

(No Model.)

J. KRAYER.

LITHOGRAPHIC PRINTING PRESS.

No. 258,770.

Patented May 30, 1882.

Fig 2

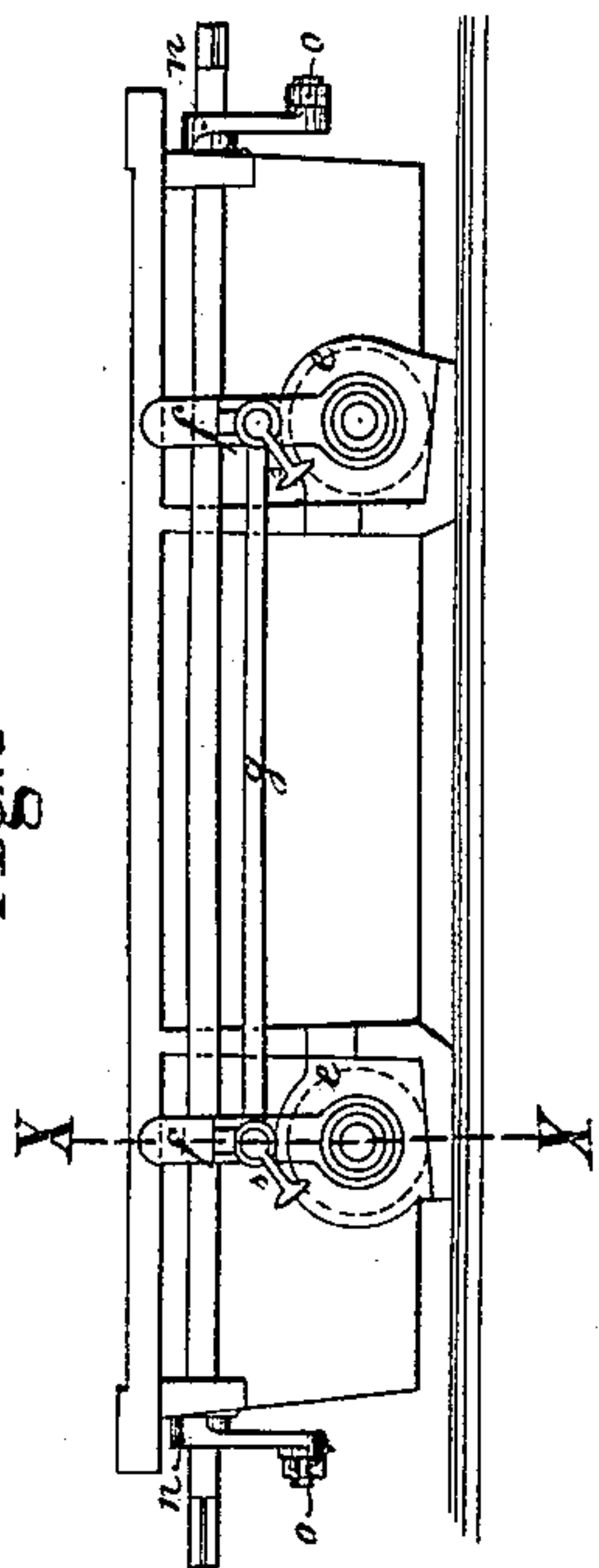


