3 Sheets—Sheet 1.

J. B. WOODRUFF.

Sewing Machine.

No. 13,195.

Patented July 3, 1855.

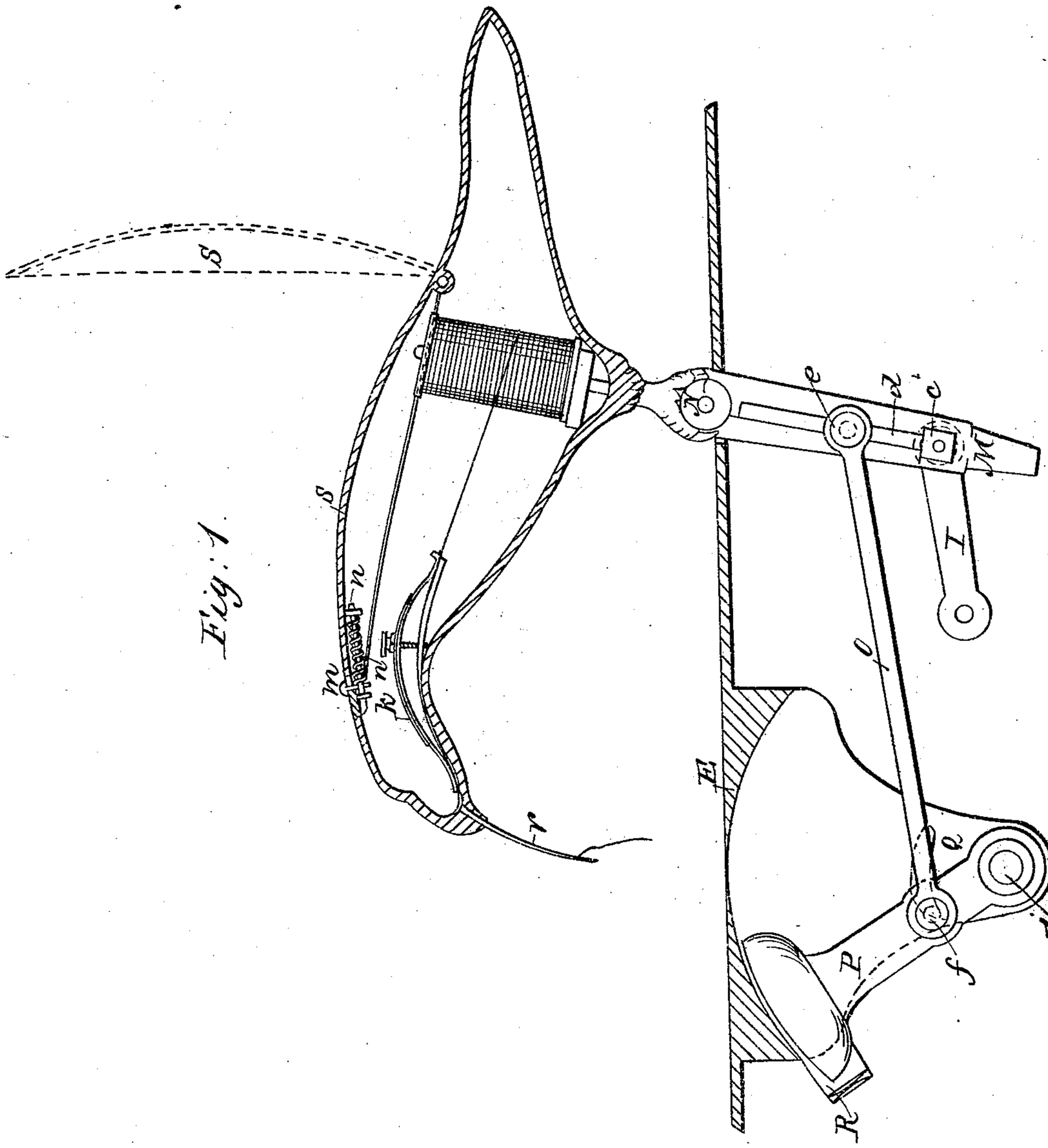


Fig. 1.

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Fig: 3.

