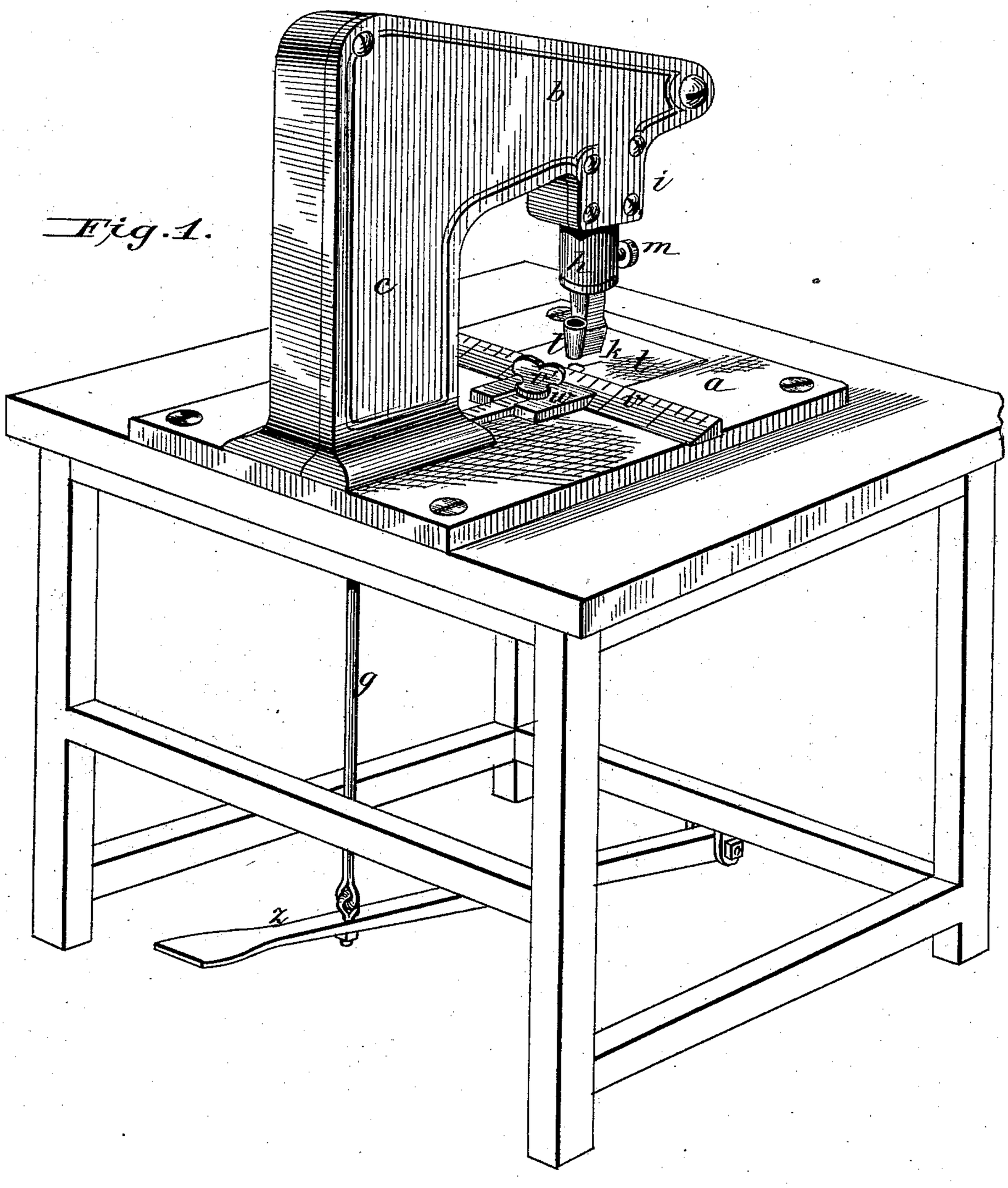
2 Sheets—Sheet 1.

M. L. & G. M. SANBORN.
Button-Hole Cutter.

No. 222,080. Patented Nov. 25, 1879.

Fig. 1.



Attest:
H. L. Perrine.
Floyd Norris.

Inventor.
Moses L. Sanborn
Gideon M. Sanborn
By. Johnson & Johnson
Atty's.

2 Sheets—Sheet 2.

M. L. & G. M. SANBORN.

Button-Hole Cutter.

