No. 731,790. PATENTED JUNE 23, 1903.

J. KREHBIEL.

PRINTING PRESS.

APPLICATION FILED MAY 6, 1899. RENEWED OCT. 30, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

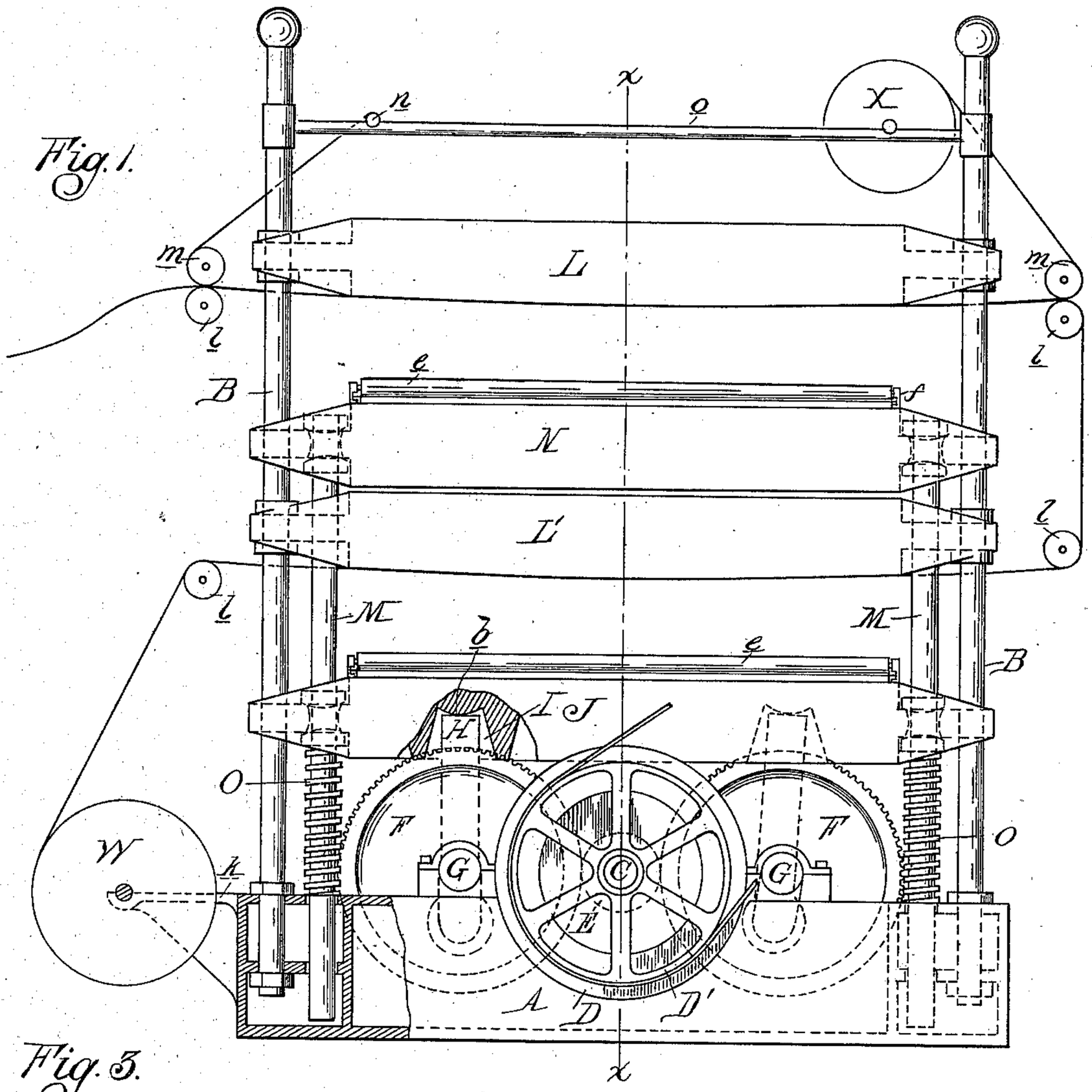
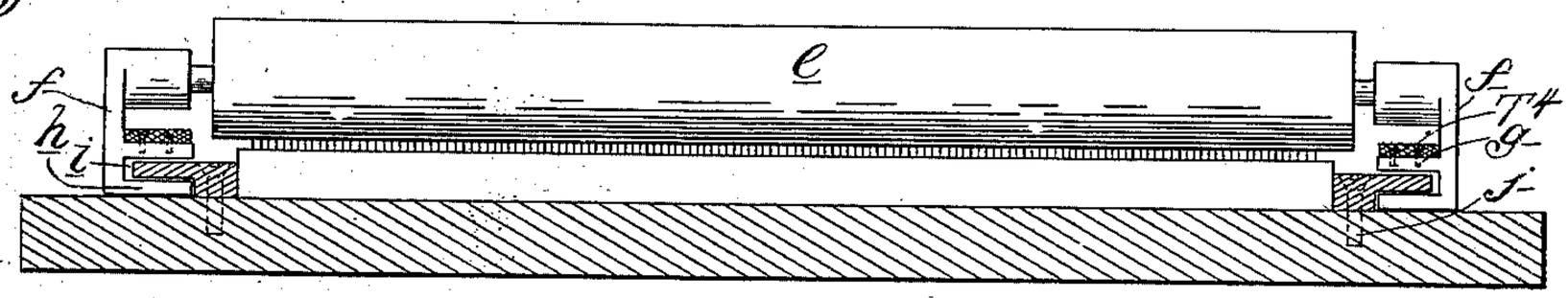


