

(No Model.)

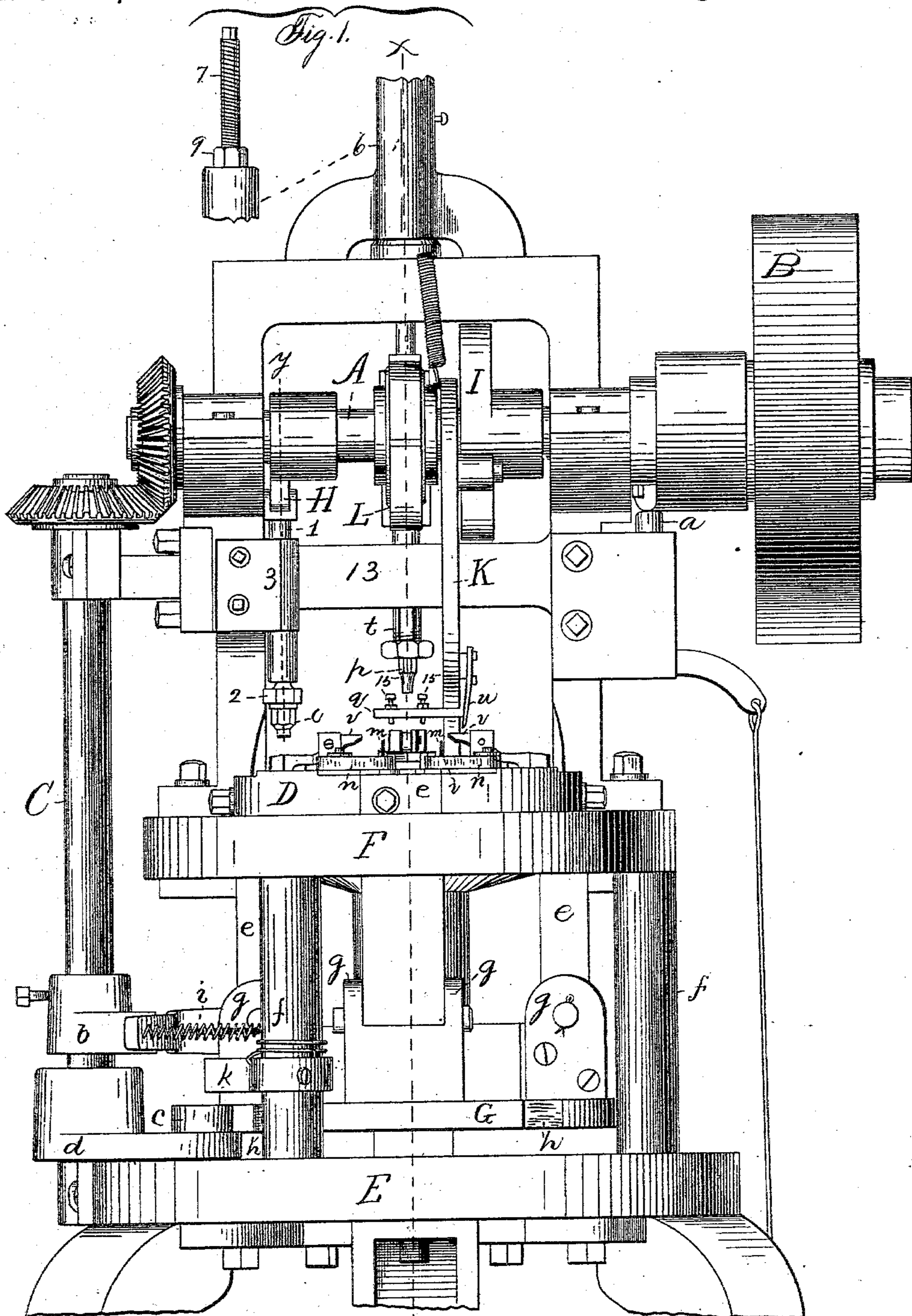
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G. B. COWLES.

