

UNITED STATES PATENT OFFICE.

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PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 781,114, dated January 31, 1905.

Application filed April 26, 1904. Serial No. 204,930.

To all whom it may concern:

Be it known that I, FERDINAND WESEL, residing in the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates generally to printing-presses, and has particular reference to printers' proof-presses—such, for example, as are shown and described in Letters Patent of the United States No. 512,780, dated January 16, 1894, No. 537,658, dated April 16, 1895, and No. 608,813, dated August 9, 1898, all granted to me for several improvements in such presses. In these presses, which are generally referred to as "galley-presses," it is often desired to take proofs from type set up in chase as well as from type in a galley, and heretofore when proofs were taken from type set up in chase it was customary to place a sheet of brass or some other suitable material upon the bed-plate of the press to raise such type up to the level of the inking and impression rolls. Proofs taken in this way were generally unsatisfactory owing to the unevenness of the type, which when resting upon this false bottom did not present a uniformly even surface, as when resting down upon the bed-plate.

One of the objects of this invention is to provide means for effecting vertical adjustment of both the inking and impression rolls in presses of the character referred to, so that the necessity of providing a false bottom for the type which, for instance, is set up in chase in order to raise it to the level of the rolls may be obviated and also to make the adjustment of said rolls easy and convenient whenever it may be desired for any reason.

The invention also consists in effecting the simultaneous adjustment of both the inking and the impression rolls by a single setting of the hand-wheel through which such adjustment is controlled.

Other improvements will be referred to hereinafter.

In the drawings in which the invention is illustrated, Figure 1 is a view in side elevation

of a portion of a press containing said improvements. Fig. 2 is an irregular transverse section of the press, showing particularly the means for effecting the vertical adjustment of the standard carrying the impression-roll; and Fig. 3 is a detail view, partly in section and partly in elevation, showing particularly the means for effecting the vertical adjustment of the inking-rolls.

In the present embodiment of the invention illustrated in said drawings the machine to which the improvements are applied has a base or bed-plate *a*, which may be supported upon suitable standards or legs, one of which is shown at *b*. At each side of the bed-plate there is secured a double rack *c* or some other suitable device for effecting the longitudinal movement of a reciprocating carriage *d*, upon which are mounted the inking and impression rolls and other mechanism to be referred to presently, means, such as a pinion *e*, journaled in the carriage *d*, being provided to engage the rack in order to impart the said movement to the carriage.

The reciprocating carriage *d* preferably comprises two side plates *d'*, one on each side of the machine, secured together by rods, one of which is shown at *d''*, and each of said plates has a sliding bearing which may comprise lugs or rollers or the like to run on a track *d'''* upon the base *a*, being formed in the present case in the rack-piece *c*, said sliding bearing in the present case being supplied by a long cleat *d''''*, secured to the carriage by rivets, one of which is shown at *d'''''*.

At one end of the reciprocating carriage and at each side thereof are standards *e*, carried by the carriage, and upon these standards is the ink-font *e'*, the usual ink-distributing rolls *e''*, and the ink-rolls *e'''*, which in the present case are two in number, although it will be clear that one ink-roll or more than one may be used, as may be desired. These ink-rolls are carried, respectively, by the lower ends of arms *e''''*, pivoted at either side of the machine at *e'''''*, the upper ends of each pair of brackets being connected by a spring *e''''''*. The brackets on each side are each provided with an adjusting-screw *e'''''''*, the lower end of which

rests upon a block e^8 , carried upon the upper end of a pin e^9 , adapted to have vertical motion in a bearing e^{10} . The lower end of the pin rests upon a cam E, preferably a circular cam, pivoted upon the carriage d , said pin being always held down against the cam by a spring e^{11} . Near the other end of the reciprocating carriage are standards f , preferably one at each side of the machine, for holding the roll of paper f' , which is fed into the machine by suitable mechanism, such as is described in my former Letters Patent above referred to and which it is obviously unnecessary to describe herein. Also preferably near the same end of the carriage are vertically-movable standards h , one upon each side of the machine, and upon which is mounted the impression-roll h' , and upon one of these standards is also mounted suitable indicating and setting mechanism to be explained presently.

Each end of the impression-roll h' rests in a journal-box h^2 , each journal-box being held loosely in the corresponding standard h , so as to be vertically movable by a spring h^3 , the tension of which may be adjusted by a screw h^4 . Pivoted upon the lower ends of the standards, one upon each side, are cams H, preferably circular cams, each of said cams being secured, respectively, to the cam E on the same side of the machine by links h^5 .

