

(No Model.)

G. HEINSIUS.
LITHOGRAPHIC PRESS.

No. 410,708.

Patented Sept. 10, 1889.

Fig. 1.

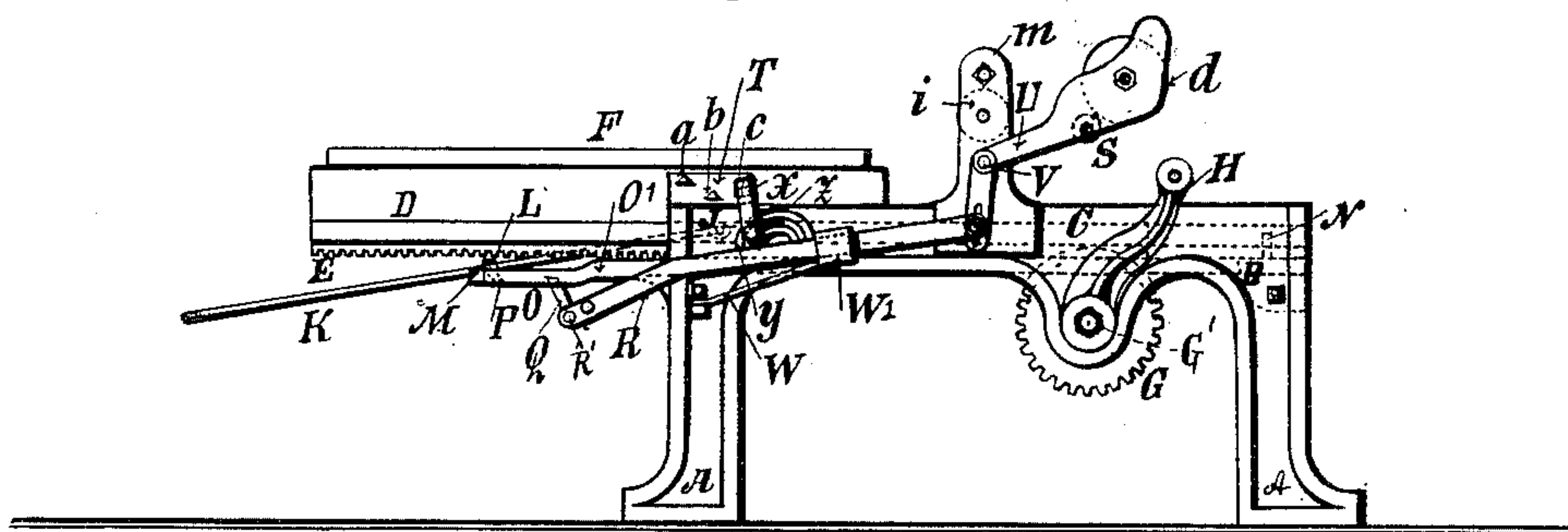


Fig. 2.