MACHINE FOR SECURING THE KEY POST IN LOCK PLATES.

No. 283,326.

Patented Aug. 14, 1883.



Witnesses.
John Edwards Jr.
Martin A. Pond

Inventor
George B. Cowles.
By James Shepard
Atty.

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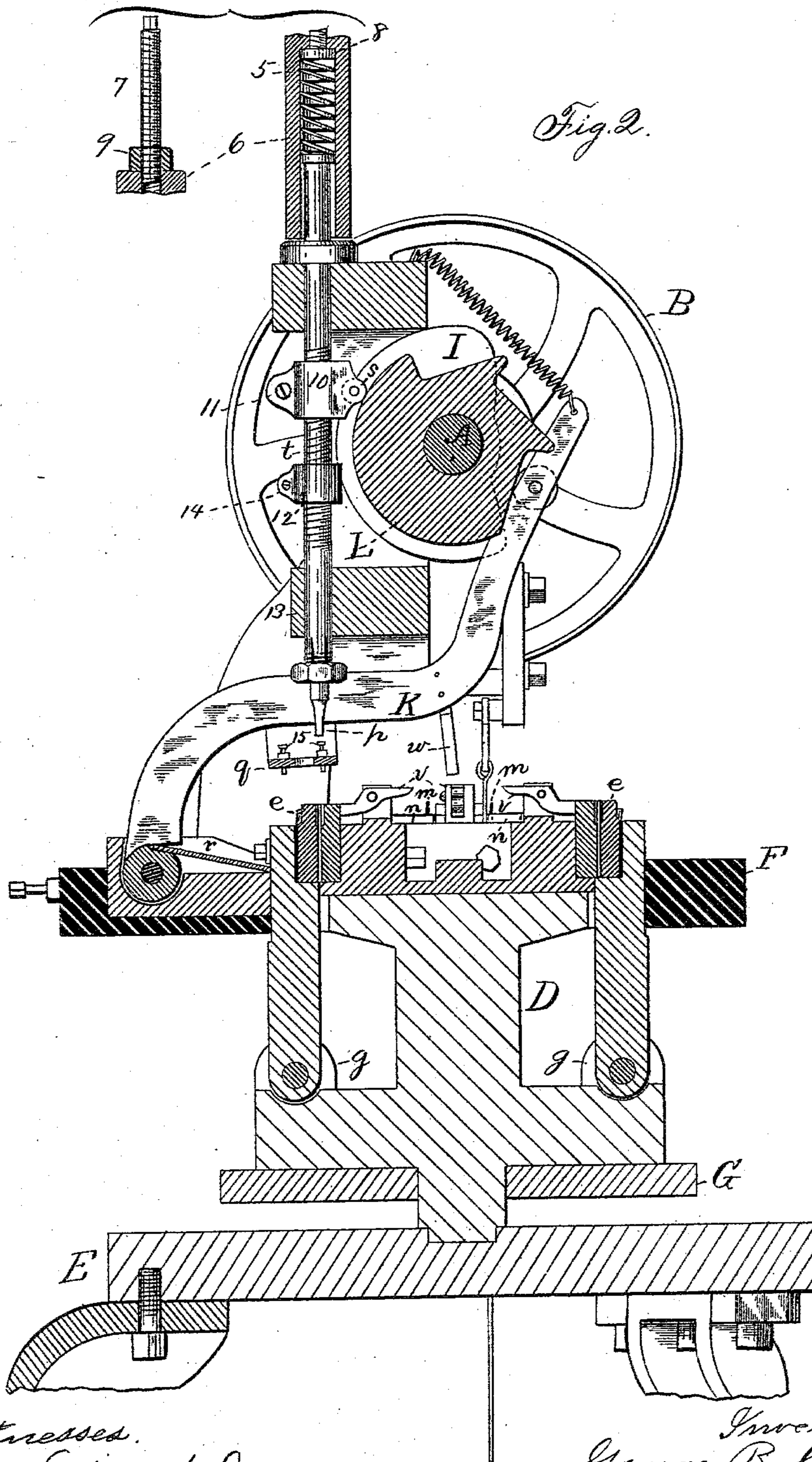
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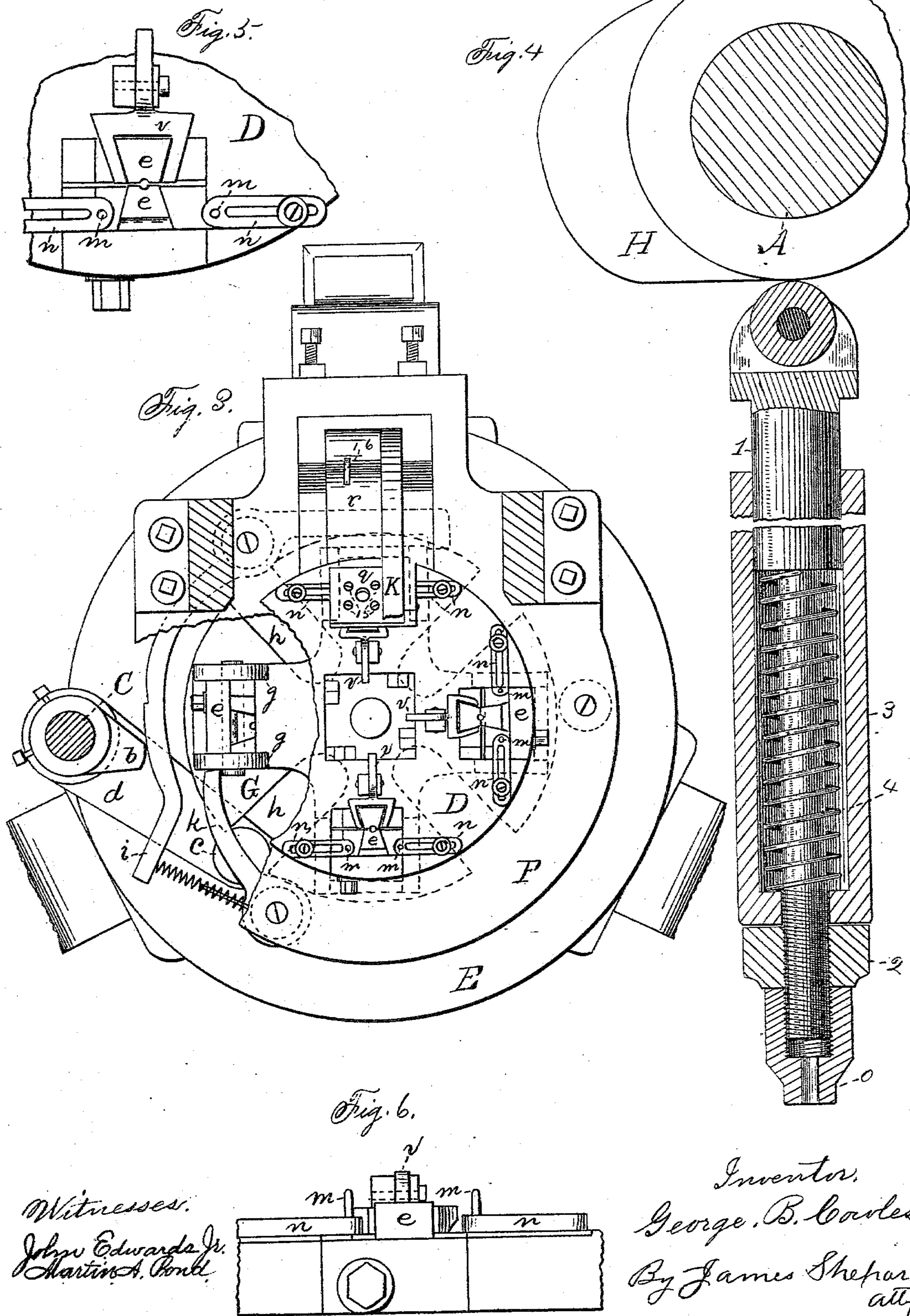
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UNITED STATES PATENT OFFICE.