Fig. 3.



Witnesses:
W. D. Kinner
Jos. A. Noelke

Inventor:
John Krehbiel.
By Bartlett & Bartlett
Attorneys

No. 731,790. PATENTED JUNE 23, 1903.

J. KREHBIEL.

PRINTING PRESS.

APPLICATION FILED MAY 6, 1899. RENEWED OCT. 30, 1902.

NO MODEL. 3 SHEETS—SHEET 2.

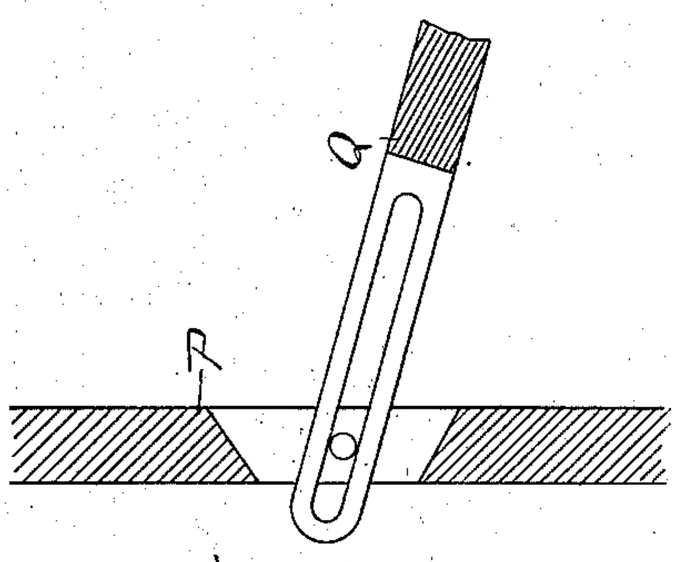


Fig. 5.