Fig 4

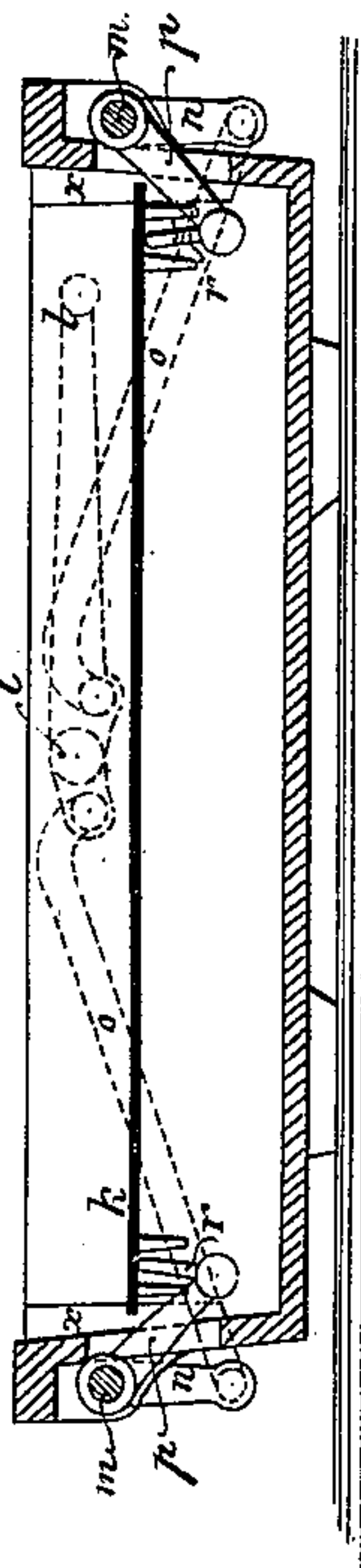


Fig 6

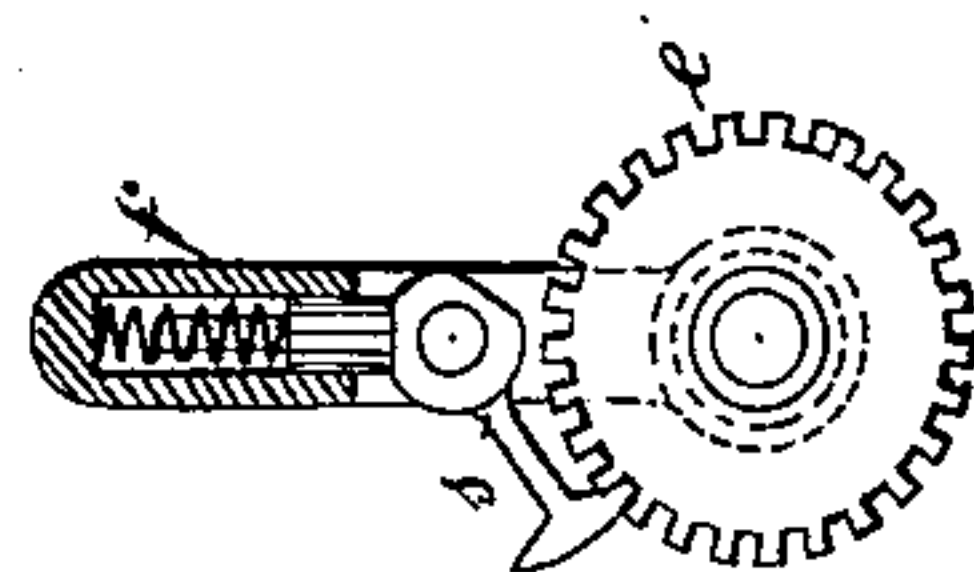


Fig 1

