

J. THOMSON.
PRINTING PRESS.

APPLICATION FILED APR. 23, 1908.

980,451.

Patented Jan. 3, 1911.

3 SHEETS—SHEET 1.

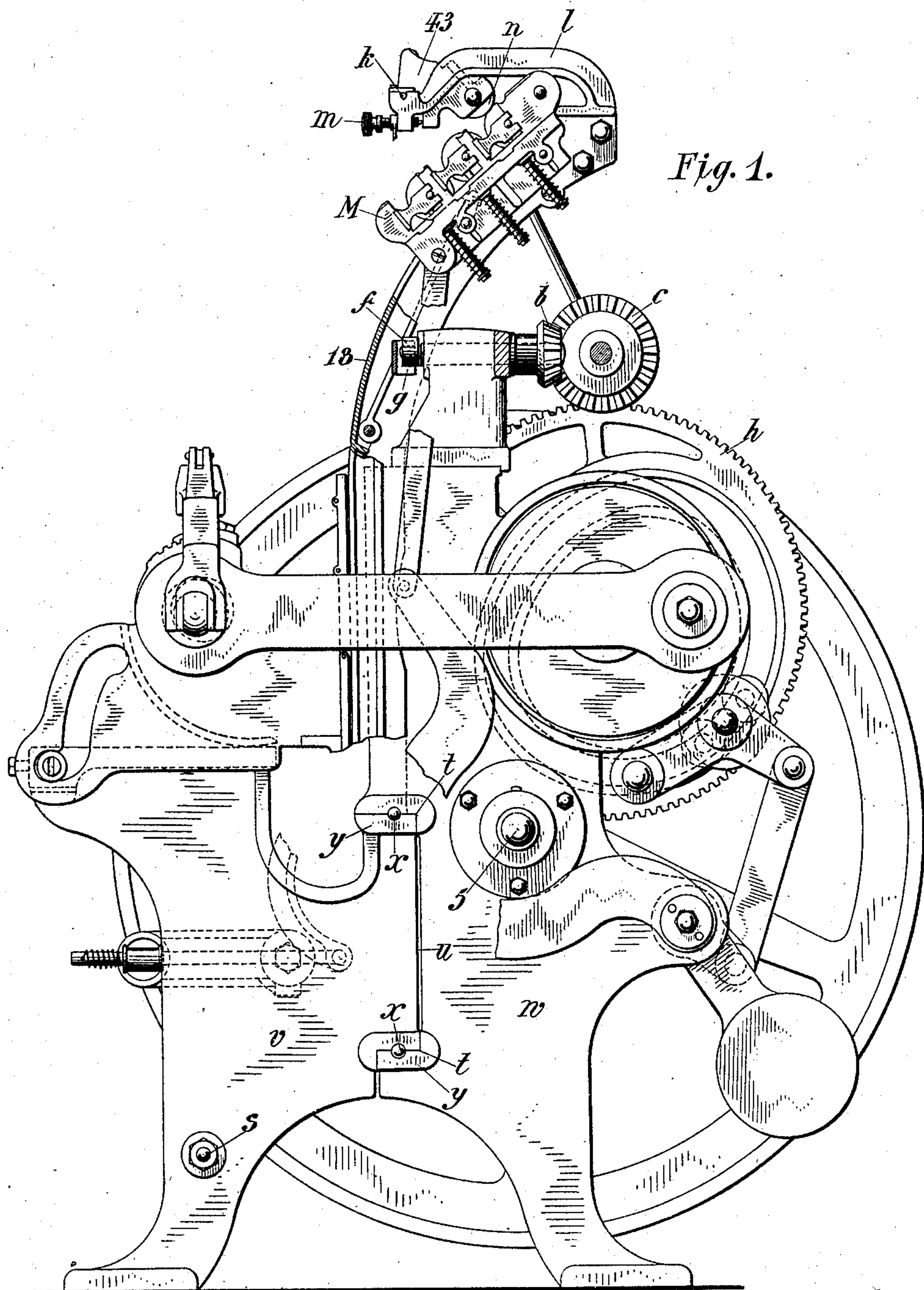


Fig. 1.