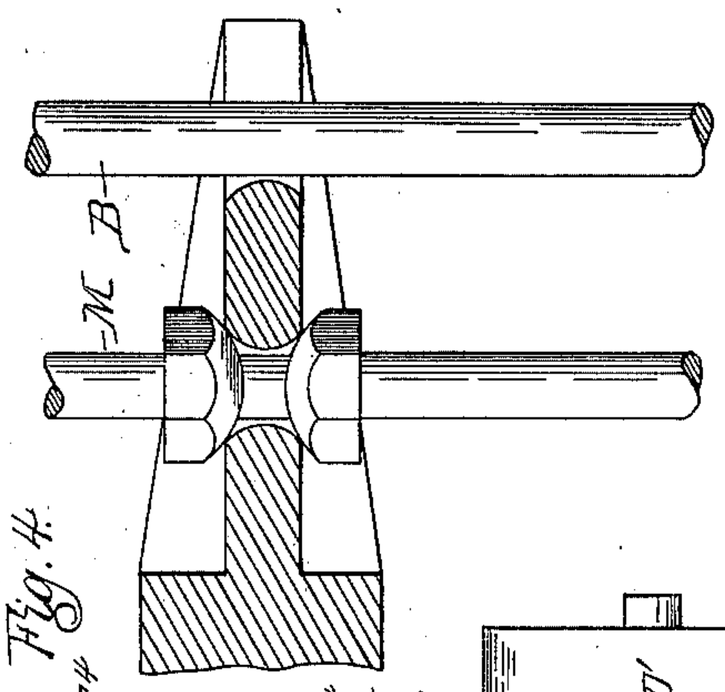


Fig. 4.

