

**No. 684,876.**

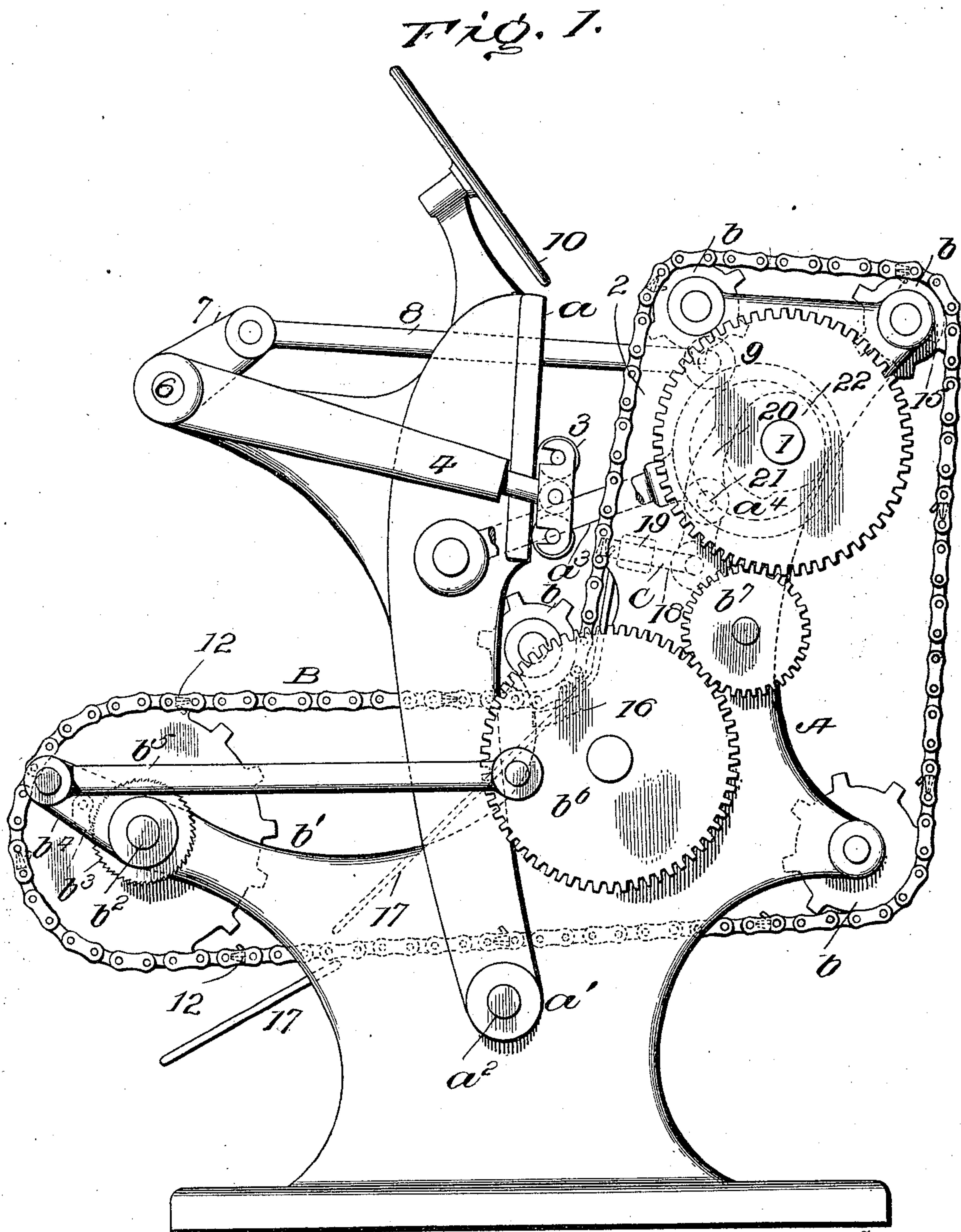
Patented Oct. 22, 1901.