Witnesses
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Inventor
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By his Attorneys
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3 SHEETS—SHEET 2.

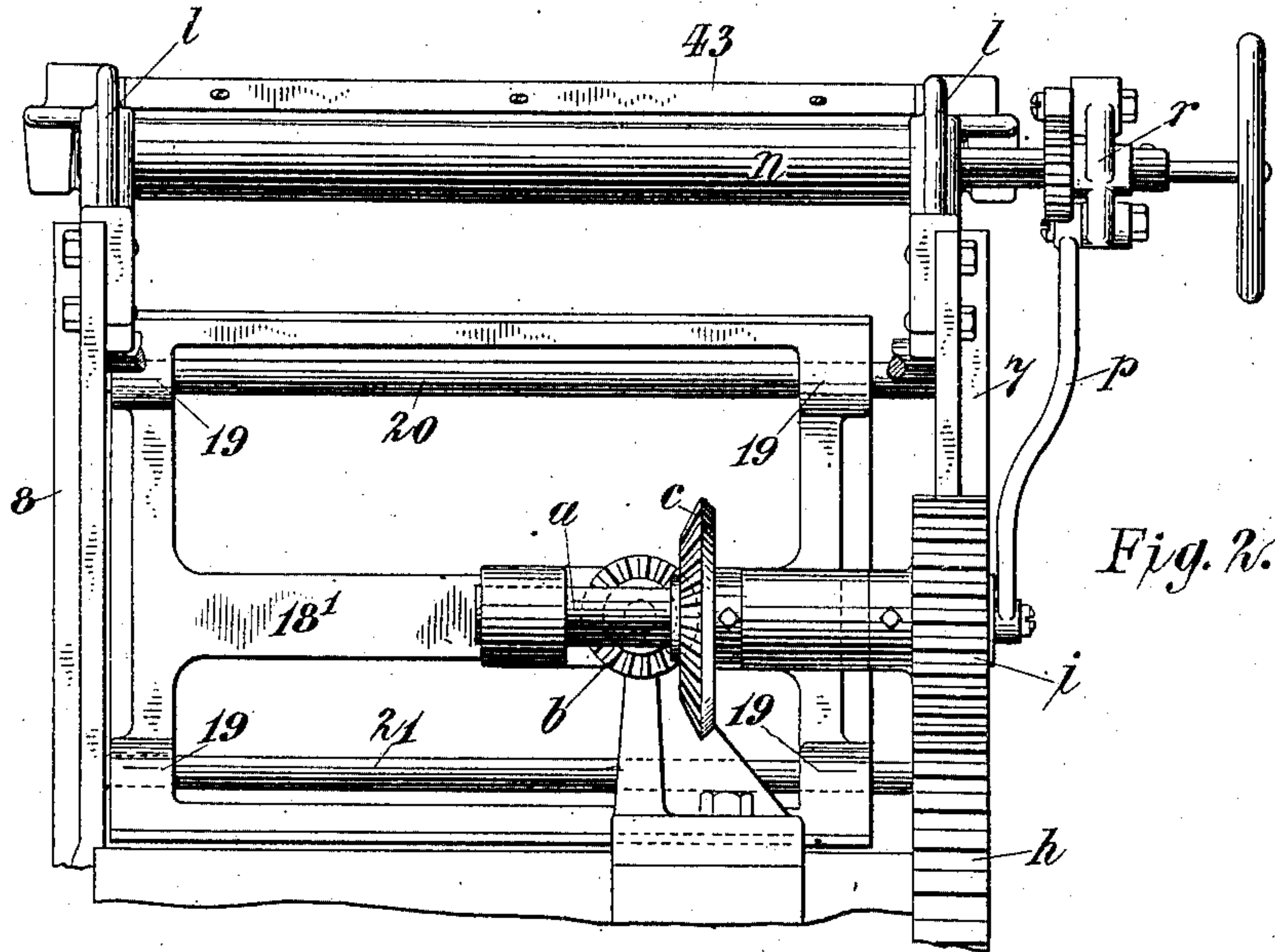


Fig. 2.