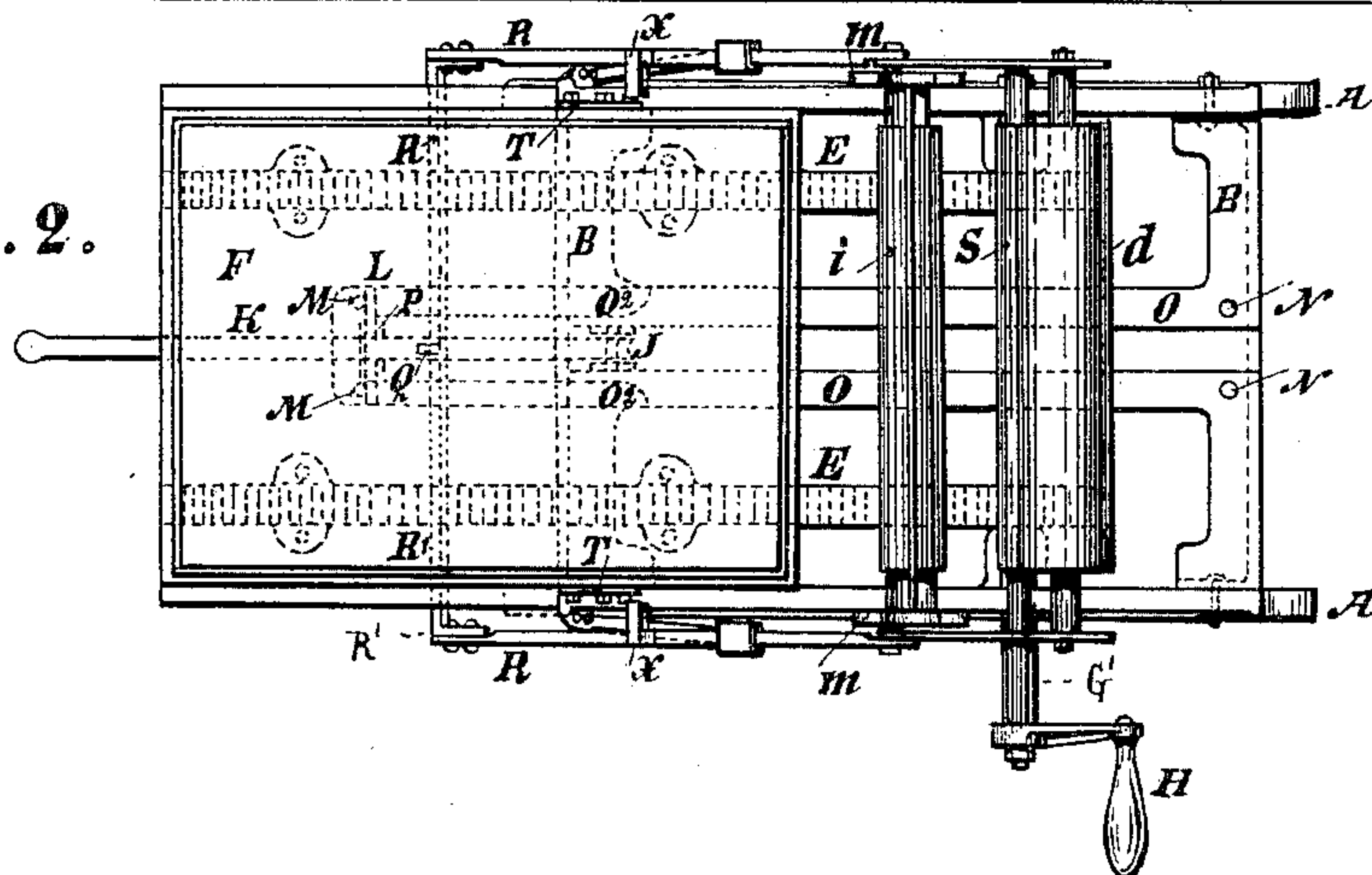


Fig. 3.

