

(No Model.)

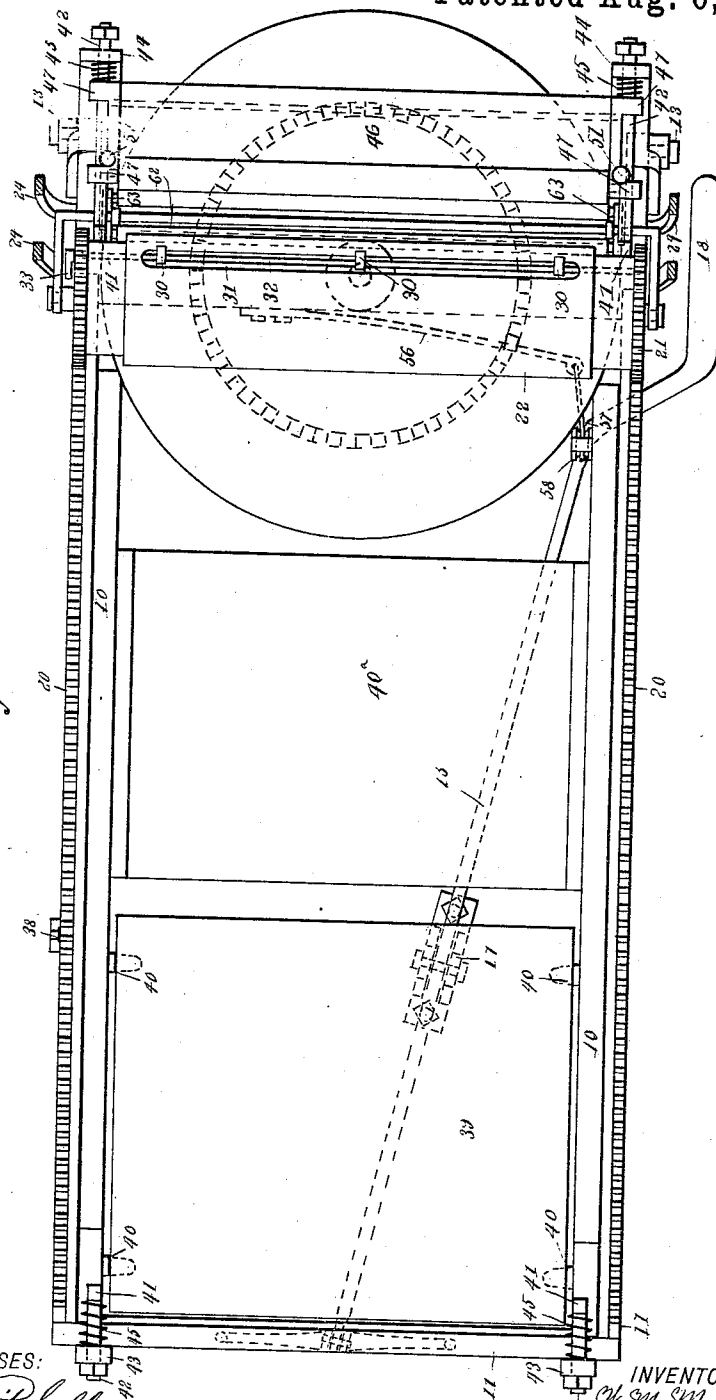
3 Sheets—Sheet 1.

W. M. MARRINER & W. N. KANT.
CYLINDER PRINTING PRESS.

No. 543,882.

Patented Aug. 6, 1895.

Fig. 1.



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W. B. Hutchinson

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W. N. Kant.

