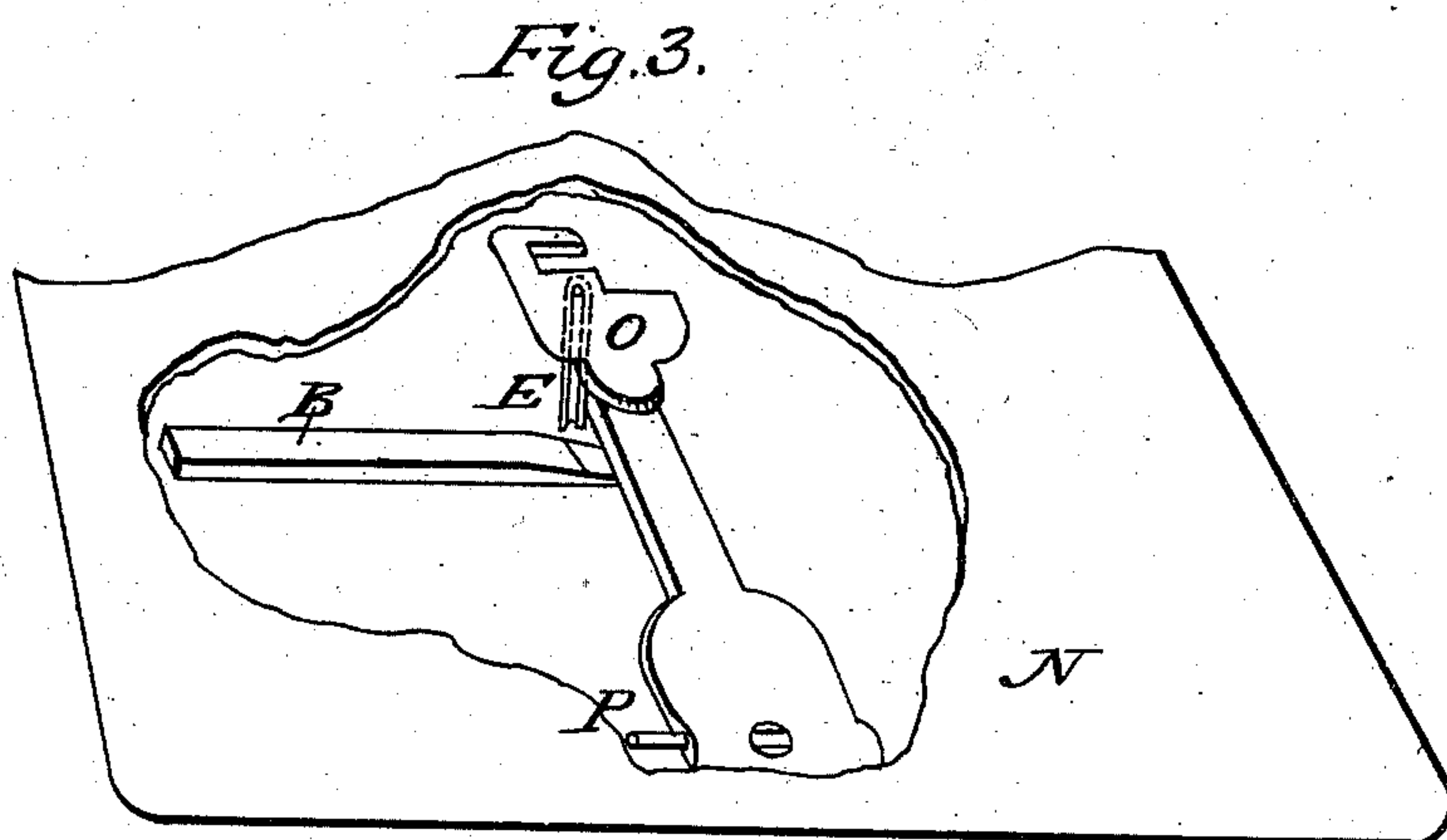
