(No Model.)

2 Sheets—Sheet 1.

W. A. ESTAVER.

TUCK CREASER FOR SEWING MACHINES.

No. 458,360. Patented Aug. 25, 1891.

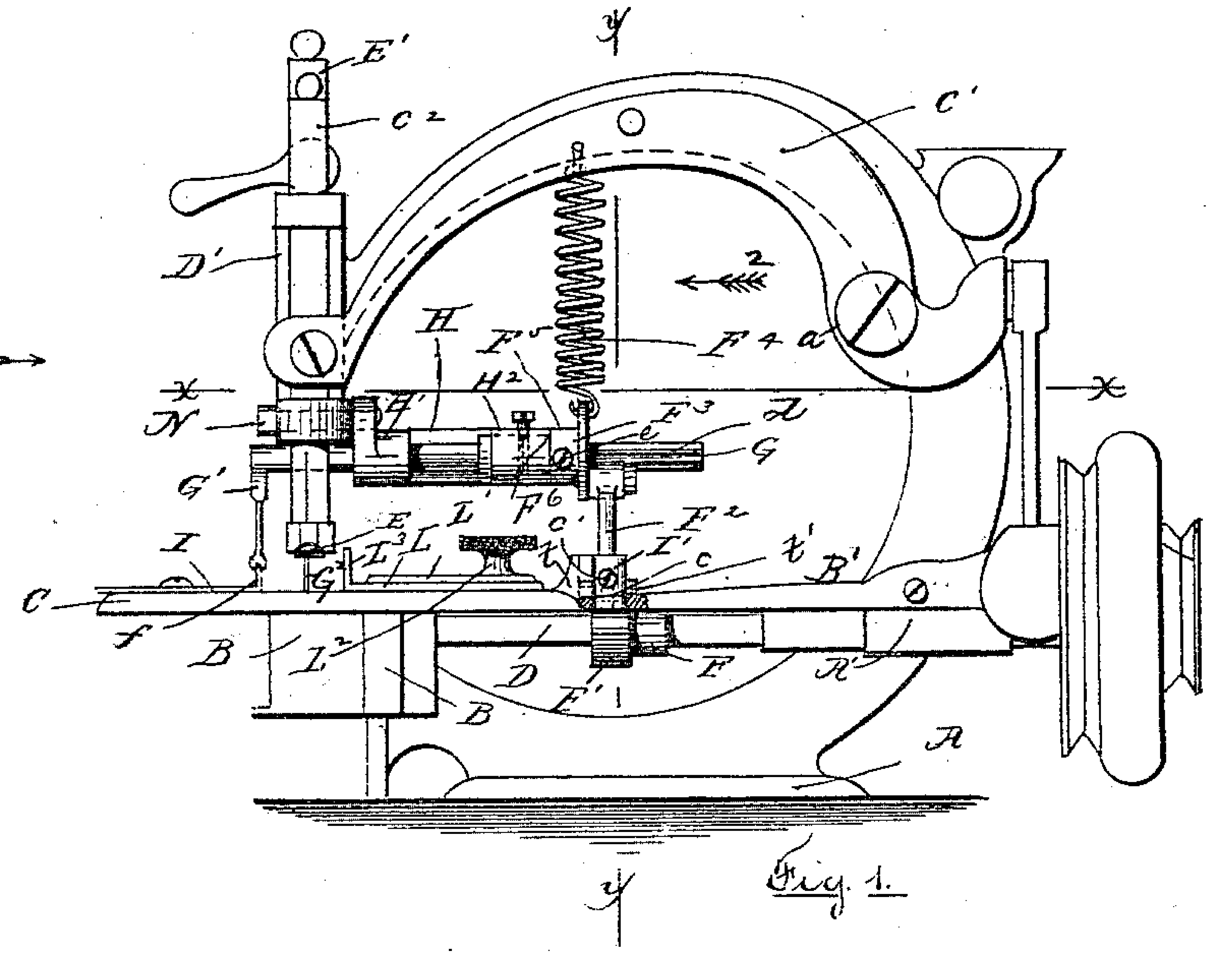

Fig. 1.

