

No. 818,338.

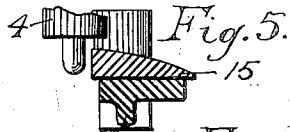
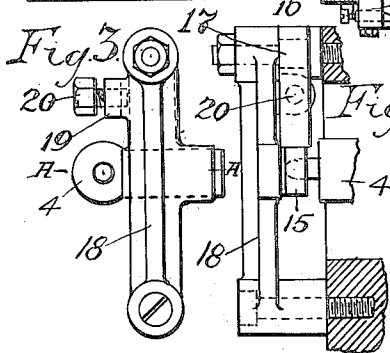
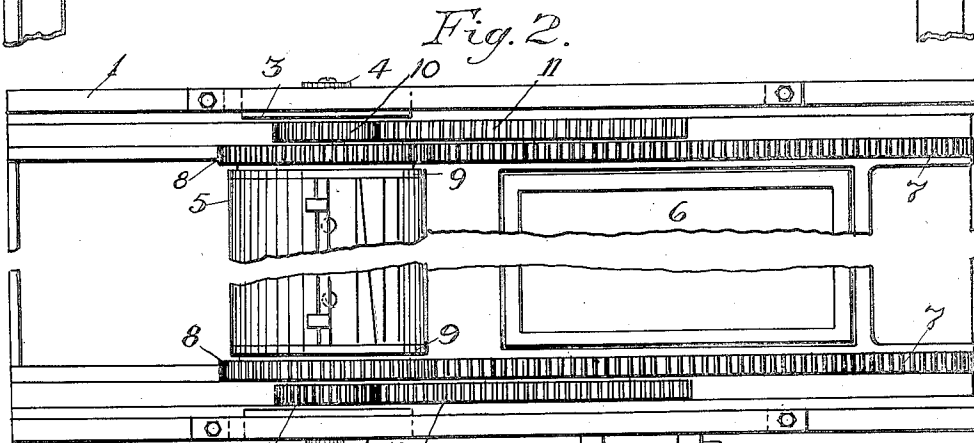
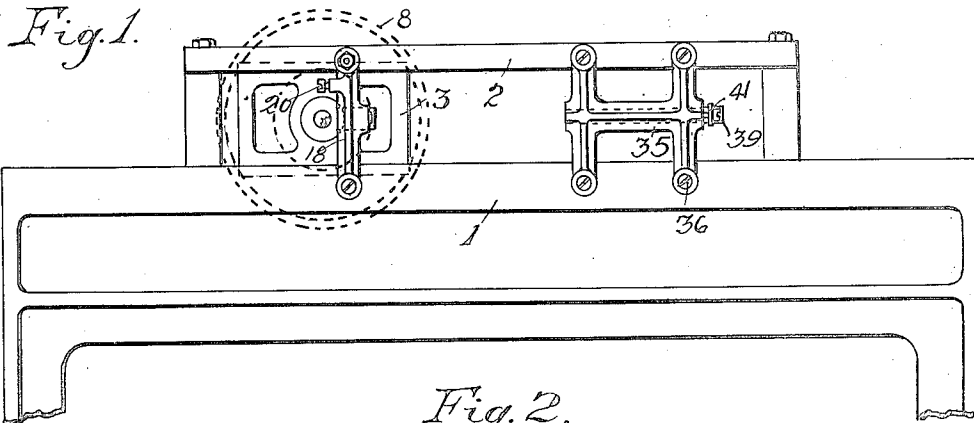
PATENTED APR. 17, 1906.

M. J. BARNETT.

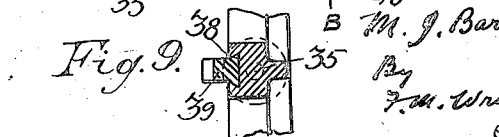
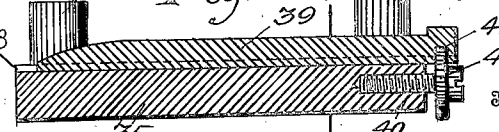
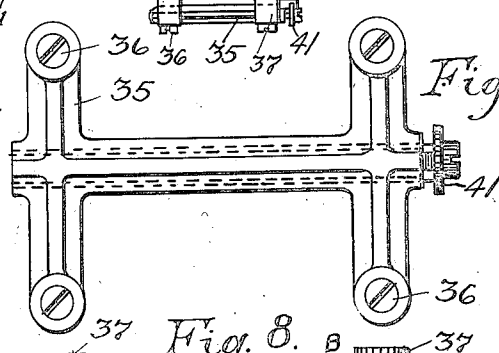
GRIPPER FOR PRINTING PRESSES AND MEANS FOR OPERATING SAME.