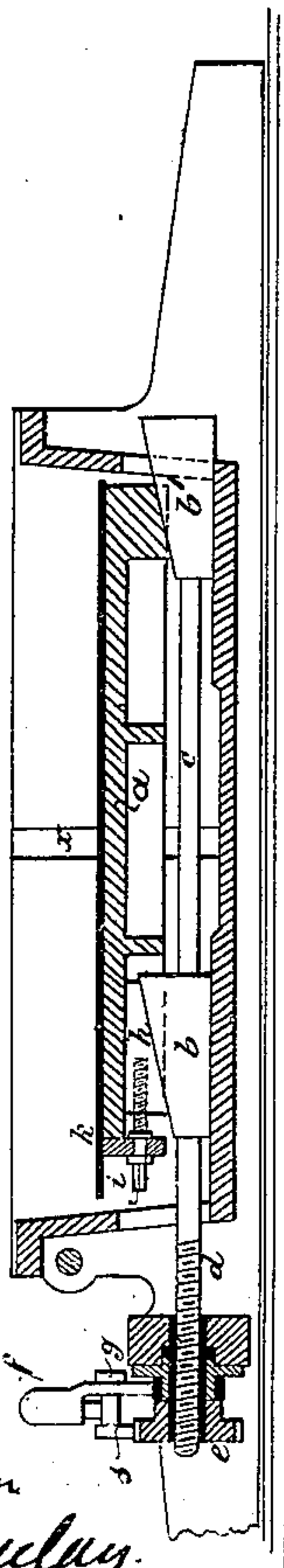


Fig 3

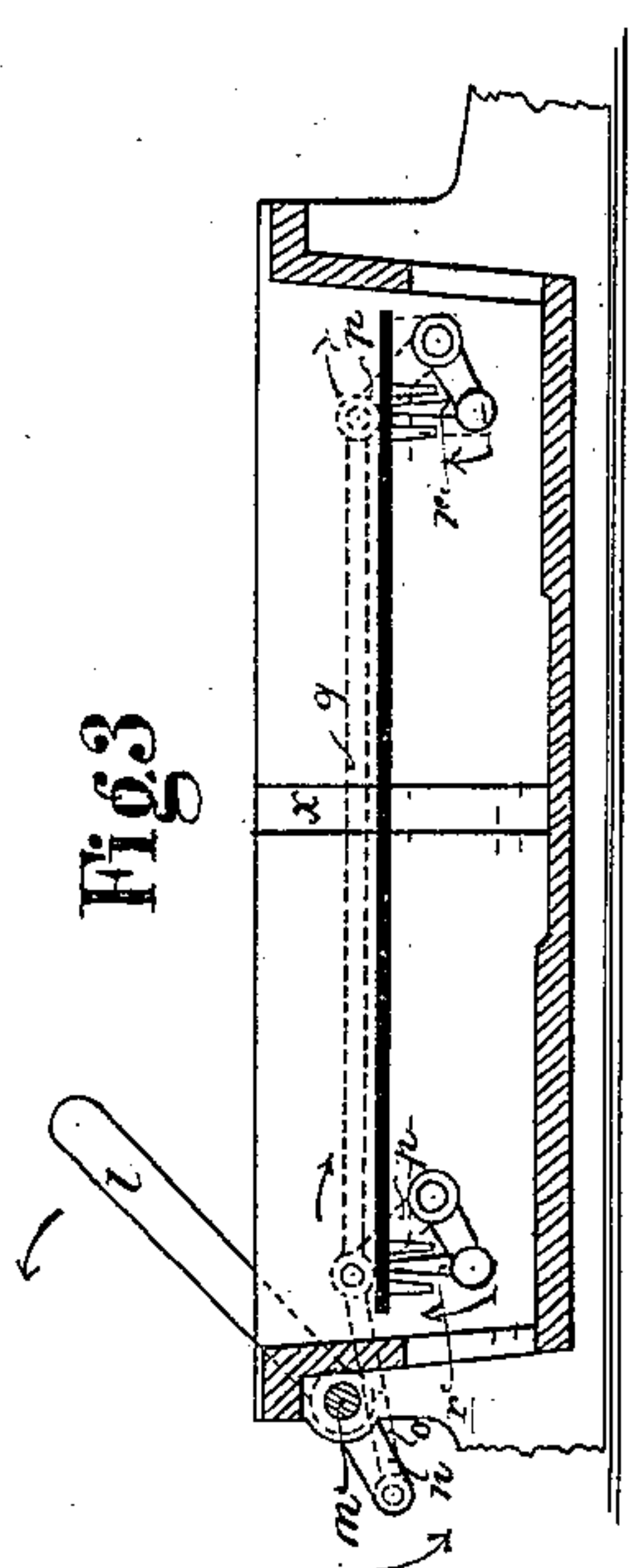
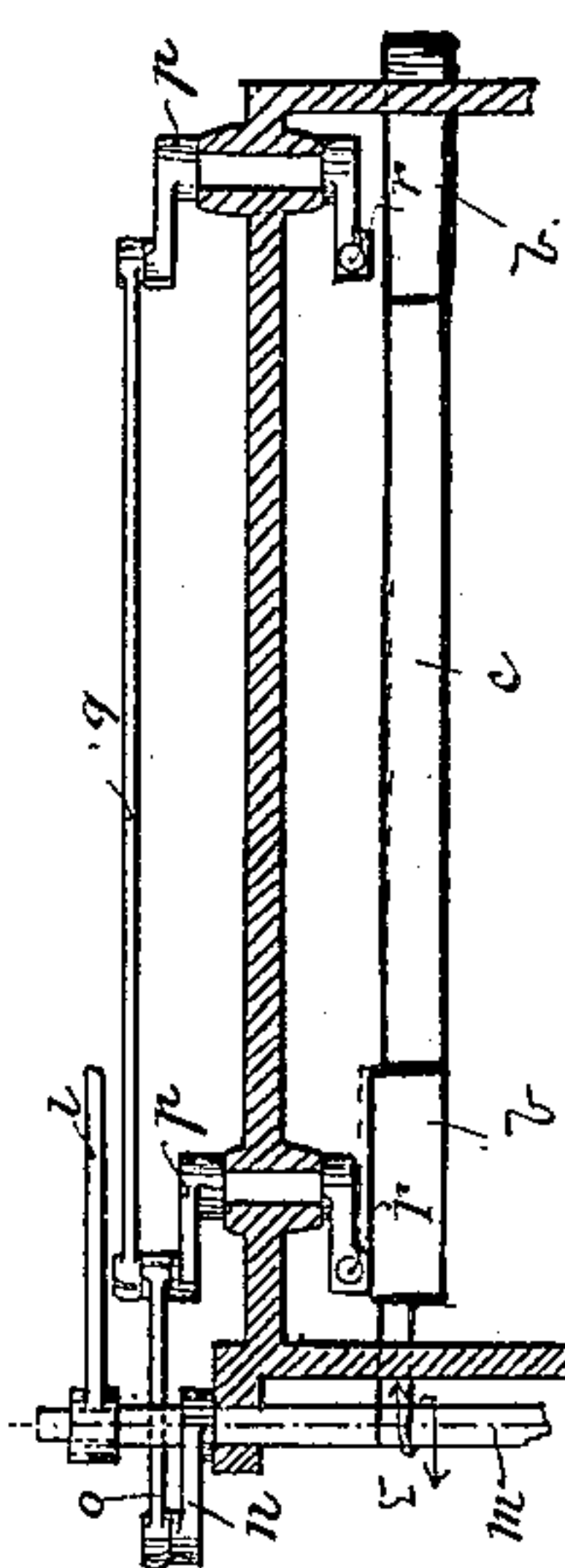