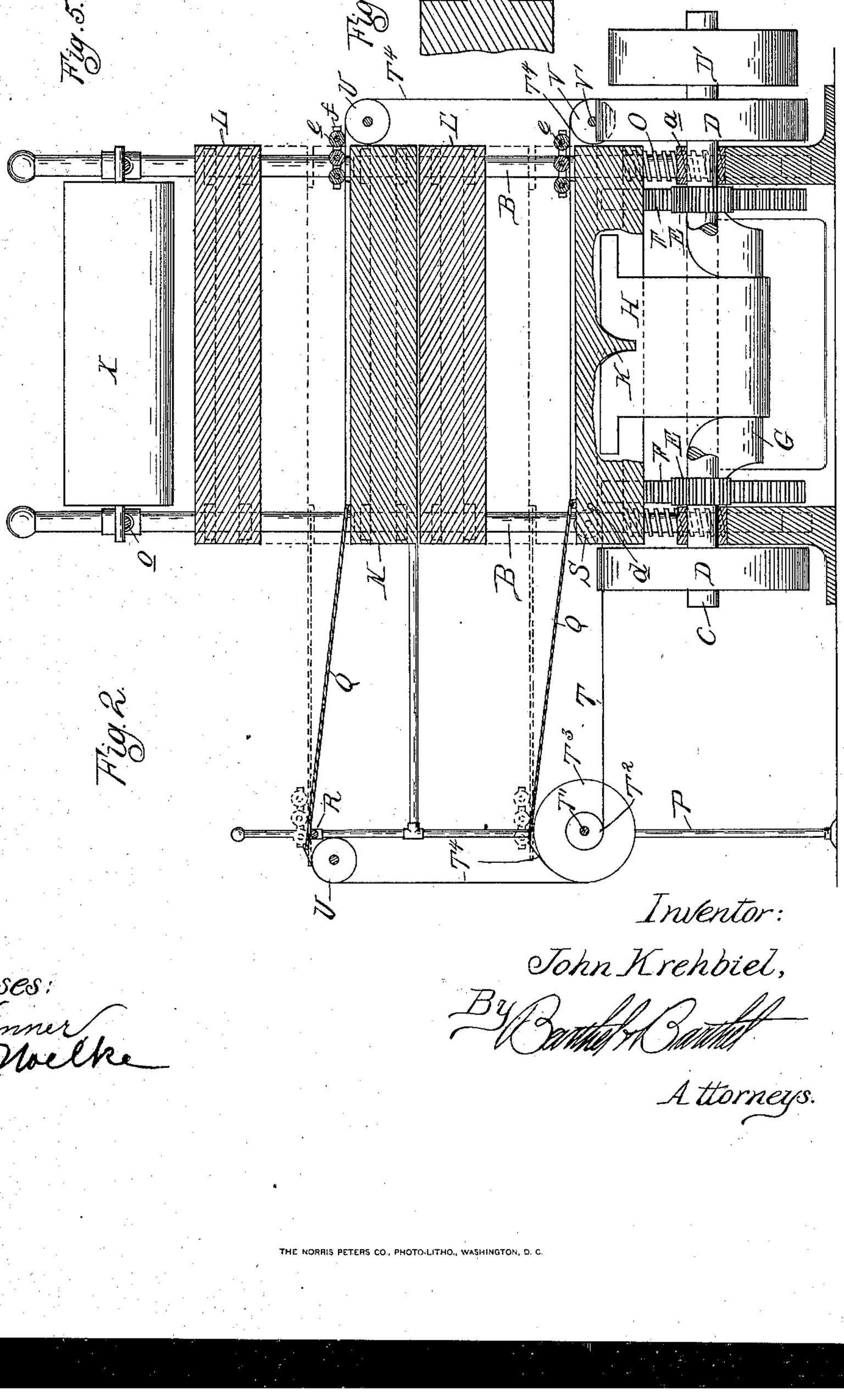


Fig. 2.

Witnesses:
C. D. Kinner
Jos. A. Noelke

Inventor:
John Krehbiel,
By Bartlett & Bartlett
Attorneys.

No. 731,790. PATENTED JUNE 23, 1903.

J. KREHBIEL.

PRINTING PRESS.

APPLICATION FILED MAY 6, 1899. RENEWED OCT. 30, 1902.

NO MODEL. 3 SHEETS—SHEET 3.

