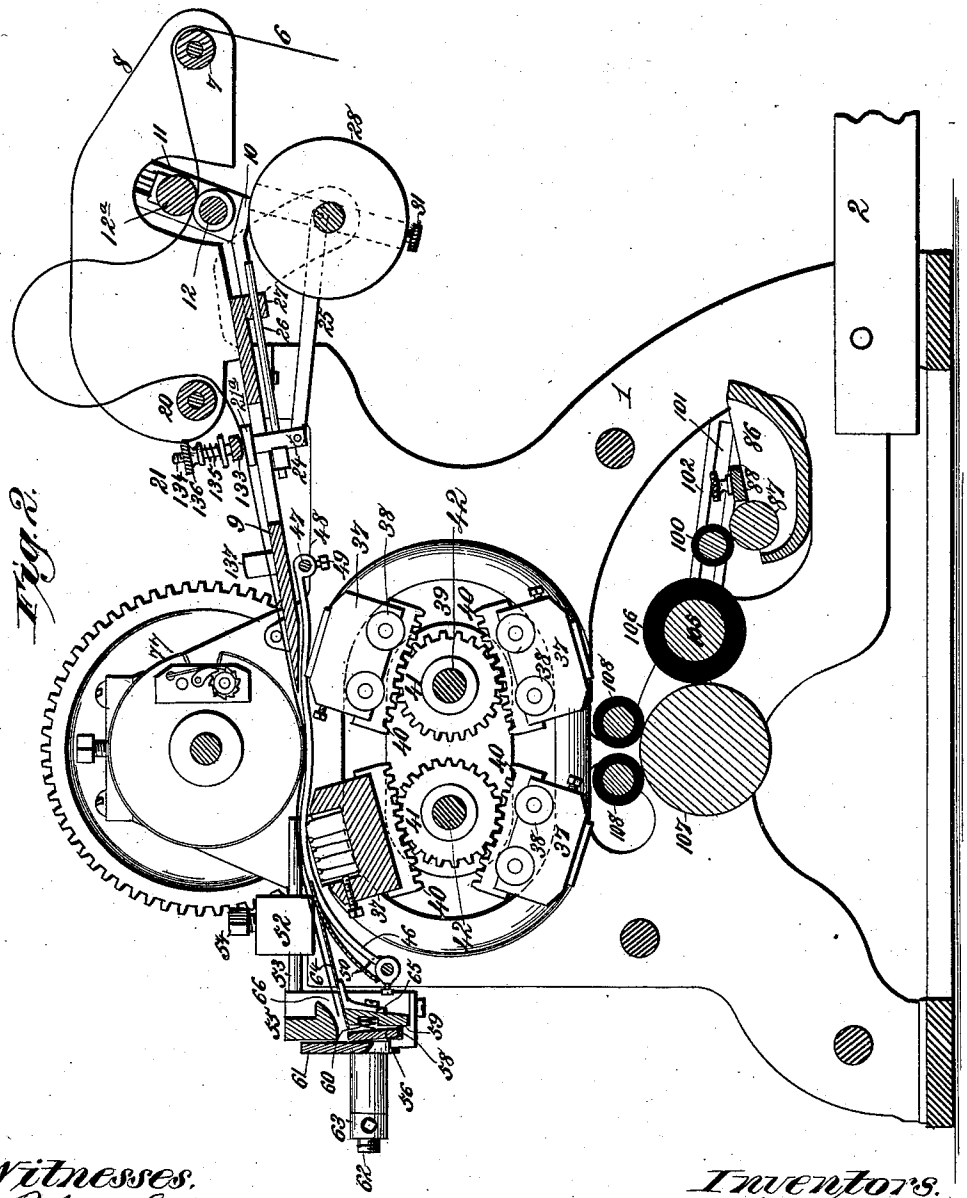


Fig. 2.

Witnesses.
Robert Emett.
Vinton Coombs

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Joseph C. Fowler
Edward A. Henkle.
By James L. Norris.
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

6 Sheets—Sheet 3.

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Fig. 4.