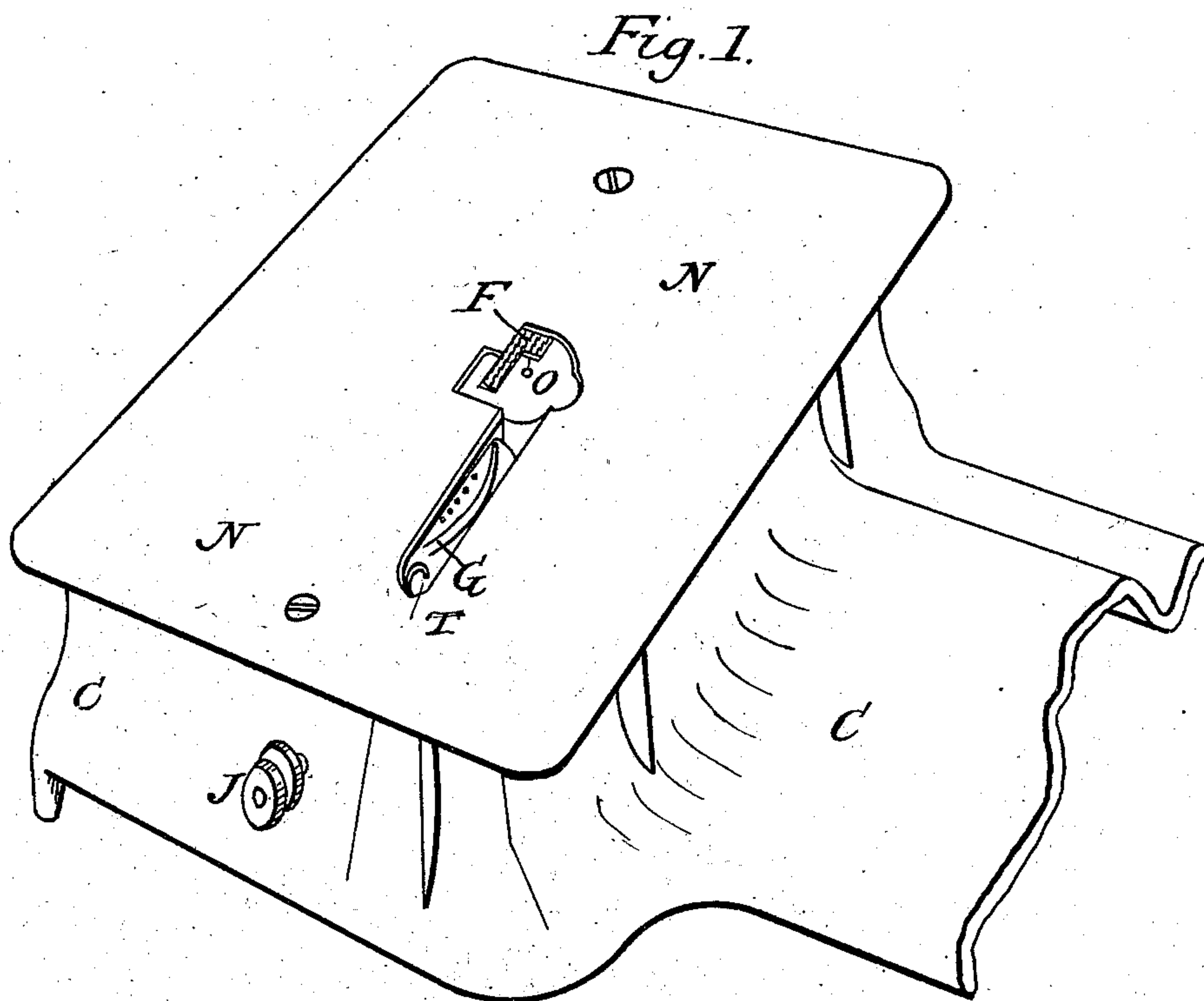