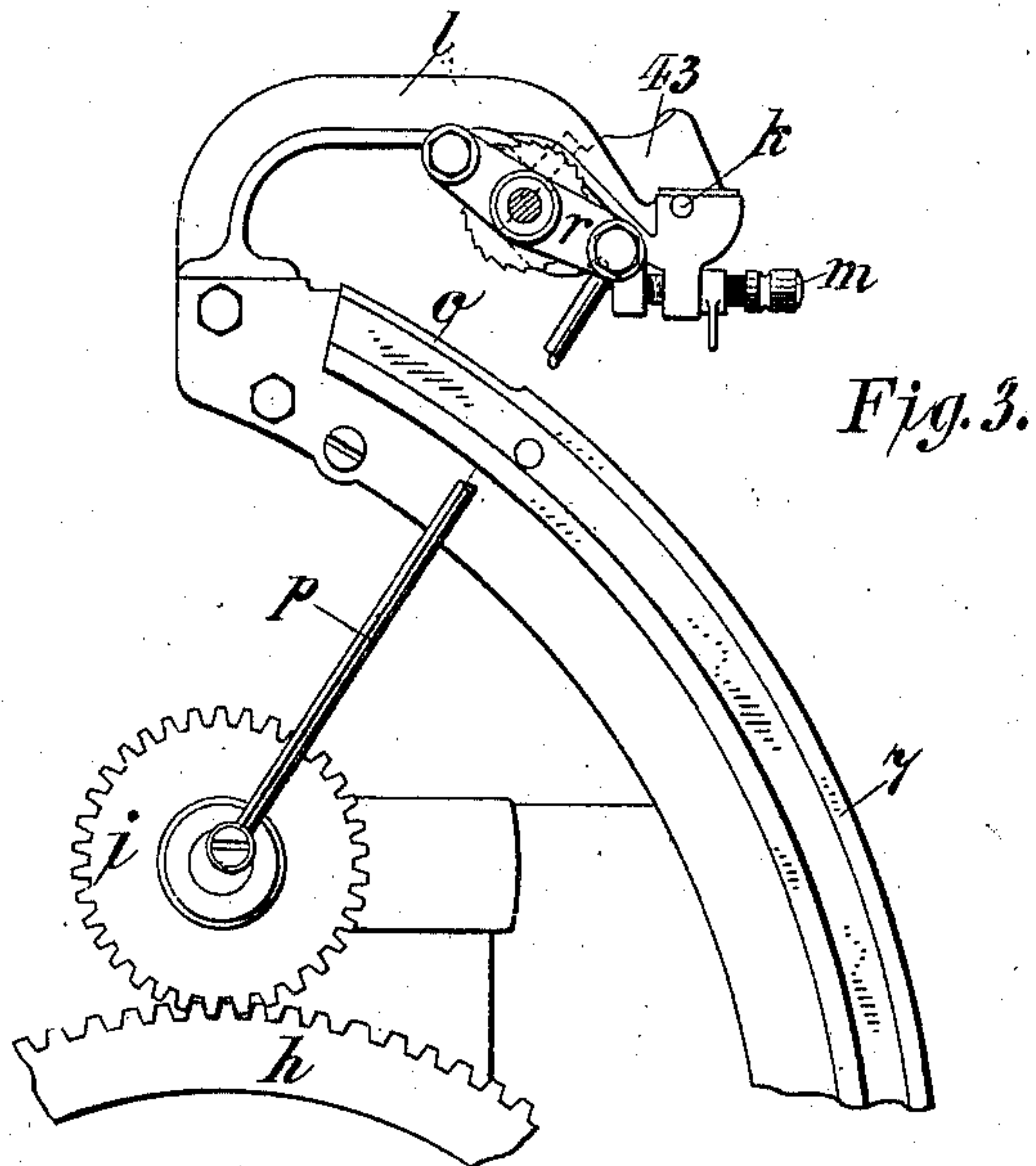


Fig. 3.