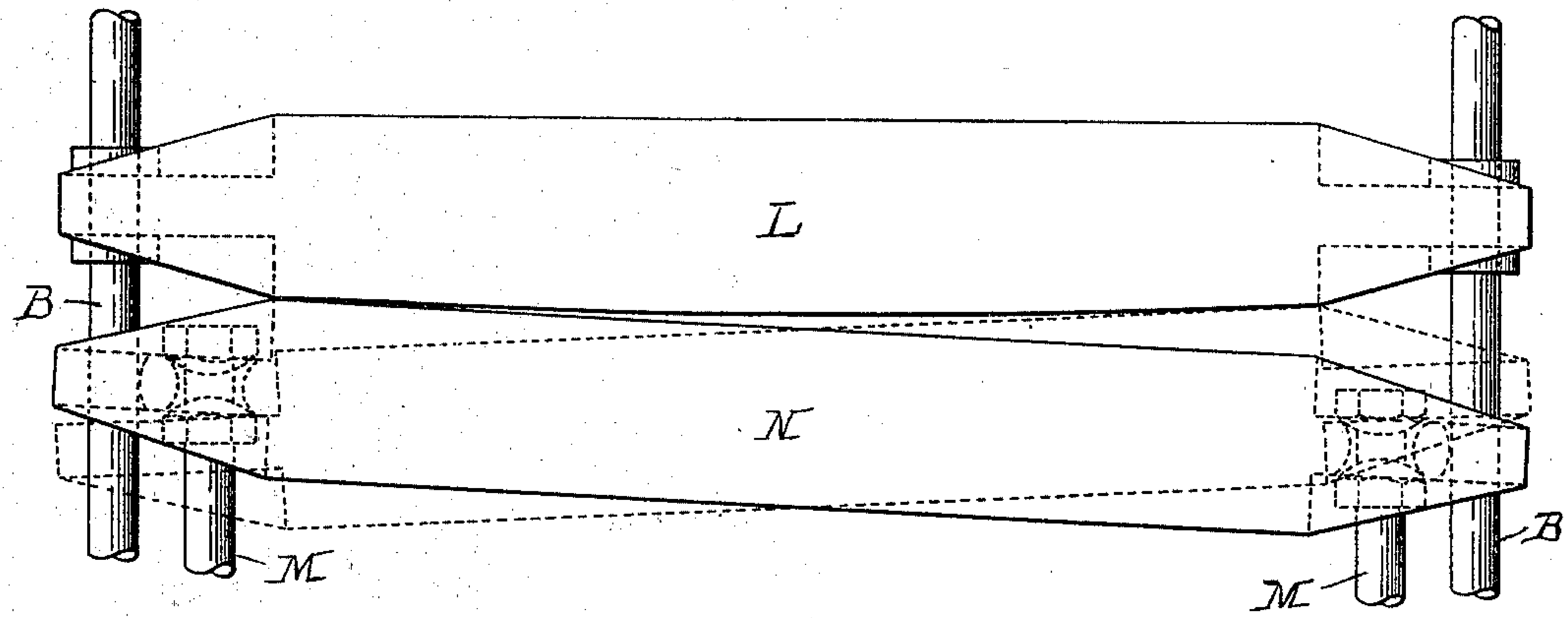


Fig. 6.