C. PARHAM.  
Sewing Machine.

2 Sheets—Sheet 1.

No. 78,818.

Patented June 9, 1868.



Witnesses:  
George E. Buckley  
Wm. H. Huley.

Inventor:  
Chas Parham

C. PARHAM.  
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Fig. 2.

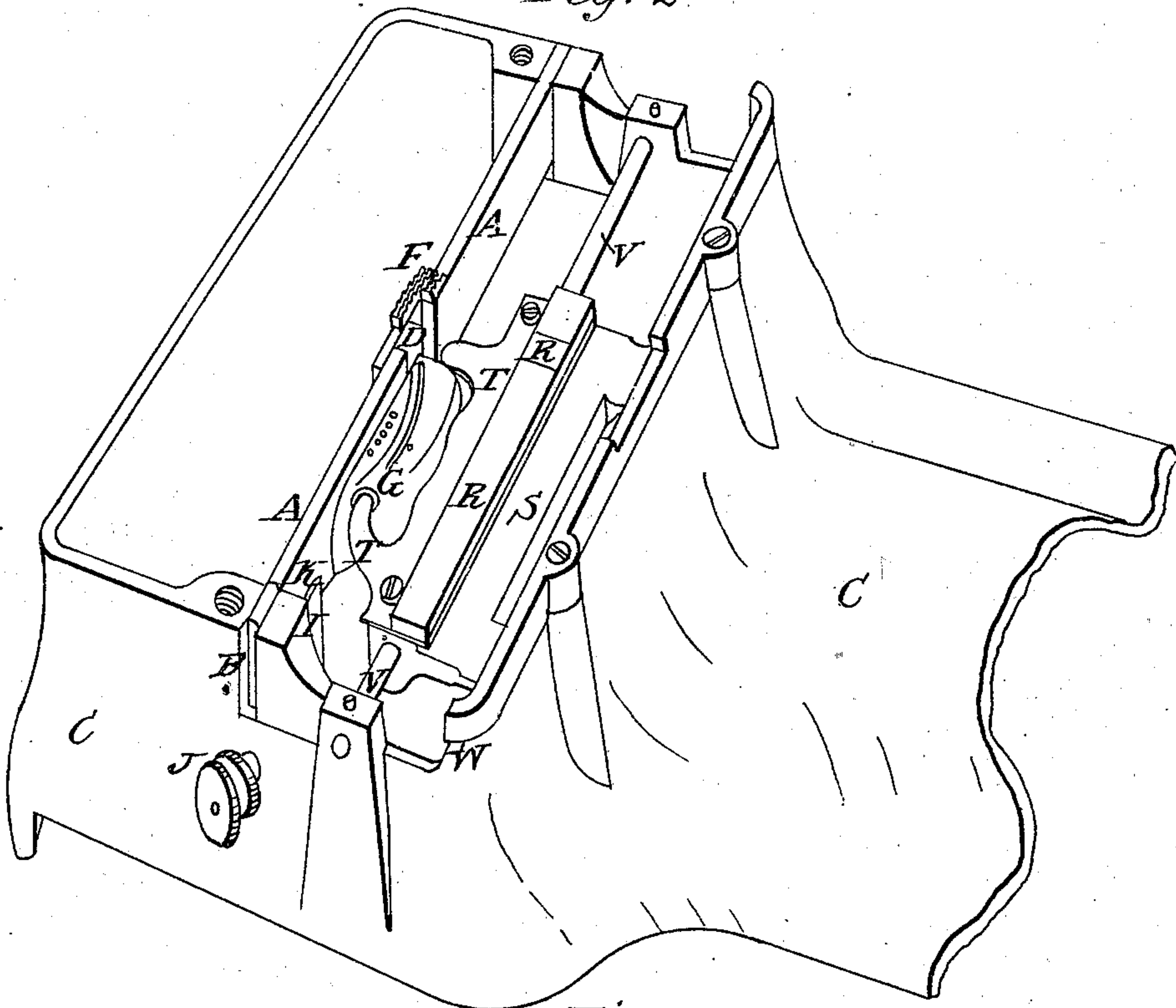
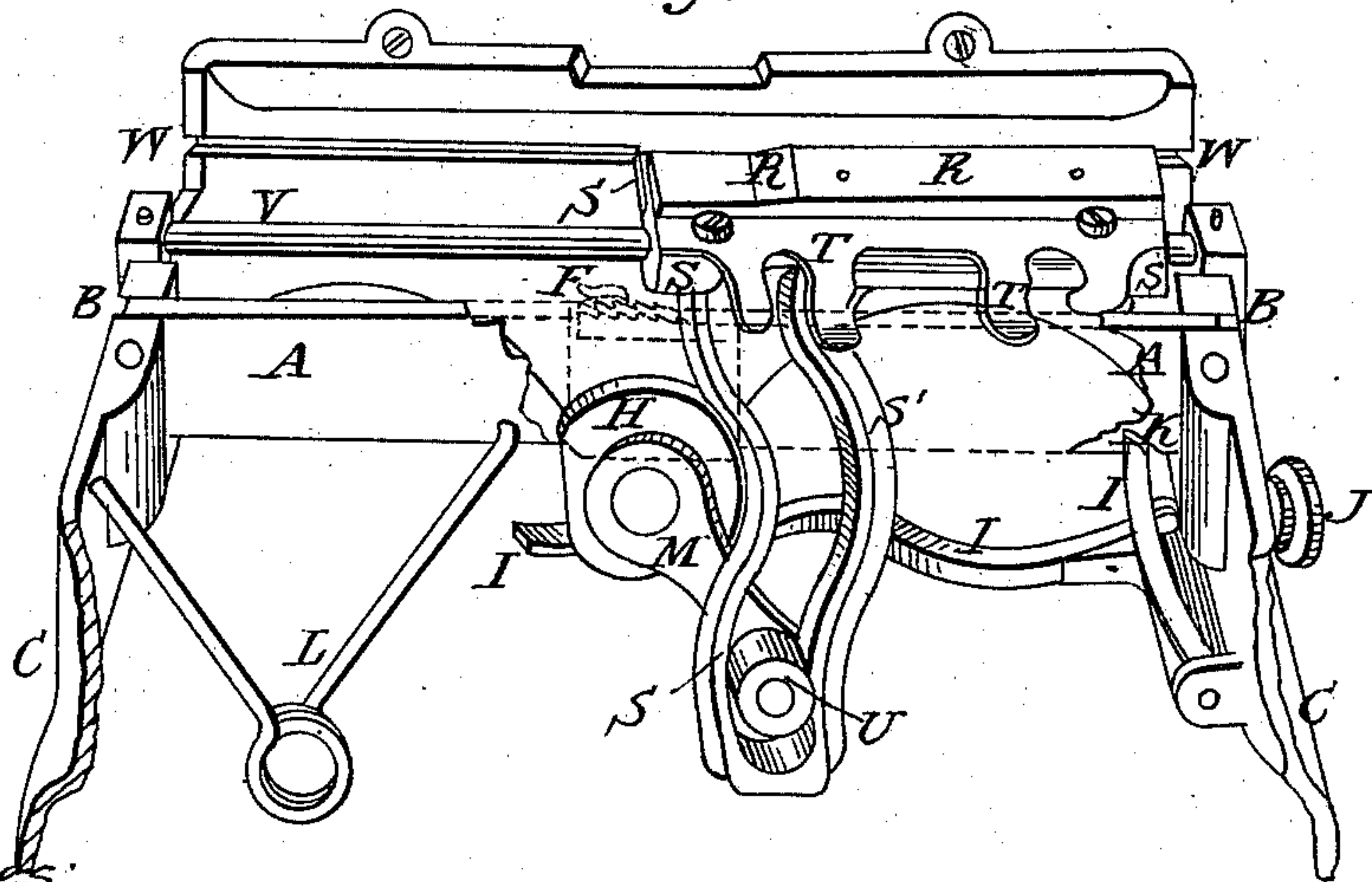


