

(Model.)

2 Sheets—Sheet 1.

W. LEIST.

AUTOMATIC FEED MECHANISM FOR POWER PRESSES.

No. 354,480.

Patented Dec. 14, 1886.

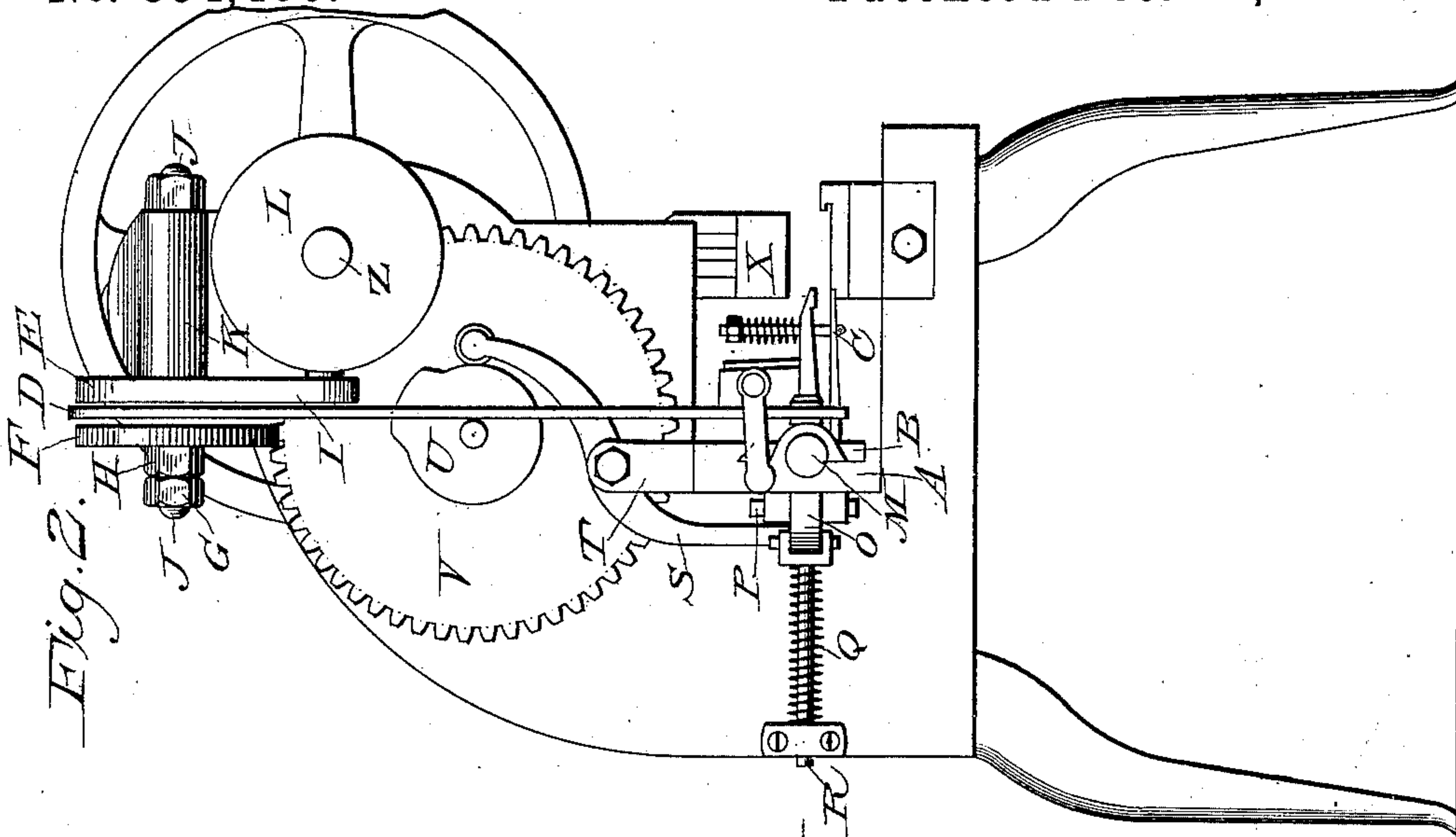


Fig. 1.

