

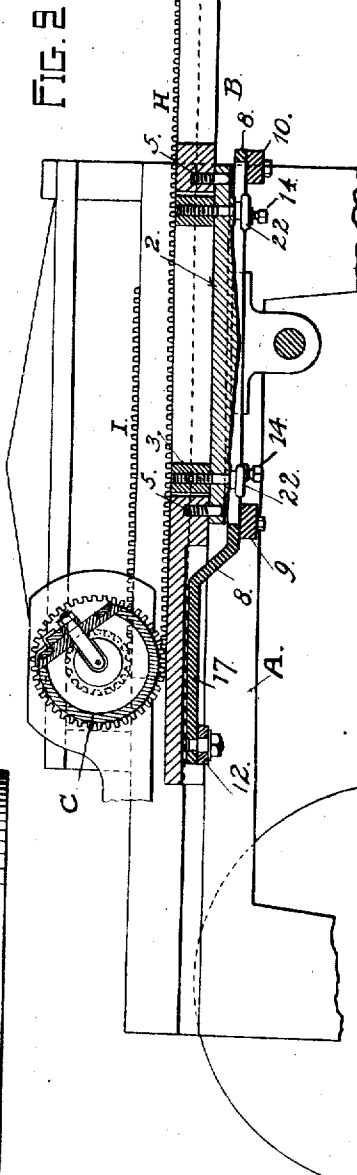
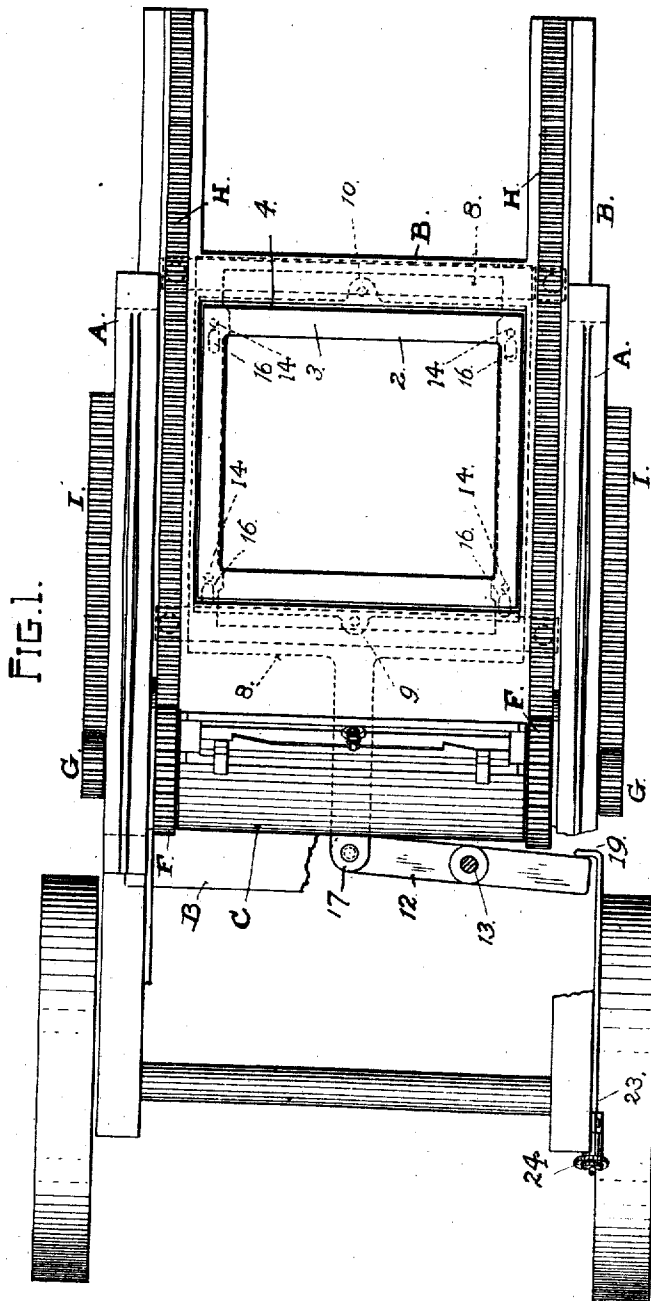
No. 843,535.

PATENTED FEB. 5, 1907.

J. W. HOAG.
PRINTING PRESS.

APPLICATION FILED JUNE 22, 1905.

