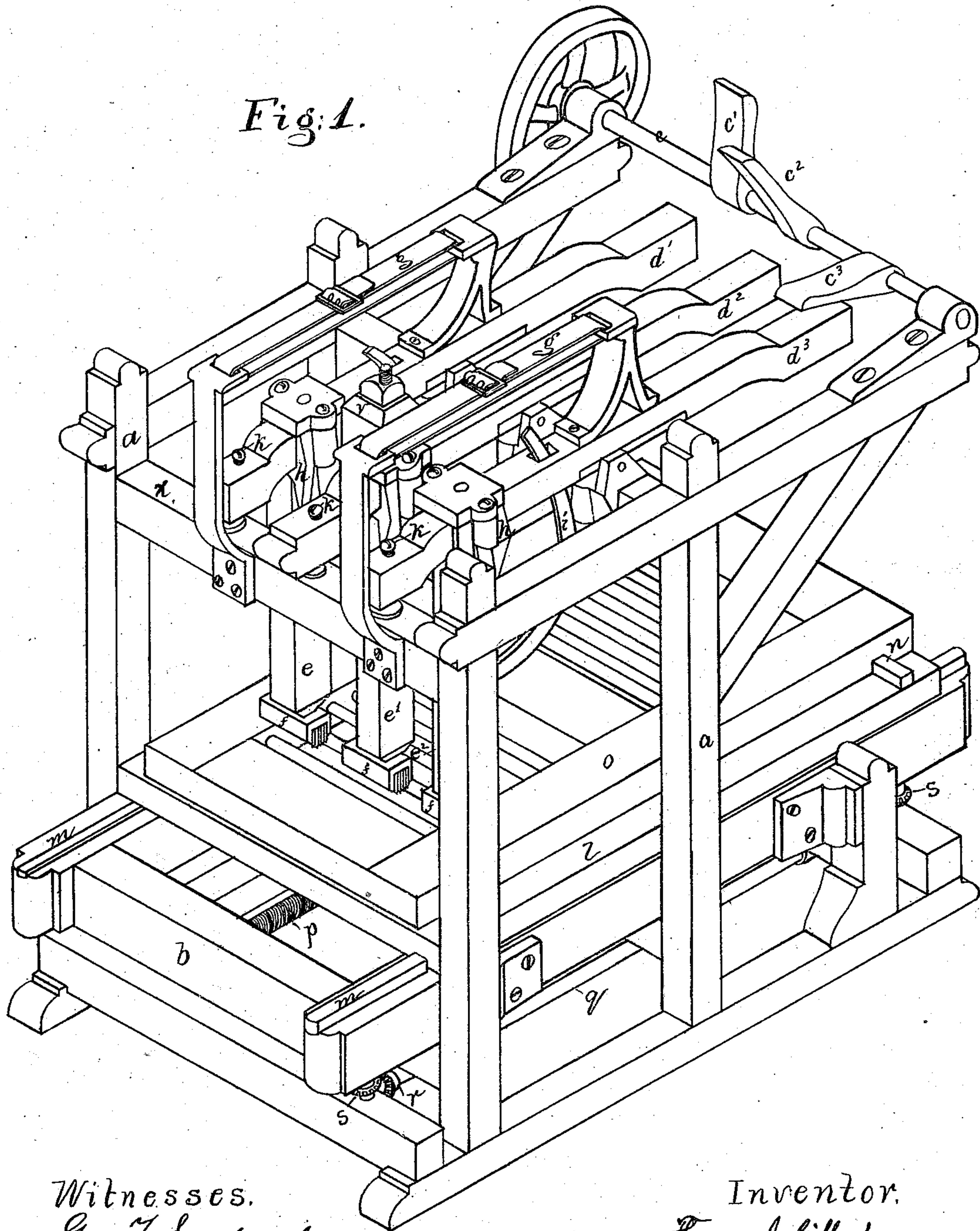


T. J. GIFFORD.
Machines for Dressing Stone.

No. 156,215.

Patented Oct. 27, 1874.

Fig. 1.