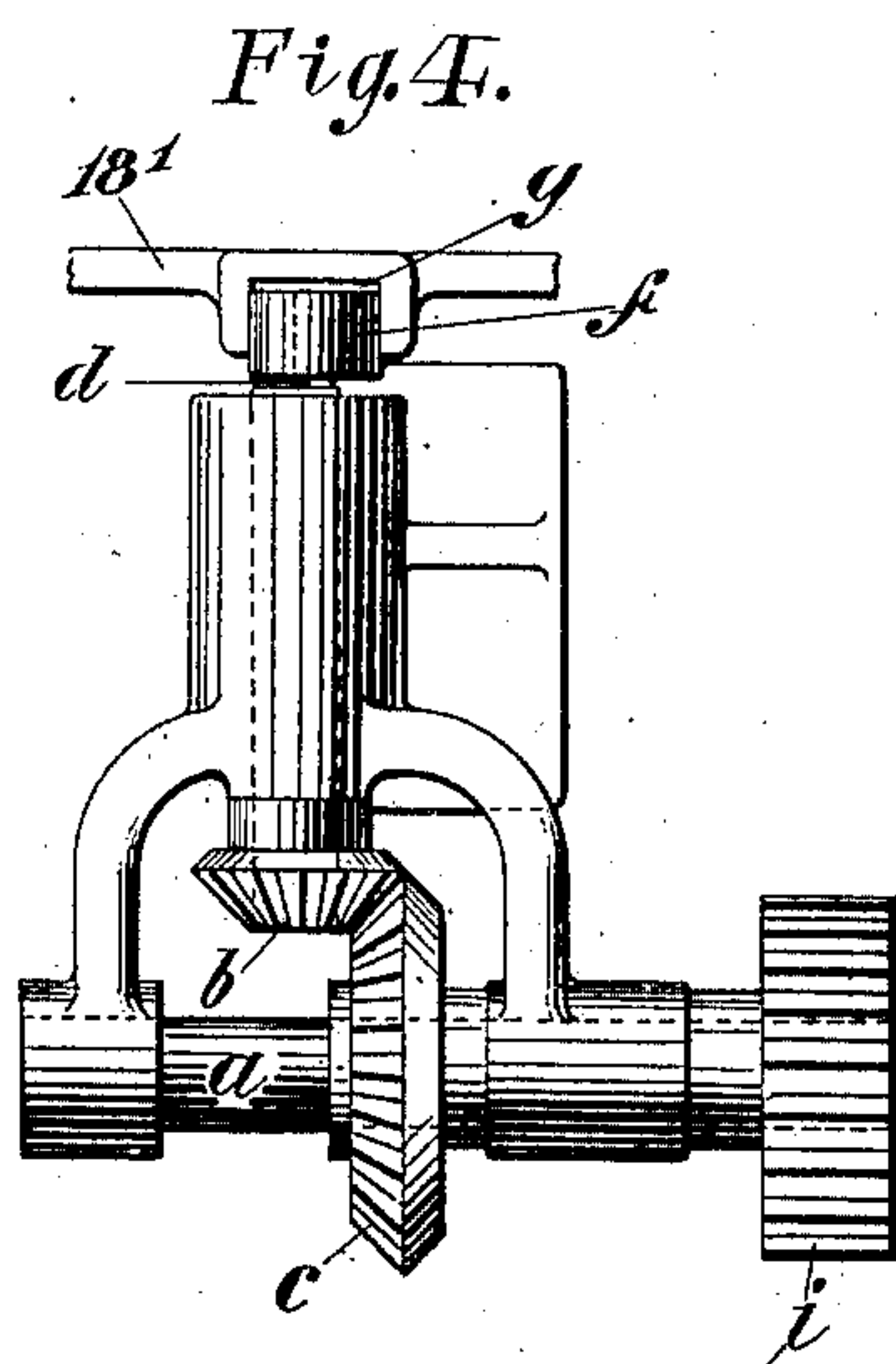


Fig. 4.