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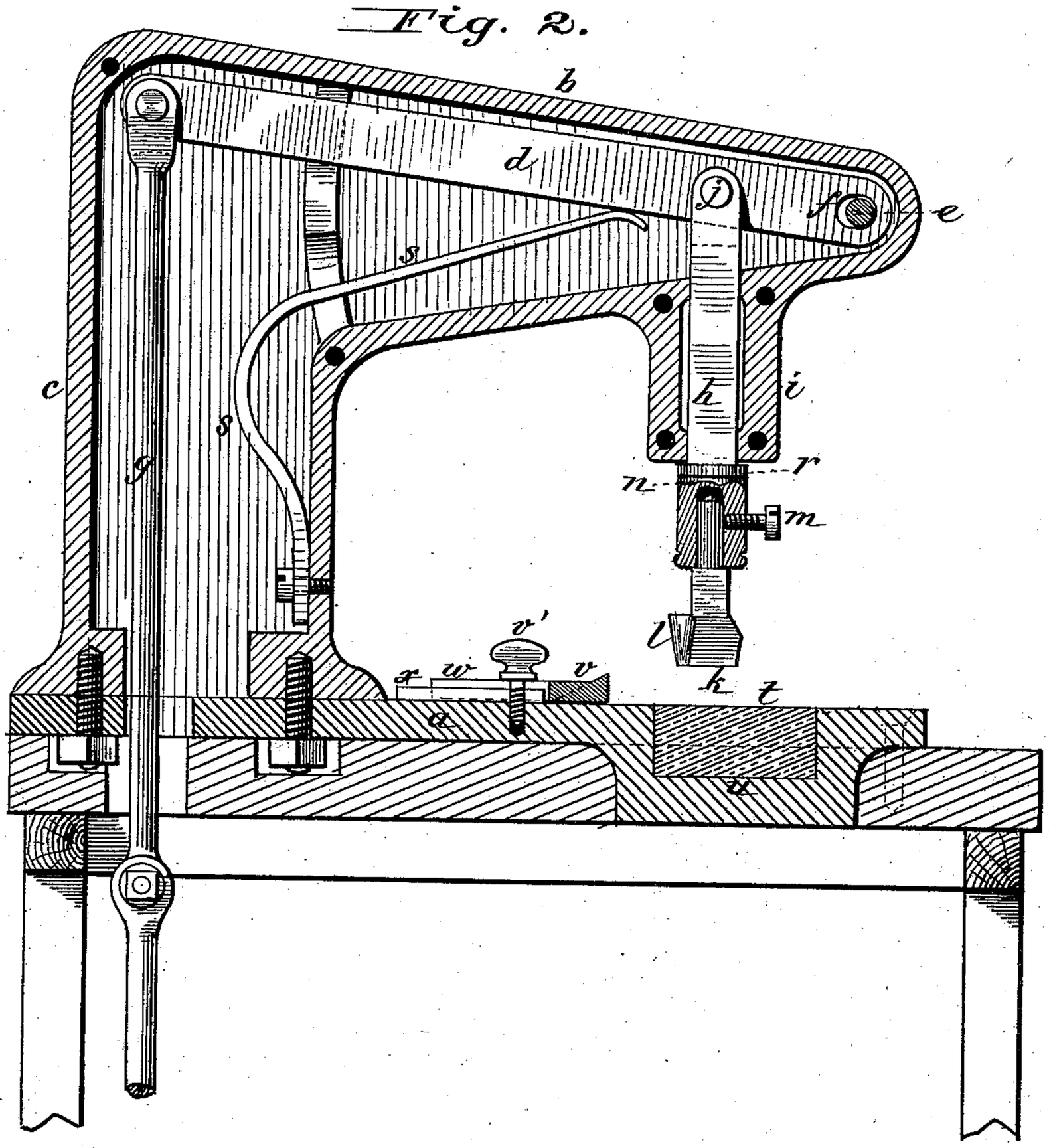
Fig. 2.



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UNITED STATES PATENT OFFICE.

MOSES L. SANBORN AND GIDEON M. SANBORN, OF DENMARK, MAINE.

IMPROVEMENT IN BUTTON-HOLE CUTTERS.

Specification forming part of Letters Patent No. **222,080,** dated November 25, 1879; application filed October 16, 1879.

To all whom it may concern:

Be it known that we, MOSES LENDSLEY SANBORN and GIDEON MOODY SANBORN, of Denmark, in the county of Oxford and State of Maine, have jointly invented certain new and useful Improvements in Button-Hole Cutters, of which the following is a specification.

In our machine for cutting button-holes we use a treadle-power, and effect the work with a celerity not possible by hand devices adapted to operate upon the principle of shears or punches, and our machine works with comparatively little noise, which is so objectionable in the punch device operated by mallet.

