

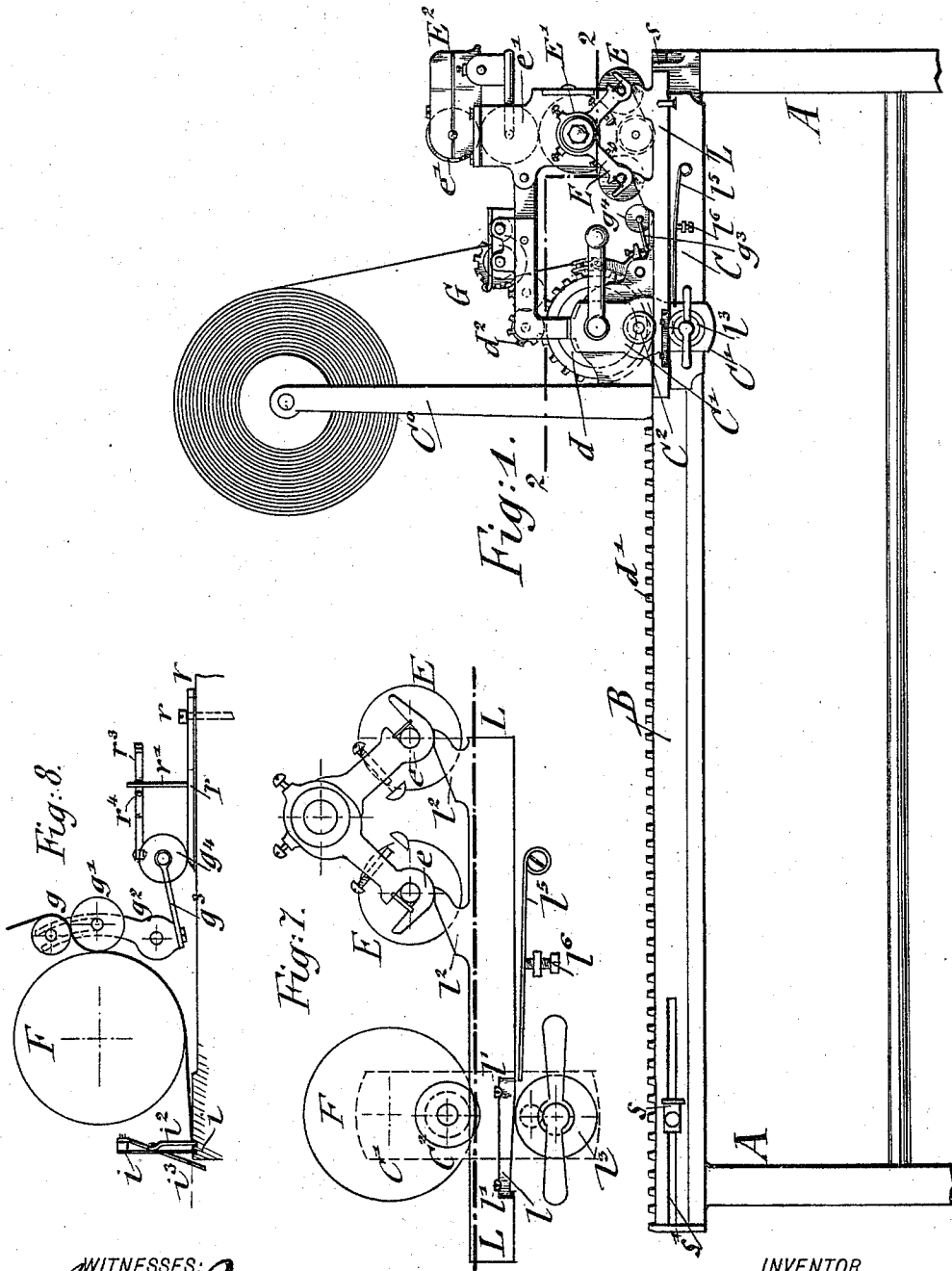
(No Model.)

4 Sheets—Sheet 1.

F. WESEL.
PRINTER'S PROOF PRESS.

No. 537,658.

Patented Apr. 16, 1895.



WITNESSES:
George W. Jaenkel
Harry Patch

INVENTOR
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ATTORNEYS.

(No Model.)

