

(No Model.)

2 Sheets—Sheet 1.

J. J. SULLIVAN & H. D. BAKER.

BUTTON HOLE SEWING MACHINE.

No. 279,890.

Patented June 19, 1883.

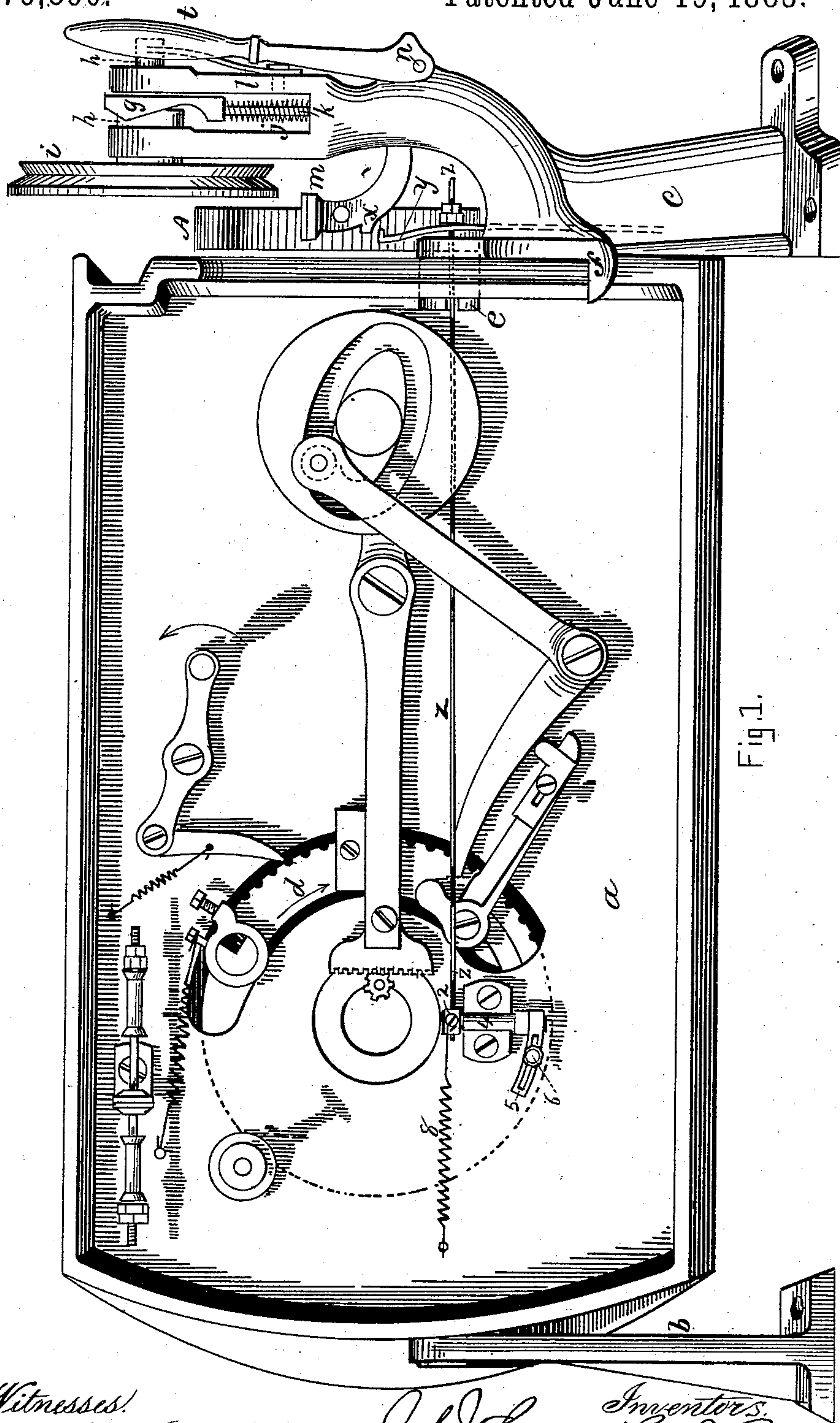


Fig. 1.