**W. H. SMILEY.  
PRINTING PRESS.**

(Application filed Nov. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Inventor

Witnesses

Yours sincerely  
G. L. Wallace

William N. Smiley,  
by *Arthur M. Hill*  
Attorney.

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2 Sheets—Sheet 2.

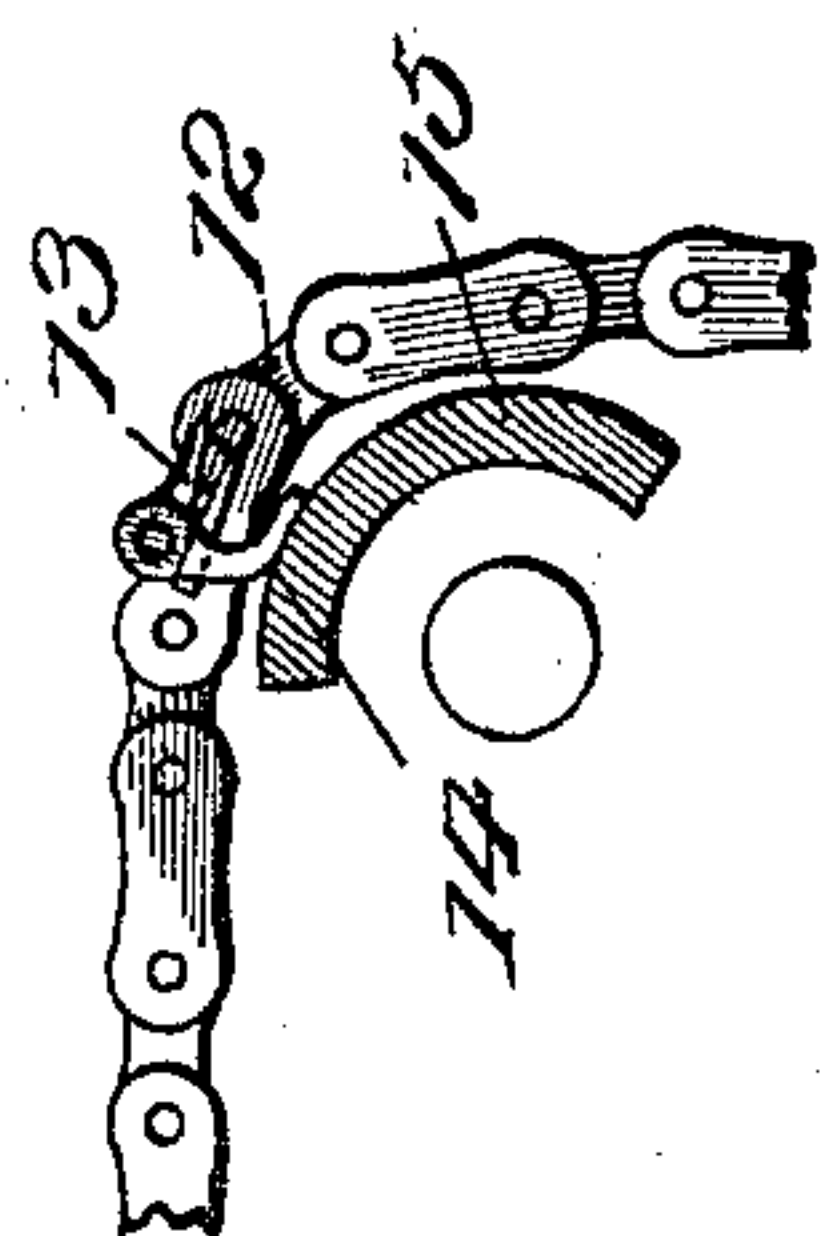


Fig. 3.