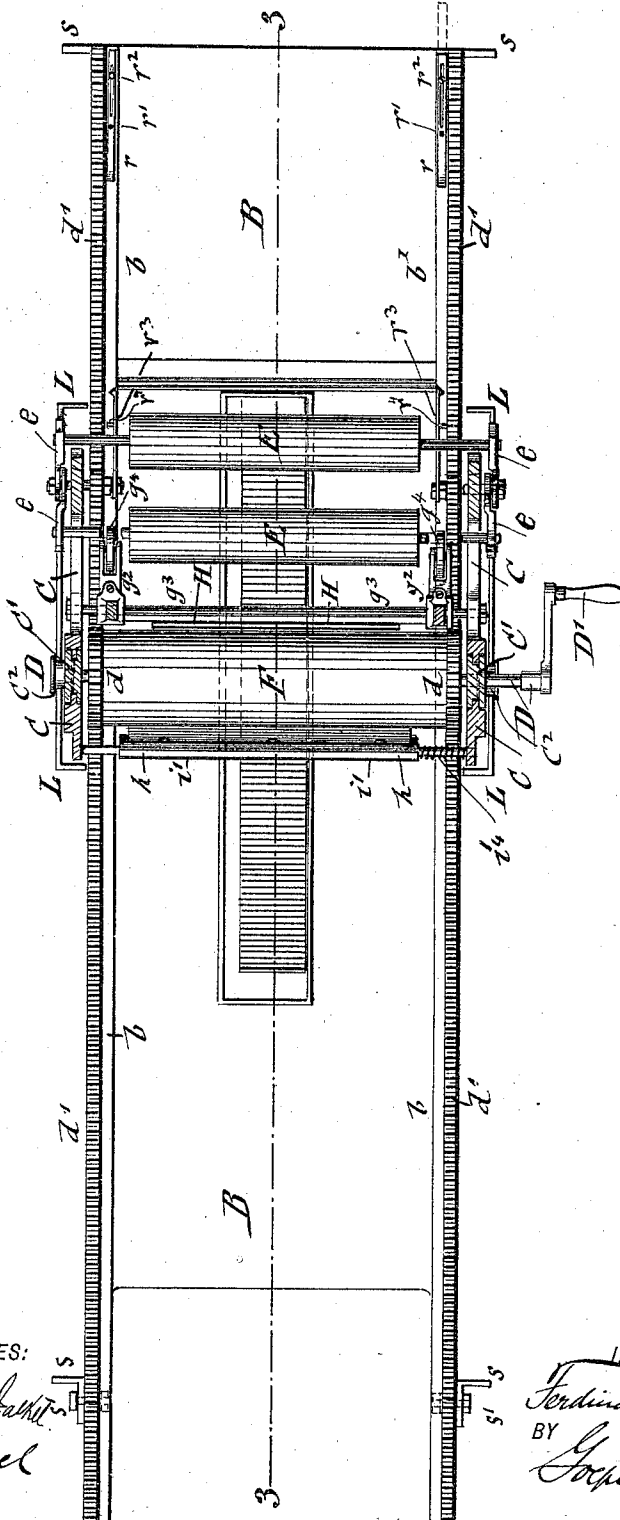
4 Sheets—Sheet 2.

F. WESEL.
PRINTER'S PROOF PRESS.

No. 537,658.

Patented Apr. 16, 1895.

Fig: 2.