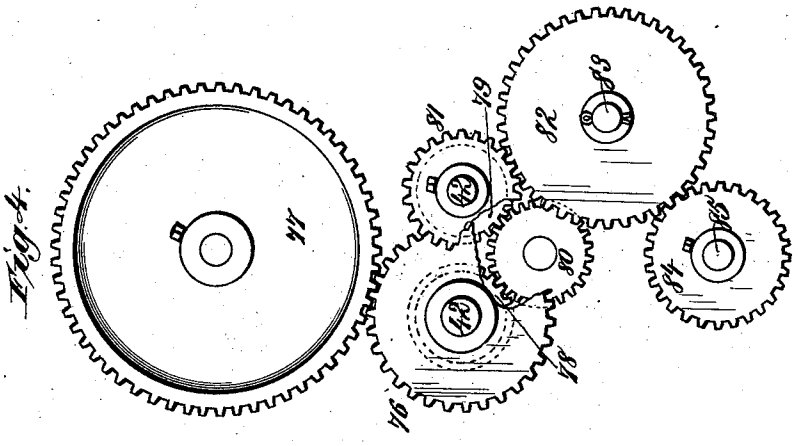
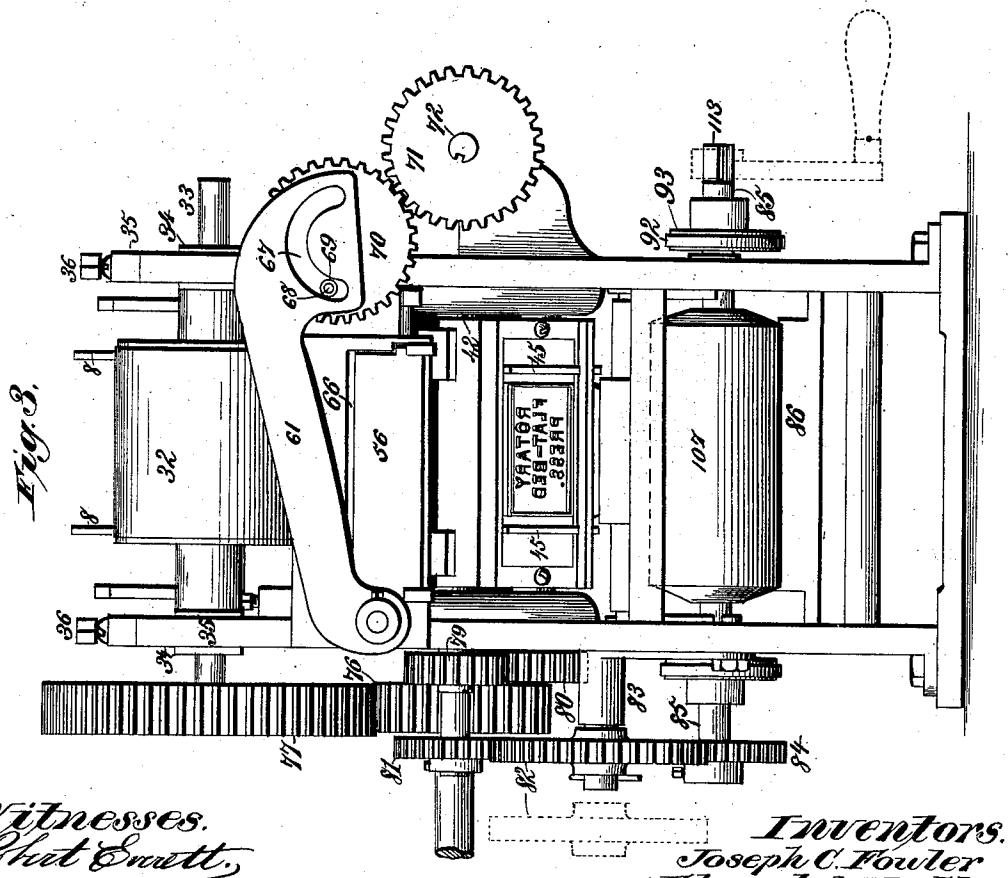


Fig. 3.



Witnesses.
Robt Ewett.
Linton Boscombe

Inventors.
Joseph C. Fowler
Edward A. Henkle.
By James L. Norris.
Atty.

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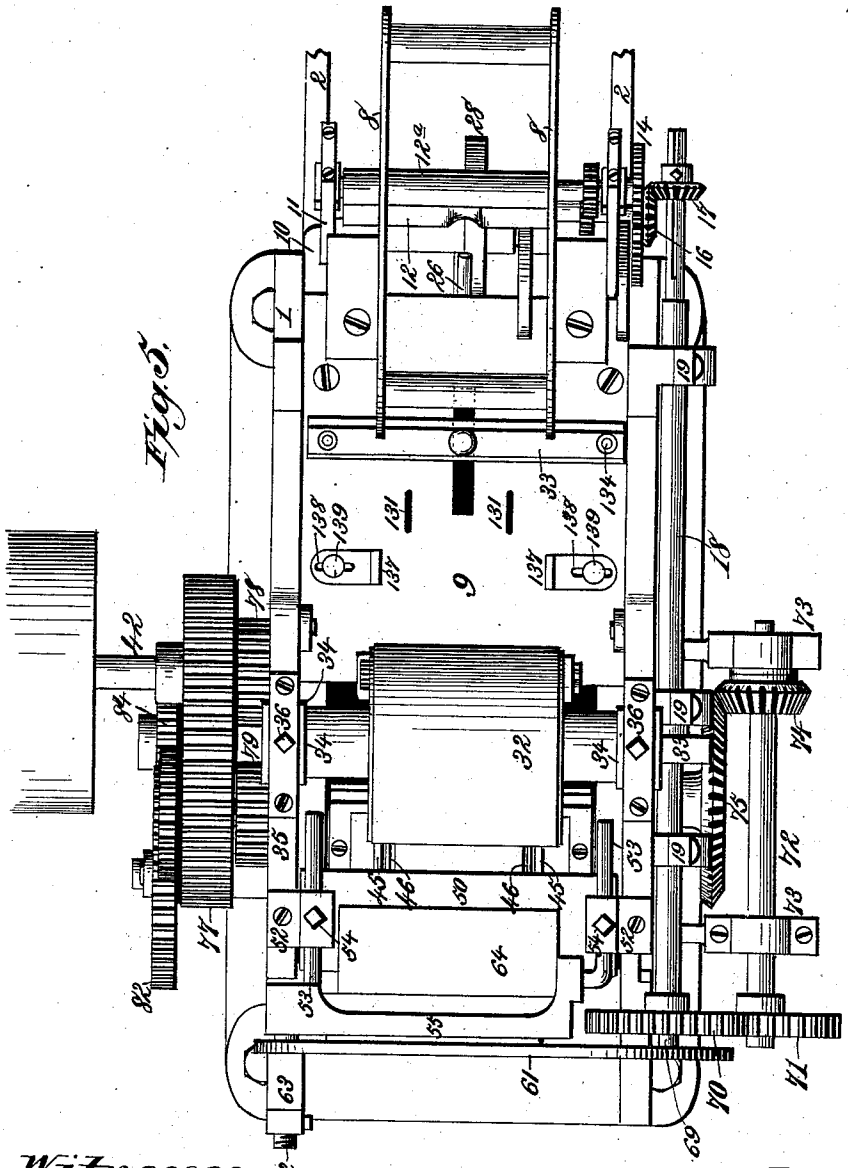
(No Model.) 6 Sheets—Sheet 4.

J. C. FOWLER & E. A. HENKLE.

PRINTING MACHINE.