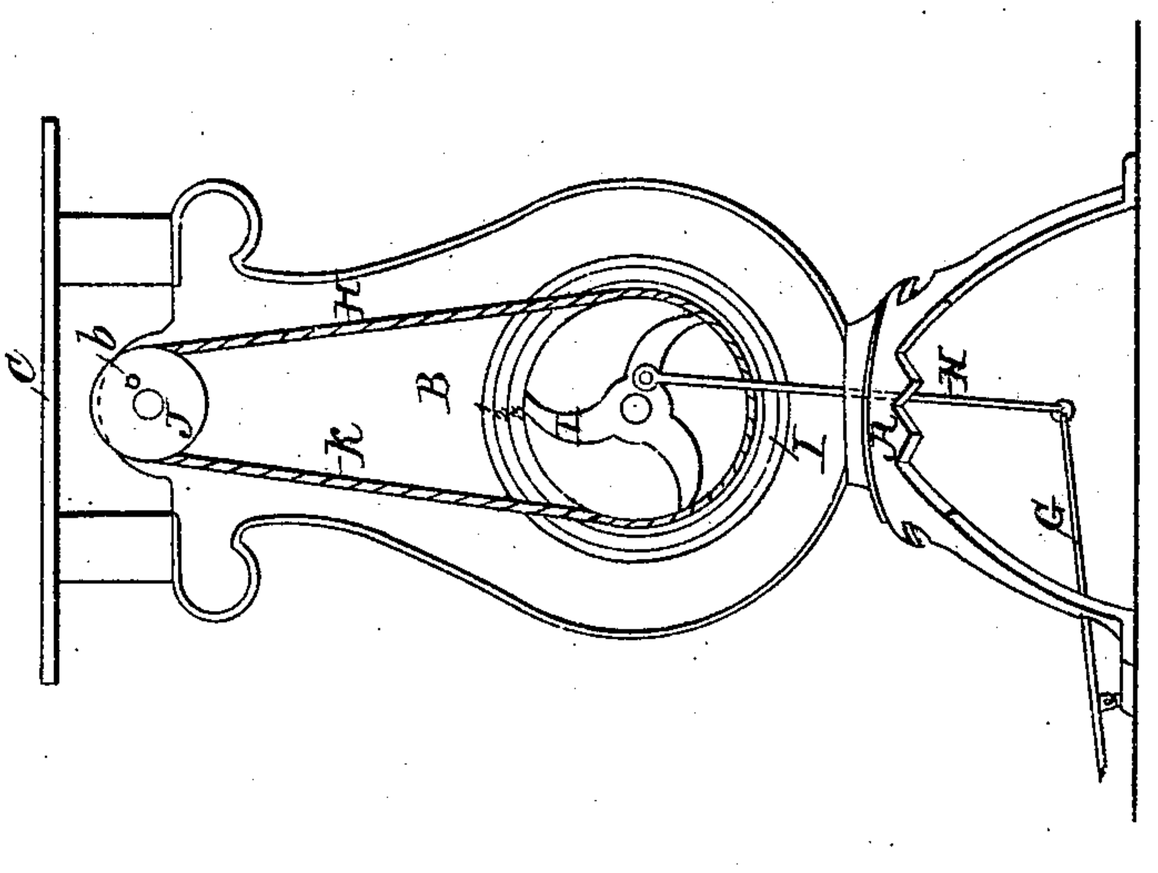
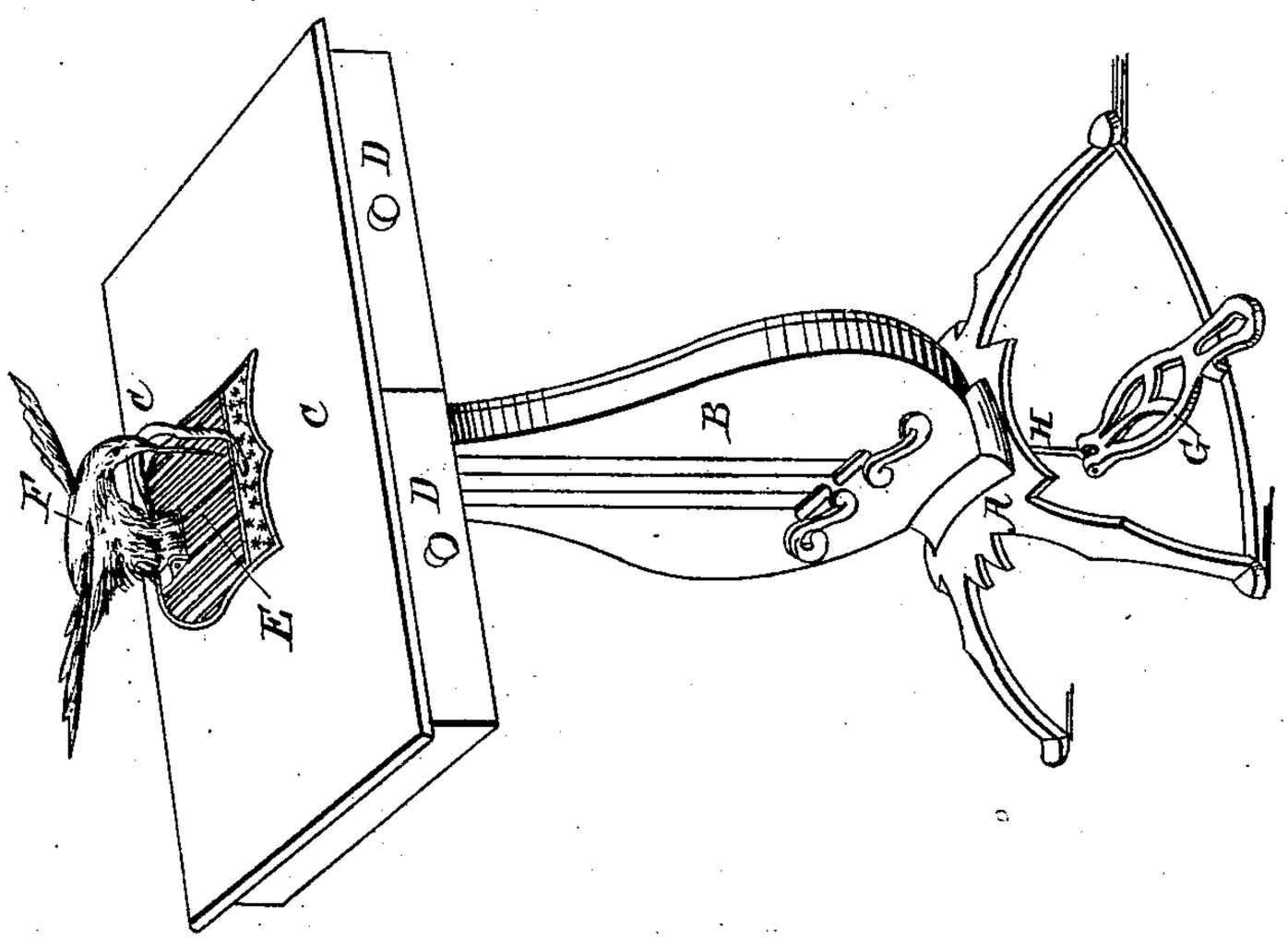