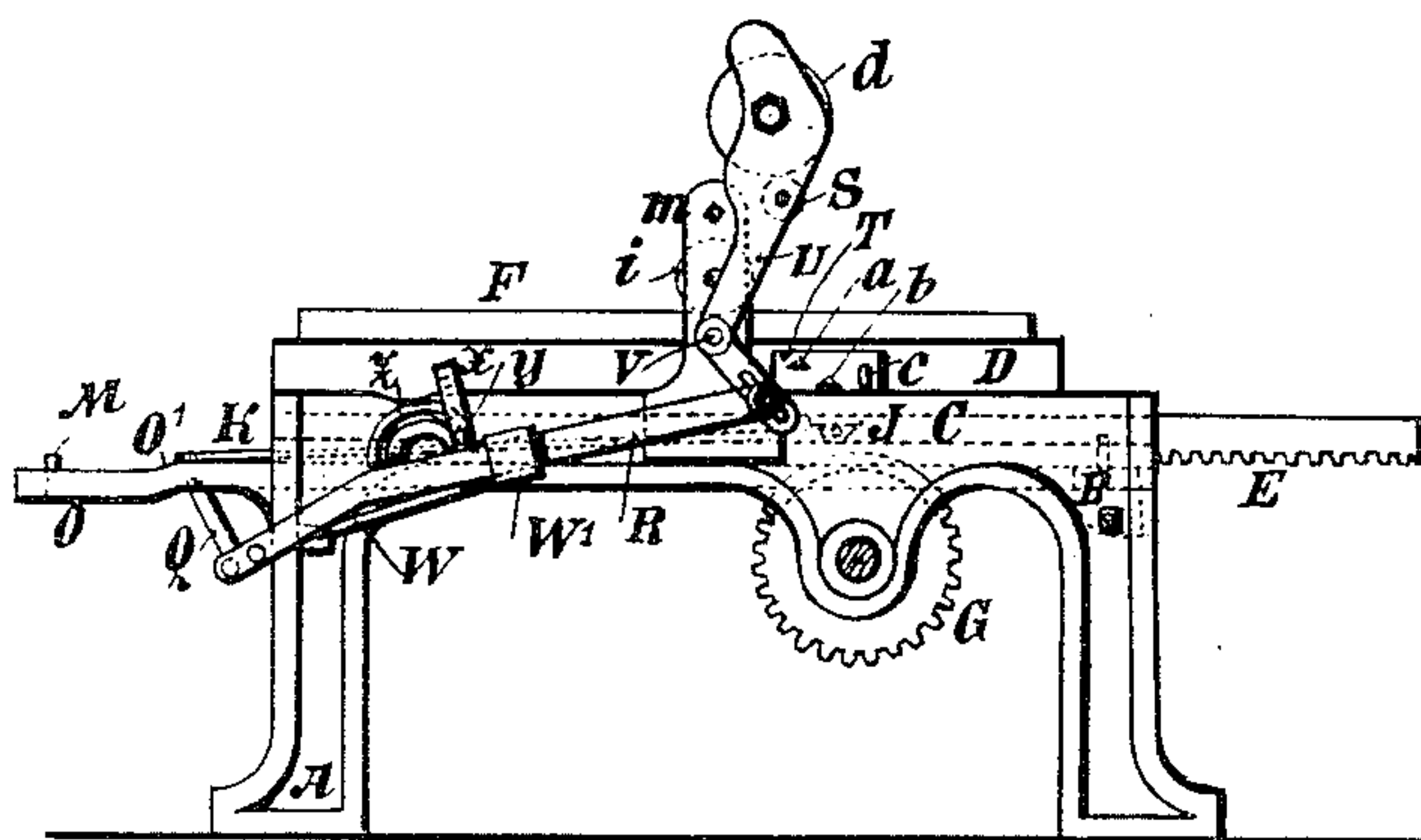
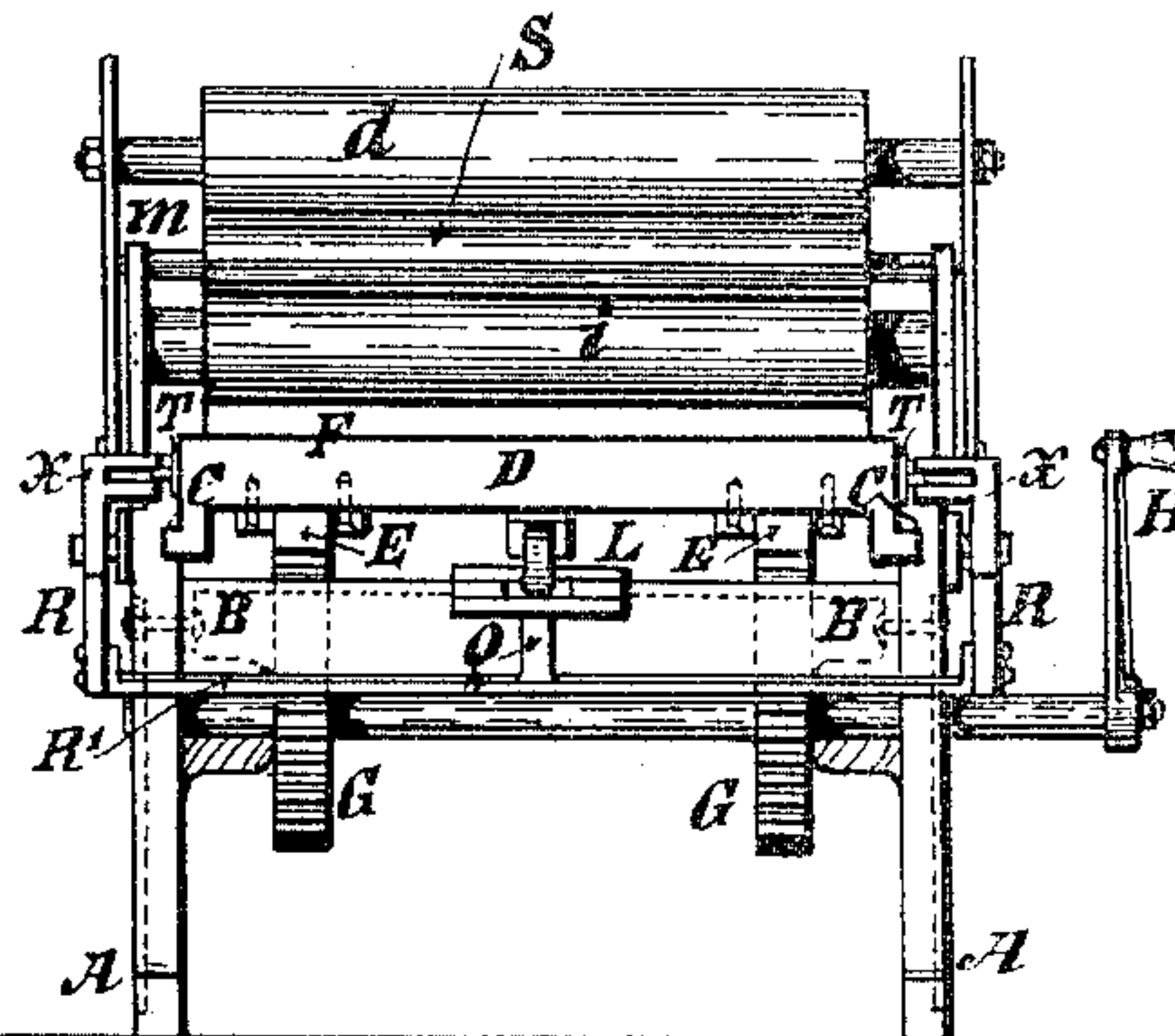