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3 SHEETS—SHEET 3.

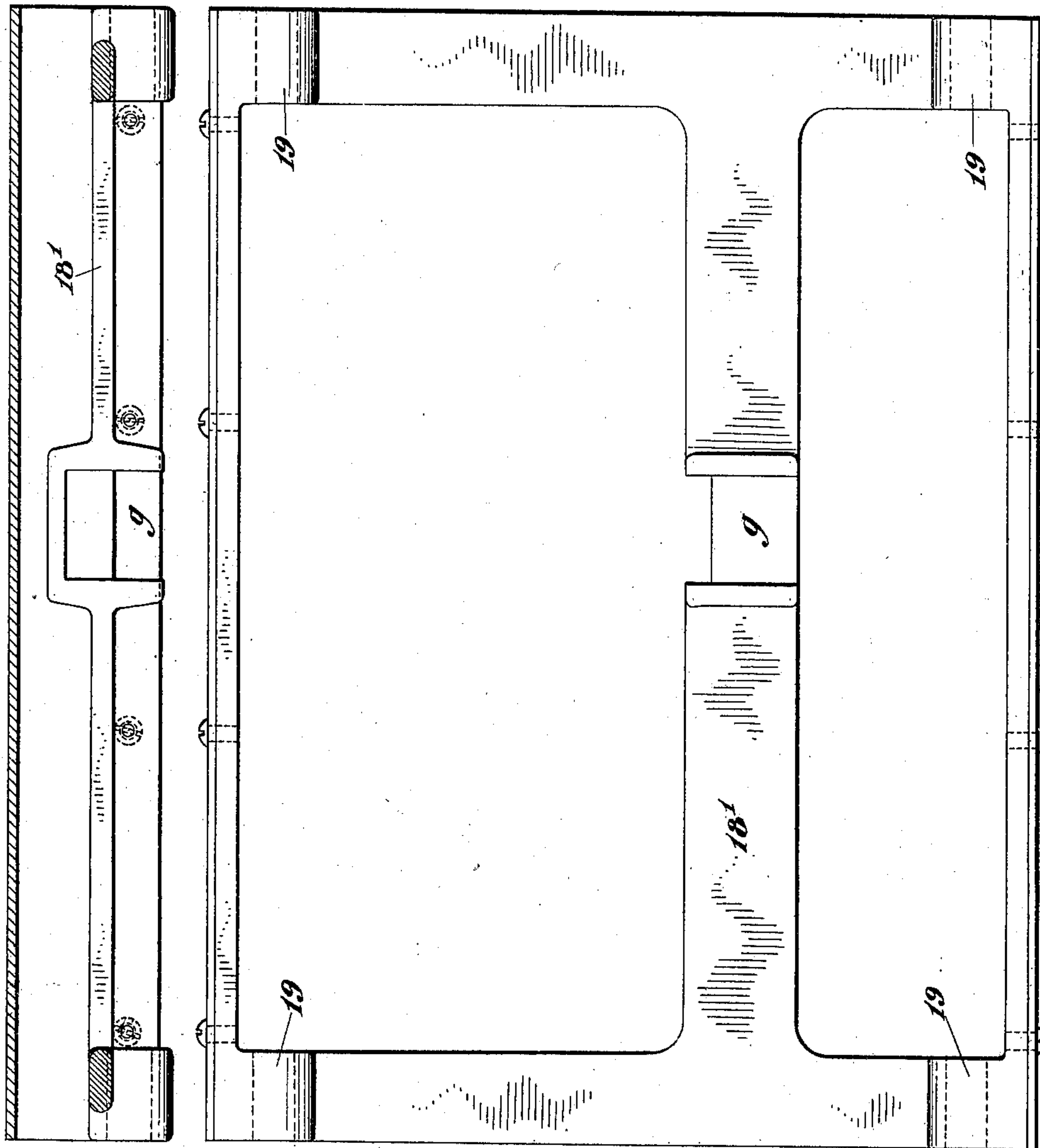


Fig. 6.