GEORGE B. COWLES, OF NEW BRITAIN, CONNECTICUT.

MACHINE FOR SECURING THE KEY-POST IN LOCK-PLATES.

SPECIFICATION forming part of Letters Patent No. 283,326, dated August 14, 1883.

Application filed April 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. COWLES, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Securing Key-Posts in Lock-Plates, of which the following is a specification.

My invention relates to improvements in machines for securing pins or posts in the plates of lock-cases. So far as I am aware, this work has heretofore been done only by hand. The object of my improvement is to do this work by machinery, whereby it is done both accurately and at little expense. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my machine. Fig. 2 is a vertical section, partly in elevation, on line *x x* of Fig. 1. Fig. 3 is a plan view of the lower portion of said machine, the two uprights of the frame and one upright shaft being shown in horizontal section. Fig. 4 is an enlarged detached sectional view, partly in elevation, on the line *y*, Fig. 1. Fig. 5 is an enlarged detached plan view of one pair of the holding-jaws and adjacent parts, and Fig. 6 is an enlarged front elevation of the same.

A designates the main shaft, having loose driving-pulley B connected thereto by any suitable clutch mechanism, as at *a*, Fig. 1, substantially as in an ordinary power-press. An upright shaft, C, is connected with the main shaft A by means of beveled gear, as shown in Fig. 1. Near the lower end of this shaft C there is a releasing-cam, *b*, below which is a swinging arm or lever, *d*, carrying the roller or round projection *c* upon its upper side. A revolving head, D, carrying four pairs of jaws, *e*, is mounted upon the bed E, within the annular table F, said table and bed being connected by three posts, *f*. The position of these posts under the table F is indicated by broken circles in Fig. 3. The swinging member of each pair of jaws *e* is mounted between lugs *g*, near the lower end of the head D. Below these lugs is a driving-plate, G, having four radial slots, *h*. In Fig. 3 two of these slots are delineated partially by full lines and partly by broken lines, while the other two and remainder of the edge of the plate G are shown in broken lines. A spring-pressed le-

ver, *i*, is mounted upon the rear of one of the posts *f*, and has its end hooked over one of the lugs *g* of the head D, as indicated by broken lines toward the top of Fig. 3, so as to prevent the head from advancing farther so long as this lever is thus hooked upon it. A spring-pressed pawl, *k*, (see Fig. 3,) has its end forced in behind another pair of the lugs *g*, so as to prevent the head from moving backward. Thus it will be seen that the head is provided with mechanism for locking it against rotation in either direction, except at a certain time. The releasing-cam *b* is slightly in advance of the swinging lever *d*. As shown in Fig. 3, it has already depressed the lever *i* so far as to almost withdraw the hooked end of said lever from the lug *g*. So soon as it has advanced far enough to completely disengage said lever the roller *c* of the arm or lever *d* bears upon the side wall of one of the slots *h* in the plate G, to force said plate and head forward, and by the continued movement of said arm and roller the head is carried one-quarter of a revolution, when the roller *c* passes out of the slot *h*. Before the roller *c* is disengaged from the slotted plate G the cam *b* withdraws from the lever *i*, and the spring throws said lever back into its normal position, with its hooked end in front of the first lug, *g*, of the succeeding pair, ready to stop the head so soon as it has made its one-fourth of a revolution. The pawl *k* then snaps into place, and the head is again locked.

Other mechanism may be employed for driving and locking the head without changing the other features of my machine. I have utilized the lugs *g* for locking the head in place as a matter of convenience of construction; but the hooked lever and pawl may be made to engage with any suitable projections or shoulders which are rigidly connected with the head.

