

(No Model.)

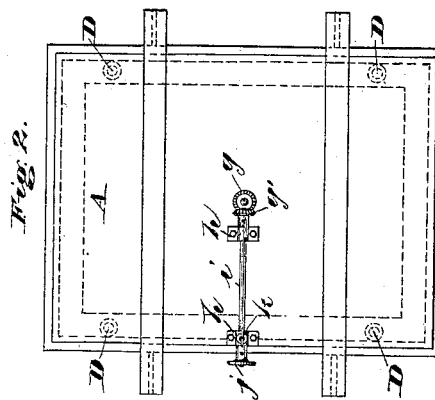
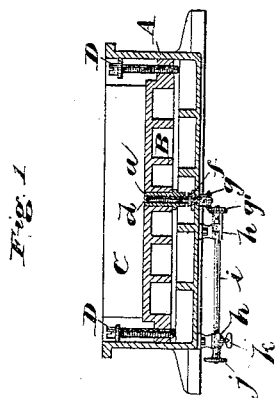
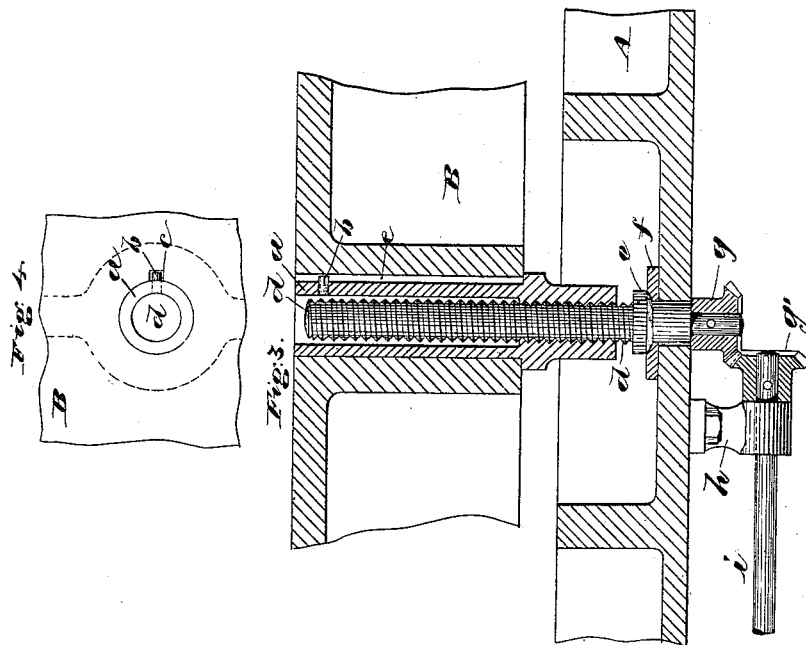
2 Sheets—Sheet 1.

J. T. HAWKINS.

LITHOGRAPHIC PRINTING MACHINE.

No. 385,860.

Patented July 10, 1888.



Witnesses:
Francis P. Reilly
James E. Keese.

Inventor:
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Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

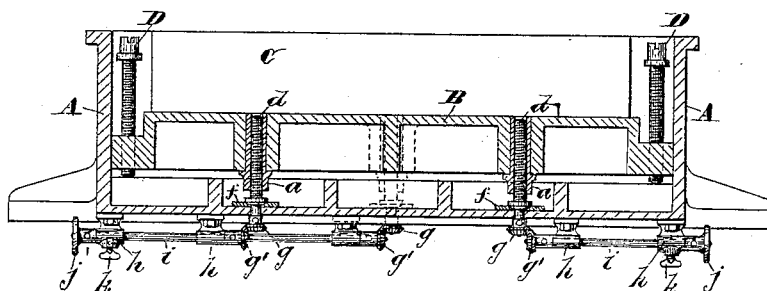
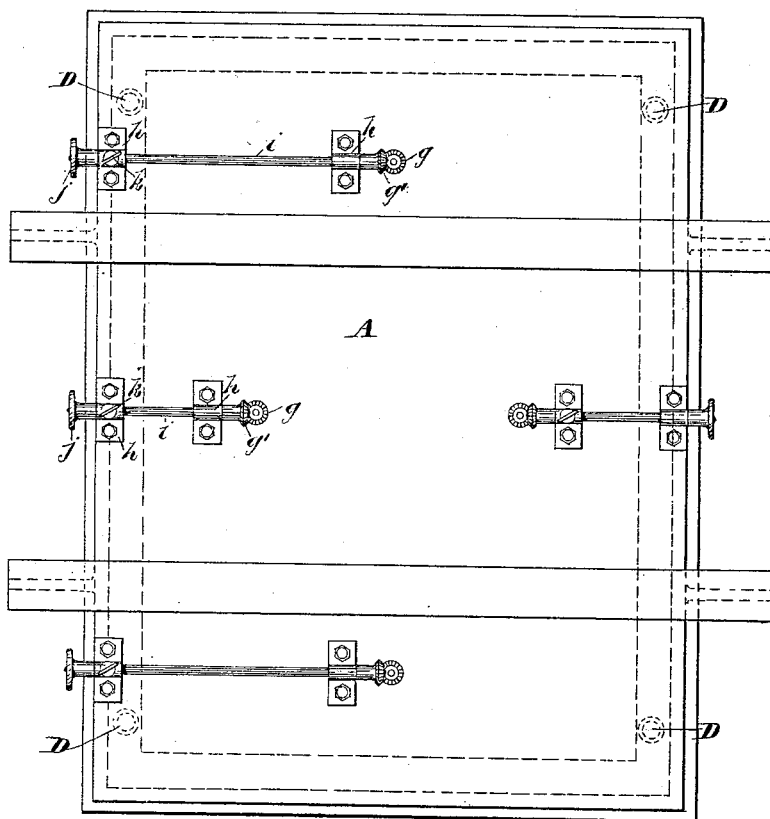


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

LITHOGRAPHIC PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 385,860, dated July 10, 1888.