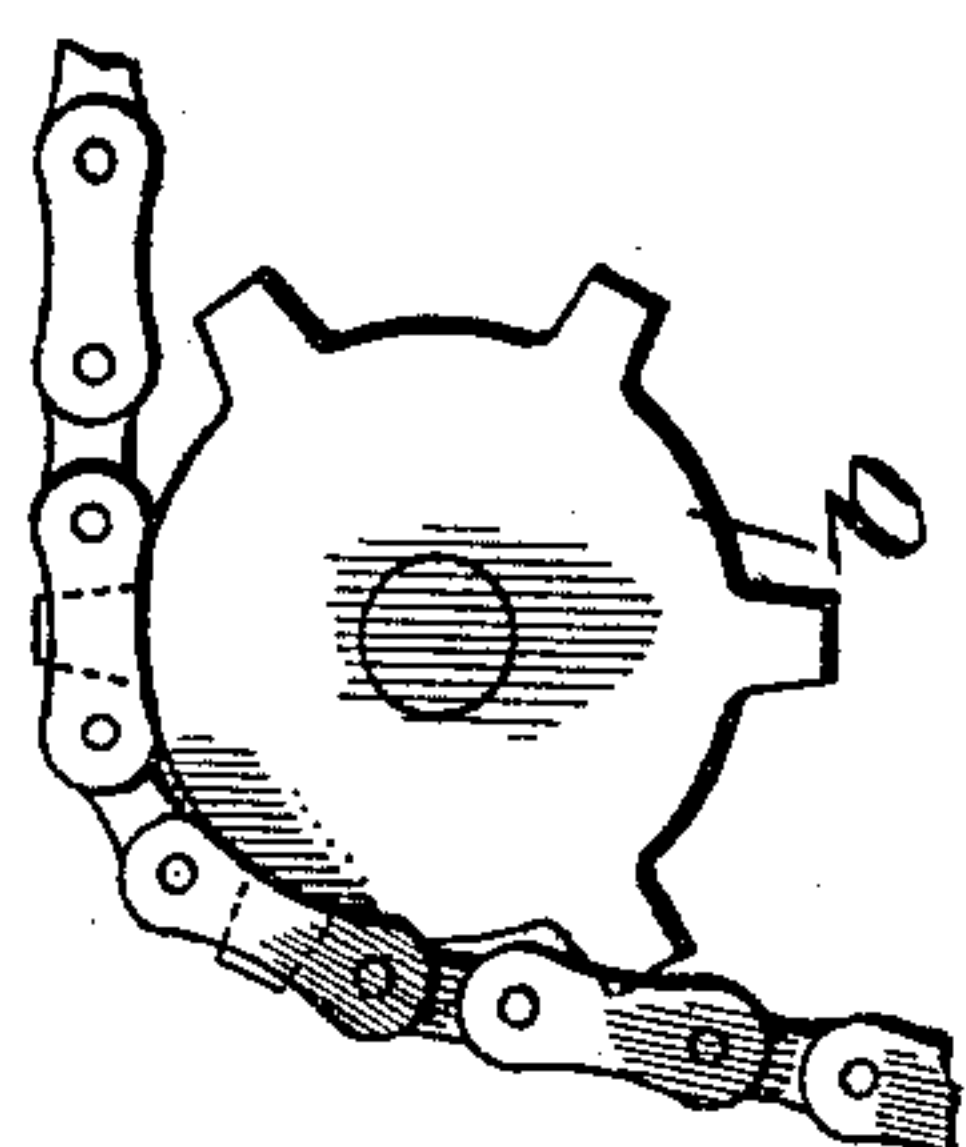


Fig. 4.