No. 373,355. Patented Nov. 15, 1887.

Fig. 5.



Witnesses.
Robt Everett.
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(No Model.) 6 Sheets—Sheet 5.

J. C. FOWLER & E. A. HENKLE.

PRINTING MACHINE.

No. 373,355. Patented Nov. 15, 1887.

Fig. 6.

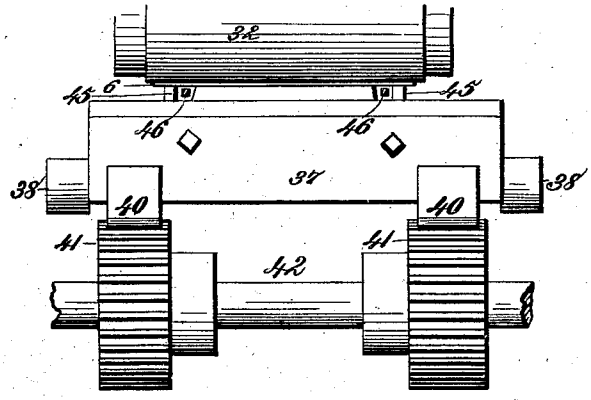


Fig. 7.

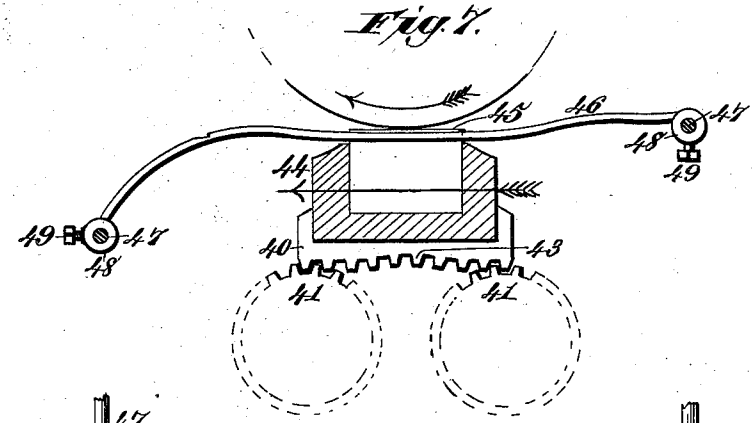
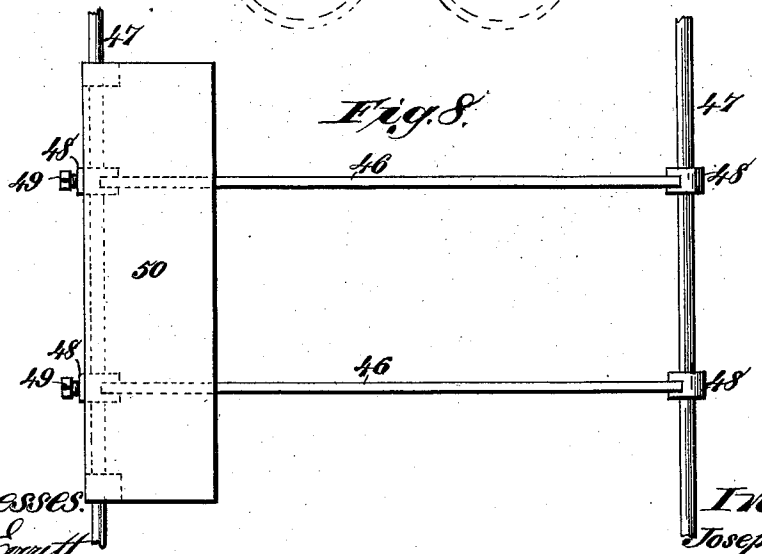


Fig. 8.



Witnesses:
Phot Emett.
Vinton Coombs

Inventors:
Joseph C. Fowler.
Edward A. Henkle.
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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 6 Sheets—Sheet 6.

J. C. FOWLER & E. A. HENKLE.

PRINTING MACHINE.

No. 373,355. Patented Nov. 15, 1887.

Fig. 9.

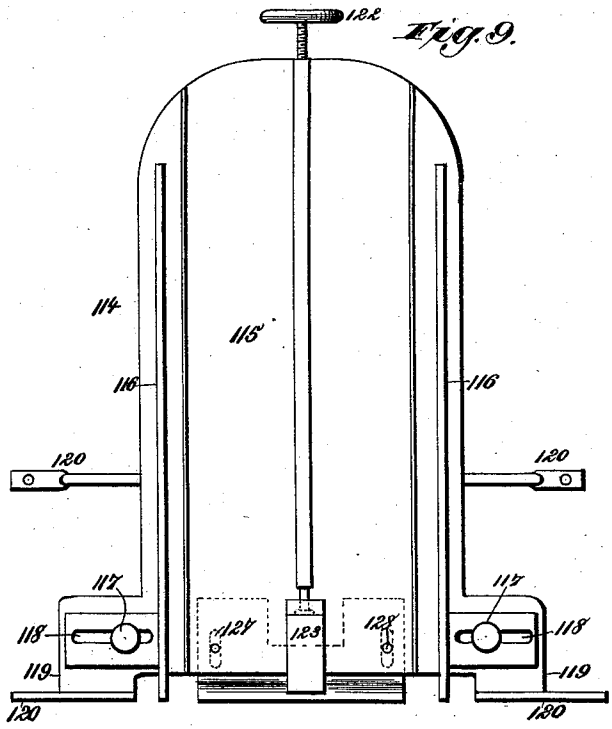
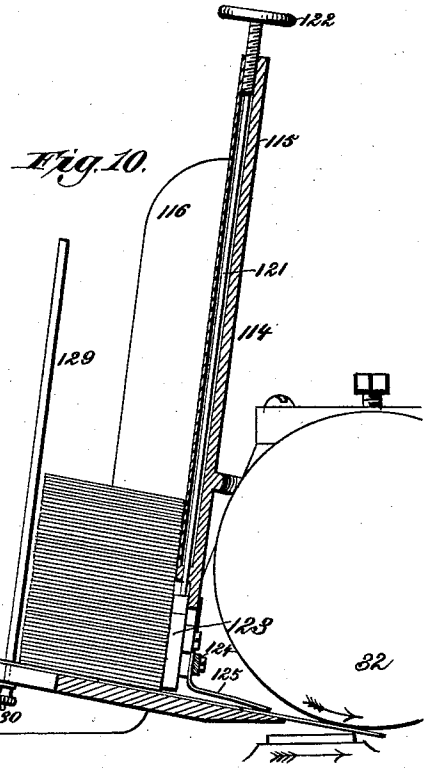


Fig. 10.