Fig. 5.

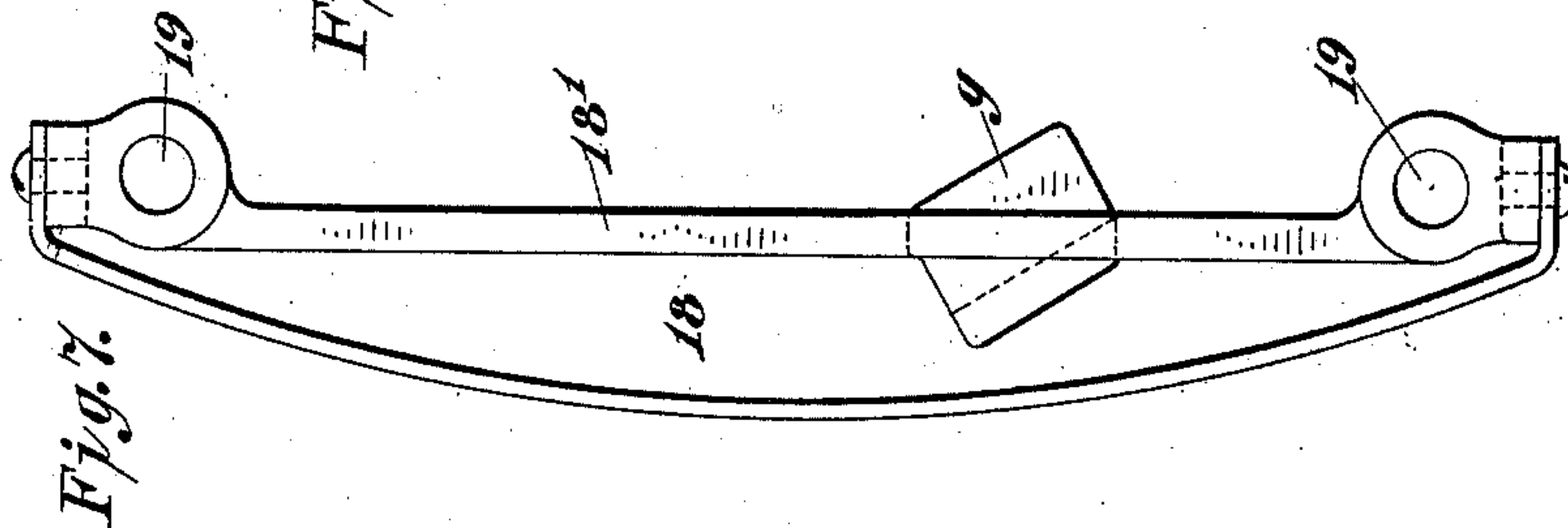


Fig. 7.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF NEW YORK, N. Y., ASSIGNOR TO JOHN THOMSON PRESS COMPANY,
OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PRINTING-PRESS.

980,451.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed April 23, 1908. Serial No. 428,707.

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, and a resident of the borough of Manhattan of the city of New York, in the county 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.

The invention relates more particularly to improvements in the inking apparatus of printing presses of the style referred to in my Letters Patent No. 717,516, dated December 30, 1902. Such presses are built to supply the demand for a cheaper machine than those which embody what is known as the cylinder distribution; and it is desirable to provide in such presses some efficient yet simple means for securing a uniform inking of the form rollers, to take the place of the inking disk more commonly employed but ill adapted to produce the even distribution desired.

In my Letters Patent mentioned above, I have shown and described an improved inking apparatus which was designed with this object in view, and the present improvements are calculated to carry this object still further into effect. To this end, the inking plate is curved in order to give a maximum inking surface and at the same time to produce a more even running of the carriage; new and simpler driving connections have been provided to reciprocate the inking plate; the uppermost form roller has been adapted to rotate freely as it approaches the fountain roller and thus to roll upon that roller instead of sliding upon or scraping it whereby a more even coating of ink may be imparted to that form roller; the ink fountain has been pivoted to cooperate with the uppermost form roller as the latter moves under and around it; and improved driving connections have been provided for the fountain roller.