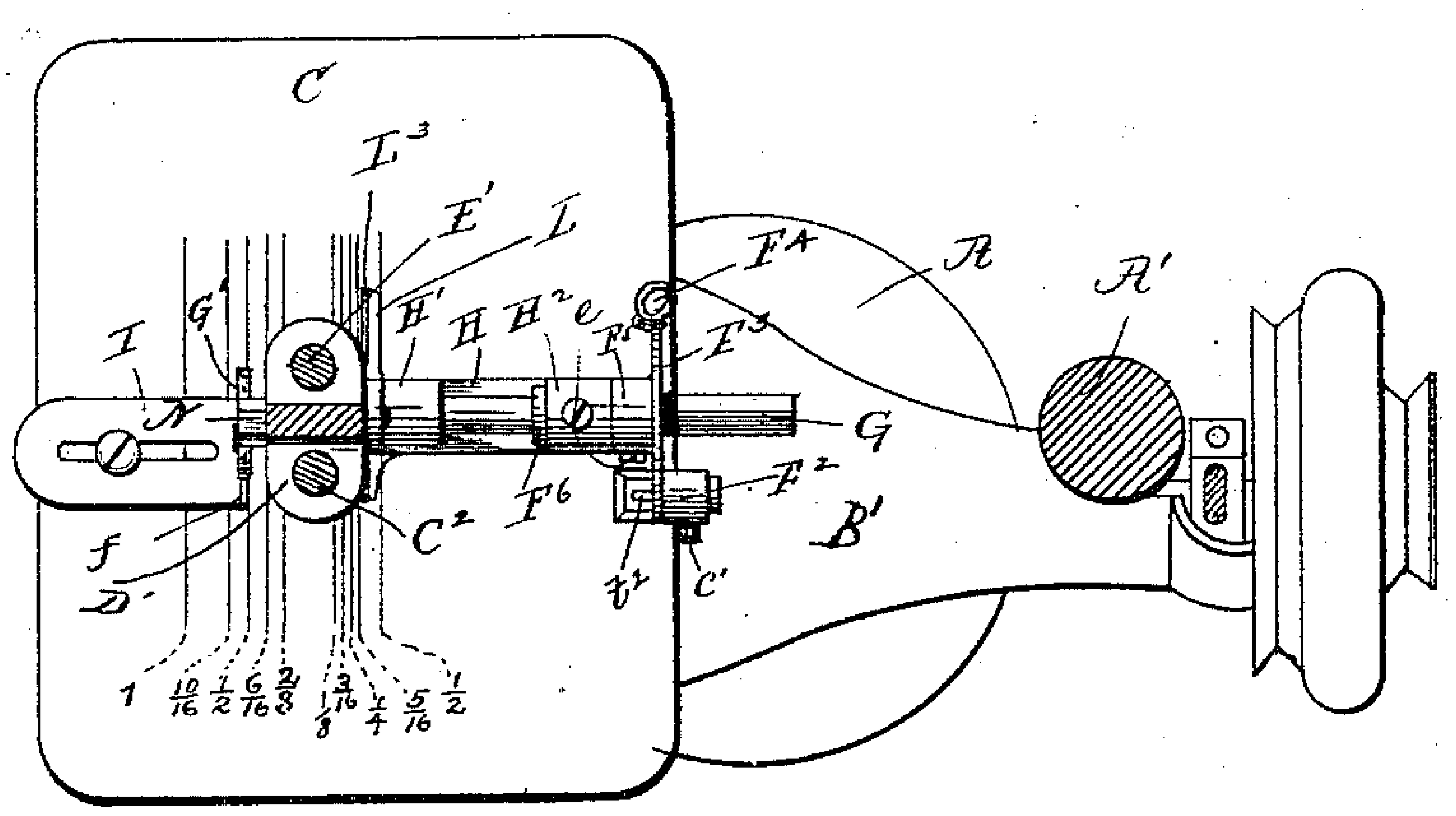

Fig. 2.