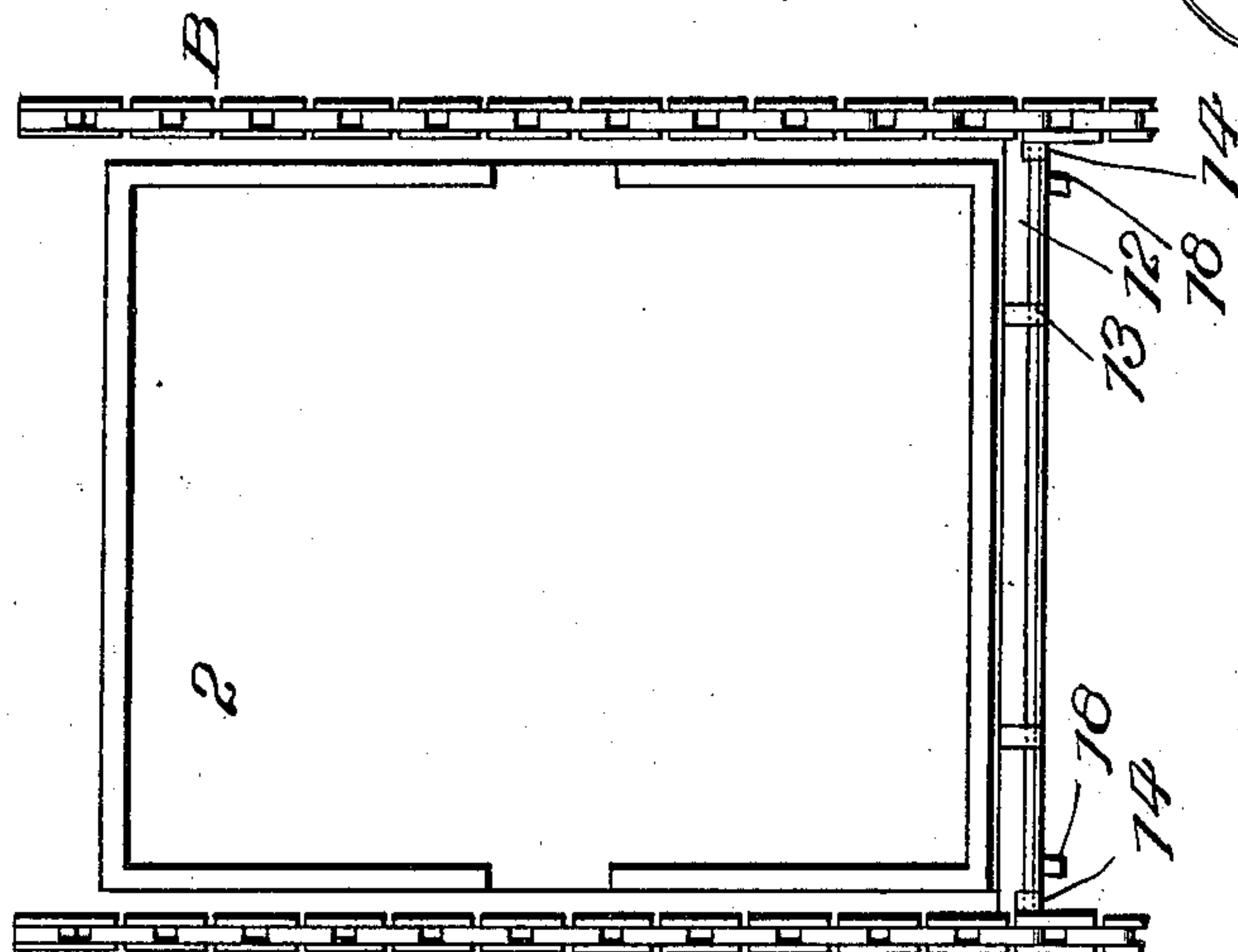
