4 Sheets--Sheet 1.

J. KENNY.

Machine for Forming Imitation Button-Holes.

No. 168,161. Patented Sept. 28, 1875.

Fig. 1.

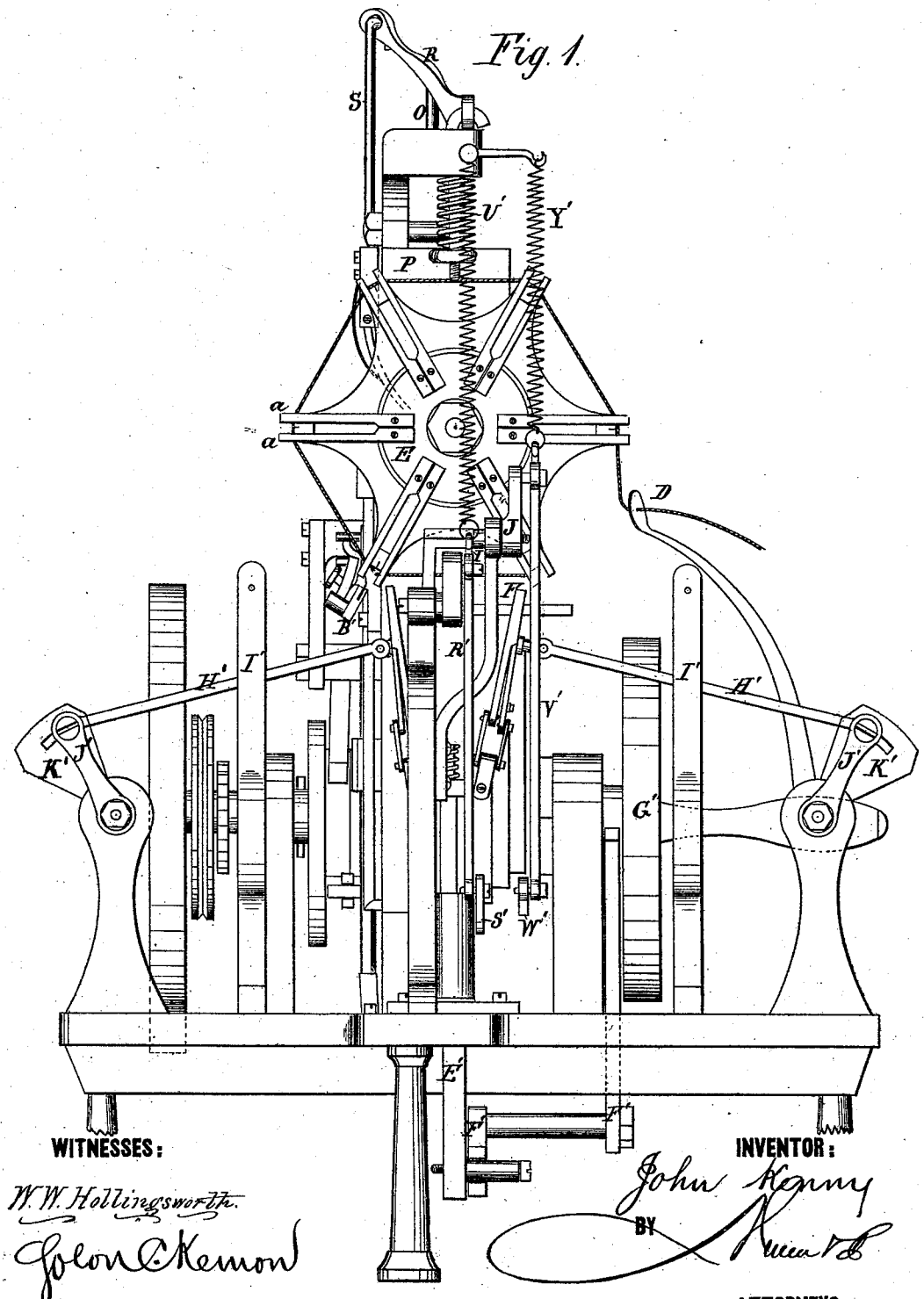

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Fig. 2.