Witnesses
Charles Merrill.
David L Bradt

Inventor
William A. Estaver
By his Attorney Thos. H. Dodge.

(No Model.) 2 Sheets—Sheet 2.

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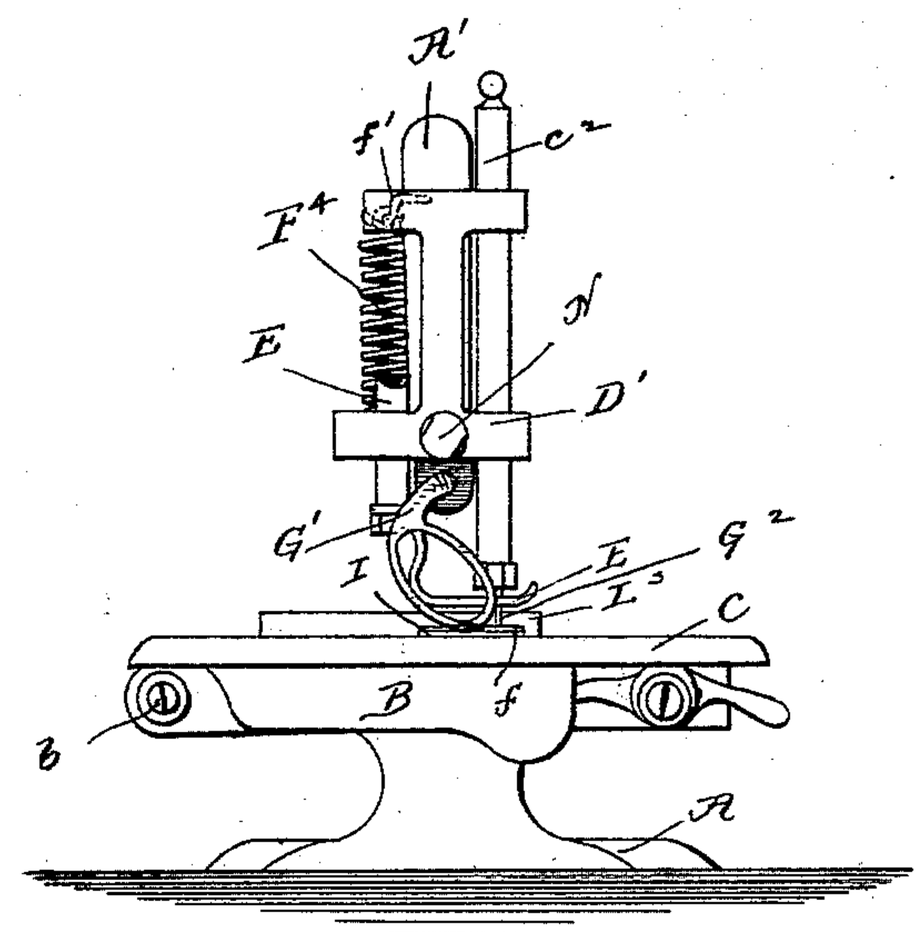

Fig. 3.