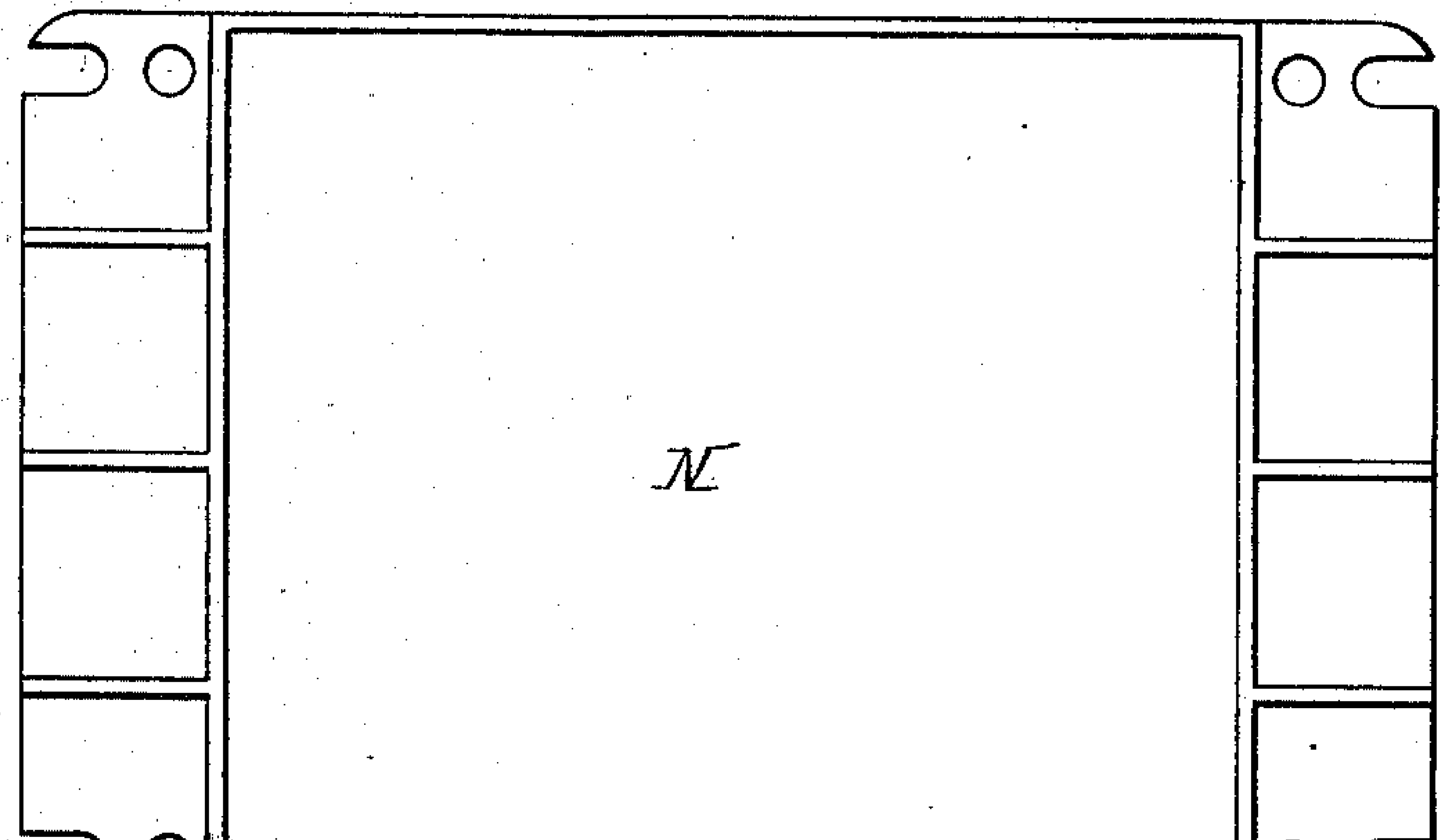


Fig. 7.

Witnesses:
Lewis E. Handen
Joseph A. Noelke

Inventor:
John Krehbiel
By [signature]
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 731,790. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

JOHN KREHBIEL, OF HARRISHILL, NEW YORK.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 731,790, dated June 23, 1903.

Application filed May 6, 1899. Renewed October 30, 1902. Serial No. 129,508. (No model.)

To all whom it may concern:

Be it known that I, JOHN KREHBIEL, a citizen of the United States of America, residing at Harrishill, in the county of Erie 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 therein to the accompanying drawings.

My invention relates to that class of platen printing-machines where the paper is taken from a continuous web or roll, and has for its object to construct a press that is especially adapted for book and newspaper work.

The invention particularly consists in a stationary platen having a curved face and a reciprocating type-bed in operative relation thereto supported by means of pitman-rods, so that it will be free to rock thereon, said pitman and cranks imparting a rocking motion thereto, so that but a small strip of the paper will be printed upon at a time, thus insuring perfect contact and combining all the advantages of a cylinder-press with those of the platen-press.

The invention further consists in the construction of the press in an exceedingly simple form, so that it may be manufactured at such a price as will bring it within the reach of the ordinary job printer, thereby enabling him to do high-class work.

The invention further consists in the arrangement of the inking device and in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a double-deck press of my improved construction. Fig. 2 is a section therethrough on line *x x*, Fig. 1. Fig. 3 is a longitudinal section through the type-bed and guides, showing the inking carriage and roller in elevation. Fig. 4 is an enlarged section through one corner of the type-bed, showing the manner of pivotally securing it to the upright. Fig. 5 is a section through one of the slotted bearings in the upright, suspending the outer end of the inking-table. Fig. 6 is a side elevation, showing the curved platen and the type-bed coöperating therewith, in full and dotted lines. Fig. 7 is a plan view of one of the type-beds.

In illustrating my invention I have taken a double-deck press of my improved construction, in which A is the base and B the four corner uprights stationarily secured thereto, as shown in Fig. 1.

C is the drive-shaft, secured upon the base A in suitable bearings *a* and provided on its ends with the fly-wheels D D and the drive-pulley D′.

E represents suitable pinions secured upon the shaft just inside of the bearings and meshing with the gears F, secured upon the crank-shafts G G, said shafts being supported in suitable bearings on the base on opposite sides of the shaft C.

Connected to the crank-shafts G G are the pitmen H, their upper ends engaging in the pockets I in the type-bed J, and K is rib formed on the under side of the type-bed to strengthen the same and also forming a guide for the pitman. The base of the pockets I are formed with the rounded portion *b*, so that the upper ends of the pitmen will have a rolling contact therein, thereby requiring but very little lubrication.