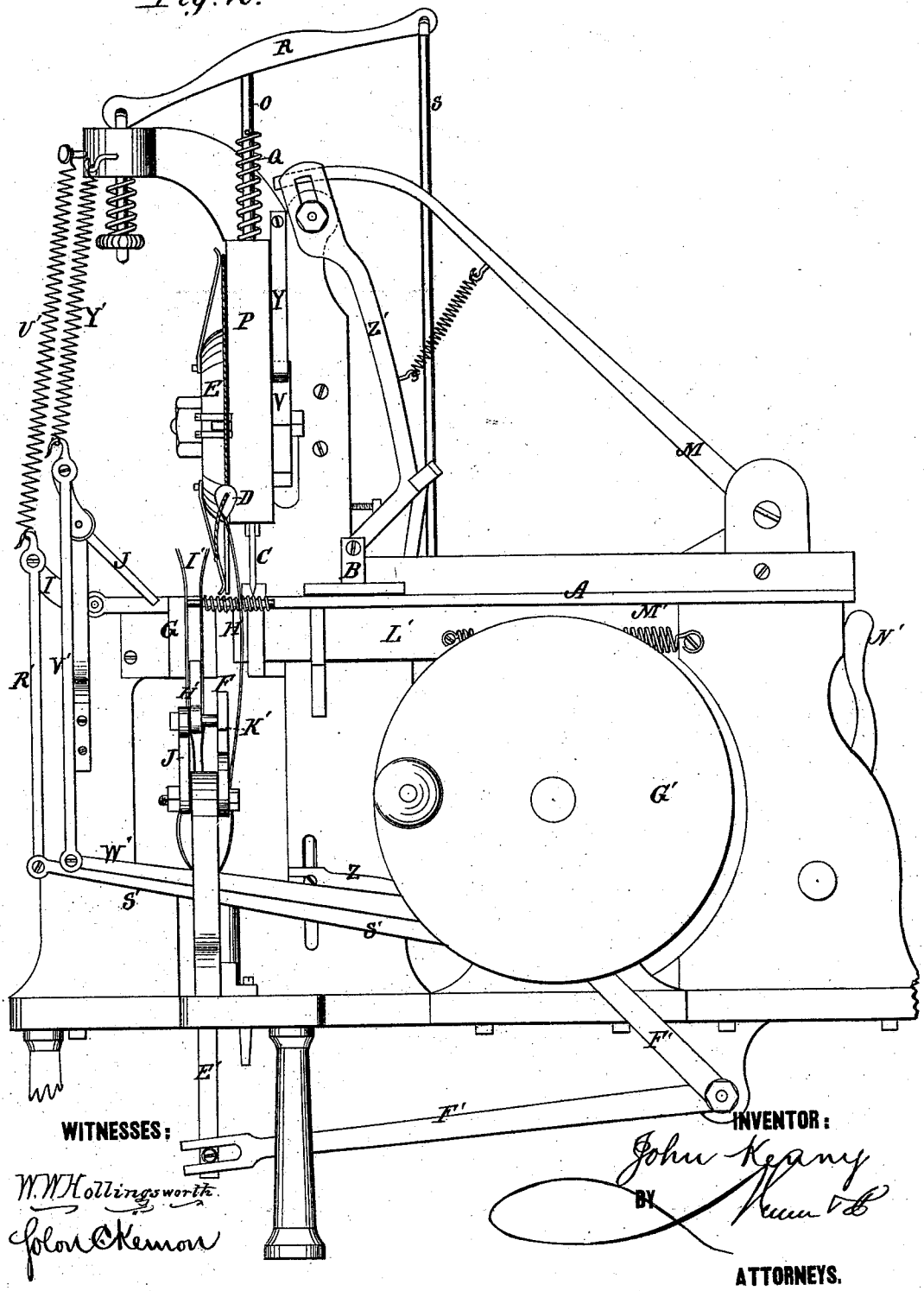

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Fig. 3.