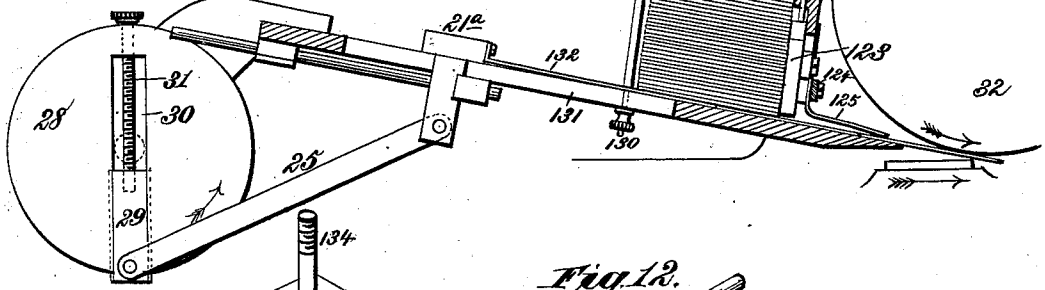


Fig. 11.

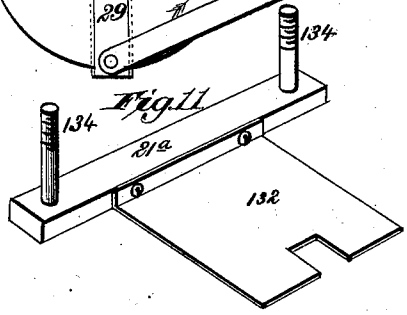
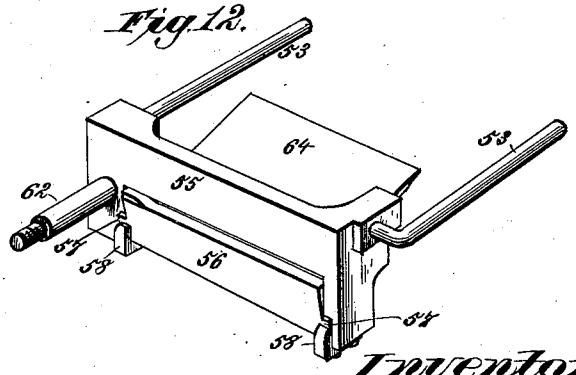


Fig. 12.



Witnesses.
Robt. Ewatt.
Winton Coombs

Inventors.
Joseph C. Fowler
Edward A. Henkle.
By James L. Norris.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH C. FOWLER AND EDWARD A. HENKLE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNORS TO THE AMERICAN PRINTING PRESS COMPANY, OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 373,355, dated November 15, 1887.

Application filed June 1, 1887. Serial No. 239,971. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH C. FOWLER and EDWARD A. HENKLE, citizens of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Printing-Machines, of which the following is a specification.

Our invention relates to printing-presses of that type which is substantially set forth in our applications for Letters Patent the 21st day of August, 1885, and the 15th and 21st days of February, 1887, and numbered in serial 211,544, 227,747, and 228,407, respectively. In these presses the forms are carried by flat beds moving in an elliptical orbit beneath an impression-cylinder, the movement of the beds being positively effected by gears located within the orbit and meshing with racks upon the beds.

It is the purpose of our present invention to so organize and simplify the mechanism of this class of presses that they may print upon a continuous band, ribbon, or strip of paper, with forms of the same or different widths, without loss or waste of stock, each separate impression being detached by shears, to which the paper strip is fed by the travel of the forms upon the impression-cylinder.

It is also our purpose to provide automatic mechanism whereby the marginal space surrounding each impression may be varied in width, the variation ranging from such continuity of successive impressions as to form solid matter to an interval of maximum width which would be that produced, as hereinafter described, by the marginal feed-strips of greatest length. In order to automatically adjust the width of the margin for these purposes, and at the same time provide for the great speed at which the impressions are multiplied, we have provided and combined with the margin-regulator mechanism for imparting a continuous unreeling movement to the paper, whereby a certain amount of slack is provided between the reel and the margin-regulator or drawback.

It is a further purpose of said invention to combine with the press interchangeable mechanism which may be easily and quickly substituted for the margin-regulating devices, and co-operate therewith for the purpose of feeding to the press single cut cards in place of printing from a continuous strip. With these devices we also provide stripping-rods, which are so constructed and arranged that they may be laterally adjusted to accommodate cards of different widths.

It is our further purpose, also, to combine with the printing mechanism novel shearing devices for separating the successive impressions, said devices having intermittent action between equal periods of rest and being driven by a single continuously-rotating gear. We propose, also, to so combine the shearing devices with each other and with the press that the wear of the blades shall be automatically taken up and a sharp cutting-edge always presented to the movable blade, while the two with their supporting-boxes shall be adjustable toward and from the impression-cylinder at either or both ends.