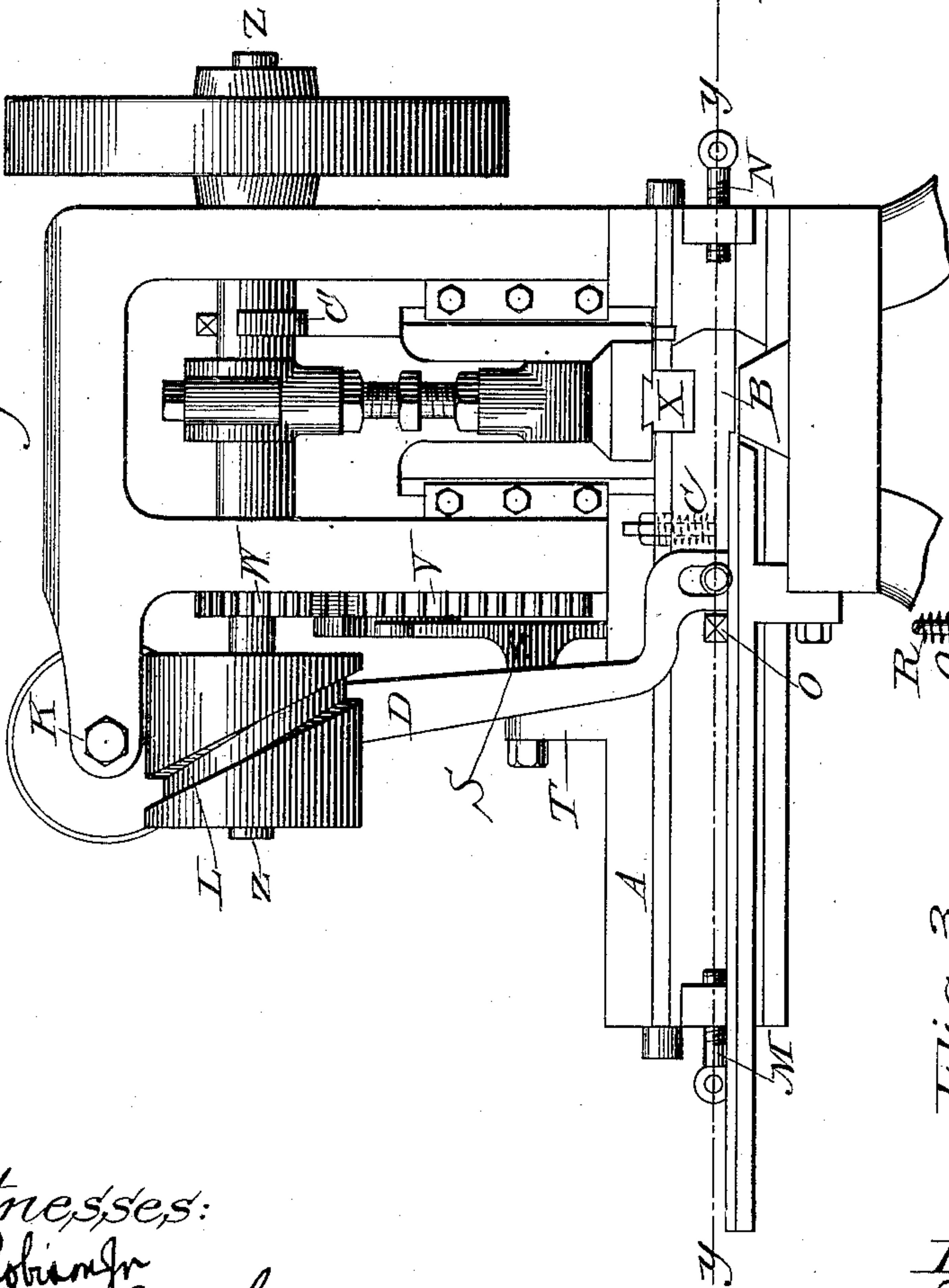