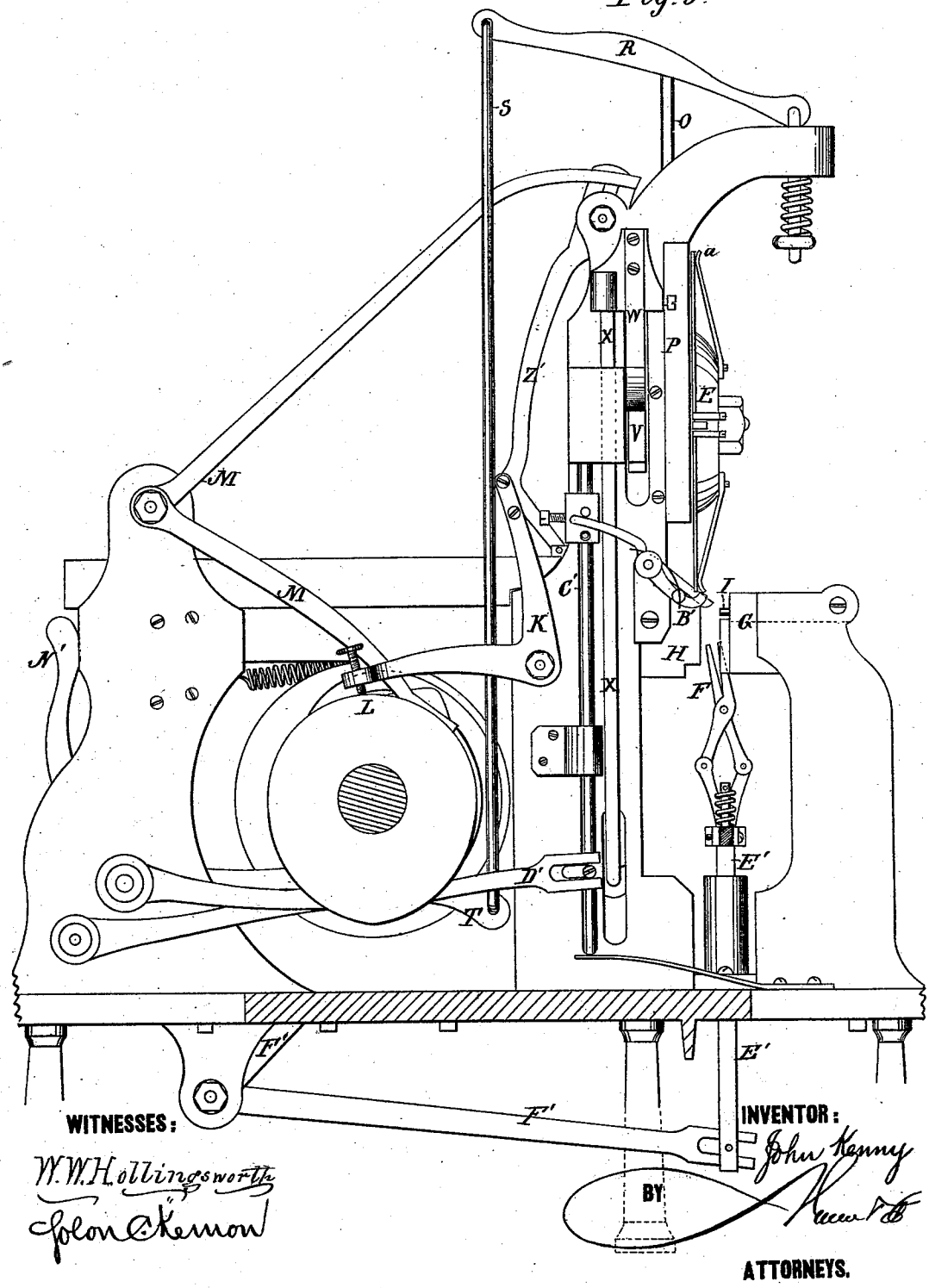

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Fig. 4.

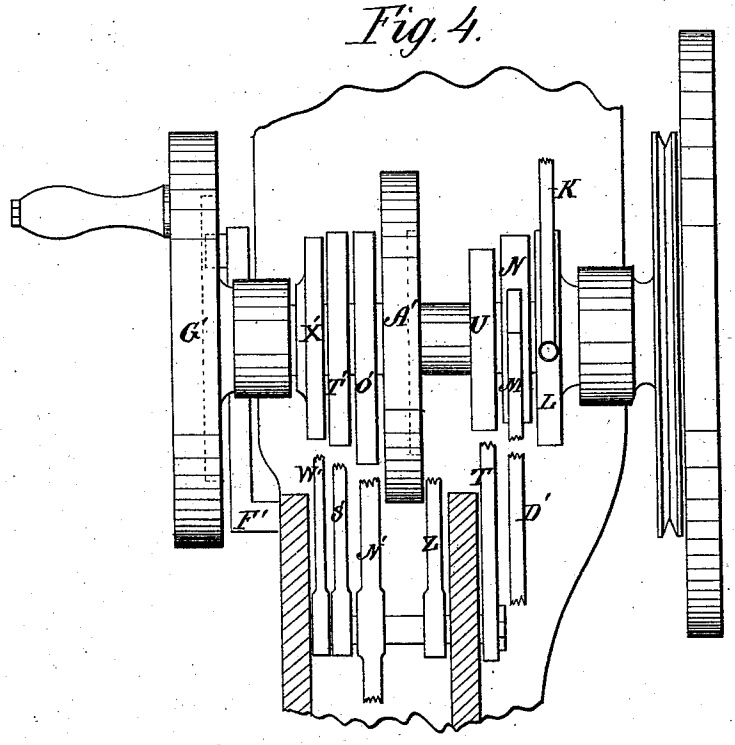


Fig. 5.