It is our purpose, also, to simplify and improve the ink-distributing devices used in connection with this class of presses, whereby the quantity of ink spread upon the form-rollers at each supply shall not only be regulated with great accuracy and to an extremely delicate degree, but the supply rendered exactly uniform, whereby only such an amount of ink is spread upon the type as will be entirely taken up by the impression, thus avoiding all danger of offset and adapting the press to the printing of solid matter in book or newspaper form from a continuous web.

Our invention also contemplates a simple arrangement of parts whereby the fount-roll, the "ductor," the vibrating or evening roll, and the distributing and form rollers may be wholly disconnected from the press mechanism and operated separately to prepare them for use, thereby avoiding the wear and tear and loss of paper involved in the preliminary inking on presses where the ink-distributing mechanism and printing mechanism are inseparable.

It is our purpose, finally, to provide a rotary

flat-bed press capable of printing upon a continuous web and cutting or feeding and printing separate sheets, to combine therewith an adjustable automatic margin-regulator, to improve and simplify the feed mechanism, and to render the press wholly automatic and capable of operating continuously at exceedingly high speed, to adapt it to the printing of as many different styles and widths of cards as there are different beds employed, and to cut each to its own proper width and margin, the arrangement of parts being such that as any one card is passed off the form by which it is printed the same card produced by the previous impression is detached by the shears, the feed of the web to the cutting devices being effected by the travel of the paper produced by the movement of the type-surface and impression-cylinder with the web interposed, each card cut being fed to the shears by the successive impression on the form printing said card, thus producing an exactly equal width or length in cards of the same kind or containing the same matter.

Our invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and definitely pointed out in the claims following this specification.

In the accompanying drawings, Figure 1 is a side elevation of a press embodying our invention. Fig. 2 is a vertical section from end to end of Fig. 1, taken near the central line. Fig. 3 is an elevation taken from the delivery end of the press. Fig. 4 is a detail view of the nest of gears shown in Fig. 3 upon the left hand of said figure. Fig. 5 is a plan view of the machine, the paper-reel and its supports being removed. Fig. 6 is a detail elevation of one of the press-beds, the gears driving the same, and the marginal feed-bearers. Fig. 7 is a central vertical section of Fig. 6. Fig. 8 is a plan view of the parts shown in Fig. 6 without the press-bed and gears. Fig. 9 is a front elevation of the stacker for feeding single cards. Fig. 10 is a central vertical section of Fig. 9 with the automatic feed attached. Fig. 11 is a detail perspective of the feed-plate and carrying-bar detached. Fig. 12 is a detail perspective of the shearing devices detached.

In the said drawings the reference-numeral 1 designates the frame of the machine, from which at a suitable point project arms 2, of angular shape, having one branch provided with longitudinal slot 3, to receive the ends of a suitable shaft or core, 4, upon which the paper is reeled. The continuous web is wound thereon in any desired quantity, and upon the ends of the core 4 are mounted washers bearing upon one face of the slotted arms, while the threaded projecting extremities receive set-nuts 5, by which the core may be fastened at any point in the slot. From the reel the continuous web 6 is carried over a guide-roll, 7, journaled near one end of a supporting-frame composed of parallel plates 8 at the feed end of the machine. These plates may be mounted on or form part of the inclined feed-table 9.

Projecting from the end of the inclined table are brackets 10, upon which are mounted the standards 11, within which are journaled feed-rolls 12 and 12^a, the latter being adjustable in boxes which move in slots in the standards. Adjusting-screws 13 pass through these boxes and may be turned by milled buttons to vary the grip of the rolls upon the paper.

Upon the shaft of the lower feed-roll is mounted a gear, 14, meshing with a pinion, 15, having a miter-gear, 16, cut upon its face. With the latter gear a second miter, 17, engages, mounted upon a horizontal shaft, 18, journaled in brackets 19 on the side of the machine. The manner of communicating power to this shaft will be set forth hereinafter; but it is sufficient to say at this point that through its rotation constant movement is given the heavy reel, drawing off a slack which is maintained between the feed-rolls and the point of impression. The shaft 18 is made of such length as to permit the substitution of various sizes of gear in place of the gear 14 to make the speed of the unreeling movement equal to the requirements. From the feed-rolls the paper passes under a guide-roll, 20, and thence to the margin-regulator, which, being an important feature in the mechanism, will now be described.

Upon a frame, 21, which is vertical as to the inclined table 9, are mounted two rolls, 22 and 23, the upper being arranged in a manner similar to the upper feed-roll, 12^a, so that it may be forced down upon the other with any desired power. Depending from the frame 21 is a foot piece, 24, to which is connected a pitman, 25, true movement of the frame being secured by means of a guide-rod, 26, firmly attached to the foot-piece 24 and moving in guides 27. The pitman 25 is operated by a gear-disk, 28, upon the same shaft with the gear 15. The end of the pitman is pivotally connected to a slide-plate, 29, which is adjustable in a diametrical slot, 30, in the disk 28. A screw-rod, 31, engaging with a bracket or lug on the plate and swiveled in the edge of the disk, gives the required adjustment. By causing the point of attachment of the pitman to approach the diameter of the disk the throw of the frame 21 will be diminished, and vice versa. These parts are shown in Figs. 2 and 10, and their operation and function will be more fully set forth hereinafter.

From the margin-regulator, between the rolls 22 and 23 of which the web 6 passes, it is led to the printing devices. The latter consist, first, of an impression-cylinder, 32, of any usual construction, mounted on a shaft, 33, the ends whereof are carried by boxes 34, which move in vertical ways in standards 35, being adjustable therein by set-screws 36.