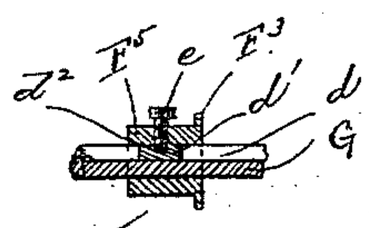

Fig. 6

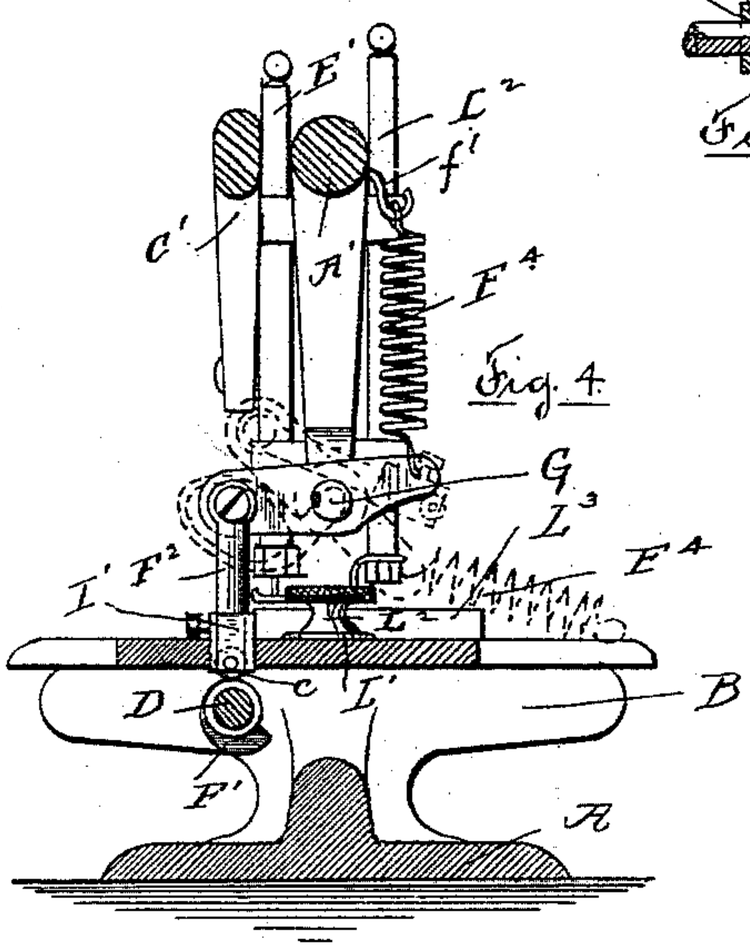

Fig. 4.