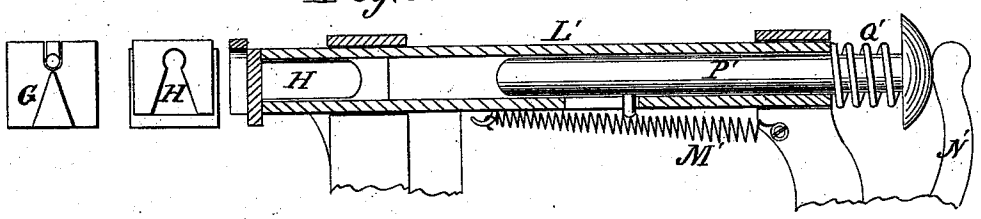
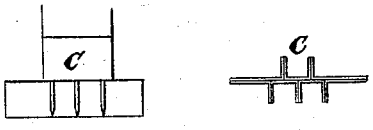


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN KENNY, OF DOVER ROAD, ENGLAND.

IMPROVEMENT IN MACHINES FOR FORMING IMITATION BUTTON-HOLES.

Specification forming part of Letters Patent No. **168,161**, dated September 28, 1875; application filed May 14, 1875.

To all whom it may concern:

Be it known that I, JOHN KENNY, of Dover Road, in the county of Surrey, England, have invented a new and Improved Button-Hole Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a vertical front elevation of the machine; Fig. 2, a vertical side elevation; Fig. 3, a vertical section; Fig. 4, a detail plan view of the cams on the main shaft; Fig. 5, details of the die and bed-plate; Fig. 6, details of the stamping-knife.

This invention relates to certain improvements in button-holing and apparatus for the same, which is intended to be especially applicable to boot-making, and generally to all other analogous uses. It consists in a means for cutting a strip of leather into sections with slotted ends, applying a cord across the middle of each section, and so tightening the cord, and compressing the whole between dies, as to form a corded button-hole tag, which may be afterward worked in with the other material in the manufacture of the articles to which it may be applicable to form a corded button-hole.

In the drawing, A represents a feed-table, upon which a strip of leather is laid. B is a presser-foot, attached to a slotted bar, Z′, which feeds the leather to a knife, C. Said knife cuts the strip into sections, and at the same time cuts three slits in one end of the sections, and two slits in the opposite end. The cord is passed through the eye-piece D, and is wound upon the feed cord-wheel E. A knife, B′, cuts off a section of said cord, which is still held by the springs of the cord-wheel until the two griping-jaws F rise and seize it. As the jaws descend the cord folds the section of leather around itself, and draws it against and around the projection of the bed-plate G, which is of the shape of the button-hole, the slits opening as the leather is carried around, and the tongue of one edge filling up the opening slits of the other edge to form a continuous border. The die H then compresses the corded tag thus formed into the shape of a button-hole, the said die having a depression of the shape of a button-hole, which corresponds to, in shape, and receives the elevation of the bed-plate. As soon as the die is retracted the eye of the bed-plate, which is movable, and forms a part of a picker-bar, I, lifts the tag out and transfers it to a forked tilt, J, which throws it into any convenient receptacle. The presser-foot is attached to an adjustable bar, Z′, which is operated by an elbow-lever, K, pivoted to the frame, the horizontal arm of which rests upon a cam, L, on the main shaft, the said horizontal arm having a binding-screw to regulate the throw of the presser-foot. The said foot is brought back to its former position by a second elbow-lever, M, one arm of which is operated by a cam, N, on the main shaft, and the other arm of which is attached through a spiral spring to the presser-foot bar. The knife C is attached to a vertical sliding bar, O, contained in a frame, P, and habitually held up by the spring Q. A lever, R, rests upon the top of bar O, and operates the knife when drawn down by vertical rod S. Said rod is attached below to a lever, T, which is operated by the cam U upon the main shaft. The feed cord-wheel E is journaled in frame P upon the same shaft with a ratchet-wheel, V, and is provided with radial extensions and double clamping-springs *a*, which hold the cord. The said feed-wheel and ratchet-wheel are intermittently rotated by a spring-seated pawl, W, on a vertically-sliding shaft, X, and are held in place by a spring-catch, Y. Shaft X is attached below to a lever, Z, which is operated by a roller running in a cam-groove in the central disk A′ on the main shaft. B′ is a knife, pivoted to the frame P, which cuts the cord on the feed-wheel between the double springs *a a*, so that the cut section of cord is still held by the wheel. The rear extension of this knife is loosely attached to a vertically-sliding shaft, C′, which is held up by a spring, and depressed by a lever, D′, which engages with the cam N, that retracts the presser-foot. The griping-jaws F are constructed with double pivots, so that they open when compressed, and close when retracted. Said jaws are pivoted to a vertically-sliding shaft, E′, which is reciprocated by the forked end of an elbow-lever, F′, the other arm of