APPLICATION FILED MAY 26, 1904.

2 SHEETS—SHEET 1.



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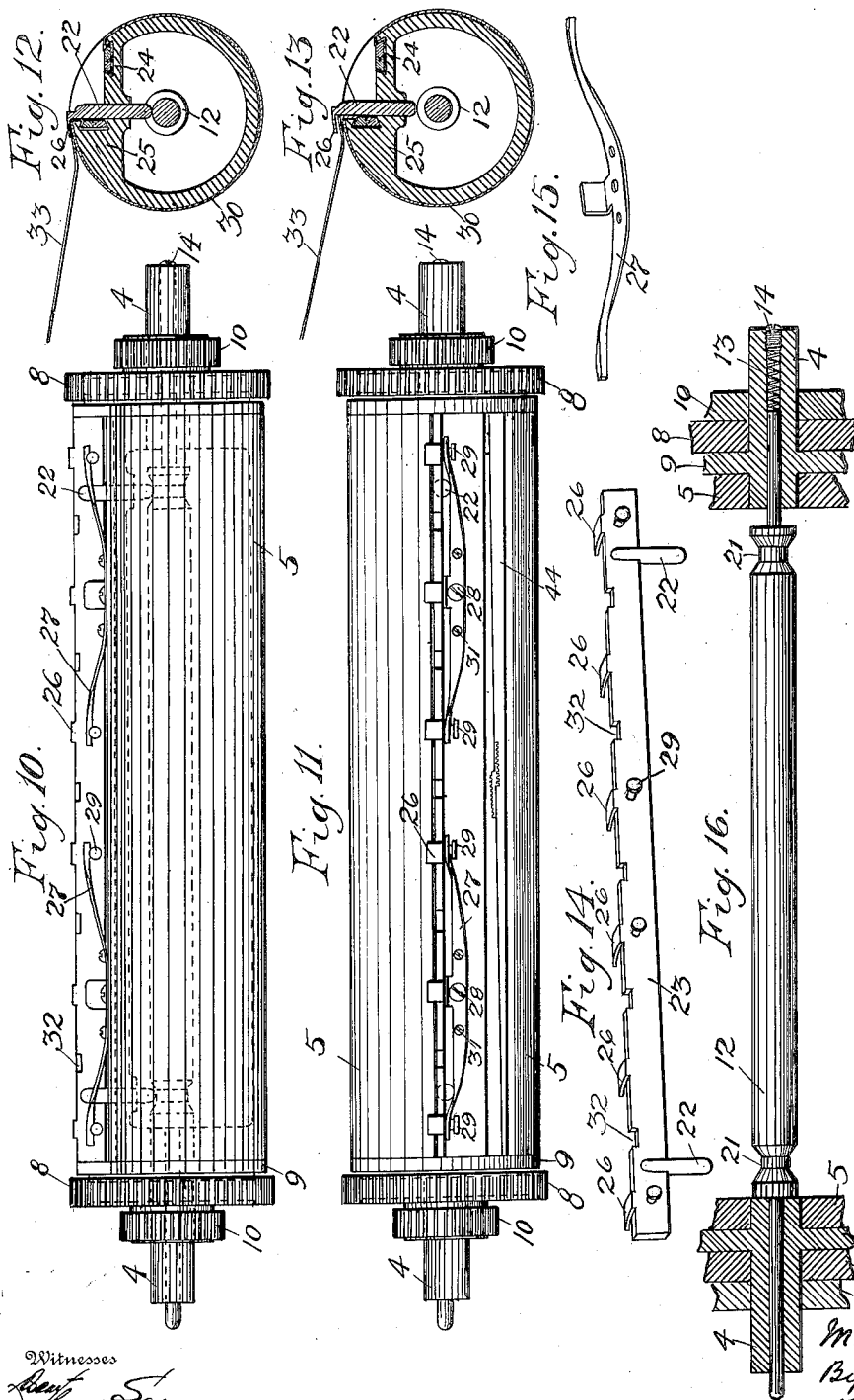
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MORRISON J. BARNETT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO WHITSON AUTOPRESS COMPANY, A CORPO-
RATION OF NEW YORK.

GRIPPER FOR PRINTING-PRESSES AND MEANS FOR OPERATING SAME.

No. 818,338.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed May 26, 1904. Serial No. 209,970.

To all whom it may concern:

Be it known that I, MORRISON J. BARNETT, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Grippers for Printing-Presses and Means for Operating the Same, of which the following is a specification.

My invention relates to improvements in gripping devices for printing-presses and means for operating the same.

The objects of my invention are to provide an apparatus of this character which shall be simple in construction, comprising comparatively few parts, accurate in operation, and readily adjusted.