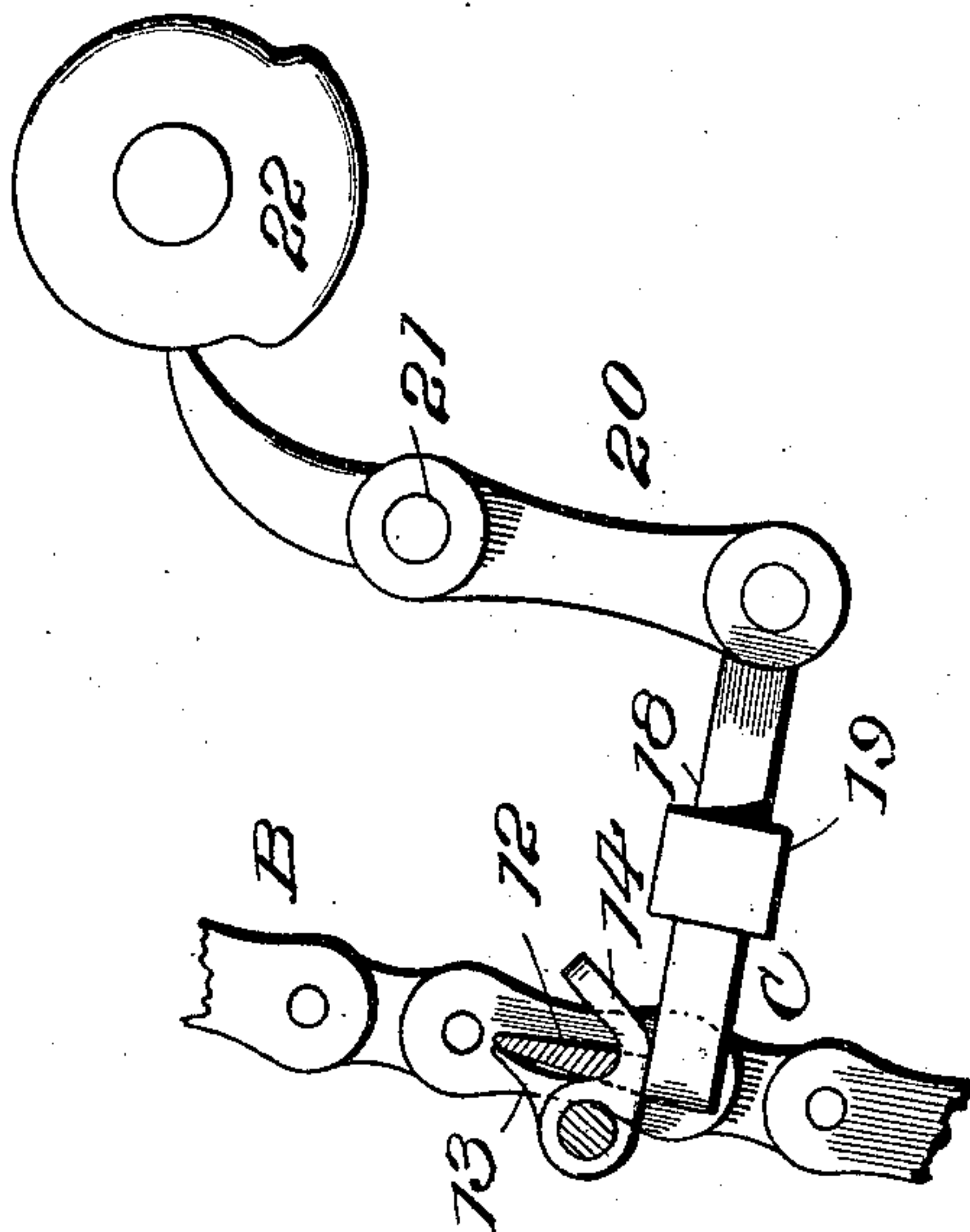