BY

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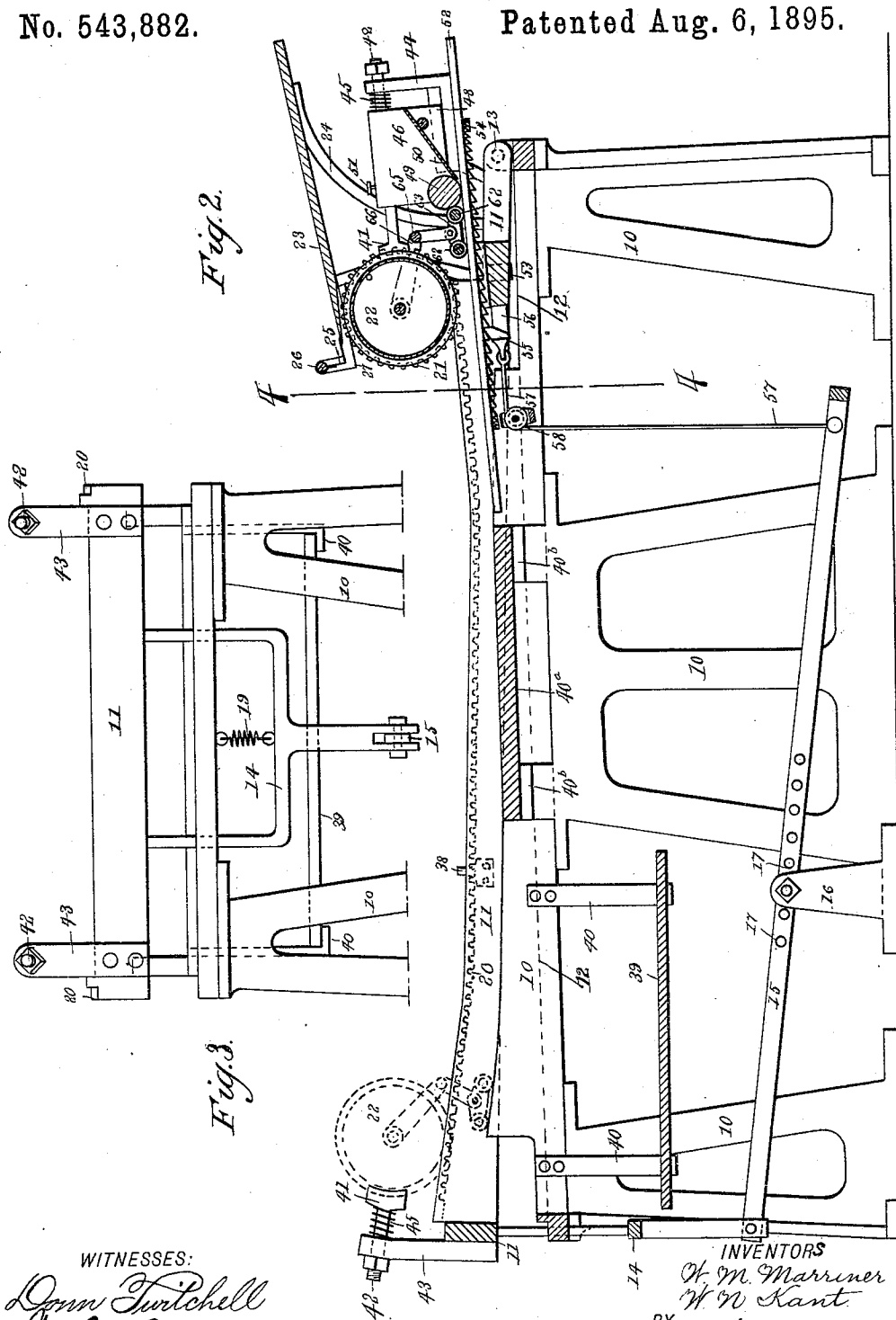
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3 Sheets—Sheet 2.

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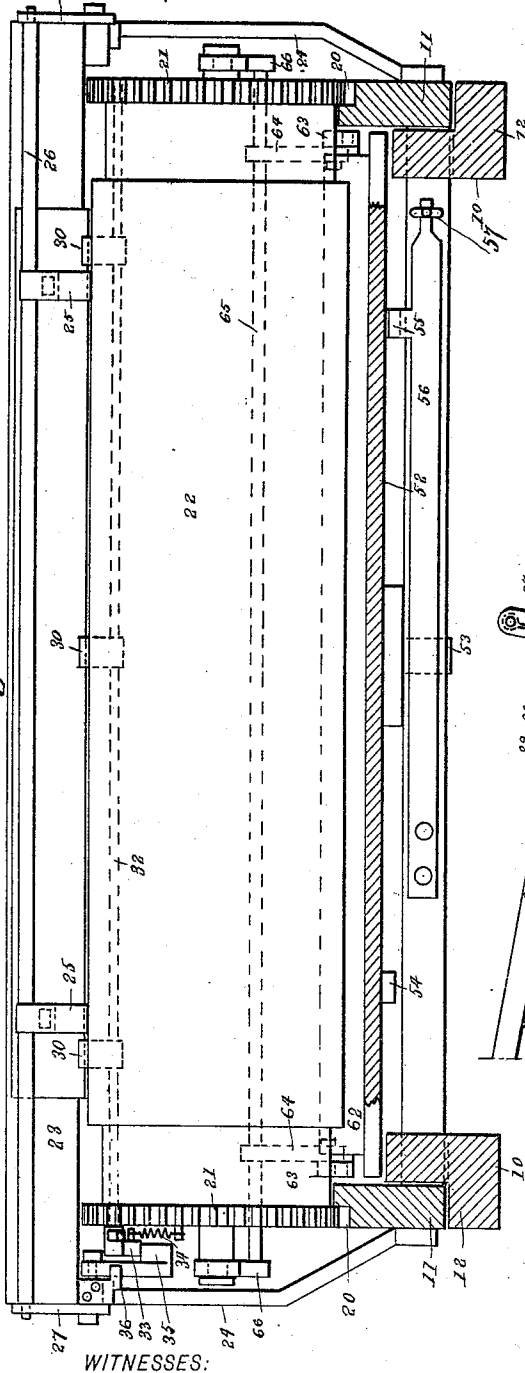
3 Sheets—Sheet 3.