A further object is to provide a gripper which will prevent the edge of the paper turning or folding, this being a common defect in prior forms of gripping devices, especially when printing on thin paper.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends, hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the upper portion of a printing-press equipped with my improved mechanism. Fig. 2 is a broken plan view of the same. Fig. 3 is an enlarged side view of the stationary device for raising the gripper to take the paper. Fig. 4 is a perspective view of the swinging cam thereof. Fig. 5 is a horizontal section on the line A A of Fig. 3. Fig. 6 is a rear view of this mechanism. Fig. 7 is an enlarged side elevation of the stationary cam for raising the gripper to release the paper to permit it to be taken by the delivery mechanism. Fig. 8 is a horizontal section of the same. Fig. 9 is a cross-section on the line B B of Fig. 8. Fig. 10 is an elevation of the cylinder. Fig. 11 is a plan view of the same. Fig. 12 is a cross-section of the same. Fig. 13 is a similar view showing the gripper raised. Fig. 14 is a perspective view of the gripper proper detached. Fig. 15 is a perspective view of one of the springs detached. Fig. 16 is a longitudinal section of the bearings for the cam-shaft, the shaft itself being shown in full.

Referring to the drawings, 1 represents the

frame of a printing-press, having mounted thereon the slideways 2, in which slide the boxes 3 for the trunnions 4 of the impression-cylinder 5. 6 represents the bed, having racks 7, which engage gear-wheels 8, secured to the heads 9 of the cylinder. On the outside of the gear-wheels 8 are rigidly secured thereto smaller gear-wheels 10, which engage stationary racks 11. A longitudinal movement imparted to the bed will thus impart to the cylinder a longitudinal movement in the opposite direction. This part of the construction, however, forms no part of the invention claimed in my present application.

Through the trunnions 4 of the impression-cylinder pass the reduced ends of a cam-shaft 12, and said reduced ends can slide longitudinally in bearings in said trunnions. A spring 13 in one of said bearings adjusted by a screw 14 normally presses said shaft outward in the other bearing, so that the other reduced end, which is rounded, projects out of its bearing. In this position as the boxes for the cylinder move in their slideways in the direction from right to left in Fig. 1 said projecting end strikes the beveled surface of a cam 15, depending from an arm 16, pivoted on a stud 17, extending outward from the upper bar of the slideway, said arm swinging within a supporting-frame 18, secured at the top to said stud 17 and at the bottom to the frame 1. Upon said supporting-frame 18 is an offset 19, in which is an adjusting-screw 20, adapted to bear against the rear face of the swinging arm, and thus adjust the point at which the cam begins to act. Now as the rounded reduced end of the cam-shaft 12 engages said cam 15 it is forced inward, moving the shaft 12 longitudinally. Said shaft has annular cam-like depressions 21 near its ends, in which normally rest the inner ends of posts 22, formed integrally upon a gripper 23, said posts sliding in holes in the wall of the cylinder. The cylinder is formed along its whole length with a sector-like depression at the part through which the posts pass, which depression has a flat side or wall 24 transverse to said posts and through which the posts pass, and also a thickened flat side or wall 25, extending substantially parallel with said posts. The gripper 23 has fingers 26, formed integrally therewith, which are bent at right angles over the curved surface of the cylinder. Two

bow-springs 27 are secured through their centers by screws 28 to the wall 24, and their ends are bent in a plane at right angles to the central portion, so that the edges of the ends bear down upon studs 29, screwed into the gripper, and thus press the gripper-fingers upon the cylinder, while at the same time the flat portions of the ends press the gripper against the wall 24 of the end cylinder—that is to say, the springs provide a double pressure, one of the gripper-fingers on the curved surface of the cylinder and the other of the gripper itself against the flat wall 24 thereof. The object of the latter construction is to prevent any paper entering between the gripper and the blanket 30, which is attached at this point to the cylinder, since the gripper is by these springs always pressed close up against said blanket. The tension of the springs is adjusted by screws 31, screwed through the springs into the wall 24 on each side of the main central screw 28. The notches 32, formed in the upper edge of the gripper-plate, are to permit the fingers of the delivery mechanism (not here shown and which form part of a separate invention) to enter and remove the sheet of paper from the cylinder when released by the gripper.