Fig 5



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# UNITED STATES PATENT OFFICE.

JOSEPH KRAYER, OF JOHANNISBERG-ON-THE RHINE, GERMANY.

## LITHOGRAPHIC PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 258,770, dated May 30, 1882.

Application filed March 2, 1882. (No model.) Patented in Germany August 16, 1879, No. 6,666.

*To all whom it may concern:*

Be it known that I, JOSEPH KRAYER, of Johannisberg-on-the-Rhine, Empire of Germany, have invented certain new and useful Improvements in Lithographic Presses; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the device on the line X X of Fig. 2. Fig. 2 is a front elevation; Fig. 3, a sectional view, showing the device for raising or lowering the stone; Fig. 4, a similar view of a modified form of the same device. Fig. 5 is a horizontal sectional view, and Fig. 6 an enlarged view of a detail of the device.

My invention relates to devices for adjusting lithographic stones in their holders, whereby the surface may be brought to a truly-horizontal position and to the proper height for printing, and also to mechanism having for its object to facilitate the placing of the stone in and its removal from the holder. My said invention consists in certain devices for accomplishing the ends named, constructed and operating substantially as hereinafter set forth.

Referring now to the first part of my invention, I would state that great difficulty has heretofore been met with in adjusting lithographic stones in the holders by reason of the unevenness of the lower side of the stones, or due to inequality in grinding away the surface; and my invention is designed to remedy this evil by providing the holder with a number of supporting-wedges for the stone, the said wedges being independently adjustable, so as to bring the face of the stone truly horizontal, and being also so connected as to raise or lower the stone vertically.

In the drawings, *a* is the plate, on which rests a second plate, *k*, on which latter the stone is laid, and *b b'* are wedges, four in number, one of them being located in each corner of the holder. Each pair of wedges is connected by a rod, *c*, which passes through the holder and is threaded at the end *d*. Ratchet-wheels *e e* are screwed on the ends *d*, and have collars that engage with suitable grooves on the bearings, so that on turning the wheels the wedges are drawn in or out, as the case may be. Levers

*f f* are mounted on the sleeves of the ratchet-wheels, and each carries a pawl, *s*, adapted to engage with the teeth of the wheels. These pawls are reversible, so that on throwing them into engagement with the teeth to the right or left the wheels may be made to turn in either direction, as may be desired. The two levers are connected by a rod, *g*, as shown in Fig. 2. The wedges *b'* bear against inclined lugs on the under side of the plate *a*, while the wedges *b* bear against wedges *h*, mounted upon screw-rods *i*, that pass through the side flanges of the plate *a*. The latter is provided with lugs, which slide vertically in grooves *x* in the sides of the holder.