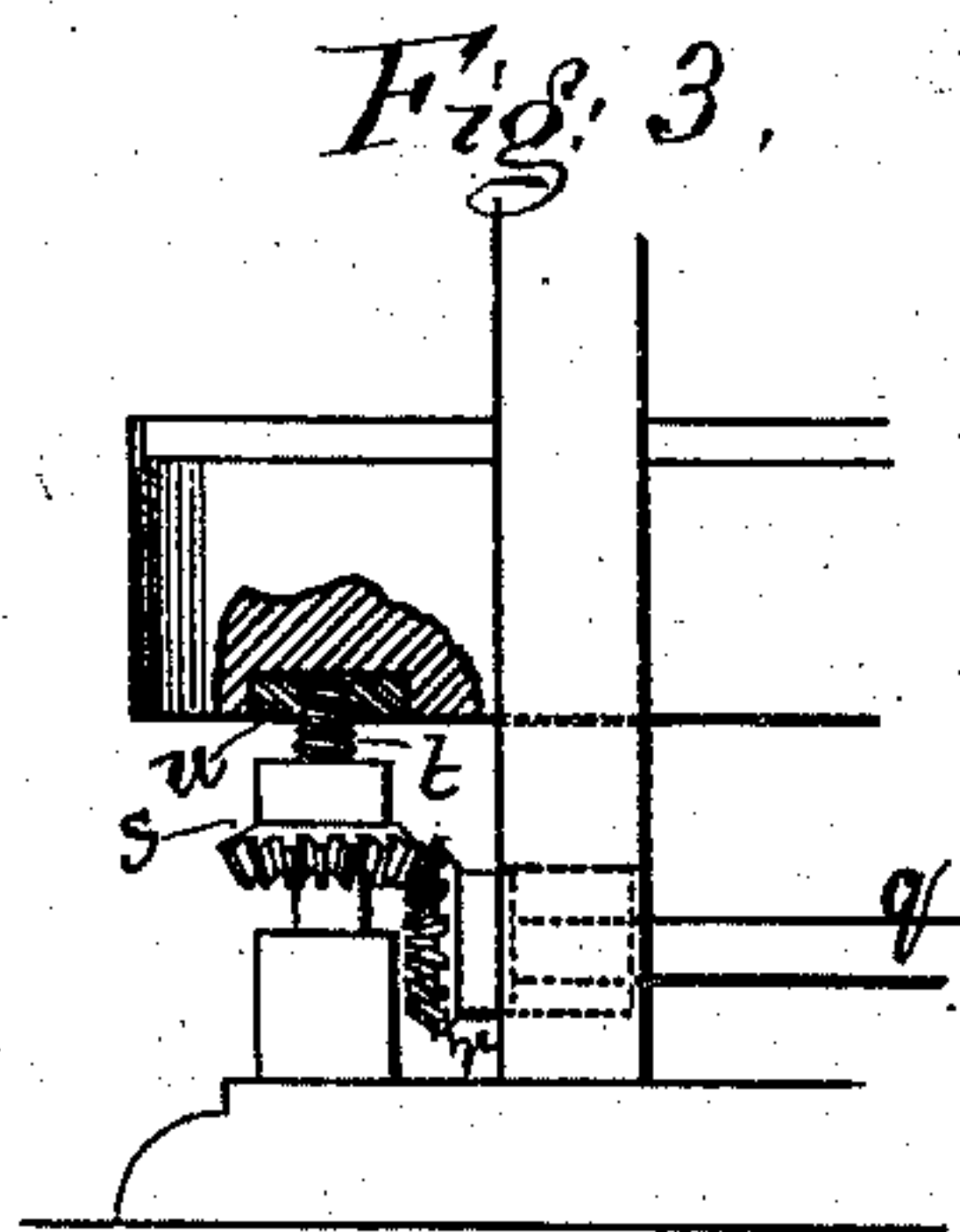
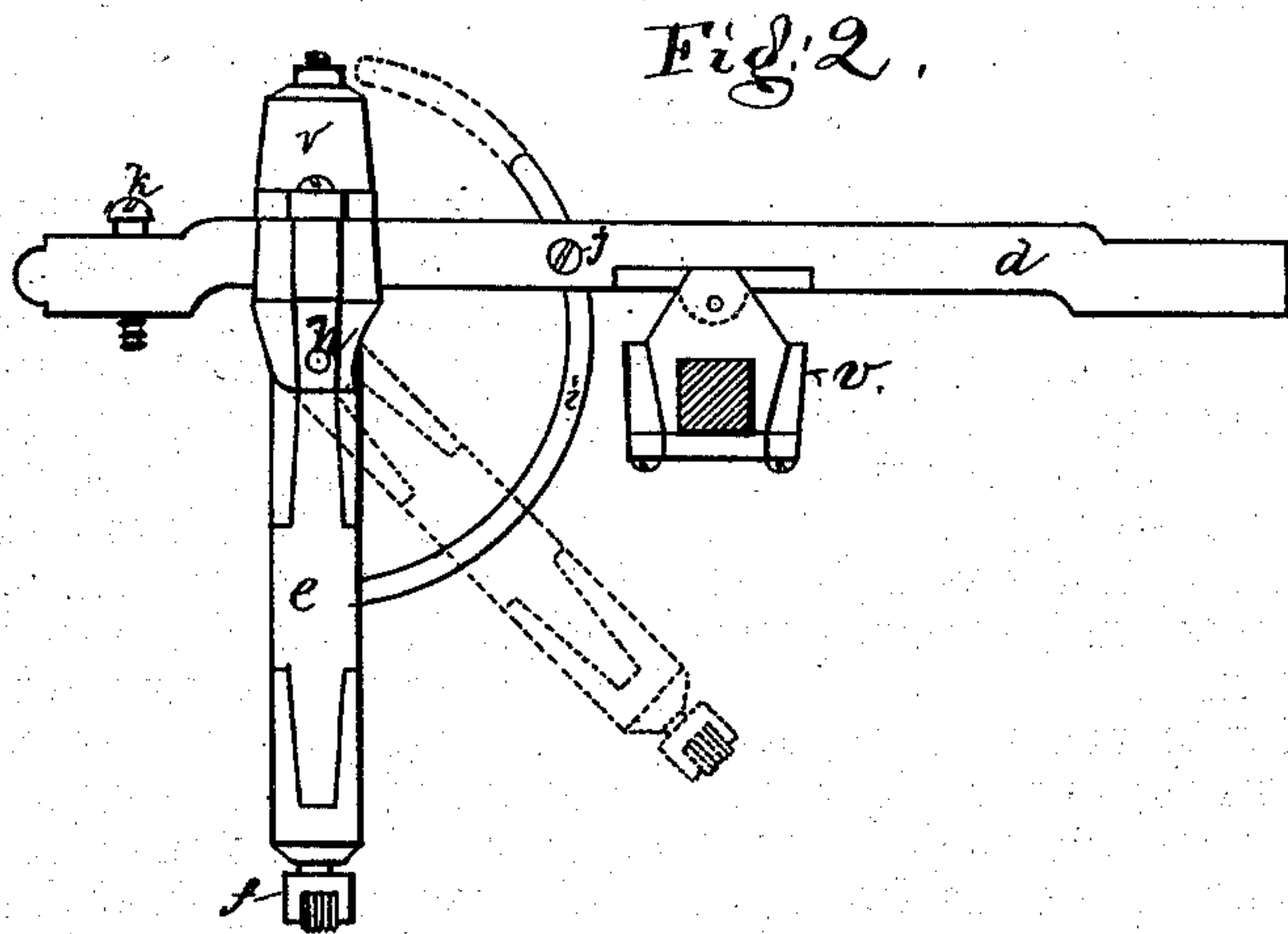
Witnesses.
Gen. T. Smallwood.
Pennington Halsted