Since the gripper-fingers extend over the edge of the plate at substantially a right angle, the sheet of paper (shown at 33) when it is fed against the gripping-plate abuts against said plate at a right angle or less, and there is no chance for its edge to turn under. At the proper moment the rounded end of the cam-shaft 12 is released from the cam 15 and returns under the action of a spring, and thereupon immediately the posts 22 fall under the action of the springs 27 into the annular cam-like depressions 20 in the cam-shaft, and the fingers come down upon the surface of the cylinder and firmly grip the paper. By this construction, then, the paper is fed to the gripper-fingers in such a manner that its edge impinges against a surface at right angles or less to its direction of movement instead of impinging against a surface at an obtuse angle therewith, as in former constructions, which tended to deflect the edge of the paper inward, causing it to fold and double up, in consequence of which it would hang upon delivery, the doubled-up portion being retained by the gripper-fingers. When the cylinder returns, the rounded end of the shaft 12 strikes the rear end of the cam 15, causing the arm 16 to swing on its pivot and allowing said rounded end to pass freely thereunder.

The device for causing the gripper-fingers to release the paper comprises a frame 35, secured by screws 36 through cylindrical portions 37 to the frame of the machine and to the upper bar of the slideway. Said frame has a dovetailed seat 38 for a cam-piece 39, the position of which is accurately adjusted by means of a screw 40, having a flat circular

head 41, which works in a groove 42, cut in the head of said cam-piece 39. By screwing said head 41 in or out the cam-piece 39 may be moved longitudinally, and thus accurately adjusted to vary the point at which the gripper-fingers are caused to release the paper. The inclination of this cam-piece is in the opposite direction to that of the cam 15, and when the cylinder is moving in the direction from left to right in Fig. 1 the rounded end of the cam-shaft 12 strikes said inclined portion of the cam-piece, causing the shaft 12 to move longitudinally, thereby raising the gripper and releasing the edge of the paper. The gripper can be removed without taking out any screws when it is desired to change the blanket. This removal can be effected by merely prying up and out over the studs 29 the ends of the springs 27, when the gripper can be lifted out.

I claim—

1. In grippers for printing-presses, the combination of a cylinder, a longitudinally-movable central shaft therein having cam-shaped annular depressions, a gripper having posts resting in said depressions, said posts sliding through the wall of the cylinder, and means set in operation in the movement of the cylinder for longitudinally moving said shaft to move said posts outward from said depressions, substantially as described.

2. In grippers for printing-presses, the combination of a cylinder, a longitudinally-movable central shaft therein having cam-shaped portions, a gripper having posts formed integral therewith engaged by said portions, and means actuated in the movement of the cylinder for longitudinally moving said shaft, substantially as described.

3. In grippers for printing-presses, the combination of a cylinder, a longitudinally-movable central shaft therein, a gripper having posts integral therewith and moved radially by said shaft, and means actuated in the movement of said cylinder for so operating said shaft to move the posts radially, substantially as described.

4. In grippers for printing-presses, the combination of a cylinder, a longitudinally-movable central shaft therein, a gripper-plate having gripper-fingers formed integral therewith and moved radially by the movement of said shaft, and means actuated in the movement of the cylinder for so operating said shaft to move the gripper-fingers radially, substantially as described.

5. In grippers for printing-presses, the combination of a cylinder having a recessed portion, a gripper-plate moving against a wall of said recessed portion, and having projections, and bow-springs secured to said recessed portion and engaging projections on the gripper-plate to press the gripper-plate radially inward, substantially as described.

6. In grippers for printing-presses, the

combination of a cylinder having a recessed portion, a gripper-plate moving against a wall of said recessed portion and having gripper-fingers and projections, posts formed integral therewith and sliding through a second wall of said recessed portion, and bow-springs secured to said latter wall and engaging projections on the gripper-plate to press the same radially inward, substantially as described.

7. In grippers for printing-presses, the combination of a cylinder having a recessed portion, a gripper-plate moving against a wall of said recessed portion and having gripper-fingers and projections, posts formed integral therewith and sliding through a second wall of said recessed portion, bow-springs secured to said latter wall and engaging projections on the gripper-plate to press the same radially inward, and adjusting-screws for adjusting the tension of said bow-springs, substantially as described.

8. In grippers for printing-presses, the combination of a spring, a cylinder having a recessed portion, a gripper-plate moving radially against one wall of said recessed portion, and bow-springs having flexures both to

press the gripper-plate against said wall and also to press it normally inward or radially, substantially as described.

9. In grippers for printing-presses, the combination of a cylinder, slideways therefor, a gripper, a longitudinally-movable central shaft for operating said gripper, a cam for operating said shaft, and a frame for supporting said cam secured partly to the frame of the printing-press and partly to the slideway of the cylinder, substantially as described.

10. In grippers for printing-presses, the combination of a cylinder, slideways therefor, a gripper, a longitudinally-movable central shaft in the cylinder, operating said gripper by its longitudinal movement, a frame secured partly to the frame of the press and partly to a slideway, a cam in said frame and means for adjusting said cam, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MORRISON J. BARNETT.

Witnesses:

OSCAR THUNE-LARSEN,
BESSIE GORFINKEL.