Upon each side of the machine is a roller i , which is pivoted to the carriage d , between which and the corresponding cam H is a slide k , which has a free horizontal motion upon the carrier for a purpose to be explained farther on, the roller, as will be clear, being a portion of the reciprocating carriage d and projecting through an opening h^6 in the standard h , whereby it will be seen that each slide i moves between its corresponding cam H and the carriage d . Bearing against the lower end of each standard h are spring-pressed pins or rods h^7 , vertically movable upon the carrier, whereby the standards h are always held up so that the cams H will always bear against their respective slides k . These slides k , which, as above stated, have a free horizontal movement, have been described in Letters Patent of the United States No. 537,658, dated April 16, 1895, and in Letters Patent No. 608,813, dated August 9, 1898, above referred to. At one end the slides k rest between the respective rollers i and cams H, while at the other ends they slide upon hubs k' upon the cams E. These slides are provided with projections or cams k^2 to effect the raising and lowering of the ink-rolls and also with means to effect the raising and lowering of the impression-roll, whereby upon the movement of the carriage in one direction the ink-rolls will be brought in contact with the type, while the impression-roll is held up above the plane of the type, and whereby upon the movement of the carriage in the other direction the inking-rolls will be held up while the impression-roll effects the printing of the

proof, said inking and impression rolls thus working alternately.

In the present case the means for effecting the raising and lowering of the impression-roll as the carriage reciprocates comprise the cams H, which are moved in and out of recesses k^3 upon each slide k , thus raising and lowering the standards k and accordingly the impression-roll, as well.

In Fig. 1 of the drawings the carriage is shown resting at the limit of its movement toward the right. In said movement toward the right the ends of the ink-roller arms e^4 rest upon the tops of the projections or cams k^2 on the slides k ; but just before the carriage reaches the limit of its movement toward the right the movement of the slides k is checked, whereby as the carriage continues its movement the arms e^4 , carrying the ink-rolls, are moved from off the cams or projections k^2 and the ink-rolls drop to the level of the type. To check the movement of the slides k , a stop k^5 is provided, against which their ends strike, or, as shown in the drawings, a projection k^4 (indicated in dotted lines) may be provided upon each of the ends, which projection strikes the stop k^5 just before the carriage has reached the limit of its movement toward the right. At the same time the recesses k^3 , which during the movement of the carriage toward the right are slightly in advance of the respective cams H, are moved back upon their respective cams, so as to permit the raising of the impression-roll, which during the movement referred to rests down upon the type. In the movement of the carriage to the left the ink-rolls are thus made to ink the type and the impression-roll is held above the type. Just before the carriage reaches the limit of its movement toward the left a stop similar to stop k^5 may be provided to hold the slide k from further movement while the carriage advances slightly to bring the cams k^2 under the inking-roller arms e^4 in order to raise the same and to throw the cams H out of the recesses k^3 to drop the impression-roll upon the type, in which position the parts remain during the movement of the carriage to the right, as above described.

In order to set the mechanism for the particular adjustment of the inking and impression rolls desired, one of the cams H may be provided with a projection l , to which a link l' is pivotally connected, the other end of the link being pivotally connected to a sector l^2 , mounted to turn upon one of the standards h . The setting is effected by means of a hand-wheel l^3 upon a shaft l^4 , also mounted upon the same standard and having a worm-gear l^5 meshing with the sector l^2 . In order to determine the degree of adjustment, the indicating mechanism above referred to is provided and may comprise a scale m , across which an arrow m' upon the sector may move, thus indicating the adjusted position of the rolls with respect to the bed-plate and the type thereon. The

links l^7 and l^8 may be divided and provided with connecting-nuts n , whereby their lengths may be varied as circumstances require.

When the hand-wheel l^4 is turned to adjust the rolls with respect to the bed-plate, it will be clear that the cams H and E will move simultaneously, thereby raising or lowering, as the case may be, the inking and impression rolls at the same time. In the position shown in Fig. 1 the rolls are in their highest position, the narrow portions of cam H being against their corresponding slides k and the broader portions of cams E being against their corresponding pins e^9 . As the cams are rotated in this position by the turning of the hand-wheel l^3 the broader portions of the cams H are rotated against their respective slides k and cause a corresponding depression of the standards h , and therefore of the impression-roll, while the narrower portions of cams E are rotated against their respective pins e^9 and cause a corresponding lowering of the inking-rolls.

I do not limit my invention to its embodiment in the particular construction shown in the drawings and hereinbefore described; but

What I do claim as my invention is—

1. In a printing-press, the combination of a bed-plate, an inking-roll, an impression-roll, and means for simultaneously effecting the adjustment of each of said rolls with respect to the bed-plate.

2. In a printing-press, the combination of a bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon said carriage, and means for simultaneously effecting the adjustment of each of said rolls with respect to the bed-plate.

3. In a printing-press, the combination of a bed-plate, a longitudinally-reciprocating carriage, means to effect the reciprocation of the carriage, an inking-roll, an impression-roll, and means for simultaneously effecting the adjustment of each of said rolls with respect to the bed-plate.

4. In a printing-press, the combination of a bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon said carriage, a rack secured to the bed-plate, a pinion upon the carriage meshing with the rack, and means for simultaneously effecting the adjustment of each of said rolls with respect to the bed-plates.

5. In a printing-press, the combination of a bed-plate, a reciprocating carriage thereon, means to effect the reciprocation of said carriage, an inking-roll and an impression-roll upon the carriage, means to raise and lower the rolls alternately and means for simultaneously effecting the adjustment of each of said rolls with respect to the bed-plate.