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Fig. 7.



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Fig. 6.

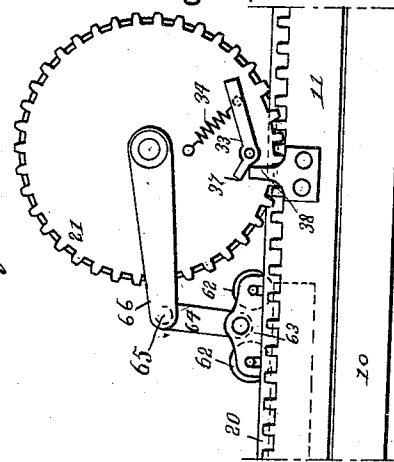
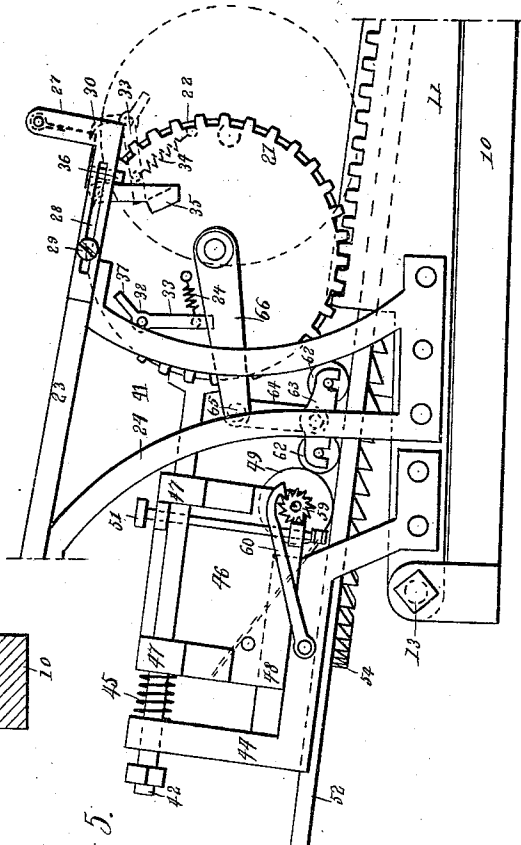


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM M. MARRINER AND WILLIAM N. KANT, OF BIRMINGHAM, ALABAMA.

CYLINDER PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 543,882, dated August 6, 1895.

Application filed August 30, 1894. Serial No. 521,697. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM M. MARRINER and WILLIAM N. KANT, of Birmingham, in the county of Jefferson and State of Alabama, have invented a new and Improved Cylinder Printing-Press, of which the following is a full, clear, and exact description.

Our invention relates to improvements in cylinder printing-presses; and the object of our invention is to produce a press of this kind which is particularly adapted to be run by foot-power, which is very simple in construction, which may be easily operated by one man, which is very cheap, and which is adapted to print newspapers or other matter very rapidly, and is therefore peculiarly adapted for use in small newspaper offices where large and more expensive presses could hardly be afforded.

To these ends our invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the press embodying our invention, the table being removed. Fig. 2 is a central longitudinal section of the press. Fig. 3 is a broken rear-end view of the press. Fig. 4 is a cross-section on the line 4 4 of Fig. 2. Fig. 5 is a broken enlarged side elevation of one end of the press, showing in detail the ink-fountain and the inking mechanism, also the feed-table and cylinder. Fig. 6 is a broken detail side elevation, showing the arrangement of the cylinder and its trailing ink-rollers and also the mechanism for tripping and opening the grippers when a paper is to be discharged.