Fig. 4.



Witnesses
Wm. Wagner
Sponghmans.

Inventor
G. Heinsius
by his attorneys
Roeder & Briesen

UNITED STATES PATENT OFFICE.

GUSTAV HEINSIUS, OF DRESDEN, SAXONY, GERMANY.

LITHOGRAPHIC PRESS.

SPECIFICATION forming part of Letters Patent No. 410,708, dated September 10, 1889.

Application filed March 26, 1889. Serial No. 304,914. (No model.) Patented in France August 7, 1888, No. 192,293.

To all whom it may concern:

Be it known that I, GUSTAV HEINSIUS, a subject of the King of Saxony, residing at Dresden, in the Kingdom of Saxony, German Empire, have invented a new and useful Improvement in Lithographic Presses, (for which I have obtained a patent in France, No. 192,293, dated August 7, 1888,) of which the following is a specification.

My invention relates to new and useful improvements in lithographic presses; and the object of my invention is to obtain not only a self-acting pressure in printing, but also to provide a self-acting inking mechanism. The automatic pressure is worked by an elastic roller *i*, of india-rubber, turning in bearings in the stationary frame, and the inking-roller *S*, of india-rubber, is provided with a rocking frame *U*.

In the accompanying drawings, Figure 1 is a side elevation of the lithographic press embodying the improvements of my invention. The slide in this figure is fully drawn out to the left. Fig. 2 is a plan of the same. Fig. 3 is a side elevation of the press, with the slide in its midway position and the inking-roller with its supporting-frame elevated. Fig. 4 is a front view of the press, corresponding to Fig. 3.

The two lateral standards *A* of the main frame are connected by cross-bars *B*, and firmly united by screw-bolts to form a strong frame supporting the working mechanism.

Within the grooves *C* of the sideframes *A*, Fig. 4, a slide *D* is arranged to travel to and fro in the direction of the length of the frame. To the lower side of this slide *D* two racks *E* are secured, gearing with the toothed wheels *G*, which are mounted on a common shaft *G'*, to which motion is imparted in both directions by the winch-handle *H*. By means of said handle and shaft the slide *D*, which carries the printing-stone *F*, is working in either direction.

To the lower surface of the slide *D* a long flat bar *K* is attached, pivoted at *J*. To this bar *K* a cross-bar *L* is secured, which at the front of the press comes in contact with the pins or stops *M*, while at the rear of the press said cross-bar comes in contact with stops or pins *N* on the cross-bar *B*. By means of said

stops *M* and *N* the course of the slide *D* is limited in either direction.

The cross-bar *L* is guided by and slides on the two guide-bars *O*, made integral with the cross-bar *B*. At the front said guide-bars *O* are slightly lowered or bent downward. At *O'* they have an upward curve, and from *O'* they lower again toward the rear, where the stops *N* are arranged.