Beneath the impression-cylinder move the press-beds 37, each one supported by trunnion-rolls 38 upon the ends of the bed, said

rolls moving in an elliptical orbit, 39. Each bed is composed of an oblong rectangular metallic plate of suitable size having a seat for the type and means for confining the same. Each bed is provided with a rack, 40, at or near each end, said rack meshing constantly with one or the other of two similar gears, 41, having equal speed. These gears are carried by two shafts, 42, two gears on each shaft, and the manner of driving the latter will be explained hereinafter. The racks upon these press beds have several teeth in the central portions, which are cut of equal length with the others, but set farther in, giving slightly concave portions 43, Fig. 7. This construction enables us to use the same rack to carry the beds around the curved ends of the race or orbit, which are concentric with the driving-gears 41, as well as to drive them through the remainder of the orbit, and as we obtain equal accuracy we prefer said construction on some accounts to that shown in our application of February 21, 1887, Serial No. 228,407, in which we have shown one pair of curved racks and one pair of straight racks on each bed.

The type may be locked up in forms of any size within the capacity of the chase 44 of each bed. Within said chase at each end of the form we place marginal feed-bars 45, which are of the length to which the paper must be cut for that impression. These bars 45 may project over the longer edges of the chase, though they cannot of course project beyond the same. Their surfaces are in the same horizontal plane as the type surface, or possibly a little higher.

Over the press-beds just inside the marginal feed-bars are stripper-plates 46. (Shown in Figs. 2, 6, 7, and 8, and appearing in Fig. 5.) These stripper-plates consist of flattened metallic strips having a degree of flexibility, their surfaces not rising as high as the type, whereby both the beds and the impression-cylinder move freely upon said plates. They are mounted at their ends upon transverse bars 47 by means of eyes 48 upon the ends of the plates, whereby they may be adjusted laterally to forms of varying widths, being fastened by set-screws 49, tapped through the eyes 48 and bearing upon the bars. These stripper-plates detach the printed card from the form after each impression, thereby insuring its delivery even when there is considerable adhesion. They are more necessary in the feeding and printing of cut cards than when the web or continuous strip is used. It will be noted in Fig. 2 that the edge of the inclined table 9 overlies the stripper-plates upon one side and closely approaches the point where the paper is seized by the bed and cylinder. Upon the other side of said cylinder we arrange a curved plate, 50, which may be conveniently mounted upon the bar 47. This bed-plate extends from side to side of the press and curves over in notches in the surface of the stripper-plates. The bar 47, upon which the bed-plate 50 is mounted, is supported in any suitable manner upon the press-frame.

Upon the top of the forward portion of the press-frame are mounted brackets 52, which receive forwardly-projecting bars 53, longitudinally adjustable in the brackets and held at any point by set-screws 54. These bars 53 support a metallic frame, 55, Figs. 2 and 12, in which is mounted a lower stationary cutter-plate, 56, having projections 57 on its ends, which rest in keepers 58. Between this cutter-plate and a transverse bar lying just in rear thereof are interposed springs 60, by which the cutter is thrown or tilted outward to maintain it at all times in operating connection with the movable cutter 61 and to preserve such friction between the two as will at all times tend to renew the shearing-edges and take up the wear of the blades. The movable cutter 61 is pivotally mounted upon a stud, 62, projecting from the end of the frame 55. A sleeve, 63, upon the shear-blade 61 fits upon the stud and may be adjusted thereon into proper relation with the lower shear-blade, 56.

Upon the transverse bar 59 is mounted an inclined plate, 64, supported by brackets 65 and overlying the bed-plate 50, upon which its edge rests. This plate conducts the paper to the slot 66, through which the paper passes to the cutters. By loosening the set-screws 54 the whole cutting apparatus, together with the inclined plate 64, may be adjusted outward or inward, as circumstances may require.

The upper shear-blade, 61, is extended at its free end and broadened, as shown in Fig. 3, sufficiently to enable it to receive a semicircular slot, 67, in which plays a crank-pin, 68, having a friction-sleeve, 69, thereon. This crank-pin is carried upon the flat face of a gear, 70, mounted upon the forward end of the horizontal shaft 18. This gear meshes with a gear, 71, carried by a shaft, 72, journaled in brackets 73, projecting from the machine-frame. Upon the same shaft, 72, is mounted a miter-gear, 74, which receives rotation from an intermeshing miter, 75, of larger diameter. The miter-gear last named is carried by one of the shafts 42, which support the gears driving the press-beds, said shaft 42 being prolonged sufficiently to extend through the frame 1 of the press. This construction gives a complete reciprocation of the shear-blade 61 during one half of each revolution of the gear 70, and during the remainder or the other complete half of the rotation of said gear 70 the shear is entirely at rest. The gears are so proportioned and timed that the shears will act between the impressions and before the margin-regulator begins its retrograde movement.

The press is driven from a power-shaft, which is one of the shafts 42 driving the press-beds, Figs. 3 and 4, whence the motion is transmitted through a gear, 76, to the gear 77 of the impression-cylinder. Upon the power-shaft inside the gear 76 is a gear, 78, of the same diameter with the gears 41, meshing with

the racks of the press-beds. A second gear, 79, of equal diameter, is mounted on the projecting end of the other shaft 42, and an intermediate, 80, communicates motion from one to the other.

Outside the gear 79 is mounted a gear, 81, on the same shaft. This gear meshes with an intermediate, 82, journaled on a stud, 83, projecting from the press-frame, and the latter gear in turn meshes with a pinion, 84, on the shaft 85, which communicates action to the inking devices, presently to be described. It will readily be seen how motion is given through the shaft 42, miters 75 and 74, and gears 71 and 70 to the shaft 18 and the paper-feeding and margin-regulating apparatus.