Application filed June 22, 1885. Serial No. 169,352. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented a certain new and useful Improvement in Lithographic Printing-Machines, which invention or improvement is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention may be explained as follows: Lithographic stones are seldom of uniform thickness—that is, the unfinished bottom of any stone is rarely parallel with the plane of its finished upper printing or form surface. Such being the case, the object of this invention is accomplished by combining with marginal or corner leveling-screws—such as are usually employed, which, passing down through the margins of the stone-plate, rest on the bed or box of the machine and are operated from above—one or more bush-adjusting screws placed at any desired points under the stone-plate, which pass up from below through the bed or box of the machine, and which may be separately adjusted from below. Thus said marginal leveling-screws proper level the stone to any desired general horizontal plane, and then said adjusting-screws are adjusted to take the set and pressure of the stone-plate. The printing-surface of the stone is thus brought exactly level, regardless of the angle or plane of its under surface, and at the same time is prevented any necessity for springing the stone-plate by the marginal leveling-screws (thereby endangering the breaking of the stone) by attempting to accurately adjust or set the stone by said leveling-screws alone.

In the drawings, Figure 1 is a longitudinal vertical section through the ordinary form of the bed or box of a lithographic printing-press, showing one of the new adjusting-screws constituting this invention. Fig. 2 is a plan of the same as seen from the under side. Fig. 3 is an enlarged vertical section of one of the central supporting-screws and a portion of the bed-box and stone-plate containing the same. Fig. 4 is a plan of part of the face of the stone-plate. Figs. 5 and 6 show, respectively, views similar to Figs. 1 and 2, but enlarged and provided with four under adjusting-screws instead of one.

The several parts are indicated by letters as follows: A is the bed or box. B is the stone-plate; C, the stone. D D are the four usual leveling and supporting screws tapped in the stone-plate B, their points impinging upon the bed or box A. So far as described this is the usual construction, leaving the central parts of the stone unsupported, except by its own transverse strength.

A bush or sleeve, *a*, is fitted loosely into a corresponding hole in the stone-plate B and prevented from rotating by a pin, *b*, inserted in it and running in a groove, *c*, in the stone-plate B. The stone-plate B may thus be lifted off from the bush *a* by the action of the leveling corner-screws D, or so that the bush *a* may be dropped out of contact at its shoulders with the bottom of the stone-plate B when it is necessary to support it in leveling by the four corner screws only. The sleeve *a* projects below the bottom of the stone-plate B, and is there enlarged, so as to allow said plate to rest upon the shoulders forming said enlargement. The projecting lower part of said sleeve forms a threaded nut for the entrance of the adjusting-screw *d*. Said screw has a collar formed upon it, near its lower end, having its under side of spherical form, as at *e*, resting upon a correspondingly-formed plate, *f*, the latter secured to the inside of the bottom of the bed or box A; or a spherical concave surface may be formed on the inside of the bottom of the bed-box itself for the reception of the spherical collar on the screw *d*. The screw *d* projects through the bottom of the bed or box A, and secured thereto is a bevel-gear, *g*. The object of making the bottom of the collar *e* of the adjusting-screw *d* of a spherical form is to permit said screw to vibrate slightly in its bed *f*, the hole through the box A, through which the lower part of said screw passes, making a loose or easy fit with said part of said screw. Carried in suitable brackets, *h*, is a shaft, *i*. On the inner end of shaft *i* is a bevel-gear, *g'*, meshing with the gear *g*. A suitable hand-wheel, *j*, is secured to the other end of shaft *i*, and a set-screw, *k*, is inserted in the outer bracket, *h*, to secure the shaft *i* in any position in which it may be placed.

In the operation of the parts the sleeve *a* is run down out of the way while leveling the stone by means of the corner-screws D. When

the leveling is completed, the bush or sleeve *a* is brought up, by means of the hand-wheel *j* and the mechanism therewith described, until its shoulder bears against the under side of 5 and supports the stone-plate B at that point, when it is secured against running back while the machine is in operation by setting up the set screw *k*, which bites into the shaft *i*.

I do not confine myself to a single central 10 supporting-screw, as shown, as it is obvious that several may be used, if desired; nor do I confine myself to the means shown of rotating the screw *d* from the bottom and back of the bed, as it is obvious that a worm-wheel and 15 worm, or ratchet and pawl, or other mechanism, may be substituted for the bevel-gears *g* *g'* and the shaft *i*; but,

Having thus fully described my said improvement, as of my invention I claim—

In a lithographic printing-machine, in combination with a stone-plate and one or more supporting-bushes, marginal leveling-screws, as D, operated from the top to level said plate, and one or more bush-adjusting screws, as *d*, operated from the under side of the bed or box 25 of said machine and passing up therethrough, whereby each of said bush-adjusting screws is adjusted to support the stone-plate and to prevent its springing under pressure and the consequent fracture of the stone, substantially as 30 set forth.

JOHN T. HAWKINS.

Witnesses:

ELISHA T. JACKSON,
J. F. HALEY.