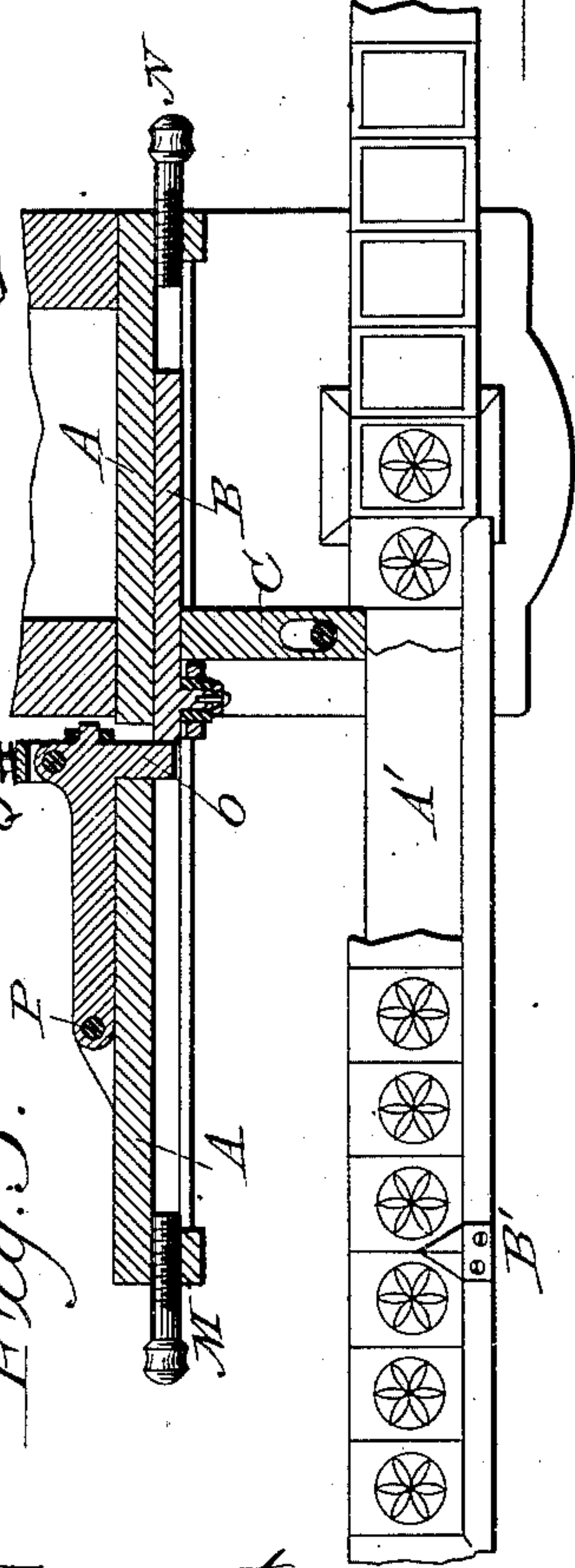