2 SHEETS--SHEET 1.



WITNESSES
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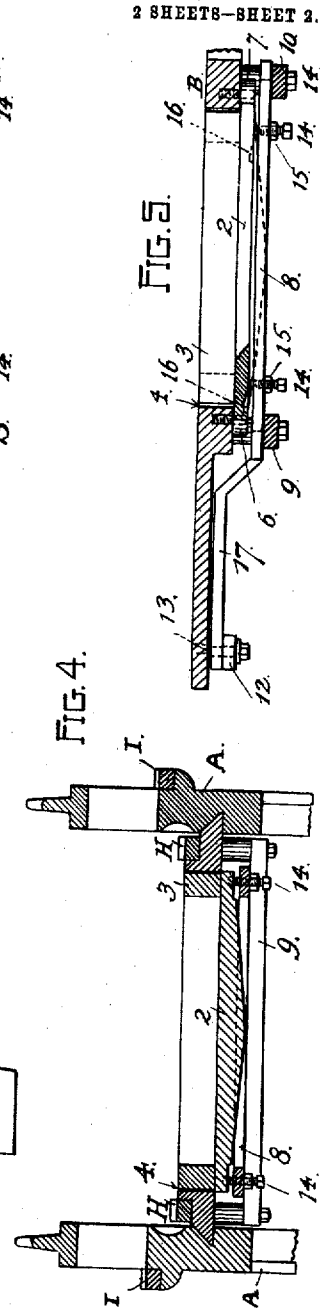
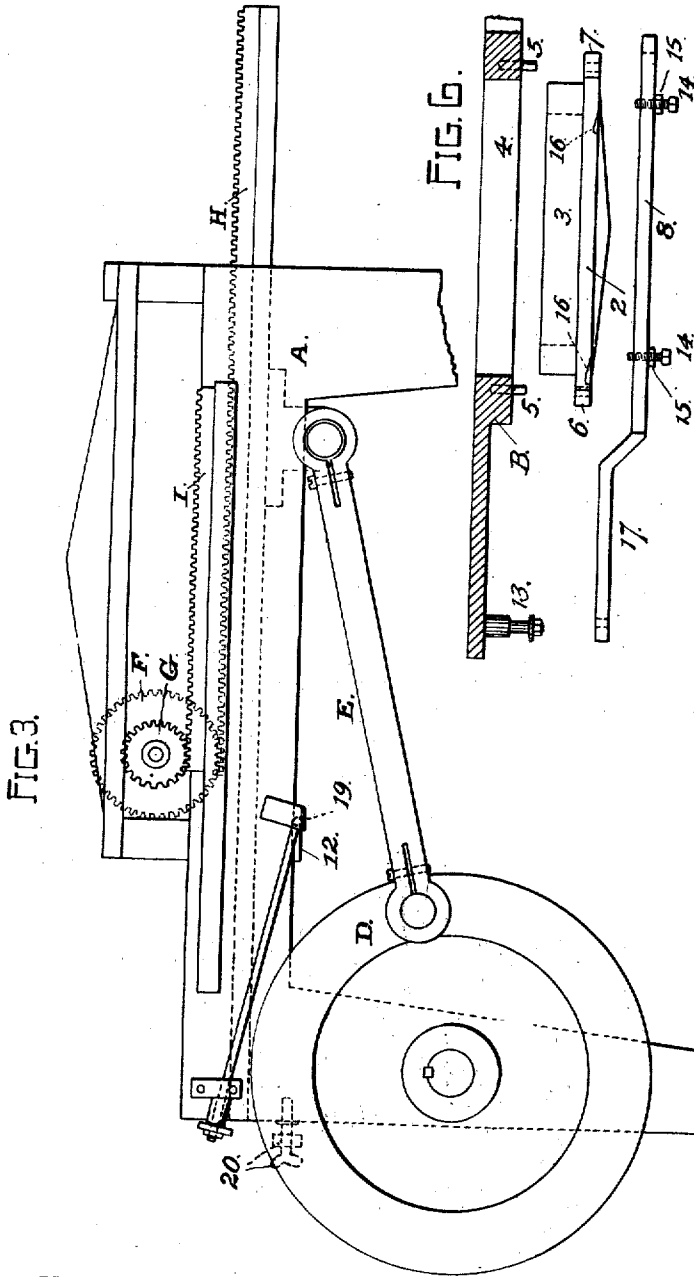


FIG. 5.

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UNITED STATES PATENT OFFICE.

JAMES W. HOAG, OF OAKLAND, CALIFORNIA, ASSIGNOR TO THE HOAG RAPID PRESS CO., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION.

PRINTING-PRESS.

No. 843,535.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Original application filed April 8, 1903, Serial No. 151,691. Divided and this application filed June 22, 1905. Serial No. 266,387.

To all whom it may concern:

Be it known that I, JAMES W. HOAG, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention, relating to printing-presses of the reciprocating type-bed and rotary-impression-cylinder type, has for its object chiefly to so control or operate the type bed or carrier during its reciprocations that the type will be brought against and caused to make proper printing contact with the paper when the type-bed is traveling in one direction; but on the return movement following each impression the type will clear the cylinder as the bed returns to position for the next impression. By this means the type is prevented from making contact with and soiling the blanket or impression-surface of the cylinder after the printed sheet has been delivered and before a new sheet has been seized by the grippers.