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Eugene Humphrey.

Inventors:  
John J. Sullivan, Henry D. Baker.  
Gen. Porter & Hutchinson  
Attys.

(No Model.)

2 Sheets—Sheet 2.

J. J. SULLIVAN & H. D. BAKER.

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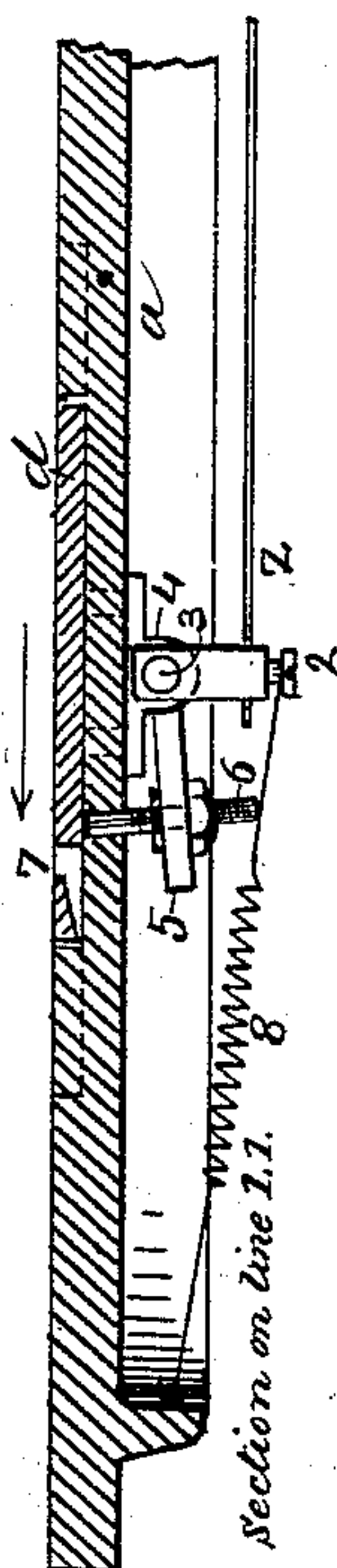


Fig. 3.

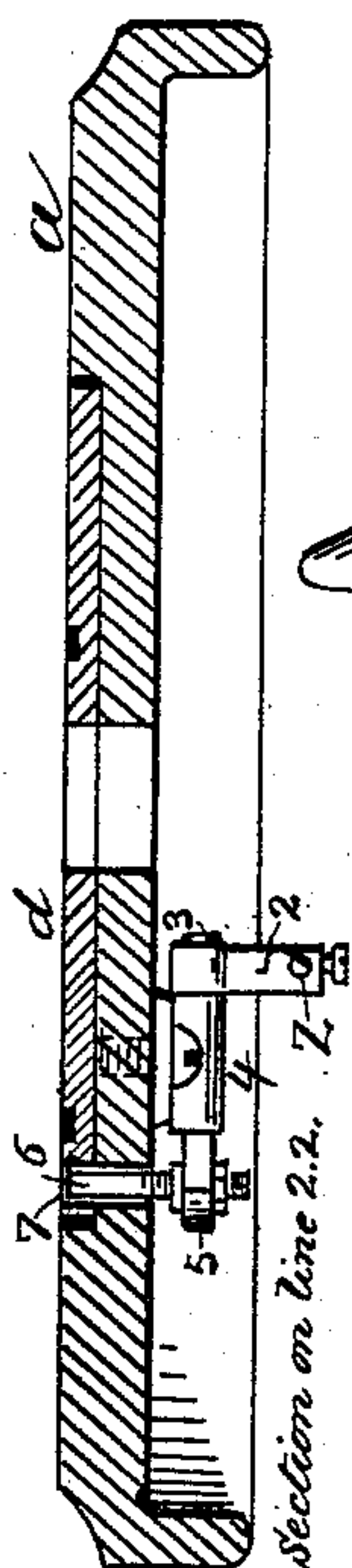


Fig. 4.