Fig. 3.



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Inventor:  
William Leist,  
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(Model.)

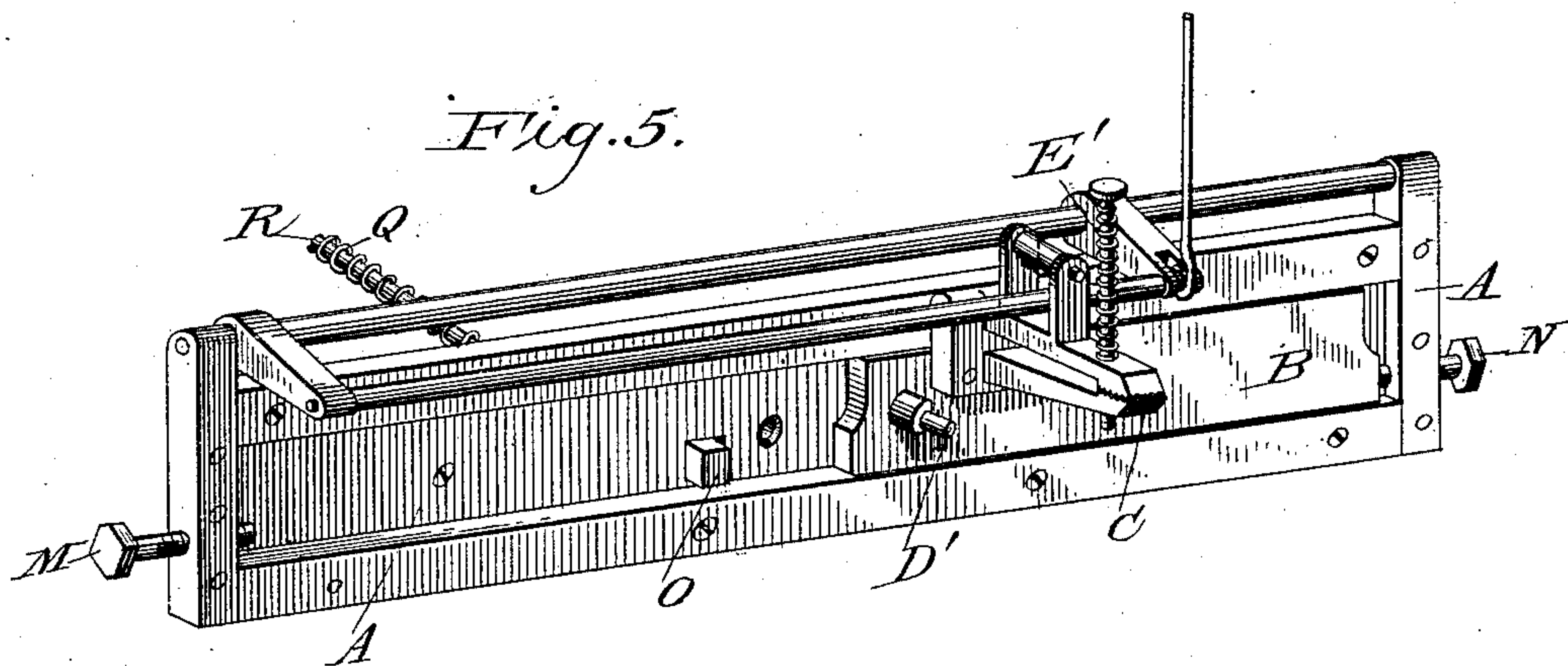
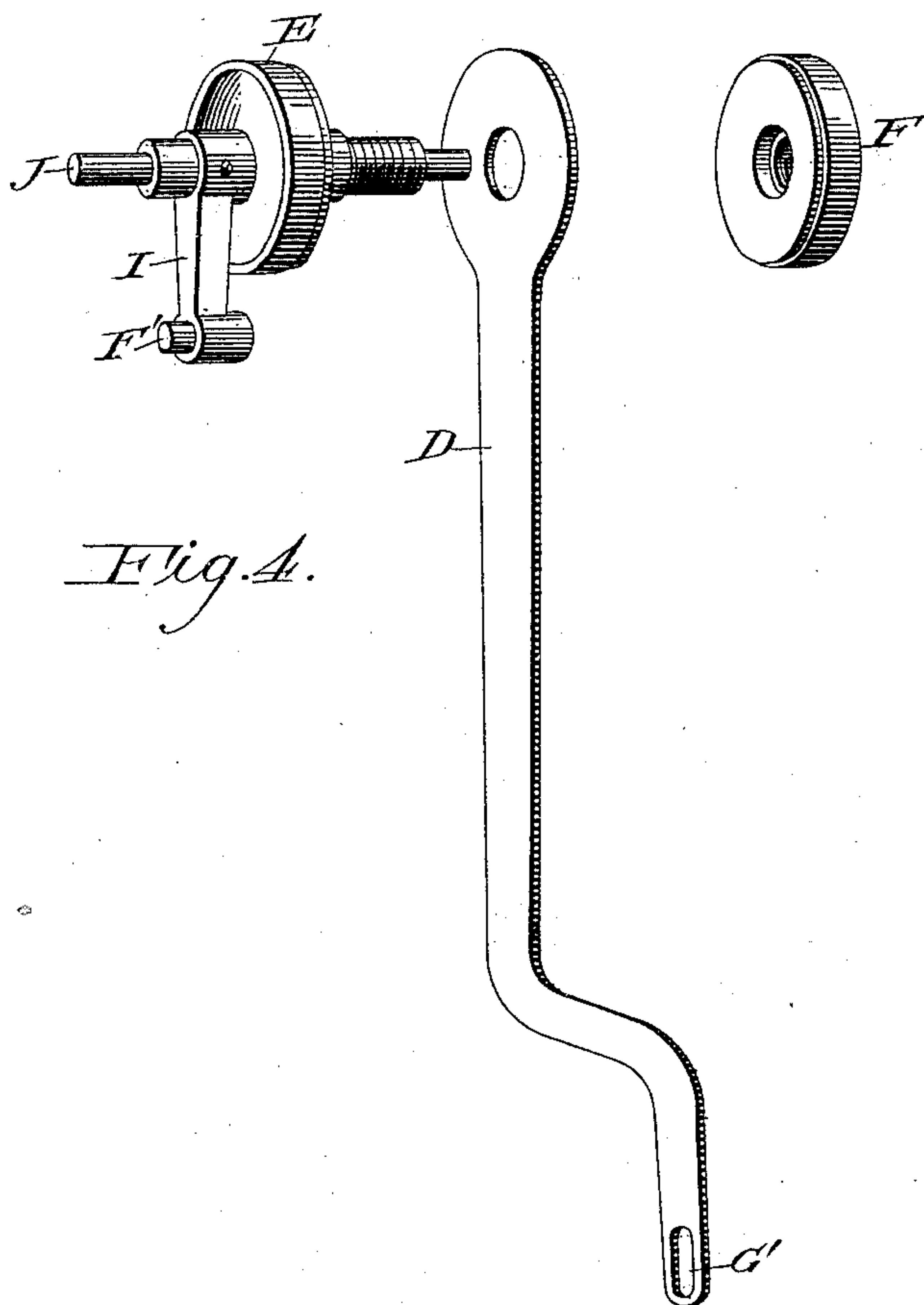
2 Sheets—Sheet 2.