Fig: 2



3 Sheets—Sheet 3.

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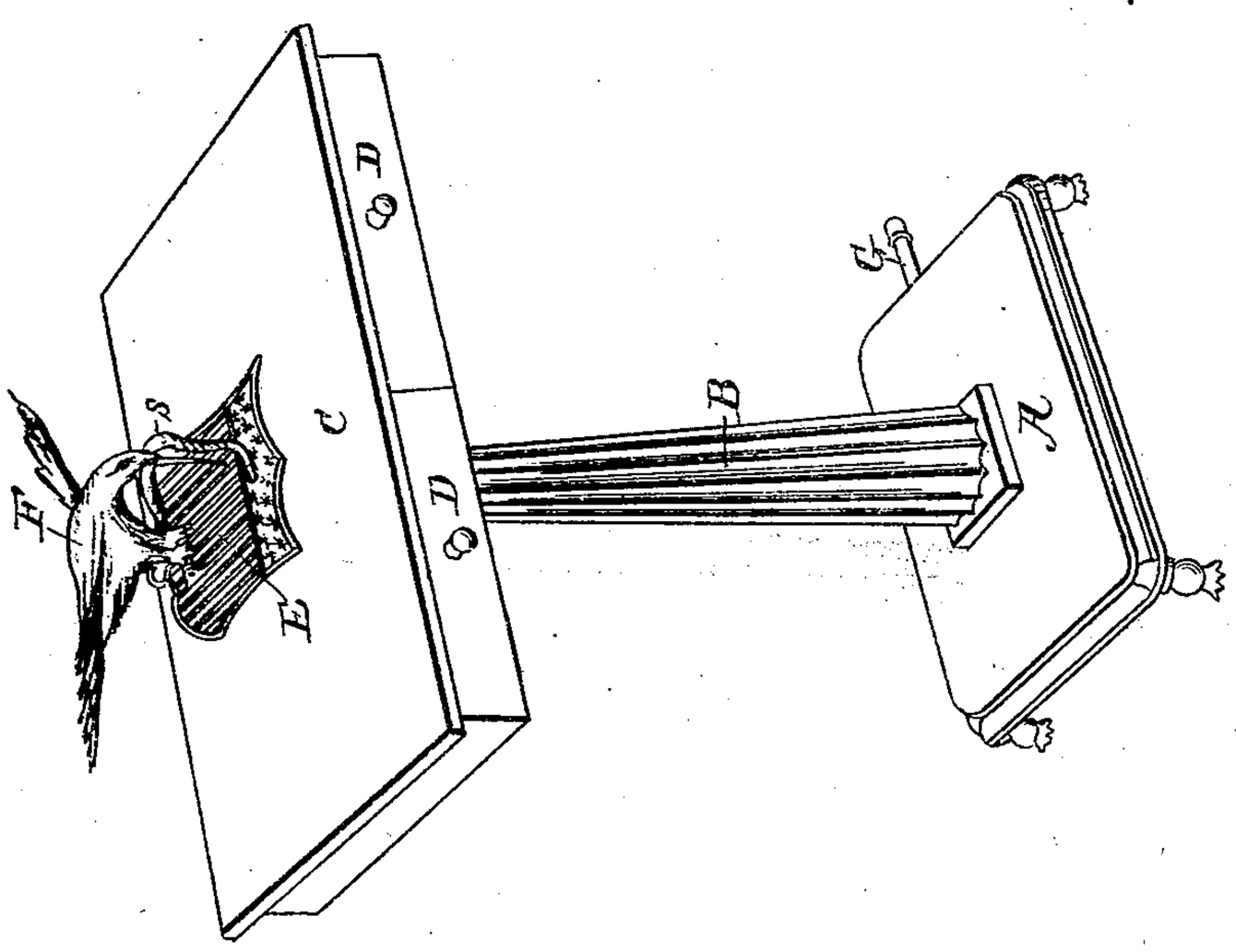
Fig. 4.