Fig. 2.

Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM HATCH SMILEY, OF NILES, OHIO.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 684,876, dated October 22, 1901.

Application filed November 20, 1899. Serial No. 737,679. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HATCH SMILEY, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention contemplates certain new and useful improvements in printing-presses, having reference to the class of platen or flat-bed presses.

15 The object of the invention is to provide a press of this character with improved means for feeding and delivering stock, such as sheets of paper, and also to provide means for obtaining accurate register.

20 The invention embraces two intermittently-operated chains carrying a series of spaced-apart gripper-bars, the grippers of which are automatically closed and opened to engage and release a sheet of paper or the like. Suitable stops periodically arrest the 25 movement of the gripper-bars to accurately locate them and secure perfect register in the printing.

30 The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of a press equipped with my improvements. Fig. 2 is a face view of the platen, showing the gripper-bar chains. 35 Fig. 3 shows one of these chains, with parts broken away, in connection with the cams by which the grippers are opened. Fig. 4 is a view showing one of the stops for arresting the gripper-bars.

40 Referring to the drawings, A designates the main frame, to which the type-carrying bed *a* is pivotally connected at *a'*, preferably by a cross-rod *a<sup>2</sup>*. This bed is moved back and forth by a connecting-rod *a<sup>3</sup>*, operated 45 upon by a cam *a<sup>4</sup>* on the main shaft 1 of the press. The type-forms are secured to the bed *a* and are adapted to be pressed against the platen 2 upon the upper part of frame A. In the present instance this platen is stationary, being rigid with the frame. The 50 type-forms are inked by rollers 3, carried by arms 4, fast to shaft 6, supported by bed *a*,

and operated through the agency of an arm 7 and pitman 8, eccentrically connected to a wheel 9 on shaft 1. As bed *a* travels toward 55 the platen the ink-rollers are moved onto the inking-plate 10.

B B designate two chains, which are passed in parallelism to the longitudinal edges of the platen 2 and engage sprocket-wheels *b*, 60 mounted on frame A. There are two sets of sprocket-wheels at the top of the frame, one at the rear and the other at the front, a third set beneath the platen, a fourth set *b'* in advance of and beneath the platen, and a fifth 65 set at the rear of the frame in line with and beneath the rear set at the top. These wheels are thus arranged that at the top of frame A the chains will travel horizontally and thence downwardly in approximately parallel rela- 70 tion to platen 2 and thence again horizontally to the front end of frame A, where they will engage a larger sprocket-wheel *b'*, and thence rearwardly, and after engaging wheels at the lower ends of said frame will travel 75 upwardly. The shaft *b<sup>2</sup>*, on which wheels *b'* are mounted, is intermittently rotated by means of a pawl-and-ratchet connection *b<sup>3</sup>*, arm *b<sup>4</sup>*, and pitman *b<sup>5</sup>*, connecting the latter to a wheel *b<sup>6</sup>*, which is rotated by a gear- 80 wheel *b<sup>7</sup>*, driven by the gear-wheel 9. The chains B B carry a series of spaced-apart gripper-bars 12, the grippers 13 of which are opened by short levers 14, engaging cams 15 and 16. The opening of the grippers by 85 cams 15 is for the purpose of enabling a sheet to be placed in contact with such grippers, while cams 16 are for the purpose of releasing such sheet after the printing, the sheet then passing down over incline 17. When 90 these levers of the grippers are not in engagement with either of cams 15 or 16, the grippers are tightly closed. Just before each impression occurs the gripper-bar carrying the sheet to be printed upon is arrested by stops 95 C, projected across the line of travel. Each of these stops consists of a rod or bolt 18, movable in a boss 19 on the side of frame A and connected at its inner end to a lever 20, fulcrumed at 21, which lever is rocked by a 100 cam 22, fast on shaft 1. By thus arresting each gripper-bar the stock carried thereby is accurately located in position for printing without regard to any slack or lost motion in



the chains or any inaccuracies of construction. Immediately before the chains are driven forward after each imprint the cam 22 operates on lever 20, withdrawing the bolt 5 and allowing the gripper-bar to pass, the normal position of such bolt being resumed in time to engage the next succeeding gripper-bar.