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Inventor.  
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# UNITED STATES PATENT OFFICE.

WILLIAM LEIST, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO ANDREW LEIST, OF SAME PLACE.

## AUTOMATIC FEED MECHANISM FOR POWER-PRESSES.

SPECIFICATION forming part of Letters Patent No. 354,480, dated December 14, 1886.

Application filed March 31, 1886. Serial No. 197,346. (Model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LEIST, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Automatic Feed Mechanism for Power-Presses and other Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 represents a front view of a power-press with automatic feed mechanism attached. Fig. 2 represents a side view of a power-press with automatic feed mechanism attached. Fig. 3 represents a sectional view of a power-press on line Y Y, with automatic feed mechanism attached. Fig. 4 represents detached  
15 and in detail frictional lever D, frictional flanges E and F, crank I, and shaft J. Fig. 5 represents a front view of guide A, in which  
20 nipper-bar B moves or slides, nipper-bar B, nipper C, driving-pin D', adjustable bumpers M and N, movable bumper O, with its spring Q and spring-rod R, small spring F', to close  
25 nipper C, and mechanism to open nipper C, which said last-named mechanism in itself is not claimed as new by the inventor.

The power is applied to the main shaft Z Z, Fig. 1, and communicated thence to the press and feed mechanism.

30 The object of my invention is to provide automatic feed mechanism for power-presses and other machines, so constructed and operated as by means of a single nipper-bar to take hold of a strip of card, stiff paper, sheet metal,  
35 or other sheet material when placed in proper position on the table of the press or machine, and move or feed said strip toward and under the punch, knife, shear, stamp, or die, &c., with stops so regulated and adjusted as to exactly  
40 measure the desired spacings and fix them of the proper lengths, or at the exact distances apart that may be required, and so proceed with the punching, cutting, stamping, &c., until the strip of material is worked up,  
45 and then returning to the starting-point and repeating the same operations with and upon a fresh strip of material, and so continuing as long as the press or machine is operated or kept in motion.

50 The frame to which my automatic feed mechanism is attached is a power-press similar in construction to those in ordinary use for

punching, stamping, cutting, &c., strips of card, stiff paper, sheet metal, and other sheet material.

55 Guide A is rigidly attached to the body of the press, and nipper-bar B, with attached nipper C and driving-pin D', moves or slides in guide A. Nipper-bar B is moved or operated by frictional lever D, Figs. 1, 2, and 4. 60 The circular hole in upper part of frictional lever D, Fig. 4, is made to fit movably on shaft J, so as to turn on same. The slot G', near the lower end of said lever D, is made to fit driving-pin D', and allows of and provides 65 for the pendulum motion of lever D and the horizontal movement of nipper-bar B. Shaft J has a crank, I, and frictional flange E, both of which are rigidly attached to shaft J. Frictional lever D is put on shaft J, and placed 70 close up to said flange E. Then frictional flange F is placed on shaft J close up to lever D, and is prevented from turning on said shaft by a key or feather.

Two washers, of rawhide or other suitable 75 material, of the same size as flanges E and F, and made to fit shaft J, are placed one on each side of and close up to frictional lever D, to prevent cutting by constant friction.

80 Lock-nuts G and H, Fig. 2, press frictional flange F toward frictional flange E, and hold lever D tightly between the said flanges E and F until nipper-bar B strikes one of the bumpers, M, N, or O, when the friction of flanges E and F is overcome, and thus the 85 movements and operation of said lever D and nipper-bar B are regulated. Shaft J turns in a box, K, projected from the body of the press, and is operated by a small pin, F', with roller, by double side cam, L, which is rigidly at- 90 tached to main shaft Z, to which the power is applied. The roller is made to fit the groove in cam L, and crank I follows the motion of said groove in said cam L, and shaft J and frictional flanges E and F, moving together, 95 transfer said motion to nipper-bar B by the friction of flanges E and F on lever D, as above described, and thereby move said nipper-bar B in guide A from right to left and back again by revolution of main shaft Z. These move- 100 ments or strokes of nipper-bar B are regulated by the two adjustable bumpers M and N and movable bumper O, Figs. 1, 3, and 5. Whenever nipper-bar B strikes one of these bump-



ers, the resistance of the bumper overcomes the friction of flanges E and F, and allows shaft J, together with its frictional flanges E and F, to continue its motion caused by cam L without having any effect on nipper-bar B, and thus the strokes of the nipper-bar B can be adjusted to the desired length. Adjustable bumpers M and N are threaded, and are attached to guide A, as shown in Fig. 5.