The inking mechanism is arranged within the lower portion of the press-frame, as shown in Figs. 1, 2, and 3. It consists, essentially, of a fount, 86, within which a fount-roller, 87, has an intermittent revolution, as presently shown, an adjustable clearer, 88, being provided to regulate the amount of ink taken up by the roll and to spread it uniformly thereon. Upon the ends of the shaft of the fount-roller are mounted ratchets 89, with which pawls 90 engage, the latter being carried by pawl-carrying pitmen 91, reciprocated by a ring, 92, running on an eccentric disk, 93, on the shaft 85. The end of this pitman is provided with a slot, 94, which receives a screw, 95, tapped into the end of the fount-supporting plate 96. Upon the same ring, 92, is formed a second pitman, 97, on the end of which is an eye, 98, which receives the journal of a shaft, 99. On this shaft is the ductor-roll 100, and the journals of said shaft slide in slots 101, formed in a plate, 102, pivoted at one end on the press-frame and at the other end having a slot, 103, through which a set screw, 104, passes into the machine-frame, rendering the plate 102 adjustable to the extent of the slot 103. The parts thus described, appearing in Fig. 1 of the drawings, are duplicated upon the other side of the press.

In suitable bearings in the machine-frame is mounted a stationary shaft, 105, upon which rotates an evening-roll, 106, having in addition to its rotary motion a longitudinal reciprocation in the usual manner and by any known means. This vibrating evening-roll is in constant contact with the distributing-roll 107, carried by the shaft 85.

The form-rollers 108 rest upon the top of the distributing-roll 107. Each of the form-rollers is journaled in plates 109, the notched ends of which rest on the shaft 85. Each of these plates is provided with a transverse slot, (shown in dotted lines in Fig. 1,) which receives a bolt, 110, the end of which projects through the press-frame and receives a set-nut, 111, whereby the plates may be adjusted toward or from each other. The upper end of each plate is forked, and to one branch of each fork is pivoted a keeper, 112, the other end of which may be secured by a screw to the other branch of the fork. The journal of the form-roll is dropped into the fork and the keeper thrown over it and fastened. By slightly separating the form-rollers 108 they will have less contact with the type, and vice versa.

Upon the shaft 85 is a squared end, 113, to which a crank may be applied, whereupon, by slipping the intermediate 82 off its stud 83, the inking mechanism is wholly disconnected from the printing mechanism, and the shaft 85 being revolved by the crank the motion will be communicated to the evening-roll through the pitmen 97 to the ductor, and through the pawl-carrying pitmen 91 to the font-roller. This action may be continued as long as desired until a sufficient amount of ink is spread upon the form-rollers to begin printing.

By dropping the end of the slotted plates 102 the ductor-roll is caused to press more closely on the fount-roller and to have a more extended contact thereon. By proper adjustments of the several parts of the inking mechanism the quantity of ink spread at each passage of the type may be regulated with great accuracy and to almost infinitesimal degrees of difference, so that the type shall receive exactly the quantity of ink each time that will be wholly taken up by the paper, leaving the type perfectly clean after each impression and avoiding danger of offset. By this invention we are able to get sharp clearly-defined impressions of a perfect character, both the type and the freshly-printed surface being the one so free from ink and the other with the ink so perfectly taken up that a white handkerchief may be passed over both without being soiled.

In printing and cutting from a continuous roll, as shown in Figs. 1 and 2, the paper is passed between the rolls 22 and 23 of the margin-regulator, and sufficient tension is imparted to said rolls to enable them to draw the paper back against the slight resistance offered by said paper when the beds are not in engagement with the impression-cylinder. It being determined how much margin is required, by adjusting the length of the marginal feed-strips 45 the throw of the pitman 25 is adjusted by means of the screw 31 and the press started. After each impression the paper, which is carried farther than the length of the marginal feed-strips, is drawn back just before the shears operate by the retrograde movement of the margin-regulator, thereby avoiding any waste of stock and cutting all the cards of the same kind to the same width.

Should it be desired to print a page containing enough matter for several forms, it can be readily accomplished by distributing the type between the several beds and adjusting the margin-regulator to the proper movement. If desired, the matter set up in the several beds can be printed in a solid column. In this way and in like manner by increasing the size or length of the beds an entire newspaper may be struck off. When, however, it is desired to

feed and print cut cards, the frame 21, with its rolls 22 and 23, is removed, and upon the inclined table 9, in front of the base 21^a, is placed a stacker, 114, Figs. 9 and 10. This device consists of a plate, 115, perpendicular to the table 9, with side pieces, 116, laterally adjustable by means of set-screws 117, passing through slots 118 in side lugs, 119, on said pieces 116. Lateral arms 120 serve to attach the stacker in place. In the plate 115 is placed a central rod, 121, having its upper end swiveled in a set-screw, 122, tapped into the upper end of the plate. The lower end of the rod is attached to an adjustable plate or bar, 123, moving upon the lower portion of the plate 115 in an opening in said plate. By means of the screw 122 this bar or plate may be set at such height as to allow the exact space necessary for the passage of a card beneath its end. Upon the front face of said plate 115 is mounted a transverse bar, 124, having a forwardly and downwardly extending elastic metal plate, 125, mounted thereon. In the vertical portion of the elastic plate 125 are formed vertical slots 127, through which set-screws 128 pass into the plate 115, to permit the vertical adjustment of said holding-plate 125. In rear of the stacker are vertical rods 129, which prevent the cards from moving backward. These rods are held by set-screws 130, passing through slots 131 in the table 9, to permit adjustment for cards of different widths.

Upon the base 21^a of the margin-regulator is mounted a feed-plate, 132, which moves between the rods 129. This plate rests flat upon the table, and its edge engages the edge of the lower card as the pitman 25 throws the base 21^a forward, pushing the card out under the bar 123 and under the spring-plate 125, which bears upon it with just enough force to hold it securely in place until it passes into the grasp of the bed and impression-cylinder, as shown in Fig. 10. When feeding cut cards, the pitman 25 is adjusted to its greatest throw and the shears are removed, a suitable receiver being attached to receive the cards as they come from the press.