The machine is provided with a substantial base-frame 10, which is inclined and which is also provided with a slightly-curved top, while above this is the cylinder-frame 11, which fits on shoulders 12 of the frame 10, as shown in Fig. 4, and is hinged at one end, as shown at 13 in Fig. 2, and thus when the cylinder-frame is dropped on the frame 10 an incline is formed on which the cylinder may run, as hereinafter described, while by raising the free end of the frame 11 an opposite incline is formed

which causes the return of the cylinder. The free end of the frame 11 is connected, by means of a forked rod 14, with the free end of a treadle-lever 15, which extends diagonally beneath the main frame 10, as shown in dotted lines in Fig. 1, and this lever is fulcrumed on a supporting-post 16 and has a longitudinal row of holes 17 (see Fig. 2) to receive the fulcrum-pin and permit the lever to be adjusted, while its front end is bent outward and terminates in a foot-plate 18, as shown in Fig. 1.

The frame 11 is partially balanced by a spring 19, which is secured to the frame 10 and to the forked rod 14, and the top of the frame 11 is curved slightly, as shown in Fig. 2, and is provided on opposite sides with racks 20, (see Fig. 1,) which are adapted to engage the cog-wheels 21 on the ends of the impression-cylinder 22, which is adapted to roll backward and forward on the frame 11, and the cog-wheels serve to guide it.

The paper sheets are delivered to the cylinder 21 from an inclined feed-table 23, which is arranged in substantially the usual way with reference to the cylinder, and is supported on brackets 24 which are fastened to the sides of the frame 11 near its pivoted end. The paper sheets are delivered to the cylinder, one at a time, by flexible leather or rubber guides 25, which are suspended from a cross-rod 26 hung in angular brackets 27, which are longitudinally slotted, as shown at 28, in Fig. 5, so as to receive the screws 29, by which they are fastened to the sides of the feed-table 23, and this arrangement provides for the necessary longitudinal adjustment of the guides.

The cylinder 21 is provided with grippers 30, which work in a longitudinal slot 31 in the cylinder, (see Fig. 1,) and are adapted to clamp the paper sheets to the cylinder, these grippers being carried by a shaft 32, which extends longitudinally through the cylinder and has at one end a crank 33, (see Fig. 5,) which is held by a spring 34, so as to hold the grippers closed, and when the cylinder rolls to a position to receive a new sheet, this crank-arm rides over a cam-arm 35, which is backed by a stop 36 (see Fig. 4) to prevent it from swinging out of the way, and this swings the crank and opens the grippers long enough to

permit a sheet of paper to enter between them and the cylinder, and as soon as this takes place the crank will have passed the crank-arm and the grippers will have closed upon the paper sheet.

The crank 33 is provided with an extended end 37 on the opposite side of its fulcrum from the spring 34, which is adapted to strike a lug 38 on the frame 11 when the paper has been printed, and this tilts the crank 33, as shown in Fig. 6, and causes the paper to be discharged and to drop upon the delivery-board 39, which is held on hangers 40, secured to the frame 10.

When the cylinder has received its paper and rolls down the frame 11, it passes over a bed 40^a, on which is held a form of type, so that the paper is printed, and this bed is supported on bearers 40^b, the thickness of which may be regulated so as to bring the type to the right height. The cylinder is adapted to roll backward and forward on the bed, as specified, and to facilitate the quick return of the cylinder spring-buffers 41 are arranged near opposite sides of the frame 11 and at opposite ends thereof, each buffer being in the form of a shoe shaped to fit the cylinder and having a shank 42, the shanks of the rear buffers sliding in brackets 43 and those of the front buffers in brackets 44, while the shanks of all the buffers are provided with springs 45, which are held between the buffers and their supporting-brackets, and thus when the cylinder reaches the limit of its movement it compresses the springs of the buffers which it strikes, and the reaction of the springs starts the cylinder on its return trip. The springs 45 next the brackets 44 also serve as a yielding backing for the ink-fountain 46, which is held on the shanks 42 of the front buffers 41, and has lugs 47, which are secured to the said shanks, and the fountain has also a base 48, which slides on the lower portion of the brackets 44. In the mouth of the fountain is held a roller 49, against which presses the plate or bottom 50 of the fountain, which may be adjusted by thumb-screws 51, which turn in suitable bearings on the sides of the fountain, and by turning the thumb-screws the pressure of the plate 50 on the roller 49 may be regulated and the flow of ink controlled. The roller 49 discharges its ink upon one of the rollers 62, described below, and the ink is distributed by a revoluble disk 52, which is held flatwise on the frame 11, being journaled on a suitable stud 53, and it has on its under side a ratchet-wheel 54, which engages a tooth 55 on the spring-bar 56, which is secured to the frame 11, and this bar connects, by means of a cable 57, which moves over a guide-pulley 58, with the treadle-lever 15, so that every time the lever is moved to work the press the cable is drawn, the tooth 55 moved so as to turn the ratchet-wheel and disk, and when the pressure on the treadle is removed the spring of the bar 56 returns it to normal position ready for another operation.