6. In a printing-press, the combination of an inking-roll, an impression-roll, movable standards in which the impression-roll has a bearing, a cam adapted to effect the adjust-

ment of the standard, and means operatively connected with the inking-roll and the cam whereby the adjustment of the inking-roll is effected at the same time.

7. In a printing-press, the combination of an inking-roll, an impression-roll, a standard in which the impression-roll has a bearing, a cam adapted to effect vertical adjustment of the standard, a second cam adapted to effect vertical adjustment of the inking-roll, said cams being operatively connected with each other, whereby the adjustment of both rolls is simultaneously effected.

8. In a printing-press, the combination of an inking-roll, an impression-roll, a vertically-movable standard in which one of the rolls has a bearing, a cam adapted to effect vertical adjustment of the standard, a second cam adapted to effect the vertical adjustment of the other roll, and a link connecting said cams whereby the adjustment of said standard and said other roll are effected at the same time.

9. In a printing-press, the combination of an inking-roll, an impression-roll, a vertically-movable standard in which the impression-roll has a bearing, two cams for adjusting respectively the standard and the inking-roll, and means connecting said cams whereby the adjustment of the said standard and said inking-roll are effected at the same time.

10. In a printing-press, the combination of an inking-roll, an impression-roll, a vertically-movable standard in which the impression-roll has a bearing, a reciprocating carriage upon which said standard and inking-roll are mounted, a cam pivoted upon the standard and adapted to effect vertical adjustment of the standard, a second cam pivoted upon the carriage adapted to effect vertical adjustment of the inking-roll, and means connecting said cams whereby the adjustment of the said standard and said inking-roll are effected at the same time.

11. In a printing-press, the combination of an inking-roll, an impression-roll, a vertically-movable standard in which the impression-roll has a bearing, a cam adapted to effect vertical adjustment of the standard, a second cam adapted to effect vertical adjustment of the inking-roll, a link connecting said cams whereby the adjustment of said standard and said inking-roll are effected at the same time, and means to set the cams to effect the desired adjustment.

12. In a printing-press, the combination of an inking-roll, an impression-roll, a vertically-movable standard in which the impression-roll has a bearing, a cam adapted to effect vertical adjustment of the standard, a second cam adapted to effect vertical adjustment of the inking-roll, a link connecting said cams whereby the adjustment of said standard and said inking-roll are effected at the same time, means to set the cams to effect the desired adjustment, and indicating means to determine the adjustment.

13. In a printing-press, the combination of a

bed-plate, a reciprocating carriage thereon, an inking-roll, an impression-roll, a vertically-movable standard in which the impression-roll has a bearing, a cam upon the standard, 5 a roller upon the carriage, a slide between the roller and cam, and means operated by the slide to effect the raising and lowering of the rolls.

14. In a printing-press, the combination of a 10 bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon the carriage, a vertically-movable standard in which the impression-roll has a bearing, a cam upon the standard, a slide between the 15 cam and the carriage, and means operated by the slide to effect the raising and lowering of the rolls.

15. In a printing-press, the combination of a 20 bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon the carriage, a vertically-movable standard in which the impression-roll has a bearing, a cam upon the standard, a slide between the cam and the carriage, means operated by the 25 slide to effect the raising and lowering of the rolls, and means operatively connected with the cam to effect the vertical adjustment of the inking-roll.

16. In a printing-press, the combination of a 30 bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon the carriage, a vertically-movable standard in which the impression-roll has a bearing also upon the carriage, a roller upon the carriage, 35 a slide between the roller and the cam, means operated by the slide to effect the raising and lowering of the rolls, and means operatively connected with the cam to effect vertical adjustment of the inking-roll.

40 17. In a printing-press, the combination of a bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon the

carriage, a vertically-movable standard in which the impression-roll has a bearing also upon the carriage, a roller upon the carriage, 45 a slide between the roller and the cam, and a cam on the carriage operatively connected to the first-named cam to effect vertical adjustment of the inking-roll.

18. In a printing-press, the combination of a 50 bed-plate, a reciprocating carriage thereon, means to effect the reciprocation of the carriage, an inking-roll and an impression-roll upon the carriage, a vertically-movable standard in which the impression-roll has a bearing also upon the carriage, a cam upon the 55 standard, a slide between the carriage and the cam, means operated by the slide to effect the raising and lowering of the rolls alternately, means operatively connected with the cam to 60 effect vertical adjustment of the inking-roll, and indicating mechanism connected with the cam to determine the adjustment of the rolls.

19. In a printing-press, the combination of a 65 bed-plate, a reciprocating carriage thereon, an inking-roll and an impression-roll upon the carriage, a vertically-movable standard in which the impression-roll has a bearing also upon the carriage, a cam upon the stand- 70 ard, a slide between the carriage and the cam, said slide having a recess therein and a projection thereupon coöperating respectively with the cam and the inking-roll to effect the alternate raising and lowering of the impres- 75 sion-roll and the inking-roll, and means operatively connected with the cam to effect vertical adjustment of the inking-roll.

This specification signed and witnessed this 5th day of April, A. D. 1904.

FERDINAND WESEL.

In presence of—

ALFRED W. KIDDLE,
ANTHONY N. JESBERA.