In Fig. 2 we have shown a slightly-modified form of margin-regulator, consisting of a base-piece, 21^a; but instead of rolls 22 and 23 we may employ a bar, 133, having a convex surface bearing upon the paper, which passes between it and the base. This bar has apertures which receive studs 134, Fig. 11, and by means of springs 135 and nuts 136, turning on the threaded ends of the studs, any desired pressure or grip may be given to the bar 133.

When printing and cutting from a continuous web, it is desirable to use guides 137, Fig. 5, to carry the web accurately to the press. These guides have foot-pieces, which are provided with slots 138, and by means of set-screws 139, passing through said slots into the table 9, the guides may be adjusted to any width of paper.

What we claim is—

1. The combination, with a rotary printing-press and with a series of separate press-beds carrying the forms, of mechanism, substantially as described, for giving a constant feed to the continuous web, gripping devices moving upon the press-table, a frame in which said devices have support, a driving-disk, and a pitman having one end connected to the frame and the other end to the disk and adjustable toward and from the center thereof, substantially as described.

2. The combination, with a rotary printing-press and a series of press-beds carrying the forms, of a margin-regulator reciprocating upon the press-table behind the impression-cylinder, said regulator being composed of gripping devices whereof one is movable toward and from the other to vary the friction or grasp upon the web, a support for said devices moving upon the press-table, a pitman driving said support, whereby a definite retrograde movement is given the web between the successive impressions, and means, substantially as described, for varying the extent of such retrograde movement, substantially as described.

3. The combination, with a rotary printing-press and with a series of press-beds passing successively under an impression-cylinder, of a margin-regulator consisting of a vibrating frame, a pair of rolls journaled therein, and means, substantially as described, for varying the bite or grasp of the rolls upon the paper, said margin-regulator being arranged between the reel of paper and the printing mechanism, substantially as described.

4. The combination, with a rotary printing-press and with a series of press-beds traveling in an orbit beneath an impression-cylinder, of a margin-regulator composed of a pair of rolls journaled in a frame and having a variable tension or bite upon the continuous web, a pitman reciprocating said regulator, a revolving disk having a central or diametrical slot, and a plate adjustable in said slot, to which the pitman is connected, substantially as described.

5. The combination, with a rotary press and with a series of press-beds traveling in an orbit, of stripper-plates lying above the press-beds and laterally adjustable to accommodate forms of varying sizes, substantially as described.

6. The combination, with a rotary press and with a series of press-beds traveling in an orbit beneath an impression-cylinder, of marginal feed-bars locked up in the chase outside the ends of the form, and a margin-regulator reciprocating upon the press-table between the reel and the impression-cylinder, substantially as described.

7. The combination, with a printing-press adapted to print upon a continuous web, of shearing devices for separating the impressions and a continuously-rotating gear having an eccentric wrist-pin which runs in a

semicircular slot in the end of the movable shear-blade, substantially as described.

8. The combination, with a rotary press and with a series of press-beds traveling in an orbit beneath an impression-cylinder, of a margin-regulator consisting of a reciprocating frame with a pair of rolls of variable tension journaled therein, a guide-bar rigid with said frame and parallel with the press table, and means for unreeling the continuous web before it enters the margin-regulator, the reciprocating frame of the latter being provided with a feed-plate sliding upon the press-table for feeding cut cards, substantially as described.

9. The combination, with a printing-press, of inking mechanism driven from the power-shaft through an intermediate removably journaled on a stud, whereby the inking mechanism may be at once disconnected from the printing mechanism, the shaft of the distributing-roll being provided with a squared end to receive a crank, whereby the inking mechanism may be actuated to spread the ink upon the rolls without operating the printing mechanism, substantially as described.

10. The combination, with a printing-press, of inking mechanism composed of a fount-roller having intermittent rotation, a ductor-roll, an evening-roll, a distributing-roll continually in contact with said evening-roll, and form-rollers running on the top of the distributing-roll, a gear on the shaft of the distributing-roll, and an intermediate removably journaled on a stud and communicating power from the driving-shaft to the shaft of the distributing-roll, substantially as described.

11. The combination, with a printing-press, of an inking mechanism consisting of a distributing, an evening, and a fount roll, with a ductor-roll vibrating between the two latter, parallel slotted plates in which the journals of the ductor-roll reciprocate, said plates being pivoted at one end and adjustable up and down at the other, and an eccentric having arms connected to the journals of the ductor-roll, and pawl-carrying pitmen which turn the ratchets on the ends of the fount-rollers, substantially as described.

12. The combination, with a printing-press having an ink-fount and an adjustable clearer mounted thereon, of a fount-roller having movement in the fount, a ductor-roll vibrating against said fount-roller at intervals, and slotted plates supporting and guiding the journals of the ductor-roll, said plates being pivoted at one end and adjustable upward or downward at the other to vary the degree of contact between the said ductor and fount rollers, substantially as described.

13. In combination with a printing-press adapted to print upon a continuous web, a shearing mechanism composed of an outwardly spring-pressed stationary blade, a movable blade, a frame on which said blades are mounted, said frame having parallel arms, and brackets upon the press-frame, which receive said arms and in which they are adjustable, said frame being removable with all parts of the shearing mechanism, substantially as described.

14. In combination with a printing-press and with a series of press-beds traveling in an orbit beneath an impression-cylinder, transverse bars beneath the press table on the sides of the impression-cylinder, stripper-plates adjustable on said bars, and a plate mounted on one of the latter and curved over toward the impression-cylinder till its edge lies between the stripper-plates, substantially as described.

15. The combination, in a rotary printing-press, with the impression-cylinder and with a series of press-beds traveling in an orbit beneath the same and each having at or near each end of the bed a single rack of teeth, whereof the central part is set in or concaved, of gears rotating within said orbit and meshing with said racks, those gears lying at the curved ends of the orbit being concentric with said ends, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH C. FOWLER.
EDWARD A. HENKLE.

Witnesses:
JAMES L. NORRIS,
J. A. RUTHERFORD.