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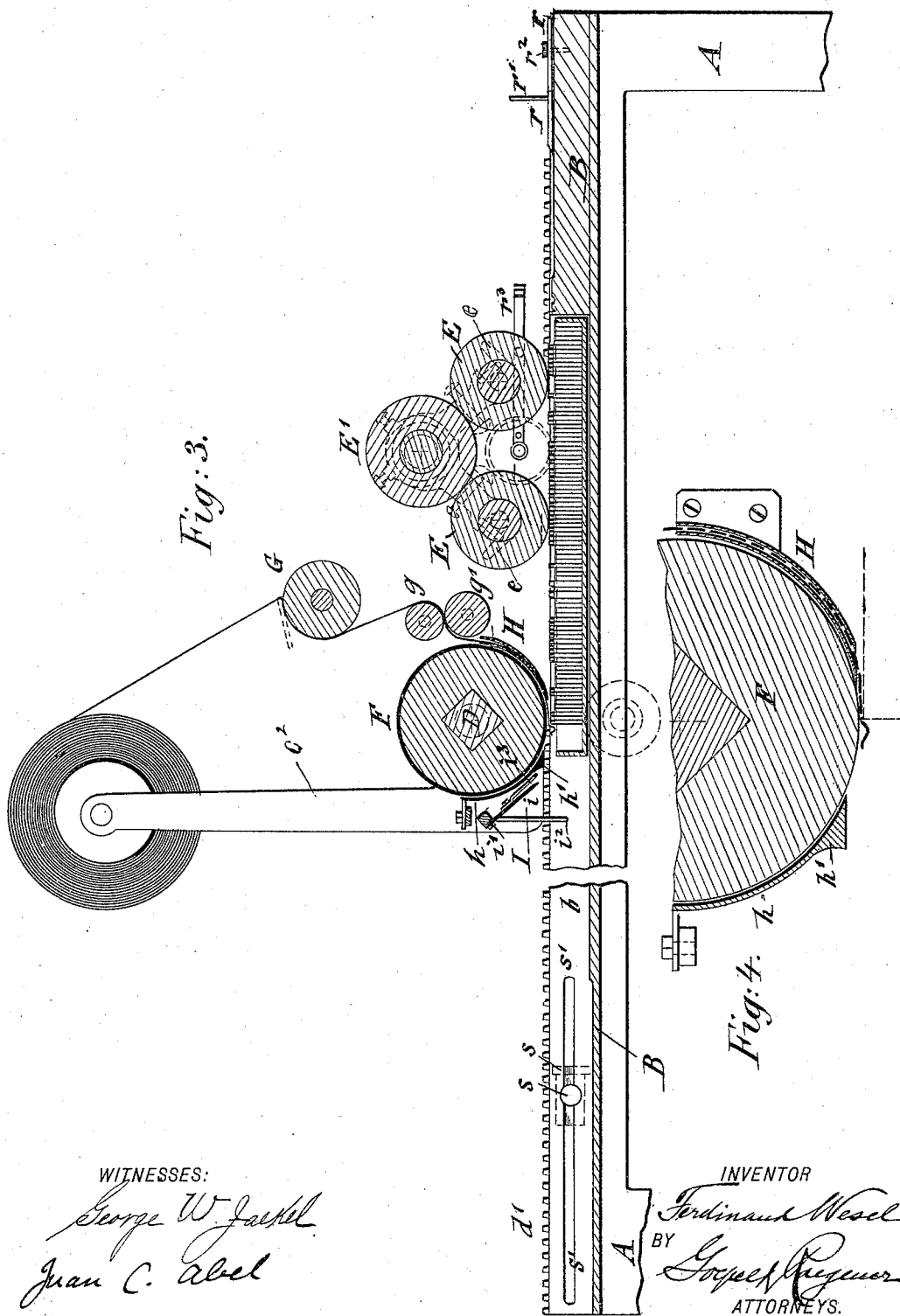
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4 Sheets—Sheet 3

F. WESEL.
PRINTER'S PROOF PRESS.

No. 537,658.

Patented Apr. 16, 1895.



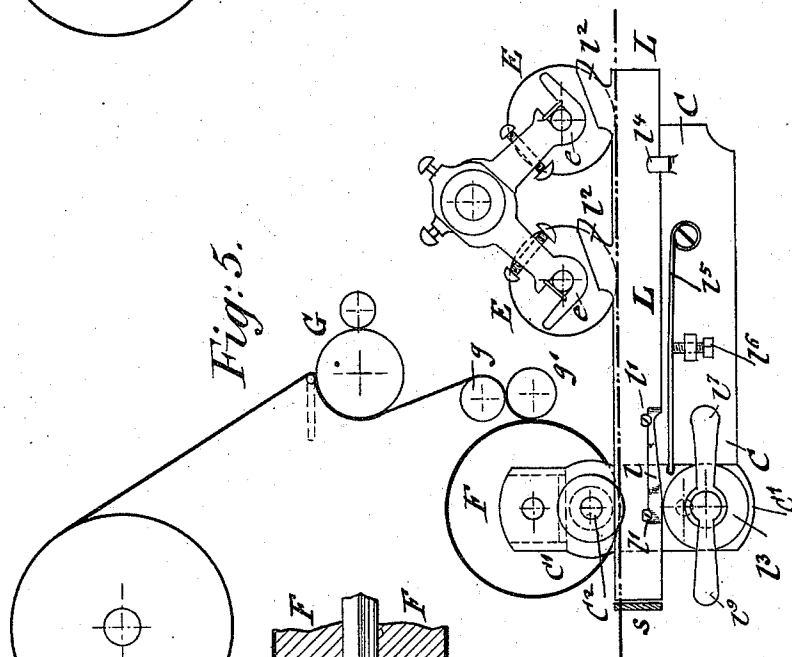
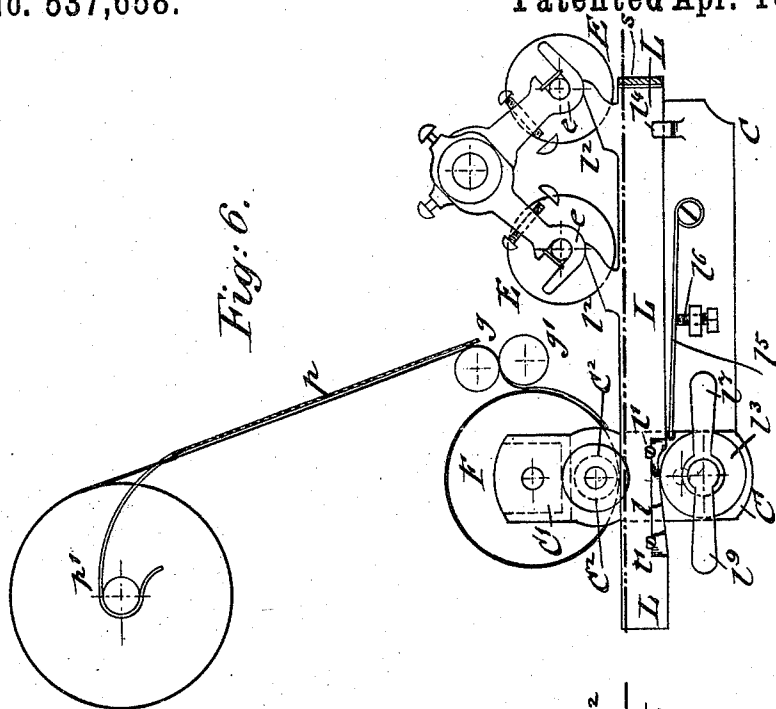
(No Model.)