L L′ are the upper and lower platens stationarily secured by means of suitable collars upon the uprights B, as shown, their under faces being slightly curved.

M represents four corner-uprights loosely supported in the base-plate, as shown, and of somewhat shorter length than the uprights B. Loosely secured to the top of these uprights is the upper type-bed N, the type-bed J being likewise secured to the uprights near their middle portion. Sleeved upon the uprights M, below the type-bed J, are the springs O, which rest with their lower ends upon the base A, thereby greatly easing the shock in the lowering of the type-beds and relieving the pitman of its weight in the normal position of the parts. One of the cranks G is slightly offset in relation to the other to correspond to the curve on the face of the platen, so that one end of the type-bed will strike upon the platen slightly in advance of the other end, thereby imparting a rolling contact to the paper passing over the curved face of the platen, and thereby insuring a perfect and even contact throughout, which enables me to run off the finest class of work upon a press of this kind. In order to permit of the slight tilting

of the type-bed, I preferably connect them to the reciprocating uprights M by means of the connection shown in Fig. 4, in which the collars and edges of the openings are suitably curved to correspond to the amount of inclination desired. I may accomplish the same result by means of a loose fit, the springing of the uprights, or by a ball-and-socket connection.

P represents uprights to one side of the press a distance away equal to the movement of the inking-carriage, a suitable cross-bar connecting it to the framework.

Q represents the inking-tables pivotally secured to the uprights P by means of slotted bearings, as shown in Fig. 5. I may, however, accomplish the same purpose by merely having the inking-table slide upon the cross-bars R, as shown in Fig. 2. The inner end of the inking-table is pivotally secured to the edge of the type-bed in suitable bearings formed thereon.

S is an idler-pulley secured to the framework, and T is a belt, one end passing over the idler-pulley and secured to a cross-pin *d* on the type-bed J.

T is a transverse shaft secured in bearings upon the uprights P, upon which is rotatably mounted the pulleys T^2 and T^3, to which are respectively secured the ends of the belts T and T^4.

U represents idler-rolls over which the belts T^4 pass for the upper set of inking-rolls, while V is a pulley loosely sleeved upon the shaft V′, to which the ends of the belts T^4 are attached, a coil-spring of sufficient power to draw the inking-carriage back across the type-bed during the separation of the parts being sleeved on the shaft V′, having one end secured thereto, the other end being attached to the pulley V.

The inking device preferably consitss of three or more rollers *e*, connected to a suitable bracket *f*, having the flange *g*, to which the belts T^4 are attached, and the lip *h*, traveling in the guide-groove *i*, formed alongside of the chase and secured to the type-bed by means of the screws *j*. It will thus be seen that as the type-bed J moves upward the belt T will move therewith and the pulleys T^2 and T^3 caused to rotate, thereby drawing the inking-carriage, through the medium of the belts T^4, across the type and inking-table (to the position shown in dotted lines in Fig. 2) against the tension of the coil-spring mounted upon the shaft V′ as soon as the type-bed J begins to lower, the pull upon the belt T being released, and the coil-spring (now being under tension) will draw the inking-carriage back across the type-bed to the position shown in full lines, suitable stops being provided to limit the movement of the carriage.

It will be noticed that the inking-carriage enters and leaves the guides on the type-bed only when the inking-table and type-bed are in line, as shown in dotted lines, thereby preventing all danger of jamming or sticking of the inking-carriage in the guides.

W is the paper-roll, mounted upon the bracket *k* and passing over the idler-rolls *l* in contact with the platens L L′ to the folder. (Not shown.)

X is a roll from which the offset-sheet passes over the idler-pulleys *m* to the empty roll *n*, where the offset-sheet is wound up again. These rolls are preferably secured in notches cut in the cross-rods *o*, so that when the paper has run off one roll it can be rolled along the rods *o* to the bearings in the opposite end and the same offset-sheet again fed through. It will thus be seen that the paper as fed through is printed first on one side and then on the other, the offset-sheet being used to prevent the smudging of the paper upon the side already printed upon.