# UNITED STATES PATENT OFFICE.

JEROME B. WOODRUFF, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **13,195**, dated July 3, 1855.

*To all whom it may concern:*

Be it known that I, J. B. WOODRUFF, of the city of Washington, in the District of Columbia, 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, making a part thereof, in which—

Figure 1 represents a vertical section through the machine, so as to clearly represent all of the main operative parts thereof. Fig. 2 represents an isometric view of the machine when complete and ready for use. Fig. 3 represents a sectional elevation, designed to show the parts which are purposely covered up in the complete machine. Fig. 4 represents a modified form of the machine as represented in Fig. 2. Figs. 2, 3, and 4 are on a reduced scale.

My main object is to simplify, cheapen, and render effective a sewing-machine, so that it may be with safety and economy used by any one without liability to derangement; and my invention may be said to consist in removing all the unnecessary and complicated parts from the machine, and so combining the few pieces I do use as to have a direct and uniform action of the whole, thus making the machine the most simple of its kind, while its product is not inferior to any known machine, either in the quantity or the quality of its work, and in simplifying the mechanism I have made the machine itself ornamental, each ornament, however, being a part or parcel of what makes up the whole, but sacrificing nothing exclusively to ornament. I thus am enabled to furnish a parlor with a neat piece of furniture of the most useful kind.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings, in which similar letters of reference refer to like parts.

A represents the base upon which the machine is supported. From this base rises an ornamental center piece, which may be shaped like a lyre, B, Fig. 2, or a hollow column, as seen in Fig. 4, and on this center piece, B, is firmly secured a table, C, furnished for convenience with drawers D, and on top of the table is an escutcheon, E, over which the needle-arm, which I propose to make in imitation of a bird, F, stands. These several pieces may be wrought or ornamented to please the fancy of the purchaser or user. When the lyre-shaped piece B is used, it is provided with a door, slide, or other suitable opening, so as to get at the machine incased within it. The object of incasing or inclosing the operative parts of the machine is twofold—viz., first, to remove them from sight, so as to give the machine the appearance of a piece of furniture, but more especially to prevent the oil or lubricator, which the moving parts of the machine require to make it run smoothly, from flying upon and soiling the clothes of the user. It will be perceived by reference to the drawings, Figs. 2, 4, that in the complete machine every part has a useful function, while there is nothing exposed but what is highly ornamental.

To the base A of the machine is attached a treadle, G, upon which the foot of the operator is placed to give motion to the machine. To this treadle is connected one end of a connecting-rod, H, the other end of said rod being connected to a wrist-pin, *a*, on the pulley-wheel I, said pulley-wheel being provided with several grooves, 1 2 3, of varied diameters, for increasing or diminishing the motion of the machine in accordance with the peculiar kind or quality of work to be sewed.

Around the pulley-wheel I, and around a smaller pulley, J, arranged immediately under the table, and provided also with a series of grooves, passes an endless belt, K, for transmitting a highly-increased motion from the treadle to said upper pulley, to be further transmitted to the machinery, to be presently described.