4 Sheets—Sheet 4.

F. WESEL.
PRINTER'S PROOF PRESS.

No. 537,658.

Patented Apr. 16, 1895.



WITNESSES:

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THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FERDINAND WESEL, OF BROOKLYN, NEW YORK.

PRINTER'S PROOF-PRESS.

SPECIFICATION forming part of Letters Patent No. 537,658, dated April 16, 1895.

Application filed August 3, 1894. Serial No. 519,334. (No model.)

To all whom it may concern.

Be it known that I, FERDINAND WESEL, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Printers' Proof-Presses, of which the following is a specification.

This invention has reference to certain improvements in the printer's proof press, for which Letters Patent were granted to me, No. 512,780, on January 16, 1894, the improvements being designed with a view of providing a continuous supply of paper to the proof-press, so as to dispense with the insertion of separate sheets in taking proofs and permit thereby the quicker and more convenient taking of the proof, than by the construction shown in my prior patent referred to. This requires, however, in addition to the usual means of taking the impression, such as an impression-roller and inking-rolls, first, a device by which the paper is cut off when the press has done its work, and, secondly, the arrangement of means by which the web of paper is drawn away sufficiently from the impression-roller, so that the end of the web does not interfere with the carriage during its return-motion.

For this purpose the invention consists of a proof-press for printing offices, which comprises a stationary bed-plate on which the matter from which the proof is to be taken is placed, a reciprocating carriage guided on said bed and moved over the same by suitable means, inking-rollers supported on said carriage, an impression-roller likewise supported on said carriage, means for feeding the paper to the impression-roller, said means consisting of guide-rollers and a curved throat extending alongside of the impression-roller and along which the paper is fed to the form when the impression-roller is moved forward over the latter.

The invention consists further of the combination with the bed-plate, of a reciprocating carriage, inking rollers and an impression-roller, said carriage being provided with means for clamping the end of the paper, and with a cutting blade along which the sheet just printed is torn off. During the return-motion of the carriage, the guide-rollers for the paper are placed in contact with the impres-

sion-roller, so that a motion is imparted to the web of paper in an opposite direction of the feed-motion and thereby the paper drawn back into its throat for a certain distance, so as not to interfere with the form during the return motion and prevent the forming of too large a margin at the end of the sheet.

The invention consists further of means by which the guide-rollers are applied to the impression-roller at the end of the forward motion of the carriage, which means will be fully described in detail hereinafter.

The invention consists further of sliding-cams applied to the carriage and of eccentrics, by means of which the carriage is raised when it arrives at the end of its forward motion, so that the inking rollers and impression-rollers are lifted above the form until they arrive at the end of the return-motion, when by contact with stops on the bed-plate the sliding-cams are returned into normal position, so as to produce the printing of the proof during the forward motion of the carriage.