To such end and object my said improvement consists, essentially, in the combination with the reciprocating type bed or carrier, of means actuated by or from the carrier itself or by some other moving part of the press to cause the bed or carrier when traveling in one direction to move into the printing-line, whereby the type is brought in contact with the paper, and when traveling in the reverse direction to move out of such printing line, and thereby bring the type out of contact with the cylinder-surface, all as hereinafter more fully described, and pointed out in the claims at the end of this specification.

The following description explains at length the nature of the said invention and the manner in which I proceed to produce, apply, and carry out the same, the accompanying drawings that form part of this specification representing what I consider the best manner of applying and carrying out my invention to attain the desired object.

Figure 1 is a top view of the press, showing parts of the frame and bed broken away. Fig. 2 is a longitudinal section through the center of Fig. 1. Fig. 3 is a side elevation. Fig. 4 is a transverse section through the frame of the press and the traveling bed and type-carrier. Fig. 5 is a longitudinal section through the bed and the supporting-rails of

the slidable frame, showing the type-carrier in side view. Fig. 6 shows details in side elevation of the type-carrier and the slidable frame and the type-bed in longitudinal section.

The present improvements were originally described with other parts and mechanism forming a complete printing-press of the reciprocating-bed and traveling-cylinder type in an application made by me in the Patent Office under the filing date of April 8, 1903, Serial No. 151,691, and the same being separated and divided from the subject-matter covered by my original application are incorporated in and covered by the present application as a division of the said original application.

The drawings represent only such parts and mechanism of a printing-press of the type mentioned as are considered necessary to a clear understanding of the application and operation of my invention.

A indicates the stationary frame, B the traveling type bed or carrier, and C the impression-cylinder.

The bed B receives its movement directly from a crank D and pitman E. The cylinder is also operated from the same shaft, but in such manner through the medium of spur-gears F G on the cylinder and racks H I, fixed on the bed and the frame, respectively, that the cylinder is caused to travel with a rolling motion over the form of type and in a reverse direction to as well as in time with the reciprocations of the bed. Gears of two different diameters are employed, and one rack is fixed on the frame and the other is carried by the bed. This mode of driving the cylinder from the bed forms no part of this invention, however, and the same is shown and described in connection with the present improvement merely for the purpose of illustrating the type or construction of printing-machine to which my invention is applicable. It will be found adapted as well to other printing-machines of the traveling-bed and rotary-cylinder type in which the cylinder and bed are operated by other means, and it is not necessarily confined and restricted by this description to the particular kind of machine herein shown.

The traveling bed is provided with an opening in which a form-carrying frame 2 is confined against longitudinal and lateral

movement, but is capable of being moved vertically in and independently of the bed. The extent of this movement is sufficient to bring the type up to the printing-line, so that it will make proper contact with the impression-surface as often as the cylinder passes over the form in the forward travel, but to lower the form, and thereby throw the type, out of the printing-line in the return movement of the cylinder after the printed sheet has been delivered and the cylinder is moving in the reverse direction to take a new sheet from the feed-table.

In these periods of forward movement and return throw of the bed the type-carrier is alternately elevated and depressed in time with the revolutions of the cylinder by the following means, the construction and operation of which will be understood more clearly by referring to Figs. 4, 5, and 6: The part 2, which I have termed the "form-carrier," is a plate supporting a rectangular frame 3 within an opening 4 in the bed, in which the frame 3 is movable vertically. Guide-pins 5, fixed in the bottom of the bed, set loosely in holes in ears 6 7 at the front and rear ends of the frame 3, serve as guides to confine the plate in place and at the same time allow it to rise and drop in the opening. A slide-frame 8, supported by two cross-bars 9 10 underneath the plate 2, is fitted for longitudinal movement in a plane parallel with the face of the type and has screw-threaded holes for four screws 14, the ends of which bear against the bottom of the plate 2 at points behind and in line with recesses or depressions 16 in the plate, so that while supporting the plate in horizontal position on the bed the screws act to change that position with reference to the printing-line and raise or lower the plate according as the screws bear on the bottom of the plate or set into the depressions. These changes in the level of the type-carrier are effected by moving the slide-frame longitudinally beneath the plate 2 at those periods in the movements of the bed and cylinder when the form of type is required to make contact with the impression-surface of the cylinder or is required to clear the cylinder in the travel of the bed, and they are produced from the throw or travel of the bed in a simple and direct manner by a lever 12, loosely pivoted to the under side of the bed at 13 and to one end of which the slide-frame is connected by an arm 17. The opposite end of the lever projecting at one side of the bed in line with two stops 19 20 on the frame is thrown in one direction by engaging one stop and in the opposite direction as often as it engages the other stop, with the result to move the slide-frame under the type-carrier frame backward and set the screws 14 in the depressions 16 when the end of the lever 12 strikes the stop 19, but to shift the slide-frame in the opposite direction and set

the screws out of the depressions when the lever 12 is brought against the stop 20. The stops 19 20 are so arranged on opposite sides of the lever that they act upon it at or near the end of each reciprocation or throw of the bed. They are made adjustable also with respect to the length of throw or travel of the bed, whereby the time of contact between the end of the lever and the stop can be caused to take place earlier or later in the movement of the bed.