The cutter is of the form of the button-hole, and operates upon a bed of brass, copper, or lead, seated in the base-plate, and is easily renewable when worn out. The cutter is carried in a vertical socketed stem working in a guide-projection of a horizontal arm, the standard of which is bolted to the bed-plate. The upper end of the cutter-stem is connected by pivot to a lever, inclosed within said arm, to the end of which it is pivoted so as to have a slight play, and the treadle connects with said lever by a rod passing through the hollow standard so as to operate the cutter. A spring arranged within the hollow arm serves to retract the cutter. A gage is placed across the bed-plate at right angles to the cutter, to determine the distances between any two contiguous button-holes, and a central longitudinal gage is fixed upon the bed-plate centrally between a rearwardly-projecting slotted arm of said cross-gage to determine the distance of the button-holes from the edge of the work, which fixed gage also serves as a guide to maintain the adjustable gage in proper relation to the line of the work.

The operator holds and feeds the work with his hands, and operates the cutter with the treadle, while standing with his arms on each side of the standard.

Referring to the accompanying drawings, Figure 1 represents a view, in perspective, of a treadle button-hole cutter embracing our invention, and Fig. 2 a vertical section of the same.

A bed-plate, *a*, supports the operating parts of the machine, and is bolted to a bench or table. A hollow arm, *b*, extends over the bed-plate from a hollow standard, *c*, bolted to the end of said bed-plate, and incloses a horizontal lever, *d*, which is pivoted at its front end by a pin, *e*, passing through a slot, *f*, therein, and through the end of said arm, while a vertical rod, *g*, extending through the hollow standard, connects with the treadle *z*, beneath the table, to which or to the floor said treadle is pivoted.

The cutter is carried upon the lower end of a socket-stem, *h*, which is fitted to work vertically within a downward guide-projection, *i*, from the hollow arm a suitable distance from the end of the latter, and is connected by a pivot, *j*, to the lever, and forms thereby its fulcrum, the slot *f* in the end of the lever serving to allow of the vertical movement of the cutter-stem without binding in its guide.

The cutter is the counterpart of the button-hole, having a straight part, *k*, and a tubular part, *l*, and stands lengthwise of the bed. It is secured within the socket of the stem by a screw, *m*, so that it may be removed for sharpening or replaced by a new one. The stem *h* has a shoulder, *n*, and a rubber cushion, *r*, is seated thereon so as to cushion the ascending blow of the stem against the lower end of the arm-projection *i*, and form a stop to limit the ascent of the cutter, which is effected by a spring, *s*, secured within the hollow arm so as to bear upon and beneath the lever between its connection with the treadle and the cutter-stem, and constantly exert its force to maintain the cutter up a suitable distance above the bed-plate.

The cutter-surface is a brass, copper, or lead bed, *t*, of square or other form, set in a depression, *u*, in the bed-plate in such position that the cutter will operate near its edge. It is placed flush with the top of the bed-plate, and is removable for replacement. A gage, *v*, lies across the bed-plate at one side of the cutter, by which to guide the work, and by which the distance between the button-holes is governed. This gage is secured to the bed-plate by a thumb-screw, *v'*, passing through a slotted arm, *w*, extending from the back of said gage, by which it is adjusted in relation to the cutter to cause the button-hole to be cut the required uniform distance from the edge of the work, and which is determined by a gage,

x, fixed upon the bed-plate at right angles to the adjustable gage and centrally with its slotted arm. By this construction the fixed gage *x* serves as a guide for the adjustable gage *v*, and to maintain it in proper perpendicular relation to the cutter.

The operator standing at the end of the machine next the standard *c* guides and feeds the work against the cross-gage, and by his foot brings down the cutter to cut the button-hole, the proper adjustment of the cross-gage having been first made. The work is quick, and effected with little noise.

We prefer to use a cutting-bed of brass, secured in a recess or opening in the bed *a* by screws. This cutting-bed is about two and a half inches long, one half an inch wide, and one-quarter inch thick, and will last a considerable time.

The operator standing a little to one side of the standard *c* can easily see the cutter, and has both hands free to hold the work.

We claim—

1. In a machine for cutting button-holes, the combination, with the horizontal lever *d*, pivoted at the front end of the standard-arm *b*, the treadle *z*, and the retracting-spring *s*, of the vertical cutter-carrying stem *h*, pivoted to said lever between its pivot and connections, and working in a guide-extension, *i*, of said arm, the cutting-bed *t* and the gages *v x*, all constructed and arranged for operation substantially as herein set forth.

2. In a machine for cutting button-holes, the combination, with the cutter, operated by treadle, as described, of the cross-adjustable gage *v*, having a rear slotted extension, *w*, the central longitudinal fixed gage, *x*, and the set-screw *v'*, substantially as herein set forth.

In testimony whereof we have hereunto set our hands.

MOSES LENDSLEY SANBORN.
GIDEON MOODY SANBORN.

Witnesses:
BAILEY OSGOOD WITHAN,
ELMER ELLSWORTH SMITH.