The invention consists lastly of certain details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of my improved printer's proof press. Fig. 2 is a plan-view of the same drawn on a larger scale and partly in horizontal section, on line 2, 2, Fig. 1. Fig. 3 is a vertical longitudinal section on line 3, 3, Fig. 2, drawn on a still larger scale, and showing the means for feeding the paper to the impression-cylinder. Fig. 4 is an enlarged detail section of the impression-cylinder with its paper-feeding throat. Figs. 5 and 6 are diagrams showing the position of the carriage at the beginning and at the end of its forward motion. Fig. 6^a is a detail vertical transverse section on line 6^a, 6^a, Fig. 1. Fig. 7 is also a diagram showing a slight modification in the sliding-cams arranged to take the proof on sheets if desired. Fig. 8 is a detail vertical section of the mechanism by which the end of the web is drawn back sufficiently into the throat-piece, so as not to interfere with the form during the return-motion of the impression-cylinder over the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a supporting-frame of my improved proof-press for newspaper and other printing offices. The supporting-frame is composed of upright standards *a, a*, which are connected by longitudinal and transverse tie-rods *a'*. On the standards is supported a bed-plate B, which is provided at each side respectively above and below the bed-plate, with guide-rails *b, b'*, on which a reciprocating carriage C is guided. Motion is imparted to the reciprocating carriage C by means of a transverse shaft D, having a crank-handle D' which shaft is provided with gear-wheels *d* that mesh with fixed racks *d'* supported on both sides of the bed-plate, as shown clearly in Figs. 1, 2 and 3. By turning the crank-handle D', motion is imparted to the carriage C in one or the opposite direction over the bed-plate B. To the shaft D is keyed the impression-roller F which moves with the gear-wheels over the bed-plate. At one end of the carriage are supported in inclined bearings *e*, two inking-rollers E, E, which are in contact with an ink-transferring roller E', the shaft of which turns in bearings of the frame of the carriage, said transferring-roller receiving the ink by intermediate rollers *e', e'*, from a suitable ink-fountain E² that is arranged above the intermediate rollers, as shown in Fig. 1.

Any suitable inking device may be used, as I do not desire to confine myself to any special construction of the same.

One of the gear-wheels *d* on the shaft of the impression-roller F transmits motion by intermediate gear-wheels *d²* to a web-moistening attachment G, which is supported on the frame of the carriage and to which the paper is fed from a roll supported on upright standards C', that are likewise attached to the frame of the carriage. From the web-moistening attachment G, the paper passes over suitable guide-rollers *g, g'*, which are supported in the slotted arms of a frame *g²*, the pivot of which extends from one side of the frame to the other near a curved, stationary throat H that is located below the lower guide-roller *g'*, as shown in Fig. 3, and extended from the same to the lower part of the impression-cylinder F. The fulcrumed supporting-frame *g²* of the guide-rollers *g, g'* is provided with arms *g³* at both sides, having anti-friction rollers *g⁴* which move over the guide-rails *b* at both sides of the bed-plate, and which serve for the purpose of oscillating the frame *g²* and moving the guide-roller *g'* into contact with the impression-cylinder F, for the purpose of drawing the end of the paper in opposite direction to its feed-motion back into the curved throat when the carriage arrives at the end of its forward motion and starts on its return-motion.

At the opposite side of the impression-cylinder F, the frame of the carriage C is provided with a curved guard-plate *h*, that is arranged concentrically to the impression-roller F and which is provided at its lower end with

a tapering heel *h'*, that prevents the paper from lapping around the impression-cylinder and guides it to a bending and cutting device I, which is shown in Figs. 3 and 8.

The bending and cutting-device I is composed of a cutting blade *i*, which is sharpened at its lower edge and attached at its upper end to a transverse bar *i'*, that is pivoted to the carriage C. A bending-bar *i²* is attached to the knife-blade *i* and extended below the sharpened edge of the same, the lower end of said bending-bar being rounded off so as to press the paper into the shape shown in Fig. 4. To the transverse bar *i'* to which the cutting-knife *i* is applied, is also attached a finger or arm *i³*, by which the position of the cutting knife and the bending-bar is governed. On the end of the transverse bar *i'* is placed a helical spring *i⁴*, one end of the spring being attached to the transverse bar and the other to a fixed point on the carriage, so that when it is set to torsional tension, the spring will hold the knife and its bending-bar in an inclined position, as shown in Fig. 3, adjacent to the guard-plate *h* of the impression-roller. As soon as the carriage C arrives at the end of its forward motion, the finger *i³* abuts against the solid end-portion of the bed-plate, as shown in Fig. 8, and moves thereby the cutting-blade and the bending-bar into vertical position, so as to firmly clamp the paper on the raised end of the bed-plate and permit the ready tearing off of the proof, taken from the form during the forward motion of the carriage, by the attendant.