In practice the stock or sheets to be printed 10 upon are fed into the grippers as the latter are opened by cams 15. The intermittent movement of the gripper-chains effected by the pawl-and-ratchet connection  $b^3$  will carry the sheets forward and then downward over 15 the platen, each sheet-carrying gripper-bar being arrested by the stops C just previous to the contact of the type-forms against the sheet. This contact is effected by the bed  $a$  being drawn against the stationary platen by 20 the cam  $a^4$  and rod  $a^3$ . Immediately after the imprint the stops C are withdrawn and the travel of chains B B is resumed. Upon the lever of each gripper-bar contacting with cam 16 the sheet is released and falls over incline 25 17. This operation is repeated as each sheet is positioned on the platen. The sheets may be fed to the gripper-bars from an ordinary table or from the top of a pile of such sheets. It is obvious that the release of the sheets 30 from the gripper-bars may be effected from any point after the sheet leaves the platen, according to the location at which the gripper-releasing means may be located.

I claim as my invention—

35 1. The combination with a printing-press having a platen and type-bed and the press-gearing, of means for imparting a reciprocating movement to said type-bed, endless chains passed down the sides of the platen, gripper- 40 bars carried by said chains extended across the platen, grippers on said bars, means for intermittently operating said chains, said means being connected to, and constantly operated by, the press-gearing, stops designed 45 to periodically hold said chains as each forward movement thereof is completed, means actuated by the press-gearing for operating said stops, and means for disengaging the grippers from the stock after they pass be- 50 neath the platen.

2. The combination with the press-frame, the platen, the type-bed, and the gearing for the press, of means for imparting a reciprocating movement to said type-bed, endless 55 chains passed down the sides of the platen, gripper-bars carried by said chains extended across the platen, grippers on said bars, means actuated by the press-gearing for intermittently moving said chains over the platen, 60 means for automatically opening the grippers at a point above the platen to allow stock to

be fed thereto, means for opening said grippers at a point below such platen, and means actuated by the press-gearing for arresting said chains as each forward movement there- 65 of is completed, as set forth.

3. The combination with the press-frame, the platen thereon, the series of sprocket-wheels mounted on said frame above and below the platen and in advance and in rear 70 thereof, and the press-gearing, of the type-bed, means for imparting a reciprocating movement thereto, endless chains engaging said sprocket-wheels and passed down the sides of the platen, gripper-bars carried by 75 said chains extending across the platen, grippers on said bars, means actuated by the press-gearing for intermittently operating said chains, stops designed to arrest the movements of the chains, means actuated by the 80 press-gearing for operating said stops, and means for disengaging the grippers from the stock after they pass beneath the platen, substantially as set forth.

4. The combination with the press-frame 85 having a platen, an extension beneath and in advance of said platen, two sets of sprocket-wheels at the top of the frame, a third set beneath the platen, a fourth set at the outer end of said extension and a fifth set at the rear 90 of the frame, of a type-bed, means for actuating the same, two sprocket-chains passed in engagement with said sprocket-wheels, bars carried by said chains, grippers thereon, normally closed, means for opening said grip- 95 pers as they travel between the said two sets of sprocket-wheels, means for arresting said chains as they pass over the platen, means beneath the platen for opening said grippers, and means for actuating said chains, substan- 100 tially as set forth.

5. The combination with the press-frame having a platen, a movable type-bed, and press-gearing, of chains movable in parallel- 105 ism to said platen, gripper-bars carried by said chains extended across the platen, normally closed grippers on said bars, means for opening the grippers above the platen, and also beneath the latter, means for operating said chains actuated by the press-gearing, 110 stops for temporarily engaging each gripper-bar, such stops consisting of movable bolts, levers connected thereto, and a cam actuated by the press-gearing for operating said levers, substantially as set forth. 115

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM HATCH SMILEY.

Witnesses:

ROBERT BRUCE WEISS,  
JOSEPH SMITH.