In this way a good distribution of ink is effected.

The roller 49 is turned by means of a ratchet-wheel 59 on its shaft and a pawl 60, which is secured to an adjacent support, and which engages the ratchet-wheel, as shown in Fig. 5. It will be seen that when the fountain is pushed back against the springs 45 the pawl will advance a tooth, and when the fountain moves in the opposite direction the pawl will turn the ratchet-wheel and the roller connected therewith.

The ink is taken from the roller 49 and carried to the form of type on the bed 40^a by the rollers 62, which run on the disk and across the type, the ends of the rollers running on the frame 10, and the rollers are journaled in foot-plates 63, which are suspended by links 64 from the cross-rods 65 on the arms 66, which are secured to the shaft of the cylinder 22.

The machine is set in operation by placing the sheets of paper to be printed on the table 23, from which they are fed to the cylinder 22, and when the cylinder 22 rolls up to the feed-table the grippers are opened and engage a sheet of paper, being operated by the crank 33 and cam-arm 35, as before described, and then the frame 11 is permitted to drop, so that the cylinder rolls down across the bed 40^a, while the inking-rollers travel over the form of type, and when the cylinder reaches the lug 38 the grippers are opened, as previously described, and the paper sheet dropped on the delivery-board 39, after which the operator steps on the treadle and lifts the free end of the frame 11, thus shifting the incline and causing the cylinder to roll back, the movement being facilitated by the buffers 41, as specified, and so the press is operated when once started by simply stepping at necessary intervals on the treadle, the inking being automatically performed, as specified, and the paper sheets being gripped, printed, and discharged, as described above.

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

1. A printing press, comprising a supporting frame carrying the bed, a swinging frame mounted on the base frame, a treadle mechanism for raising and lowering the swinging frame so as to change its inclination, and an impression cylinder held to roll on the swinging frame and across the bed, substantially as described.

2. A printing press, comprising a stationary base frame carrying the bed, a cylinder frame pivoted on the base frame so as to swing vertically, a treadle mechanism for raising and lowering the cylinder frame, an impression cylinder held to roll on the cylinder frame and across the bed of the stationary frame, and automatic inking mechanism for the press, substantially as described.

3. The combination, of the stationary bed,

the vertically swinging cylinder frame, the cylinder held to roll on the frame and across the bed, and the spring buffers at the ends of the frame, substantially as described.

5 4. In a printing press, the combination, of a stationary bed, the vertically swinging frame above the bed, a treadle mechanism for moving the frame, and an impression cylinder held to move back and forth on the frame, substantially as described.

10 5. In a printing press, the combination, of a stationary bed, a swinging frame held to move up and down above the bed, racks on the sides of the frame, an impression cylinder held to roll on the frame, and cog wheels on the ends of the cylinder to engage the racks, substantially as described.

15 6. A printing press, comprising a stationary inclined frame having a type-bed thereon, a vertically swinging frame hinged to the stationary frame, an impression cylinder held to roll back and forth on the swinging frame, trailing inking rollers connected with the shaft of the cylinder, and an automatic means for supplying ink to the rollers, substantially as described.

20 7. A printing press provided with a cylinder, a movable frame forming a runway for the cylinder to roll thereon, and means for changing the inclination of the frame to cause the cylinder to roll either forward or backward, substantially as described.

25 8. The combination, with the swinging

frame, the cylinder arranged to roll thereon, the stationary bed in the path of the cylinder, the yielding inking fountain, the disk receiving the discharge from the fountain, the rollers trailing the cylinder and adapted to run on the disk and bed, and automatic means for turning the disk, substantially as described.

35 9. The combination, with the swinging frame, the stationary bed, the cylinder adapted to roll on the frame, the ink rollers connected to the cylinder to move in unison therewith, the ink fountain, the inking disk beneath it and the ratchet wheel on the disk, of the treadle, for swinging the frame the spring bar having a tooth to engage the ratchet wheel, and an operative connection between the spring bar and treadle, substantially as described.

40 10. The combination, with the swinging frame, the stationary bed, the cylinder held to roll on the frame, the ink rollers trailing the cylinder, the ink fountain and the revolvable disk held to receive the discharge from the fountain, of a treadle mechanism for moving the swinging frame, and means for revolving the disk by the moving of the treadle, substantially as described.

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