As soon as the carriage commences its return-motion, the contact of the finger *i³* with the solid end of the bed-plate is discontinued, and the cutting-blade and bending-bar are returned into inclined position by the action of the helical spring *i⁴* on the transverse bar, so that they assume again the inclined or normal position, shown in Fig. 3.

The carriage C is provided at opposite sides with sliding-cams L, which are provided at their under side below the shaft of the impression-roller F with inclined cleats *l*, that are secured in position by suitable set-screws *l'*. At the upper side of the carriage C are arranged inclined upwardly-extending lugs *l²*. The cleats *l* rest on eccentrics *l³* which are provided with pivots *l⁴* swiveled in the standards C' so that they can be moved higher or lower on their pivots by means of suitable handles *l'* and adjusted in position by means of set screws *l''* which engage in the standards C' and pass through enlarged central openings of said eccentrics, said set-screws being provided with handles *l'''* whereby they may be turned so as to clamp the eccentrics in adjusted position between the heads of the screws and the outer surfaces of the standards C'. The sliding-cams L are guided on the rollers *l⁵* and on suitable lugs *l⁶* on the frame of the carriage and are operated in connection with stationary stops *s* on the bed-frame of the carriage, the stops *s* at the left-

hand end of the bed-plate being arranged in longitudinal slots s' of the guide-rails b, b , whereby the stops can be adjusted and the motion of the carriage C limited as required by the length of the motion to be taken.

The upright standards C' , in which the shaft of the impression-roller F is journaled, are guided in vertical ways of the carriage C and connected by springs l^5 with the carriage as shown in Figs. 5 and 6, the tension of said springs tending to press the standards C' in upward direction and the rollers l^3 against the cleats l of the sliding cams L. The tension of the springs l^5 can be adjusted by tension-screws l^6 , turning in lugs of the carriage C.

The frame of the carriage C is provided with anti-friction rollers C^2 , that rest on the sliding-cams L and facilitate the shifting of the same when arriving in contact with either stop s . These rollers C^2 also retain the sliding-cams in position against upward displacement so that said sliding-cams may force the eccentrics l^3 and the impression-cylinder therewith connected downwardly against the action of the springs l^5 into printing position.

On the rails of the bed-plate are arranged at one end of the same, slotted and longitudinally-sliding rails r that are beveled at their inner ends, guided on stationary headed pins r^2 and provided with upright pins r' which work in connection with spring-arms r^3 on the frame C of the carriage, said arms being provided with beveled catches at one end and with lateral pins r^4 on the frame C, as shown in Fig. 2 and in dotted lines in Fig. 8. The pins r^4 serve for the purpose of moving the rails r in outward direction when the carriage arrives at the end of the bed-plate during its forward motion, while the beveled catches of the spring-arms r^3 take back the sliding-rails as far as their slots will permit. The beveled ends of the rails r permit the rollers g^4 of the frame g^2 , to pass on the rails, when the carriage C arrives at the end of its forward motion, and oscillates the frame g^2 , so that the upper end of the fulcrumed frame is brought closer to the impression-cylinder F and the guide-rollers g' are placed in contact therewith. During the backward motion of the carriage the impression-roller F imparts a motion in opposite direction to the guide-rollers g' in contact therewith, as long as the anti-friction rollers g^4 at the lower end of the fulcrumed frame g^2 rest on the sliding rails r . As the motion of the sliding-rails corresponds to the length of paper, which is located between the lower part of the impression-cylinder and the cutting-blade, this portion of the paper, which would be in the way of the impression-cylinder during the return-motion of the carriage, is drawn back into the curved throat H by the rotary motion of the paper guide-roller g' until the bent edge of the paper arrives adjacent to the lower end of the throat, as shown in detail in Fig. 4. As soon as the anti-friction rollers g^4 leave the sliding-rails