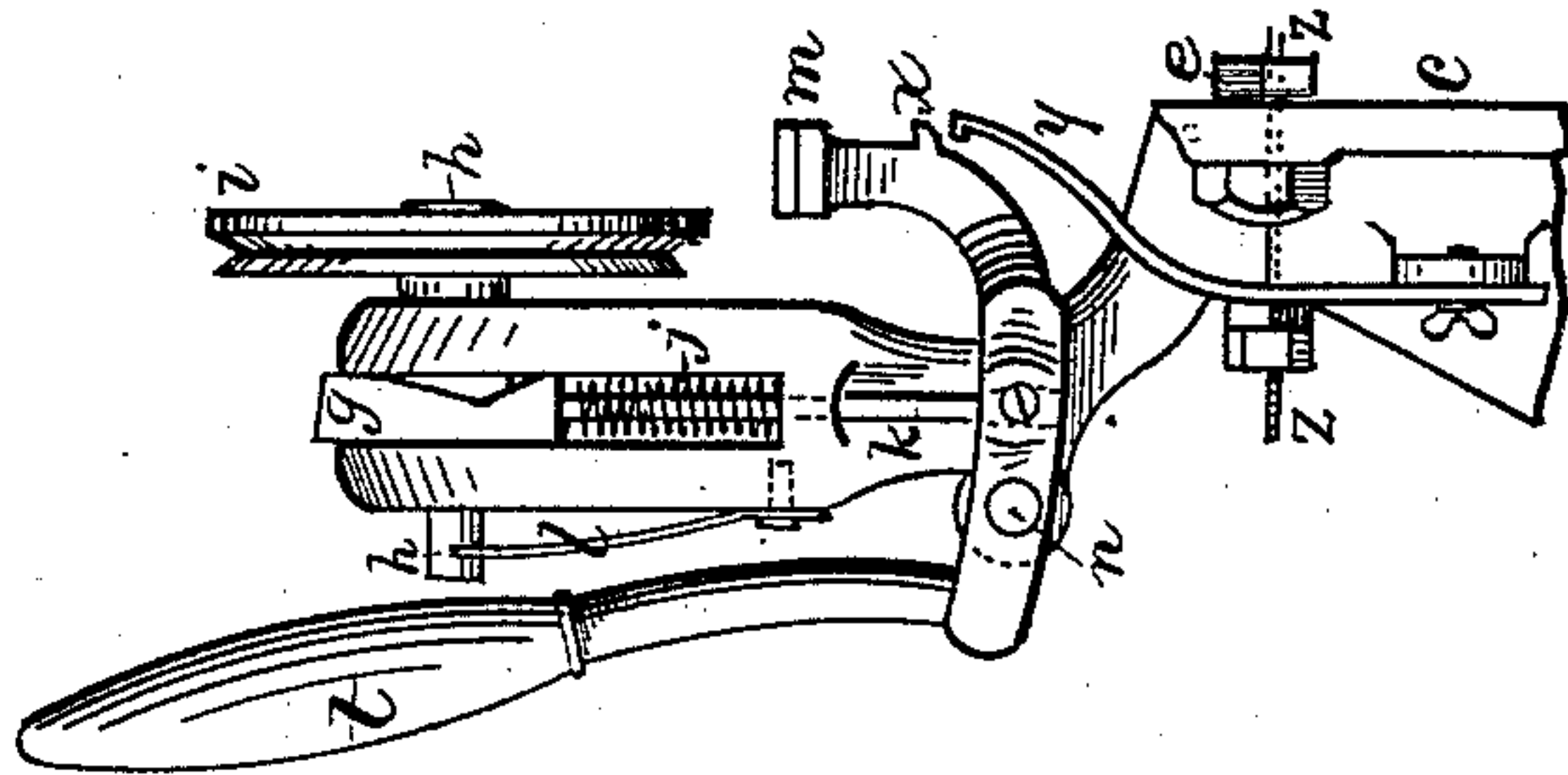


Fig. 5.