The jaws *e* are provided with a flat upper surface and with confronting semicircular grooves for holding the key-posts. By the sides of the jaws I place upright pins *m*, the same being secured in longitudinally-slotted plates *n*, so that they may be properly adjusted to the desired position. The operator places a key-post within the front pair of jaws, when the head is at rest, and a lock-plate upon said key-post. The pins *m* are so adjusted

that they enter holes in the lock-plate, as thus placed over the jaws, in order to prevent the plate from working off the key-post when the head is in motion. At the next quarter-revolution of the head the lock-plate and key-post are stopped under the hollow punch *o*, which is forced downward by the cam *H* on the main shaft *A*, to drive the lock-plate on the key-post and up against the shoulder thereon, to properly seat the plate on the key-post. At the next quarter-revolution of the head the lock-plate, &c., is carried under the riveting-hammer *p*. The cam *I* then depresses the lever *K* and its leveling-plate *q*, to hold the lock-plate firmly. The depression of the lever also forces the plate *r* forward against the moving member of the jaws *e*, to close them snugly upon the key-post. Soon after the lever *K* is thus depressed, and while it is being held down by the concentric face of the cam *E*, the concentric face of the hammer-cam *L* passes the roller *s* of the hammer-slide *t* and lets the riveting-hammer *p* fall under the power of the spring 5, Fig. 2. The hammer is again immediately lifted and dropped by the two succeeding enlargements on the cam *L*, while the next enlargement lifts it and allows its roller to again rest upon the concentric face, as before. The cam *I* then releases the lever *K*, and the arm *d* of the shaft *C* moves the head another quarter-revolution. Just inside of each pair of jaws a knock-out, *v*, is pivoted, the forked end of which knock-out extends under the lock-plate by the sides of the jaws *e*. The next time that the lever *K* descends an arm, *w*, thereon strikes the inner end of the lever *v* and throws its forked end upward to lift the lock-plate and key-post out of the jaws, so that upon coming to the front again they are ready to receive another key-post and lock-plate. It is intended that the operator shall put a key-post and lock-plate in the jaws at each quarter-revolution, so that after the head has made one revolution the several operations heretofore described as being performed at the end of each quarter-revolution of the head will all take place simultaneously. The cams, &c., on the respective shafts *A* and *C* are so placed thereon that those on the shaft *A* act to drive or move their respective tools while those upon the shaft *C* are passing around into position for acting, and the head *D* is at rest. So also the parts on the shaft *C* act to drive the head *D* while the parts which are operated by the cam on shaft *A* are at rest.

The hollow punch *o* is screwed upon the threaded lower end of a slide, 1, so that it may be adjusted by screwing it up or down, and then firmly held in place by means of the stop-nut 2. The slide 1 works in a spring-box, 3, which is secured to a part of the frame of the machine, and contains the spring 4, Fig. 4, for forcing the slide and hollow punch upward after they have been forced downward by means of the cam *H*. The hammer-slide *t* is forced upward by means of the cam *L* and downward by means of the spring 5. (See

Fig. 2.) Said spring is secured within the spring-box 6 upon the upper part of the frame. The upper end of said spring-box has a threaded hole, in which is the adjusting-screw 7, by means of which the disk or follower 8, Fig. 2, against which the upper end of the spring 5 bears, may be forced downward, so as to compress the spring and make it act with more force when desired. A stop-nut, 9, holds the screw 7 against accidental displacement. The hammer-slide *t* is threaded for a portion of its length, and the roller *s* is mounted in a split nut, 10, provided with clamping-screw 11. By loosening said screw 11 and screwing the split nut 10 up or down, the roller *s* may be adjusted so that the cam will lift the hammer a greater or less distance, as may be desired. In order to prevent the hammer from heading down the end of the key-post too hard, a stop-collar, 12, is placed upon the hammer-slide for acting against the cross-bar 13 of the frame of the machine. Said collar 12 is also split and internally threaded and provided with clamping-screw 14, so that it may be adjusted to limit the fall of the hammer at any desired point in the same manner as the split nut 10 is adjusted.