When the hollow column, as seen in Fig. 4, is used, the pulleys and belts are dispensed with, and the treadle, instead of a vertical vibratory motion, has a horizontal vibratory motion, which is communicated to the sewing apparatus directly by a rod leading from the treadle to said apparatus. In this case, as in that of Fig. 2, the operative parts which require oiling are all concealed, but easily arrived at for repairs, changing speed, oiling, cleaning, or for any other purpose.

To a wrist-pin, *b*, in the pulley J, Fig. 3, is connected one end of a connecting-bar, L, Fig. 1, the other end of said bar being connected, by a screw and nut, *c*, passing through it and through a slot, *d*, to the arm M, so that by

means of said screw and nut and slot the bar L may be made adjustable. The arm M is a part of or connected to a rock-shaft, N, and by means of the mechanical devices above described said rock-shaft gets its rolling or rocking motion from the treadle.

To the slot *d* in the arm M is attached, by means of a screw and nut, *e*, one end of a connecting-bar, *o*, the other end being connected by a wrist-pin, *f*, to the shuttle-carrier *p*. The connecting-bar *o* being adjustable in the slot *d* of the cam M admits of communicating to the shuttle-carrier an accurately-adjusted motion, which is positive and uniform. This is an important feature in sewing-machines, bebecause the needle and shuttle (or whatever catches up the loop of the needle-thread) must work in perfect harmony with each other to insure perfect sewing, and I achieve this result by connecting the two together by a rigid bar, so that the motion of both must be uniform.

The shuttle-carrier P is pivoted to a suspended arm, Q, on the under side of the escutcheon at a point, *i*, which is in a vertical line below or passing through the sewing-point, and it vibrates in the arc of a circle, of which *i* is the center. The shuttle, the feed, and the manner of regulating the length of the stitch may be the same as that represented and described in a former application of mine, and need not be particularly mentioned here. Of the shuttle, however, it may be as well to mention that its eye should be forward of the center of the shuttle itself for the purpose of drawing up the stitch with its thread with the same length of thread that the needle has between its eye and the stitch, which causes each to exert the same force and more perfectly draw up and tighten the stitch. It also slackens up the shuttle-thread as it passes back to make the next stitch. R is a hinged guard which prevents the shuttle from flying out of its seat in the carrier, but which guard may be readily raised up to take out or insert the shuttle.

The rock-shaft N rises just above the top of the escutcheon, and has its bearings in the escutcheon, and is ornamented to receive a handsomely cast or wrought bird, F, which is the needle-bar. The bird is cast hollow, and is provided with a hinged lid, S, on the back or upper side, which, when raised up, would stand like the red lines in Fig. 1. This lid is provided with a spring-bolt, *n*, and button *m*, by which it may be secured or opened. Within the body of the bird is placed the spool from which the needle is supplied with its thread, and also the thread-tightener *k*, or friction-spring, to prevent the thread from paying out faster than it is required. In the bill of the bird is arranged the needle *r*, and the thread passes from the spool to the eye of the needle underneath the spring *k*, as seen in red lines in Fig. 1.

For the purpose of holding the cloth to the table and preventing it from rising with the needle, I use a coiled snake, *s*, with the needle (which may represent a prolongation of the bill of the bird) passing through the snake's head, thus further carrying out my design of beautifying my machine, while I sacrifice nothing exclusively to ornament.

Every part of the machine which could not be made ornamental is out of sight.

It is immaterial to the operation of the machine which way the pulleys run, as they effect the same motion to the needle and shuttle whether they run one way or another. This is quite important, and is due to the positive and unvarying motion of the needle and shuttle operated as I have described them.

In many machines the motion must always be in one direction, and great care must be exercised in starting. With my machine the foot may be applied to the treadle in any of its positions with entire safety, as the needle and shuttle cannot but work together.

When leather is to be sewed, a cup or ball of wax may be inserted in the body of the bird, over or through which the thread may pass to wax it.

Having thus fully described the nature of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The making of the needle-bar hollow and providing it with a door or slide for the purpose of holding incased therein such parts of the machine as may be desired, and this I claim whether the needle-bar be ornamental, as described, or otherwise.

2. The direct and positive connection of the needle-arm and shuttle-carrier, by which means they both move simultaneously and in perfect harmony with each other, so that whichever way the pulley is driven the operation of the machine will be the same, substantially as described.

JEROME B. WOODRUFF.

Witnesses:

A. B. STOUGHTON,

THOS. H. UPPERMAN.