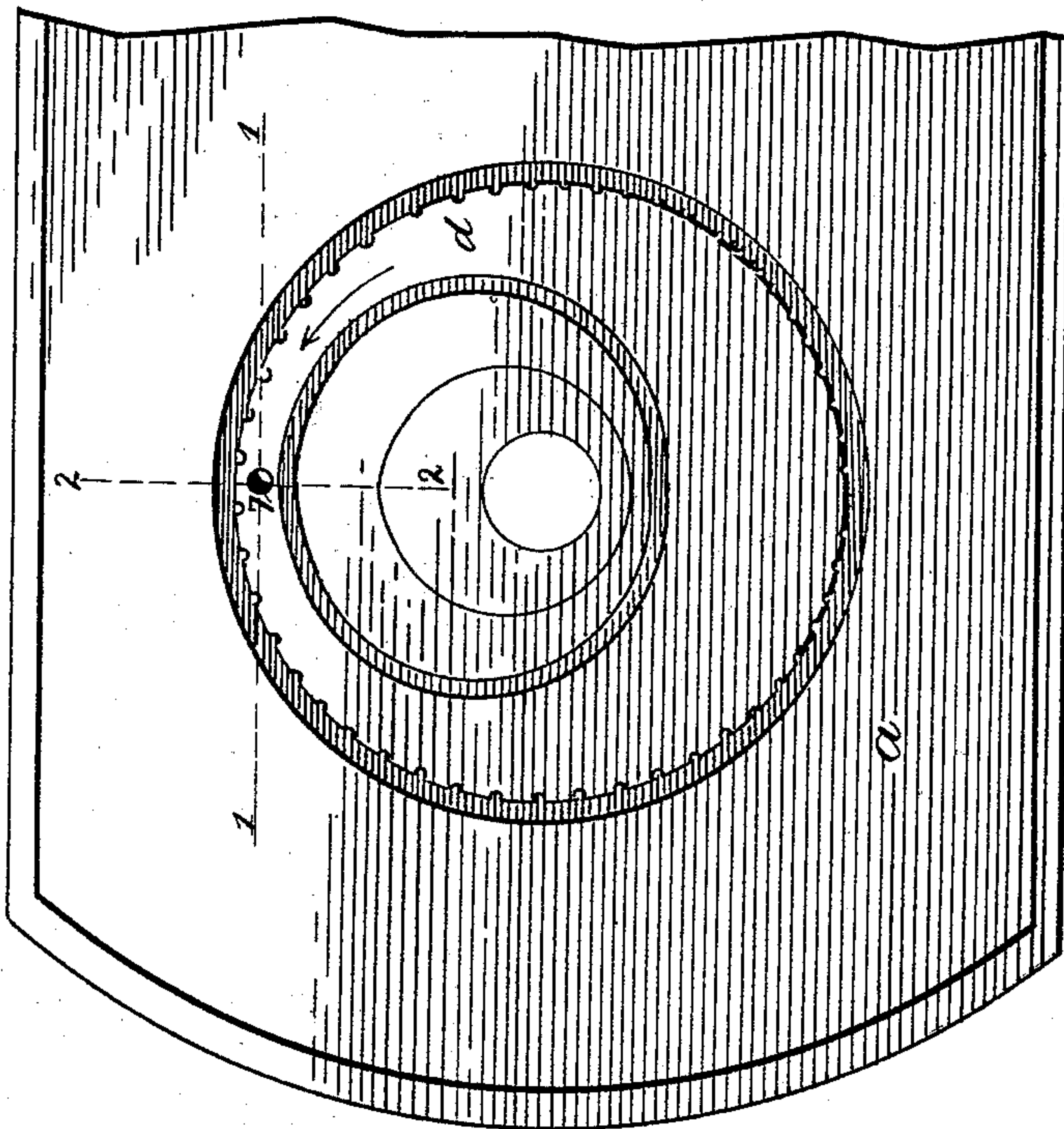


Fig. 2.