In operation the stone is laid on the plate *k*, and is adjusted to a horizontal position by means of the wedges *b b' h*. The horizontality of the stone with reference to an axis at right angles to the rods *c* is attained by working either pair of wedges *b b'*, as may be desired, the other pair being thrown out of gear, as it were, by turning its pawl *s* to a vertical position. As soon as a spirit-level laid at right angles to the rods *c* shows that the stone is horizontal with reference thereto it is turned parallel to the rods *c*, and the wedges *h* are run in or out, as may be necessary, by turning the screw-rods *i*. The surface of the stone being thus adjusted horizontally, it is raised or lowered bodily to bring its surface to the proper height for printing. This is done by throwing the two pawls *s* into engagement with the wheels *e* on the same side (either to the right or left of the shafts) and working either lever *f*. All four wedges, *b b' b' b'*, are thereby simultaneously drawn out or in, as the case may be, raising or lowering the stone vertically.

The second part of my invention relates to a device for facilitating the placing of the stone on or its removal from the plate which supports it. These operations, especially in the case of heavy stones or such as nearly fit within the holder, are attended with considerable difficulty, and the stone is frequently chipped or broken.

I have devised an attachment for the holder whereby the supplemental plate *k* may be raised flush with the top of the holder, so that the stone may be slid onto it or off it, as desired.



Through one side of the holder passes a shaft, *m*, having a lever, *l*, and on the shaft is keyed at either end an arm, *n*. The latter are connected by bars *o q* with bell-crank levers *p*,  
 5 pivoted in the sides of the holder. In the ends of the levers *p* are studs or points, *r*, which enter between teeth on the under side of the plate *k*. This mechanism is duplicated on the opposite side of the plate. On turning the  
 10 lever *l* in the direction of the arrow the studs *r* rise, lifting the plate *k*. On reversing the motion of the lever the plate is lowered.

In Fig. 4 is shown a modified form of the same device. The lever *l* is pivoted at *l'*, and  
 15 bars *o o* are pivoted to the lever at either side of its fulcrum, and are attached at the opposite ends to arms *n*, that are keyed on the shafts *m* at either side of the holder. Arms *p*, projecting from the shafts *m* through slots in the  
 20 walls of the holder, serve to lift the plate *k* as the lever *l* is rocked.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

25 1. In a lithographic press, the supporting-plate for the stone, resting upon a series of wedges, as set forth, in combination with mechanism, substantially as described, for moving the same either singly, in pairs, or all  
 30 at once, whereby the stone may be adjusted to a horizontal position, and then raised or lowered vertically, as may be desired.

2. In combination with the stone-holder, the wedges *b b'*, connected together at either side of the same, the supplemental wedges *h*, and  
 35 mechanism, substantially as described, for operating the wedges in pairs or singly, substantially as set forth.

3. In combination with the holder and plate *a*, the wedges *b b' h*, ratchet-wheels *e*, screw-  
 40 rods *d*, and connected levers *f*, having pawls *s*, as set forth.

4. In combination with the holder, the supporting-plate *k* for the stone, and mechanism, substantially as described, for raising the same  
 45 flush with the upper edge of the holder, and for lowering it, as set forth.

5. In combination with the holder, the supporting-plate *k*, shaft *m*, lever *l*, rods *o q*, and bell-crank levers *p*, substantially as described.  
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6. In combination with the stone-holder of a lithographic press, the plate *a*, having independently-movable wedges at the corners thereof for adjusting the plate horizontally, the supplemental supporting-plate *k*, and mechanism,  
 55 substantially as described, for lifting the latter flush with the edge of the holder, and for lowering it upon the plate *a*, as set forth.

JOSEPH KRAYER.

Witnesses:

LOUIS BASSE,  
 H. DETZER.