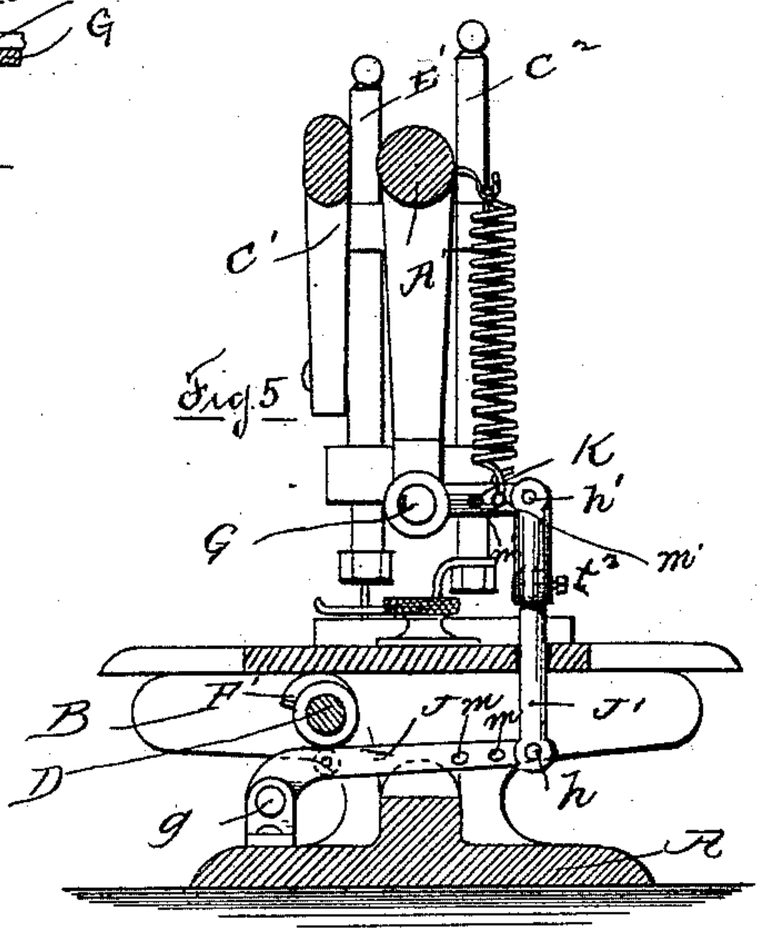

Fig. 5

Witnesses—
Charles Merrill.
David D. Bradt.

By his Attorney
Inventor—
William A. Estaver.
Thos. H. Dodge

UNITED STATES PATENT OFFICE.

WILLIAM A. ESTAVER, OF WORCESTER, MASSACHUSETTS.

TUCK-CREASER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 458,360, dated August 25, 1891.

Application filed November 21, 1890. Serial No. 372,250. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. ESTAVER, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Tuckers for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and the letters of reference marked thereon, forming a part of this specification, and in which—

Figure 1 represents a side view of a sewing-machine having my present improvements combined therewith, as will be hereinafter described. Fig. 2 represents a plan view of a section cut in a horizontal plane on line *x x*, Fig. 1. Fig. 3 represents an end view looking in the direction indicated by arrow, Fig. 1. Fig. 4 represents a vertical section on line *y y*, Fig. 1, looking in the direction indicated by arrow 2, Fig. 1. Fig. 5 represents a similar section to show a slight modification of some of the parts, as will be hereinafter more fully described; and Fig. 6 represents a detached part.

To enable those skilled in the art to which my invention belongs to make and use the same, I will now describe the invention more in detail.

In the drawings the part marked A is the base of the machine; B, the table part, on which is fastened the top plate or table for the work and which is lettered C, while B′ is a shield-piece to cover and protect the main shaft D, fitted to turn in pipe-bearings, the front one being in the table part B and the rear one in the side of the curved frame-piece A′, the parts A, B, and A′ being in this instance cast in one piece for convenience of construction. The needle-arm C′ is pivoted to the frame-piece A′ at *a*, and the needle-bar is fitted in bearings in the head-piece D′, while the presser-foot E is also secured to a post E′, fitted in the same head-piece D′. Needle-bar C^2 is operated by its arm C′ in the usual manner. The same is true of the presser-post E′ and its foot E, they being operated in the well-known manner. The guard or cap piece B′ is fastened to the lower side of the curved frame-piece A′ by screw *b* and serves as a cap to the rear bearings of the main shaft D.

On shaft D is arranged a hub-piece F, having on its front a cam F′, on which rests a roll *c* in the lower end of the standard F^2, the upper end of which is pivoted to the front end of rock-arm F^3, the rear end of which is connected to the lower end of spiral spring F^4, rock-arm F^3, being provided with a hub F^5, by which the arm F^3 and its hub F^5 are fastened to the rock-shaft G in the following manner: Rock-shaft G is provided with a longitudinal slot *d*, and in this slot is placed a short block or spline piece *d′*, Fig. 6, having in its outer face a conical depression d^2 to receive the point of set-screw *e*, which passes through hub F^5, and by which arrangement by simply loosening set-screw *e* rock-shaft G can be adjusted longitudinally to set the creaser-arm G′ on its outer end nearer to or farther from the needle G^2 for making a narrower or wider tuck, as desired, shaft G being prevented from turning during such adjustment by spline *d′* and the screw *e*, the point of which remains in the conical depression d^2 in the face of spline *d′*, permitting shaft G to be moved longitudinally but not around in its bearings in the frame-piece H, fastened to the head-piece D′ on the front lower end of frame-piece A′. One side of frame-piece H is left open, as indicated in Figs. 1 and 2 of the drawings, and shaft G is supported at the front end in a pipe-bearing in the end H′ of frame-piece H, while its rear end passes through and is supported in a tubular projection F^6 on hub F^5, projection F^6 being in turn supported in the rear end H^2 of frame-piece H, both of said supports being in the form of pipe-bearings.