In the drawings: Figure 1 is a view in side elevation with the carriage in its uppermost position, some of the parts being broken away to illustrate various details of construction. Fig. 2 is a detail view on a larger scale showing the rear side of the inking plate. Fig. 3 is a detail view in side elevation of some of the parts shown in Fig. 2. Fig. 4 is a detail plan view of the

driving connections for the inking plate, and, Figs. 5, 6 and 7 are respectively a rear elevation, a sectional view and a side elevation of the inking plate removed from the machine.

Many of the details of the press chosen to illustrate the improvements have been omitted from the drawings, as forming no part of the present invention and as unnecessary to a complete understanding of the invention.

Referring first to the inking apparatus, it will be noted that the ink-distributing plate 18 is mounted between the upper ends of the carriage-ways 7 and 8. In my former Letters Patent, to which I have referred above, the inking plate presents a flat surface to the form rollers and the upper ends of the carriage-ways are bent more or less sharply so that the carriage M, as it passes up and down over the bends in the ways, will obviously have an uneven or irregular motion due to the sudden change in its direction which occurs during every stroke. In the present case I form the ink-distributing plate so that it presents a curved surface to the ink rollers, such surface being preferably shaped like an element of the periphery of a cylinder so that any vertical section through the plate consists of a circular arc. In this way I find that I can provide a maximum inking surface in a given space and that I am also enabled to eliminate the sharp bends in the carriage-ways, making the latter conform as I do to the curve of the inking plate. It will be easy to see from the drawings therefore that the carriage will travel perfectly smoothly and evenly between its limiting positions on the curved guide-ways 7 and 8, the change in its direction of movement being gradual and never at any point sudden or sharp.

In constructing the inking plate, I preferably use a piece of sheet steel (Figs. 5, 6 and 7) which I can easily bend into the exact form required, and in this way I save all the machining which would be necessary to finish a cast plate in this form. The upper and lower edges of the plate are bent over and are secured to a spider or frame 18', which, when the plate is in position upon the machine, is slidably supported upon two rods 20 and 21 through the medium of bearings 19 which may be formed integral with the spider. The rods are se-

cured on either side to the guide-ways 7 and 8, and the inking plate is slightly shorter than the distance between the guide-ways so that it is capable of being reciprocated from one side to the other between the guide-ways. For this purpose a short shaft a is provided which is operatively connected through bevel gears b and c with a crank pin d , which latter, through the medium of a slide f adapted to move up and down in a recess g formed in the spider 18', serves to reciprocate the ink plate 18. The short shaft a receives its motion from the main or crank shaft 5 through intermeshing gears h and i secured respectively to the main shaft and the short shaft.

The ink fountain 43 is pivotally supported at k upon arms I secured to the upper ends of the carriage-ways 7 and 8, screws m being provided, one on each side, to adjust the position of the fountain so as to regulate the height of the inking or fountain roller n above the upper ends of the carriage ways. The latter, for a short distance directly underneath the fountain roller n , are recessed, as at o , so that the topmost form roller, when it has reached the fountain roller, will be free to turn, and as it passes underneath and contacts with the fountain roller, it will roll upon that roller instead of scraping it or sliding upon it. The fountain roller, moreover, will lift slightly as the topmost ink roller passes underneath so as to accommodate itself to the form roller. It will be obvious that in this way a large portion of the ink roller will be uniformly coated with ink from the fountain roller. The fountain roller is provided as usual with a ratchet and pawl for rotating the same intermittently, and the pawl is operated through the medium of the rod p one end of which is operatively connected with the ratchet through an arm r and the other end of which is eccentrically mounted upon the gear wheel i . Thus it will be seen that as the gear wheel i rotates, the pawl will be given the proper movements to effect the advance of the fountain roller intermittently.