Fig. 4.



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# UNITED STATES PATENT OFFICE.

CHARLES PARHAM, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 78,818, dated June 9, 1868.

*To all whom it may concern:*

Be it known that I, CHARLES PARHAM, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of the cloth-plate, needle throat-plate, and feeding-points. Fig. 2 is a top view of the shuttle face-plate or guide, feeding mechanism, and shuttle carrier and driver. Fig. 3 is a broken view exposing the needle throat-plate, needle shield, and raising-bar. Fig. 4 is a broken view, exposing the shuttle face-plate or guide, feeding mechanism, and combined shuttle carrier and driver.

My improvements relate to that well-known description of sewing-machines in which the stitch is formed by the interlacing of two threads by means of a needle and shuttle or its equivalent, the shuttle resting and moving upon a groove or race, or supported and moved by a combined driver and carrier. The open side or face of the shuttle is guided and maintained in an upright position by a plate containing a channel or recess for the needle when operating in combination with the shuttle.

The object of my invention is to dispense or discard the usual feeding mechanism now employed to carry and impart the intermittent movement to the cloth in forming the stitch—namely, the rotary and four-motion automatic bar.

There are other portions of my invention which I will hereinafter describe.

All those parts of the machine which are not herein described are or may be presumed to be the same as the corresponding parts of well-known machines, as it is only necessary to illustrate my invention to describe those parts of the machine to which said invention bears intimate relation.

To enable me to discard all independent and separate feeding mechanism I so construct the shuttle face-plate or guide that while it serves as a guide for the shuttle upon the open or face side, there may be imparted to it a reciprocating and intermittent motion parallel to the shuttle-line of motion. The shuttle face-plate consequently is not permanently fixed to any part of the machine, but loosely fitted in

the proper position for the effectual performance of its double duties. Upon its upper edge, in proximity to the needle-recess, I place points, upon which the cloth to be sewed rests for receiving the feed-movement.

To enable those skilled in the art to make and use my improvements, I will proceed to describe their construction and operation.

A, Fig. 2, is a loose shuttle face-plate or guide for the shuttle-line of motion, fitted at each end and movable in slots B of the bed of machine C; D, the recess of shuttle face-plate for the needle shield or guide E, Fig. 3; F, the points upon the upper edge of shuttle face-plate. The recess D is of sufficient width to allow the free motion of the shuttle-plate corresponding with the full length of stitch-movement desired without striking the needle shield or guide E, Fig. 3.

The motion of the shuttle-plate A is so regulated that it will correspond as nearly as possible with that of the shuttle G, although its motion is not so great as that of said shuttle. Still, after it has performed its motion it then remains at rest for the shuttle to finish its movement. Consequently the friction or resistance of the shuttle and face-plate will be the same as of a fixed plate.

The motion to the shuttle-plate is produced by the cam H, Fig. 4, acting upon the bent lever. The upright end of the lever fits or is let in a notch cut in the lower edge of the shuttle face-plate at K, thereby imparting movement from the cam H. A thumb-screw, J, regulates the degree of movement of the plate.

To the shuttle face-plate A is a spring, L, so acting upon the loose shuttle-plate as to always press it back against the end of lever I at the notch K. The same consequently keeps the long arm of the lever in contact with the cam H. The spring at one end is loosely let in a hole at lower edge of shuttle face-plate. The other end is inserted in a hole at side of bed of machine C, and so adjusted that while it presses the loose shuttle face-plate back it also has a downward pressure for the purpose of retaining the shuttle guide-plate in its bed or slots B. The cam H is placed upon and secured to the hub of the crank M, and so shaped and adjusted as to impart the desired motion to the lever I and shuttle face-plate.

The points F upon the upper edge of the shuttle face-plate are placed in the desired



proximity to needle-throat recess, and, projecting above the line of the upper face of the cloth-plate N, would always be in contact with the cloth. To prevent this I use a loosely-fitted or hinged needle throat-plate, O, for the purpose of lifting the cloth from the points, so that the shuttle face-plate and points may freely fall back. The needle throat-plate at one end is loosely retained by a pin, P, to a stud. The other end is loosely fitted in a corresponding opening in the cloth-plate N, the said throat-plate O being so shaped and formed as to partly surround the feeding-points F, and that part surrounding the points is so shaped that it may be raised above the line or upper face of the cloth-plate N and above the top line of the feeding-points, and in this throat-plate O, I drill a hole for the reception of the needle and its shield E, Fig. 3. The throat-plate being loosely secured at one end, and so shaped as to act as the fulcrum, the desired motion is given to it by a bar, R, secured to the shuttle-driver. The upper face of the bar R is so shaped with a high face and a bevel, *h'*, and low face to impart to the throat-plate the desired movements, and corresponding to the combined movements of the shuttle face-plate A and shuttle-driver S, the whole acting in unison.