The leveling-plate *q* is provided with four leveling-screws, 15, the ends of which bear upon the top of the lock-plate when lever *K* is depressed, and hold the lock-plate firmly down to the desired level. Sometimes, by reason of faulty construction or wear of the dies, or faulty press-work, the key-hole in one plate of the lock does not come directly opposite the hole for the key-post in the opposite plate, and therefore if the key-post is secured in the lock-plate so as to stand exactly square with the same, it will, when the lock-plates are put together, be a little to one side of the center of the key-hole. In order to bring it central it must be secured a little out of square with the lock-plate. Such a result is accomplished by adjusting the screws 15 separately, so as to tip the plate a little and hold it for riveting in the desired position with reference to the key-post, which is held firmly in the jaws. The adjusting-screws 15 are also provided with stop-nuts to prevent an accidental displacement of the screws when adjusted.

The plate *r* has one end resting against a shoulder on the hub of the lever *K*, so that the depression of said lever will force the plate forward to close the jaws. A link or staple, 16, Fig. 3, whose respective ends are secured to said hub or lever *K* and the plate, prevents the latter from working forward out of place.

Many of the details of construction, especially when considered with reference to certain combinations of mechanism, may be varied without materially or substantially changing the character of my invention. I have herein described an intermittently-revolving head bearing holding-jaws, &c., which construction I prefer; but a head or carriage bearing like jaws, &c., arranged to move laterally, with an intermittent movement to present the

work to the same series of tools in like manner, may be employed, and I consider the same as an equivalent for my revolving head D. I contemplate the use of my machine for securing other pins or posts in lock-cases. The particular use designed for such pins or posts, whether for key-posts, tumbler-posts, or other purposes, is immaterial.

I claim as my invention—

10 1. The combination of the head bearing a series of jaws, the radially-slotted plate secured to said head, the shaft C, arm *d*, having the round projection *e*, the cam *b*, holding lever *i*, and pawl *k*, substantially as described, 15 and for the purpose specified.

2. The combination of the intermittingly-revolving head bearing a series of holding-jaws, the hollow punch *o* and its operating mechanism, mechanism for closing one pair of 20 said jaws, mechanism for leveling and holding the lock-plate, and mechanism for riveting the post therein while the lock-plate is thus held and the jaws closed, substantially as described, and for the purpose specified.

25 3. The combination of the intermittingly-revolving head bearing a series of holding-jaws and knock-outs, the hollow punch *o* and its operating mechanism, mechanism for closing one pair of said jaws, mechanism for leveling and holding the lock-plate, mechanism for riveting the post within the lock-plate 30 when so held, and mechanism for operating the knock-outs, substantially as described, and for the purpose specified.

35 4. The combination of the revolving head bearing a series of holding-jaws, mechanism for intermittingly revolving said head, mechanism for stopping and locking said head in

place at the end of each intermittent movement, mechanism for seating the lock-plate upon 40 the post, holding the lock-plate in position, and riveting the post therein, said three operations all being performed while the head is locked against movement in either direction, substantially as described, and for the purpose 45 specified.

5. The combination of the holding-jaws *e*, plate *r*, lever K, leveling-plate *q*, and the cam I, substantially as described, and for the purpose specified. 50

6. The combination of the holding-jaws *e*, plate *r*, lever K, bearing leveling-plate, cams I and L, and the hammer, hammer-slide, and spring, substantially as described, and for the purpose specified. 55

7. The combination of the cam L, the hammer-slide *t*, having a threaded portion, the split nut 10, bearing roller or projection *s*, and the stop-collar 12, said collar and nut being internally threaded and secured upon the 60 threaded portion of the hammer-slide, substantially as described, and for the purpose specified.

8. The combination of jaws for firmly holding the post, the leveling-plate *q*, leveling adjusting-screws 15, and mechanism for moving and holding said plate and screws, substantially as described, and for the purpose specified. 65

9. In a moving head, the combination of the holding-jaws and the holding-pins *m*, mounted 70 in adjustable plates *n*, substantially as described, and for the purpose specified.

GEORGE B. COWLES.

Witnesses:

CHARLES PECK,

CHAS. H. PARSONS.