What I claim as my invention is—

1. In an intermittent web-printing machine, the combination with a supporting-frame of a reciprocating type-bed guided on said frame free to tilt thereon, said type-bed having a plane face, a stationary platen having a curved face and means for imparting a combined reciprocating and tilting motion to the type-bed adapted to produce rolling contact between said platen and type-bed.

2. In an intermittent web-printing machine, the combination with the base and fixed standards secured thereto, of a vertically-reciprocating type-bed guided on said standards free to tilt thereon, said type-bed having a plane face, a stationary platen having a curved face coöperating therewith, and crank-and-pitman connections for operating said type-bed, one crank operating the pitman at one end in advance of the crank at the other end, and producing a rolling contact between the faces of the type-bed and platen.

3. In an intermittent web-printing machine, the combination of the stationary platen having a curved face, the vertically-reciprocating type-bed having a plane face, the crank-and-pitman connection for operating said type-bed and adapted to impart a combined reciprocating and tilting movement to said type-bed, vertical guides adapted to guide the type-bed in its vertical movement, an inking-table hinged at its inner end to the type-bed, a rest loosely supporting the outer end of the inking-table, and an inking-carriage operated by the movement of the type-bed.

4. In an intermittent web-printing machine, the combination of two stationary platens having curved faces arranged one above the other, two vertically-reciprocating type-beds one for each platen, a single actuating means for both beds, a feed mechanism for the paper adapted to present the opposite sides of the paper alternately to the lower and upper beds, and an inking device for each type-bed.

5. In an intermittent web-printing machine, the combination with a supporting-frame of two stationary platens secured thereto each

having a curved face, two vertically-reciprocating type-beds one for each platen the reciprocating uprights connecting the type-beds guided in fixed bearings, said type-beds being free to rock on said uprights, the equalizing-springs O sleeved on said uprights, the pockets I formed in the type-bed J, the pitmen H engaging therein and actuated by the crank-shafts, the drive-shaft C supported in bearings between said crank-shafts and the pinions E meshing with the gears F thereon.

6. In an intermittent web-printing machine, the combination of a reciprocating type-bed having a plane face a stationary platen having a curved face and means for imparting a combined reciprocating and tilting motion thereto, an inking-table hinged to said type-bed, a rest loosely supporting the outer end of said table, guides formed on the bed and table, an inking-carriage traveling in said guides, belts attached to the opposite ends of said carriage, one end being secured to the spring-roller V, and the opposite end to the drum T^3, the pulley T^2 adjacent to said drum, the belt T having its ends attached to said pulley and type-bed and adapted to impart motion to the carriage in the upward movement of the type-bed.

7. In an intermittent web-printing machine the combination of two stationary platens having curved faces, supported on fixed standards one above the other, two vertically-reciprocating type-beds one for each platen, loosely guided on said standards, uprights connecting the two type-beds, said type-beds being free to have a limited rocking movement on said uprights and actuating means for the lower type-bed.

8. In an intermittent web-printing machine, the combination of two stationary platens having curved faces supported on fixed standards one above the other, two vertically-reciprocating type-beds one for each platen, actuating means for the lower type-bed, the uprights M loosely connecting the two type-beds, guided in the platen L′ and the base and the springs O sleeved thereon.

9. In an intermittent web-printing machine, the combination of two stationary platens supported on fixed standards and arranged one above the other, two vertically-reciprocating type-beds one for each platen, having open bearings guided on said standards free to rock thereon, the standards M connecting the type-beds, having a portion projecting below said type-beds and into the base and springs O sleeved on said standards between the base and lower type-bed, said type-bed having the sockets I and the pitmen H engaging therein to reciprocate the type-bed.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN KREHBIEL.

Witnesses:

OTTO F. BARTHEL,

ADOLPH BARTHEL.