The frame or base of the press is divided transversely and has two forward sections v and a rear part w . The platen is carried by the forward parts v and the main shaft 5 and the type-bed by the part w . By dividing the frame in this way, it will be obvious that the finishing of the castings of which it is composed may be greatly simplified, for the necessary machining may be effected upon a comparatively small milling machine, and each part may be finished with a single handling. This economy, however, would be offset by the tendency of the frame to be wrenched apart by the forward and backward strains produced through the reciprocation of the platen, were the two parts of the frame secured together by such means

as bolts or other ordinary fastening devices. Accordingly I have devised a fastening means to unite the forward and rear portions of the frame which is particularly calculated to resist the strains or vibrations which take place in a fore and aft direction. The two forward sections v are united by a tie rod or spacing rod s , and each section is keyed to the rear part w . For this purpose I provide each of the forward sections with a projection which fits into a corresponding recess in the rear section, and thus I have one portion of the frame overlapping the other portion. These portions are very accurately fitted together and then keyed to each other. In order to secure an accurate fitting of the one part in the other, I make the ends or corners t of the projections and their corresponding recesses in the other part, rectangular by careful machining, and leave a space u between the corners. Moreover, I make the projections relatively long in a vertical direction and place the keys x at the top and bottom of the projections in order the more effectively to resist the twisting moment of the frame. Finally, I thicken the frame at y where the grooves, which register to form holes for the keys, are cut, thus making it possible to use a relatively long key and increasing proportionately the strength of the joint. In this way the whole frame, so far as its power to resist forward and backward strains is concerned, is practically integral. In other words, to wrench loose the parts of the frame would require the lengthwise shearing of at least one of the keys and as the length of the keys is even greater than the thickness of the frame, they will withstand as much strain as the frame could were it integral throughout.

It will be understood that the improvements may be embodied in any form of printing press to which they are applicable and that variations in the constructions shown and described herein may be made without departing from the spirit of the invention.

I claim as my invention:

1. In a printing press, the combination with a main shaft, of form rollers, a carriage therefor, a curved inking plate, a crank pin operatively engaging the inking plate, a short shaft parallel with the main shaft of the machine, gears intermediate the two shafts, and gears intermediate the short shaft and crank pin.

2. In a printing press, the combination of an inking plate, a main shaft, means to move the inking plate including a short shaft parallel with the main shaft, an ink fountain roller, and means to rotate the ink fountain roller including a rod pivoted eccentrically to the short shaft.

3. In a printing press, the combination

with an inking plate, a short shaft, connections between said shaft and inking plate for moving said plate, a gear wheel for driving said shaft, a fountain roller, a rod 5 to impart motion to said roller, and means to render the motion of the roller intermittent, one end of the rod being pivoted eccentrically to the gear wheel and the other end of the rod being operatively connected 10 with the means for producing the intermittent motion of the roller.

4. In a printing press, the combination of an inking roller, an inking plate, a ratchet and pawl for advancing the inking roller, 15 a rod for operating the pawl, a gear wheel to which one end of the rod is eccentrically pivoted, connections between said gear wheel and inking plate, and a gear wheel on the main shaft meshing with the first named 20 gear wheel.

5. In a printing press, the combination with a pivoted fountain having a fountain roller, of a form roller, a carriage, and guide-ways upon which the carriage travels,

the guide-ways being recessed near the 25 fountain so as to permit the form roller to rotate freely as it approaches the fountain roller and thus to roll upon the fountain roller.

6. In a printing press, the combination 30 of the carriage and form rollers thereon, guide-ways for the carriage recessed near one end, and an ink fountain having a roller and pivoted above the recessed portion of the guide-ways, whereby as the car- 35 riage reaches the recessed portion of the guide-ways one of the form rollers will roll freely upon the fountain roller which rises slightly to permit the form roller to accommodate itself to the fountain roller as the 40 form roller passes under the fountain roller.

This specification signed and witnessed this 11th day of April, A. D., 1908.

JOHN THOMSON.

Signed in the presence of—

G. A. RICHARD,

J. R. FRITH.