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Inventors:  
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# UNITED STATES PATENT OFFICE.

JOHN J. SULLIVAN, OF IPSWICH, AND HENRY D. BAKER, OF LYNN, MASSACHUSETTS; SAID BAKER ASSIGNOR TO SAID SULLIVAN.

## BUTTON-HOLE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 279,890, dated June 19, 1883.

Application filed January 11, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN J. SULLIVAN, of Ipswich, and HENRY D. BAKER, of Lynn, Massachusetts, have invented an Improvement in Button-Hole Sewing-Machines, of which the following is a specification.

This invention relates to that class of sewing-machines which are adapted to finish by a suitable stitch the edges of button-holes; and it consists in the construction and combination of the divers devices embodied therein, as hereinafter more particularly and fully set forth and claimed, reference being had to the accompanying drawings, in which—

Figure 1 shows in side elevation the bed of a so-called "Singer button-hole sewing-machine" with our invention thereto applied, supported by and turned back on its tilting-pivots, so as to expose to view the under side of the bed and the attached devices, the supporting-standards being shown in side elevation, the driving and brake mechanism being shown as attached to the right-hand standard. Fig. 2 is a detached top or plan view of the left-hand portion of the machine shown in Fig. 1. Fig. 3 is a vertical section taken on line 1 1, Fig. 2, and showing the stop mechanism in elevation. Fig. 4 is a similar elevation taken on line 2 2, and viewed as from the left in Fig. 2, and also showing the stop mechanism in elevation. Fig. 5 is a reverse or rear elevation of the supporting-standard, friction-disk, brake, and other devices, which are shown at the right hand in Fig. 1.

In these views, *a* represents the bed of the machine, which is pivotally mounted on standards *b c* in the usual manner.

Attached to the bed are shown devices for driving the feed-wheel *d*, for actuating the looper, &c.; but none of these except the feed-wheel need be specially described in connection with our present invention, as they are all well known.

Standard *c* is practically the same as that shown in United States Letters Patent No. 264,491, issued to said Sullivan September 19, 1882, it being formed or provided with a short stud, *e*, for pivoting bed *a*, and with a rest, *f*, to receive the bed when it is turned down. In the upper forked or slotted part of standard *c* is mounted to slide lineally a short arbor, *h*,

on which is loosely mounted to rotate freely the band-driven friction-disk *i*, which engages and drives the balance driving-wheel *A* of the machine, and an incline, *g*, is arranged to act when depressed against inclined shoulders of arbor *h*, and so force the disk *i* against driving-wheel *A*, and so actuate the machine, there being also mounted on said standard *c* a brake, *m*, pivoted at *n*, and formed with a handle, *t*, and which is connected with incline *g* by rod *K*, on which is mounted a spring, *j*, which tends to both raise incline *g*, and so liberate arbor *h* and disk *i*, and also apply brake *m* to the driving-wheel *A*, all which parts are essentially the same as shown in Sullivan's said patent, except that the brake is here shown as a double-arm lever, whereas in said patent it is mounted in a lever with but one arm, which is actuated by another lever.