The type-carrying frame is provided with leveling-screws 22, working from beneath the carrier, for conveniently regulating the impression of the type on the paper.

The recesses or depressions in the bottom of the type-carrier are each inclined on the side nearest the screw, as seen in Figs. 5 and 6, to allow the point of the screw to slide smoothly in and out of the depression. By arresting the slide-frame at any point in its forward throw before the screws are set entirely out of the depressions and their points rest on the inclined faces it will be obvious that the extent of vertical movement of the form of type can be varied, and its position with respect to the printing-line will be affected accordingly. The extent of the raising and lowering movement can thus be regulated by so adjusting the stops 19 20 that they will produce a longer or shorter extent of throw of the lever 12.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a printing-press, a rotary impression-cylinder, a traveling type-bed, a type-carrier thereon movable vertically into and out of operative relation with the impression-surface of the cylinder, and means for producing such movements in time with the cylinder comprising a slidable frame beneath the type-carrier having standing projections on which the type-carrier is mounted, the bottom of the type-carrier being provided with inclines located in line with the projections, and means for operating the slide-frame from the movement of the type-bed.

2. In a printing-press, a cylinder, a traveling type-bed, a type-carrier thereon movable vertically relative to the type-bed, and means for alternately raising and lowering the type-carrier from the movement of the type-bed.

3. In a printing-press, a cylinder, a traveling type-carrier, movable vertically into and out of the printing-line with reference to the cylinder, and means to cause said carrier to move into operative relation when traveling in one direction, and out of operative position when traveling in the opposite direction.

4. In a printing-press, the combination of a cylinder, a reciprocative type-carrier means to cause the said carrier to move into the printing-line when traveling in one direction and out of such line when traveling in

the reverse direction, and means for reciprocating said carrier.

5. In a printing-press the combination of a cylinder, a reciprocative bed, a type-carrier to be operated thereby, means to cause said carrier to move into and out of printing-line when traveling in opposite directions and means to reciprocate said frame and carrier.

6. The combination of a cylinder, a reciprocative bed, a type-carrier movably connected with said bed to have vertical movement relatively thereto, means to raise and lower said type-carrier and means to operate the bed.

7. The combination of a cylinder, a reciprocative type-bed, a type-carrier movably connected with said type-bed, means for guiding said carrier, means for moving said carrier into and out of the printing-line and means to reciprocate said bed and carrier.

8. In a printing-press, the combination of a cylinder, a reciprocative type-carrier, means to cause said carrier to move toward the cylinder when traveling in one direction and away from the cylinder when traveling in the reverse direction, and means for operating said carrier.

9. In a printing-press, the combination of a cylinder, a reciprocative type-carrier, and means for moving said carrier into and out of the printing-line, comprising a slidable frame beneath the carrier, standing projections on said frame, supporting the carrier, depressions in the carrier having inclined faces, a lever for moving the said frame, and adjustable stops on the frame of the press for operating the lever.

10. In a printing-press the combination of a cylinder, a reciprocative type-carrier, and means for moving said carrier into and out of the printing-line, comprising a slidable frame beneath the carrier, standing projections on said frame supporting the carrier, depressions in the carrier having inclined faces, a lever for moving the said frame, and adjustable stops on the frame of the press for operating the lever.

11. In a printing-press, the combination of a cylinder, a reciprocative type-carrier, means for raising said carrier into and lowering it out of operative relation to the cylinder, comprising a slidable frame beneath the carrier, means for moving said frame at intervals in opposite directions in the reciprocations of the carrier and means for regulating the length of such movement of the frame.

12. In mechanism of the character described, the combination of a reciprocating bed, a platen vertically movable therein, and means for raising and lowering said platen comprising a reciprocating frame, and devices secured upon the frame of the printing-press against which said reciprocating frame alternately impinges in the movement of the bed to impart movement to said reciprocating frame, first in one direction and then in the other, substantially as described.

In testimony whereof I have hereunto set my name to this specification in the presence of two subscribing witnesses.

JAMES W. HOAG.

Witnesses:

EDWARD E. OSBORN,
M. REGNER.