I is the creaser-gage, provided with a thin upturned edge *f*, upon which the creaser-arm G′ presses the materials to be tucked to form a crease-mark as a guide to the operative in folding the material to be tucked, and thereby secure uniformity and precision of the tucks. To insure evenness, tuck-creaser arm G′ should be set so that its contact-surface or point at which it comes in contact with edge *f* will be about opposite a point in line with a vertical plane passing through the contact-surfaces of the presser-foot and feed at right angles to the line of feed, so that the material will be held firmly and prevented from being drawn away from the action of needle G^2 by the downward motion of the creaser-

arm G'. Creaser-arm G' is forced down upon the edge *f* by the spiral spring F^4, the upper end of which is fastened to or hooked upon a pin *f'* in the side of the curved frame-piece A' and is elevated by cam F', standard F^2, and arm F^3.

As it is desirable to have the end of the creaser-arm G' strike the edge *f* of the creaser-gage I with the full force of spring F^4, standard F^2 is made adjustable in length, so that roll *c* will not reach and rest on cam F' before the creaser-arm G' rests on the edge *f* of gage I when said arm is depressed by the contraction of spiral spring F^4, as before explained, and this adjustment is accomplished by making the lower end I' of standard F^2 separate from the upper part and providing it with a hole for the reception of the round end of the standard F^2, and in which hole it is held by set-screw *c'*. Roll *c* is arranged to turn on a pin passing through the slotted bottom of the adjustable end, and by raising and lowering the adjustable end I' the length of standard F^2 can be readily adjusted, as desired and for the purposes stated. The force with which the crease-mark will be made will therefore depend upon the contracting force of spring F^4, and this may be made greater or less, as desired, by the use of a weaker or stronger spring.

It will be observed that I have so constructed the creasing mechanism and arranged and combined the same with the stitch forming and feeding mechanism of a sewing-machine that its work is very perfect and the parts are not liable to become broken or displaced in use. By a slight loosening of set-screw *e* rock-shaft G can be moved longitudinally in either direction, but kept from turning, and therefore the creasing force of arm G' will remain the same however often said shaft is adjusted longitudinally.

In Fig. 5 a slight modification of mechanism for operating rock-shaft G is shown and in which a lever J is pivoted at *g* to the bed of the machine and extends back and has its outer end connected by a pivot to the lower end of the connecting-piece J', the upper end of which is pivoted to arm K, fastened to the end of rock-shaft G, and the pivoted connections *h h'* can be changed to the holes *m m'* in lever J and arm K, respectively, for the purpose of giving a greater or less rock to shaft G, and by which arrangement a cam F' of less throw can be used. Spring F^4 is employed in the same manner in Fig. 5 as in Fig. 4.

L is the inner tucker-gage, its arm L' having a slot in which the thumb-screw L^2 passes to fasten it to top plate C in the desired distance from the needle, the folded edge of the tuck being run along against the upright or guide edge L^3 when the tuck is being stitched in place.

When the machine is to be used without the tucker being in operation, spring F^4 is unhooked at the top, standard F^2 lifted up and thrown over rock-shaft G, when the latter, together with rock-arm F^3 and spring F^4, will tip or turn down and back, as indicated in dotted lines, Fig. 4, and as rock-arm F^3 turns back rock-shaft G is also rocked or turned over and creaser G' turned forward and up out of the way, when the machine can be used for ordinary sewing.

It will be noticed that the tucker mechanism is wholly independent of and disconnected from needle-arm and needle-bar, and consequently the latter are not worn or encumbered by the drag or power necessary to operate the tucking mechanism, while the tucking mechanism does not have to be removed from its connections and bearings above the top plate when the machine is to be used for ordinary sewing.