Upon the lower arm of the brake is formed a projection, *x*, which is, when the brake is depressed, engaged by the angle of spring *y*, which is mounted on a projection of standard *c*, as shown in Fig. 5. When handle *t* is moved toward the machine, brake *m* is depressed, and the angle of spring *y* engages catch *x* of the brake, and so holds the same out of contact with wheel *A*, which status is maintained until spring *y* is disengaged from the brake, which is effected at the completion of the button-hole by the following-described instrumentalities:

A rod, *z*, passes loosely through pivot *e*, and is adjustably attached to spring-catch *y* by screw-nuts, as shown, or other means, so that when tensile force is applied thereto it will disengage the spring from the brake. To so exert tensile force on rod *z* it is at the opposite end secured to an arm, 2, of short rock-shaft 3, which is journaled in bearing 4, secured to bed *a*. At the opposite end of rock-shaft 3 is a slotted arm, 5, arranged at right angles to arm 2, and a stud, 6, is seated in the slot of said arm 5 at the requisite distance from the axis of shaft 3. A hole, 7, is formed in feed-wheel *d*, and is so positioned therein that when a button-hole of average length is fully stitched said hole 7 will by the rotation of wheel *d* be brought directly over stud 6, thereby allowing the stud to enter therein.

A helical spring, 8, is attached to arm 2 of the rock-shaft, and at its opposite end is at-



2  
 5 tached to bed *a*, and is so arranged and of such superior strength that when stud 6 and hole 7 are coincident spring 8 will draw rod *z* endwise, said stud 6 entering the hole 7 to permit such movement, and at the same time disengaging spring *y* from catch *x* of brake *m*, thereby allowing the brake to stop the machine.

10 When it is desired to start the machine, spring *y* is moved into contact with catch *x* of brake *m*, which action rocks shaft 3, and so withdraws stud 6 from hole 7 in wheel *d*, whereupon the wheel is rotated to the proper position for commencing the stitching of the button-hole, which is then stitched, and at the completion thereof the stud 6 and hole 7 are again in coincidence, when the superior force of spring 8 will, as before stated, rock the shaft 3, and thereby draw rod *z* endwise and so disengage the brake, the stud 6 entering hole 7 at the same time. While wheel *d* is being rotated during the stitching of the button-hole stud 6 bears against the under side of the wheel, which latter slides over the stud.

25 By means of the longitudinal slot in arm 5 of the rock-shaft, stud 6 can be adjusted therein to time the stopping of the machine to correspond with button-holes of varied lengths.

30 By arranging the releasing devices to be operated by the feed-wheel below the bed of the machine important advantages are gained, the need of which has been demonstrated by use of other stop-motion devices, as in many cases it is necessary to stitch the button-holes in 35 "shoe-vamps" before they are sewed to the "quarters," and in such case when the vamp is carried around by the clamp in stitching the button-hole it is liable to and often does slip under the lever on the top of the bed, which is 40 actuated by the clamp to stop the feed-motion when the stitching is completed. Such move-

ment of the vamp between said tripper-lever and the bed is almost certain to result either in injury to the vamp or the stopping of the machine, and sometimes both; and by arranging the tripping devices and connecting-rod beneath the bed, to be actuated by the feed-wheel, the upper surface of the bed is free from all such obstructions. 45

We claim as our invention— 50

1. In a button-hole sewing-machine, the combination of rock-shaft 3, having stud 6, wheel *d*, formed with hole or seat 7, rod *z*, the superior spring 8, and inferior spring *y*, connected with said rod, and a brake mechanism 55 arranged to be engaged and liberated by spring *y*, substantially as specified.

2. In a button-hole sewing-machine, the combination, with a brake mechanism and a feed-actuated detacher, of a rod connected 60 with such detacher and with the brake-detent, and a hollow bed-supporting pivot, *e*, arranged to receive such rod, all substantially as specified.

3. In a button-hole sewing-machine, the 65 combination, with a stop mechanism, of a detaching device arranged to be locked and liberated by the feed-wheel, substantially as specified.

4. In a button-hole sewing-machine, the 70 combination of a brake mechanism and a detaching mechanism, united by a rod, *z*, and a feed-wheel constructed and arranged to hold such detaching device inactive during the stitching of the button-hole and to release the 75 same when the button-hole is completed, substantially as specified.

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