The needle-shield E is firmly fixed to the loose plate O, and opened at that side next to the shuttle G, so that when the thread is carried down by the needle the loop of thread formed by the receding of the needle may be thrown out in front of the shuttle, which shuttle, with its interlacing thread, then passes through, thus forming the stitch, the sides of the shield or guide protecting the needle from the action of the loose shuttle face-plate and preventing the shuttle, in passing through the thread-loop, from pulling the needle out of line, and thereby protecting the needle from injury by the shuttle in its forward and backward motion.

By the combination and arrangement of the several parts as above described and illustrated it will be observed that perfect cloth-feeding movements are obtained with or without using the usual and well-known feeding device.

Fig. 4 is a broken view of the machine-frame *c* and shuttle face-plate A, exposing the shuttle-carrier T and driver S with its arm S', having a cam-shaped slot for the roller or pin U of the crank M to act in, for the purpose of receiving the desired movement to throw the shuttle, and also a ledge entering the groove W in the frame. The shuttle-driver S is guided and retained in the proper position for its movement by a round rod or bar, V, and by a lip on the carrier entering a groove in the frame, and thus to prevent it from turning upon the round bar or guide V. The shuttle-carrier T is firmly fixed to the upper part for the carrying of the shuttle G. The driver S with the arm S' having a cam-shaped slot I construct in one piece, and from which all the

essential moving and resting parts are obtained without the aid of other cams or connecting pieces, pitmen, rods, or guides, the whole being arranged, combined, and operated as described, for the desired effect.

The operations of my improvements are as follows: The shuttle face-plate A and points F being at their extreme forward position, the shuttle G at its extreme back position, the needle throat-plate O resting upon the high portion of the raising-bar R, consequently the cloth would be raised off the feeding-points. The needle enters or pierces the cloth with its thread, and recedes sufficiently to throw out a thread-loop. The shuttle now moves forward through the loop of needle-thread, interlocking its own thread with it for the formation of the stitch. While the shuttle is moving forward the bar R retains the needle-throat plate O in a raised position until the low portion of the bar approaches. Then the throat-plate falls, exposing the points to catch the cloth. At the starting of the shuttle forward, and while the needle-plate is retained upward, with the cloth relieved from the points, the shuttle face-plate and points move backward with the forward movement of the shuttle. The needle is now withdrawn for the tightening of the stitch by the action of the crank and its pin or roller U in the cam-shaped slot of the combined driver. The shuttle and driver remain stationary for the withdrawing and tightening of the needle-thread. The stitch being completed and the cloth resting upon the feeding-points, the shuttle returns to its starting position, the shuttle face-plate A and cloth-points F move forward with the cloth, and the needle throat-plate now relieves the cloth from the points and the needle re-enters for the succeeding stitch, and so the several devices continue to act in unison with all the other portions of the complete machine, although not represented or illustrated here, but will be readily understood by those skilled in the construction of similar machines.

It is obvious that by the above illustrated and described devices a practical and perfect shuttle sewing-machine may be constructed with a lesser number of parts, consequently all unnecessary friction is avoided, and that by such an arrangement either or all the same may be easily applied to other shuttle-machines that may be already in use.

I wish it to be distinctly understood that I do not confine the arrangement of the shuttle face-plate to such machines as carry or drive the shuttle in a straight line; but the shuttle face-plate may move in the arc of a circle or otherwise.

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

1. The combination of the shuttle-carrier T, the guide V, the cam-slotted downhanging arm S', directly attached to the carrier, and the crank M, the whole constructed and arranged substantially as described.



2. A shuttle driver or carrier, S, having a downwardly-hanging arm, S', in combination with a guide, V, and groove W, constructed and arranged substantially as described.

3. A reciprocating shuttle face-plate having feed-teeth on its upper edge, substantially as described.

4. A reciprocating shuttle face-plate having feed-teeth on its upper edge, in combination with a movable stripper-plate, O, substantially as described.

5. A reciprocating shuttle face-plate having feed-teeth on its upper edge, in combination

with a movable stripper-plate, O, and needle-shield E, substantially as described.

6. The combination of a reciprocating shuttle face-plate having feed-teeth on its upper edge, a movable stripper, O, and a reciprocating cam or wedge on the upper surface of the shuttle carrier or driver for the purpose of operating the feed-stripper, substantially as described.

CHAS. PARHAM.

Witnesses:

GEO. E. BUCKLEY,

W. A. A. MCKINLEY.