To enable the operative to quickly set the gages I and L to make the desired width of tuck, the top plate C is marked off by lines parallel with the line of feed of the work to be tucked. In this instance the lines to the right of the needle are marked one-eighth, three-sixteenths, one-fourth, five-sixteenths, and one-half of an inch from the needle, respectively, while the lines to the left of the needle are just double—viz., two-eighths, six-sixteenths, one-half, ten-sixteenths, and one inch. The marker or creaser gage I is set by the latter lines or marks, while the other tucker-gage is set by the former lines or marks. For instance, a tuck one-half of an inch wide is desired, and gage I is set to bring its creaser-edge *f* one inch from the needle, while gage L is set one-half of an inch from the needle, and the material thus marked or creased is turned under on the crease or mark line, and the material thus doubled is fed through with the doubled edge next to the upright part L^3 of tucker-gage L, which being in this instance set one-half of an inch from the needle the tuck will be stitched just one-half-inch wide, and other widths of tuck are quickly made by my present improvements. Frame-piece H is fastened rigidly to head-piece D' by bolt N.

Two projections *t t'* are so arranged as to guide the lower end I' of standard F^2 and keep it from slipping out of place when at its highest elevation, projection *t* being on the inner edge of top plate C, while projection *t'* is on the outer and left-hand edge of the shield-piece B', and projection *t* is provided with a vertical slot for the guide-pin t^2 in the part I'. (See full and dotted lines, Figs. 1 and 2.)

In Fig. 5 the upper end of connection J' is shown having a hole to receive the upper end of the lower part, with a set-screw t^3 to hold the parts together, while a friction-roll is shown in dotted lines on lever J to run against cam F'. Connection J' can thus be made longer or shorter, the same as connection F^2, Fig. 4, and for the same purpose.

It will be seen that cam F′ does not extend entirely around shaft D, but ends abruptly at its thickest end, thereby letting the standard or connection F^2, with its friction-roll *c*, drop down into the positions which they occupy in full lines in Fig. 4. This construction permits the creaser-arm to descend or be forced down by spring F^4 upon the material to be creased by a hammer blow, thereby producing better work, with less drag on the working parts of the machine than would be the case if arm G′ were not thus free to act and do its work by the momentum acquired by the sudden release and contraction of spring F^4.

By my present invention tucking of the most perfect form can be produced by comparatively unskilled operatives, and that, too, at a rate of speed never before attained, while the working parts of the sewing-machine are not unduly loaded down or worn or strained.

In addition to the above advantages the operator, even though not very much skilled in the art, can accurately adjust the tucking mechanism, and that, too, in a quick and expeditious manner, and as the adjustment of each gage is made independently of the other the movement of one does not displace the other, nor does the adjustment of the rock or creaser arm G′ loosen either of the gages.

Having described my improvements for tuckers for sewing-machines, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with frame-piece H, provided with pipe-bearings, and splined rocker-shaft G, arranged above and parallel with the top of the work-table and between the needle-bar C^2 and presser-foot post E′ and provided with creaser-arm G′ on its front end, of creasing-edge *f*, spring F^4, hub F^5, provided with tubular bearing end F^6, rock-arm F^3, upright movable standard F^2, provided with an adjusting end I′, having guide-pin t^2, slotted projection *t*, set-screw *c*′, and cam F′, said parts being constructed and arranged for operation substantially as and for the purposes set forth.

2. The combination, with frame-piece H, provided with pipe-bearings, and splined rocker-shaft G, arranged above and parallel with the top of the work-table and between the needle-bar C^2 and presser-foot post E′ and provided with creaser-arm G′ on its front end, of creasing-edge *f*, spring F^4, hub F^5, provided with tubular bearing end F^6, and mechanism for operating rock-shaft G and its creaser-arm G′ from the main shaft arranged below the work-table, substantially as described.

WILLIAM A. ESTAVER.

Witnesses:
THOS. H. DODGE,
DAVID L. BRADT.