10 Movable bumper O swings on pivot P, Figs. 2 and 3, (the same may be made to move in a suitable slide, if preferred,) attached to guide A and held in position by spiral spring Q on rod R, Figs. 2, 3, and 5, (a flat spring may be  
15 used instead of spiral spring Q, if preferred,) so as to confine the movements of nipper-bar B between adjustable bumpers M and N. Lever S swings on arm T, projected from guide A, operated by cam U, rigidly attached to  
20 gear-wheel V, Fig. 2, (in lieu of cam U a wall-cam may be employed, if preferred,) which is driven by gear-wheel W, rigidly attached to main shaft Z, as shown in Fig. 1, and moves bumper O out of guide A to provide for and  
25 allow the long stroke of nipper-bar B. Cam U, as shown in Fig. 2, provides for one long stroke to six short strokes of nipper-bar B. When a greater number of long strokes is required, the necessary alteration must be made  
30 on cam U to hold bumper O out of guide A long enough to accomplish the number of long strokes desired. Gear-wheels V and W are in accurate proportion to each in diameter as one to six, Fig. 1, which is necessary to ac-  
35 complish one long stroke to six short strokes of nipper-bar B.

When it is desired to vary the number of short strokes to one long stroke of nipper-bar B, this can readily be accomplished by chang-  
40 ing the relative proportion of the diameters of gear-wheels V and W to each other, as may be required. A worm and worm-wheel may be employed instead of gear-wheels V and W.

When the press is operated and in motion, a  
45 strip of card-paper, sheet metal, or other sheet material of the proper width is put upon the feed-table A' and placed to gage B', as shown in Fig. 3, and movable bumper O is thrown out of guide A by motion of lever S in connection  
50 with cam U, as above described, so as to allow nipper-bar B to move up to bumper M. When nipper-bar B moves to bumper M, nipper C is held open by means of mechanism shown in Fig. 5, connected with a small cam, C', on main  
55 shaft Z, (shown in Fig. 1,) until nipper-bar B strikes bumper M, when nipper C is closed by means of small spiral spring E', (shown in Fig. 5,) and nipper C takes hold of the sheet material and moves or feeds it toward and under  
60 the punch, knife, shear, stamp, die, &c., (as the

case may be,) X, until the nipper-bar B strikes bumper N, when nipper C is opened by the above-mentioned small cam C', and is kept open until nipper-bar B strikes bumper O again, and so on. While nipper-bar B is mov- 65 ing toward bumper N, movable bumper O is thrown into guide A by means of spring Q, Figs. 1 and 5, as hereinbefore described, and is held in that position by said spring Q until the required number of short strokes is completed, 70 and then movable bumper O is again thrown out of guide A, as hereinbefore set forth and described, and the same operations are repeated as before, and so on continuously as long as the press is kept in motion and opera- 75 tion.

I am aware that feed mechanism different in construction, mode of operation, and results, and every way inferior to mine, constructed with one and also with two nipper-bars, has 80 heretofore been used for the same purpose, in which, however, each separate nipper-bar accomplishes strokes of but one given length. I am not aware of the existence or use of any feed mechanism similar to mine or capable of 85 accomplishing the same results, or so constructed and operated as to accomplish with a single nipper-bar two different strokes of different lengths, as is done by my said invention.

Having thus described my invention, what I 90 claim is—

1. In an automatic feed for power-presses, said described mechanism, which performs two different motions of a single nipper-bar, said motions consisting of one or more long strokes 95 of the nipper-bar to the required number of short strokes of the said nipper-bar, substantially as and for the purposes set forth.

2. The combination of frictional lever D with frictional flanges E and F, crank I, shaft J, op- 100 erated by double side cam, L, substantially as and for the purposes set forth.

3. The combination of movable bumper O, spiral spring Q, rod R, lever S, and cam U, in connection with gear-wheels V and W, sub- 105 stantially as and for the purposes set forth.

4. The combination of frictional lever D, frictional flanges E and F, crank I, shaft J, double side cam, L, movable bumper O, spiral spring Q, rod R, lever S, cam U, gear-wheels 110 V and W, the whole arranged as and for the purposes substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand, this 27th day of March, 1886, in the presence of witnesses.

WILLIAM LEIST.

Witnesses:

J. C. ROBISON, Jr.,  
L. Y. HOWELL.