r , the frame of the guide-rollers is permitted to oscillate away from the impression-roller, so that the frictional contact with the guide-roller g' is discontinued, and the paper is not drawn back any more, but held in position ready for the forward motion of the impression-roller. At the same time, while the action of the sliding rails at the end of the bed-frame and the oscillation of the guide-roller g' take place, the bearings of the impression-roller F are lifted, by the contact of the end-stops s with the sliding cams L as the cleats l pass over the rollers l^3 , while the bearings of the inking-rollers E, E, ride up on the inclined lugs of the guide-rails and are thereby lifted above the form, as shown in Fig. 6. As the impression-roller, as well as the inking rollers are lifted above the form, they move with the carriage bodily over the form without being in contact therewith, until the carriage arrives at the opposite end of the bed-plate when the opposite ends of the sliding-cams L form contact with the stops s at that end, so as to shift the cams again and move the cleats over the rollers l^3 whereby the impression-roller as well as the inking-rollers are permitted to return to their former lower position and are moved by the forward motion of the carriage over the form. Simultaneously therewith the inking-rollers pass over the form ahead of the impression-roller and supply the ink required for printing the proof, while the impression-cylinder rolls the paper so to say, over the form against the tension of the guide-rollers and web-moistening attachment, the forward motion of the impression-roller unwinding a sufficient length of paper as required for taking the proof.

When it is desired to use the proof-press for printing on sheets fed by hand to the press, the roll of paper is dispensed with and in this case the inking-rollers are lowered during the forward motion of the carriage so as to ink the form on the bed-plate, the impression-roller being at the same time raised above the form by changing the position of the cleats l so as to incline them in opposite direction to that shown in Figs. 5 and 6. Before the return motion of the carriage, the inking-rollers are moved on the inclined lugs by the shifting of the rails L, so as to be lifted above the form, while the impression-roller is placed in its lowered position so as to print the paper. This arrangement is shown in Fig. 7 and it is used when the automatic feed of paper is not desired, as in presses in which the sheets of paper are fed in the ordinary manner by hand, which is better adapted for the needs of ordinary job-printing offices, while on the other hand the automatic feed is better adapted for the use of newspaper printing offices, as it saves the time and labor necessary for putting in the sheets, which is an objection in newspaper offices.

In the drawings the motion is transmitted to the impression-roller by gear-wheels, which are firmly attached to the same.

For some presses a web moistening attachment may not be necessary, in which case a thin plate *p* of sheet-metal is hung by wire-hooks *p'* on the shaft of the paper-carrying roll and the paper fed along the under side of the sheet, as shown in Fig. 6, this plate dispensing with the tension-device shown in Fig. 5, which works in connection with the web-moistening attachment.

Operation: During the forward motion of the carriage, the paper is fed by the pressure of the impression-cylinder over the form which is inked by the inking-rollers, that are in contact with the form during the forward motion of the carriage. When the carriage arrives at the end of its forward motion and the proof is printed, the attendant takes hold of the paper and pulls off the sheet at the point where the cutting-blade holds the paper on the solid end of the bed-plate. Simultaneously with the cutting off of the proof, the anti-friction rollers of the paper guide-rollers are on the sliding-rails at the end of the bed-plate, so that the guide-rollers are shifted toward the impression-cylinder, whereby during the commencement of the return-motion of the carriage the projecting end of the paper is drawn backward into the throat until its creased end arrives in the position shown in Fig. 4. As soon as the anti-friction rollers of the guide-roller supporting-frame have cleared the sliding-rails at the end of the bed-plate, the guide-rollers are dropped back into their former position, so that the paper is not drawn back any more but is ready for the next feeding action. The shifting action of the sliding-cams *L* and the raising and lowering of the inking rollers take place when the carriage arrives at the end of its motion and when the sliding-cams form contact with the fixed stops at the opposite ends of the bed-plate, as before stated.

As compared to the press described in my prior patent, No. 512,780, before referred to, the present construction has the advantage of forming an automatic feed when taking proof, whereby the hand-work of feeding sheets is dispensed with, which requires however the arrangement of a cutting blade and return-feed attachment, which can be dispensed with when the press is used as a hand-feed press.

The sliding-cams and inclined lugs by which the impression-roller and inking-rollers are raised, are superior to the mechanism shown in my prior patent and have given better satisfaction, as the lifting motion by the sliding-cams and lugs is more reliable and positive than the toggle-joint mechanism employed in my prior patent.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a printer's proof-press, the combination of a bed-plate, a reciprocating carriage on the same, an impression-cylinder on the carriage, an oscillating-frame, a paper-feeding mechanism provided with guide-rollers

mounted in said frame in juxtaposition to the impression-cylinder, means for oscillating said frame, and a guide-throat arranged adjacent to the impression-cylinder below the guide-rollers, substantially as set forth.

2. In a printer's proof-press, the combination of a bed-plate, a reciprocating carriage provided with an impression-cylinder, a paper-feeding mechanism, a cutting-device and a bending-device for the paper co-operating with said cutting device, both the cutting and the bending-devices being supported on the carriage and arranged at the side of the impression-cylinder opposite the paper-feeding mechanism, substantially as set forth.