Inventor.
Thomas J. Gifford,
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Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS J. GIFFORD, OF SALEM, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR DRESSING STONE.

Specification forming part of Letters Patent No. 156,215, dated October 27, 1874; application filed August 29, 1874.

To all whom it may concern:

Be it known that I, THOMAS J. GIFFORD, of Salem, in the county of Essex and State of Massachusetts, have invented an Improved Stone-Dressing Machine; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to machines for dressing the surface of stones; and consists, primarily, in the construction and mode of operating and adjusting the tool; also, in the means for raising and lowering the bed, and in other details hereinafter stated.

In the drawings, Figure 1 is a perspective view of the machine. Fig. 2 shows one of the cutter-levers detached. Fig. 3 is a detail, showing the mechanism by which the bed is raised and lowered.

a is an appropriate frame for supporting the bed *b* and the requisite mechanism. *c* is a wiper-shaft, carrying a series of wipers, *c*¹ *c*² *c*³, for actuating, successively, the tool-carrying levers *d*¹ *d*² *d*³, to each of which is secured a tool-stock, *e*, *e'*, &c., carrying any well-known kind of cutter, *f*. These levers are each furnished with an adjustable strap, *g*, or other elastic adjustable connection, whereby, after the tool has been lifted, it shall be suddenly reacted upon, thus adding a positive force to the force of gravity to bring the tool to act upon the stone, and whereby, also, the stress of the spring may be varied at will. The strap may be elastic in part only, the adjusting part being of leather or other material, and furnished with a buckle for adjustment. The tool-stocks are jointed to their levers, as shown at *h*, and have a curved guide-arm, *i*, passing through the lever, whereby the stocks may be placed at any angle to the face of the stone, a set-screw, *j*, serving to fasten the arm *i*, and, hence, to secure the tool-stock to such adjusted position. This ready adjustment of the cutting angle allows, as nearly as is practicable in machinery, of the same range of the inclination of the blow and of the cut as the stone-cutter avails himself of when working with his chisel and mallet. Adjusting-screws *k*, in the rear of each lever *d* *d*¹,

are employed for the purpose of limiting and determining the lowest point to which the cutters may descend, so that they cannot act upon the surface of the stone to reduce it beyond the prescribed or predetermined thickness; but until this point is reached they will, by reason of their dropping by gravity, aided by the springs, accommodate themselves to the gradually-reduced surface by falling lower and lower as the surface is cut away.

Any desired number of cutters, with their stocks and levers, may be used, and as near to each other as may be found convenient; but it is preferred that the wipers shall be so placed on the wiper-shaft as to actuate the series in rapid succession, one after the other.

In order to feed the stone forward, as well as crosswise, so that no part of the upper surface of the stone shall fail to come under the action of the cutters, a platen or carriage, *l*, is used, running on longitudinal ways *m* on the bed, and this carriage has upon it transverse ways *n*, on which runs another carriage, *o*, upon which the stone or stones is laid. As this feed-motion forms no part of my invention it is not necessary fully to illustrate any mechanism to produce it, any well-known device being used for this purpose. The screw-shaft *p*, however, which may be turned by a belt from the driving or wiper shaft *c*, passing over pulleys on the two shafts, may serve to feed the carriage *l*, and another similar screw, driven from another pulley, may serve to actuate the carriage *o*. In order to raise or lower at will the bed *b* to adapt it for stones of different thicknesses, I employ beneath it the horizontal shafts *q* *q*, having bevel-gears *r* *r*, which engage with the bevel-gears *s* *s*, secured upon threaded vertical shafts *t* *t*, the upper ends of these shafts turning in sockets *u* *u*, fastened in the bed. The shafts *q*, being turned in one direction, will raise the bed, and, being turned in the other direction, will lower it, and all these shafts and gears may be actuated simultaneously and equally by connecting the two horizontal shafts by another shaft or motor to operate both alike.

The machine being thus automatic, and the cutter-levers set to trim or dress a stone to a certain depth only, no attention need be given it after it is set in operation, for the cutting

will go on until this required depth of cut is attained, and although the machine may after this continue to run the cutters will refuse to act, because they can no longer descend far enough to reach the stone.

Instead of using a spring of any kind to give the blow to the cutter-levers, I sometimes employ an adjustable weight, as shown at *v* in Figs. 1 and 2. This weight may be taken off and another of different size substituted.

I claim—

1. In a stone-dressing machine, the tool-carrying levers *d d'*, &c., in combination with the adjustable elastic connection, substantially as shown and described.

2. In a stone-dressing machine, the tool-carrying levers *d*, &c., in combination with a changeable and adjustable weight, as and for the purpose described.

3. In combination with the levers *d d'*, &c., the hinged tool-stocks *e e'*, &c., the guide-arms *i*, and their adjusting-screws *j*, substantially as and for the purpose set forth.

THOMAS J. GIFFORD.

Witnesses:

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C. WARREN BROWN.