which moves in a cam-groove in disk G′ of the main shaft to impart said reciprocating motion. The said jaws are attached to the horizontal arms H′, which move between the spring guide-bars I′ to steady the said jaws, and give them a horizontal adjustment through the cranks J′ and segments K′. The die H is attached to a horizontal sliding shaft, L′, and has a keyhole-shaped depression corresponding to the elevation upon the bed-plate. The said die and plate may be made detachable, and different sizes substituted. The shaft L′ is held away from the bed-plate by a spiral spring, M′, and is pressed forward by an elbow-lever, N′, the horizontal arm of which is actuated by a cam, O′, upon the main shaft, and the vertical arm of which rests against the end of a sliding rod, P′, contained within shaft L′, which receives the pressure of the elbow-lever, and transmits it to the die through a spiral spring, Q′, so as to render the pressure of the die upon the leather elastic. As soon as the tag is pressed into proper shape the picker-bar I, which terminates in a stud, around which is formed the eye of the button-hole, is thrown up by the bar R′ and lever S′, and the tag lifted out of the die, the lever S′ being operated by a cam, T′, upon the main shaft, to raise the picker-bar, which latter is brought back to its former position by a spring, U′. As the tag is lifted by the picker-bar I it is transferred to a forked lift, J, and is tossed by the latter into any convenient receptacle. The said lift is worked by a bar, V′, and a lever, W′, which is operated by a cam, X′, upon the main shaft, the tilt being restored to its position by a spring, Y′.

Having thus described my invention, what I claim as new is—

1. The combination of presser-foot B, bar Z′, elbow-lever K, and the cam L on the main shaft, as and for the purpose set forth.

2. The combination of presser-foot B, elbow-lever M, and cam N, substantially as and for the purpose described.

3. The combination of the knife C, bar O, spring Q, lever R, rod S, lever T, and cam U, substantially as and for the purpose described.

4. The combination, with feed cord-wheel E, of the double clamping-springs *a a*, substantially as and for the purpose described.

5. The combination of cord-wheel E, ratchet-wheel V, pawl W, sliding shaft X, lever Z, and disk A′, having a cam-groove, substantially as and for the purpose described.

6. The combination of the cord-wheel E, having double springs, the knife B′, sliding shaft C′, lever D′, and cam L, substantially as and for the purpose described.

7. The combination of the griping-jaws F, sliding shaft E′, elbow-lever F′, and disk G′, having a cam-groove, substantially as and for the purpose described.

8. The combination of jaws F, horizontal arms H′, spring guide-bars I′, cranks J′, and segments K′, substantially as and for the purpose described.

9. The combination of bed-plate G, die H, sliding-shaft L′, spring M′, elbow-lever N′, slide P′, spring Q′, and cam O′, substantially as and for the purpose described.

10. The combination of the bed-plate G and the picker-bar I, forming the eye of the button-hole, substantially as described.

11. The combination of picker-bar I, bar R′, lever S′, spring U′, and cam T′, substantially as and for the purpose described.

12. The combination of the picker-bar I and the forked lift J, for the purpose described.

13. The combination of the lift J, spring Y′, bar V′, lever W′, and cam X′, substantially as and for the purpose set forth.

The above specification signed by me this 12th day of March, 1875.

JOHN KENNY. [L. S.]

Witnesses:

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