3. In a printer's proof-press, the combination of a bed-plate, a reciprocating carriage on the same, inking-rollers supported on said carriage, an impression-cylinder also supported on the carriage, a paper-feeding mechanism, a throat arranged at one side of the impression-cylinder below the feed-mechanism, and a curved guard-plate having a tapering heel and arranged at the opposite side of the impression-cylinder, substantially as set forth.

4. In a printer's proof-press, the combination of a bed-plate, a reciprocating-carriage on the same, an impression-cylinder on said carriage, a paper-feeding mechanism, the guide-rollers of said mechanism being supported on an oscillating frame, antifriction-rollers applied to arms of said frame, and means, located at the end of the bed-plate and adapted to oscillate the supporting-frame of the guide-rollers, so as to place one of the same in contact with the impression-cylinder, for drawing back the surplus-paper during the return-motion of the carriage, substantially as set forth.

5. In a printer's proof-press, the combination of a bed-plate having a solid end-portion, a reciprocating carriage guided on the bed-plate, an impression-cylinder supported in bearings of the carriage, a paper-feeding mechanism arranged at one side of the impression-cylinder, and a paper-bending and cutting device arranged at the opposite side of the impression-cylinder and provided with a downwardly-extending finger that forms contact with the solid end of the bed-plate after the carriage has passed over the form, so as to bend the paper and permit the tearing off of the proof, substantially as set forth.

6. The combination of a bed-plate, a reciprocating-carriage guided on the same, upright spring-actuating standards guided in said carriage, an impression-cylinder supported in bearings of said standards, inking-rollers on said carriage, sliding cams guided on said carriage and provided with inclined portions at the under side and inclined lugs at the upper side, adjustable eccentrics below said inclined portions, and stops at the opposite ends of the bed-plate, whereby the sliding-cams are shifted and the impression-cylinder and inking-rollers raised during the return-motion of the carriage, substantially as set forth.

7. In a printer's proof-press, the combina-

tion of a bed-plate having stops at the opposite ends, a reciprocating carriage, upright spring-actuated standards guided in said carriage, an impression-cylinder supported in bearings of said standards, inking-rollers, longitudinally-sliding cams, inclined lugs on said cams below the bearings of the inking-rollers, inclined cleats below the bearings of the impression-cylinder, and eccentrics below said cleats, said inclined lugs and standards raising or lowering both the inking-rollers and impression-cylinder when the carriage abuts against the stops of the guide-frame, substantially as set forth.

8. The combination of a bed-plate, having stops at the opposite ends, one pair of said stops being adjustable, a reciprocating carriage guided on said bed-plate, upright standards guided by said carriage, inking-rollers supported in an oscillating-frame, an impression-cylinder supported in bearings of said standards, eccentrics on the standards below the shaft of the impression-cylinder, sliding-cams provided with inclined cleats resting on said eccentrics, said sliding-cams being provided with inclined lugs below the bearings of the inking-rollers, and springs for holding the eccentrics on the standards of the impression-cylinder in contact with the under sides of the sliding-cams, substantially as set forth.

9. In a printer's proof-press, the combination of a bed-plate, a reciprocating carriage on the same, an impression cylinder supported in bearings of said carriage, a paper-feeding mechanism, the lower guide-rollers of which are supported in an oscillating frame, a curved

throat adjacent to the impression-cylinder below said guide-rollers, and means, substantially as described, for oscillating said frame whereby the surplus paper below the impression-cylinder is drawn back into the throat-piece at the commencement of the return-motion of the carriage, substantially as set forth.

10. In a printer's proof-press, the combination of a bed-plate provided with slotted guide-rails at one end, each having an upright pin, a reciprocating carriage guided on said bed-plate, inking-rollers and an impression-cylinder supported in bearings on said carriage, a paper-feeding mechanism, an oscillating frame for supporting the lower guide-rollers of said feeding-mechanism, anti-friction rollers applied to arms of said oscillating frame, and forwardly-extending spring-arms attached to the frame of the carriage and provided each with a lateral pin and a catch at its front end, so as to produce the shifting of the sliding cams by the contact with the upright pins of the same, and the return of said cams, so as to produce the contact of one of the lower guide-rollers with the impression-cylinder, for producing the drawing back of the web of paper during the return-motion of the carriage, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FERDINAND WESEL.

Witnesses:

PAUL GOEPEL,
K. R. BRENNAN.