To the lower side of the flat bar *K*, near the cross-bar *L*, a stud *P* projects downward, which, when the slide *D* moves inward, comes against a stud *Q*, projecting from the cross-bar *R'* of a lever-frame *R*, Fig. 2. Said lever-frame is thereby carried a short distance to the rear, and, being hinged to the elbow-lever *U*, lifts the same and the inking-roller *S*, carried by said lever *U*, as shown in Fig. 3. The stud *P* moves then upward with the cross-bar *L* on the inclined surface *O'*, and comes clear of the stud *Q* when the slide *D* moves freely on. The two corresponding levers *R*, connected by the cross-bar *R'*, are arranged at the sides of the frame *A*. The stud *Q* projects midway of the cross-bar *R'*. Both levers *R* are pivoted to the lower end of the elbow-lever *U*, the fulcrum of which, at *V*, is arranged in brackets *m*, carried by the main frame *A*. The levers *R* are adjustable with reference to the levers *U* by means of slots and screw-bolts. A spring *W* and guide *W'*, provided for each of the levers *R*, are tending to hold said levers down.

Each of the levers *R* is provided with a fork *X*, engaging with one of the studs *a b c*, projecting from a plate *T*, secured at each side of the slide *D*. Said studs *a b c* serve to lift the fork, as will be further described.

To each of the levers *R* a heel or stud *y* is attached, projecting inward and sliding in guide-grooves *Z* of the standards *A*, to steady the movements of the levers *R* and to stop the same in certain positions.

The working order of this improved lithographic press is as follows: On turning the handle *H* in the direction of the arrow, Fig. 1, the slide *D* is moving inward, the studs *c*, which have been inside the fork *X*, and also the studs *b*, slide out of their respective fork, while the studs *a* engage with and carry the upper prong of the fork *X*, Fig. 4, so as to lift said fork from its point of rest and make

the heel y enter into the curve of the groove Z. At the same time the stud P bears against the stud Q of the cross-bar R' and pushes the lever-frame R R' a short distance back, and
 5 the heel y slides up to the end of groove Z. In the mean time the cross-bar L has run up the inclined surface O' of the guides O, where-
 by the stud P comes off the stud Q, the slide D moves on, and the heel y , through the pressure
 10 worked on the lever R by the spring W, comes down into the recess of the groove Z, Fig. 3, whereby the levers are stopped and held in their position shown in Fig. 3. The
 15 slide D has reached the end of its course when the cross-bar L bears against the stops N.

On turning the handle H in the opposite direction the stud b on plates T will, near the end of the slide-race, engage with the lower
 20 prong of the fork X, Fig. 4, so as to lift said fork, and with it the heel y , until the latter enters into the curve of the groove Z, where-
 upon the stud c will bear against the lower prong of said fork X and carry the same
 25 farther on. The lever-frame R R' thereby is again forced toward the front part of the press, and the inking-rollers S d are lowered down with the elbow-lever U. The heel y
 30 finally enters into its original point of rest within the groove Z.

For inking the stone F, on the surface of which the characters, designs, &c., to be printed are engraved in the negative, I proceed as follows: The ink is applied to the
 35 stone by the rubber ink-roller S, to which ink is supplied by the feed-roller d . The roller S, while inking, keeps the position shown in Fig. 1, to which position the lever-frame U had been brought down, as before described,

by the return motion of the slide D. On
 40 making the slide D travel again below said inking-roller the flat bar K is lifted by hand as much as to make the stud P pass freely over the stud Q. Accordingly the lever-
 45 frames R R' U will remain in their lowered position, as shown in Fig. 1, and the inking-roller S will bear upon the surface of the stone as the latter travels on below said roller. The slide D may be repeatedly carried to and
 50 fro below the roller S till the stone has been sufficiently inked.

The pressure-roller i of india-rubber is provided to turn in fixed bearings of the brackets m . This roller does not touch the stone
 55 as it travels to and fro, while for printing a couch of card-board is laid upon the paper sufficient in height to make the roller i work a suitable pressure as the stone passes below.

What I claim is—

1. In a lithographic press, the lever-frame
 60 R, with forks X and heels y , curved grooves Z, stud Q, elbow-lever U, and inking-roller S, in combination with bar K, stud P, and guide-bars O, substantially as specified.

2. In a lithographic press, the combination
 65 of plate T at the sides of slide D, provided with projecting studs or pins $a b c$, with the fork X, lever-frame R, and springs W, with guides W', substantially as and for the purpose set forth.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 26th day of February, 1889.

GUSTAV HEINSIUS.

Witnesses:

F. DUTSCHMANN,
 PAUL DRUCKMÜLLER.