2 Sheets—Sheet 1.

W. J. STEWART.
Sewing-Machine.

No. 219,992. **Patented Sept. 23, 1879.**

FIG. 1.

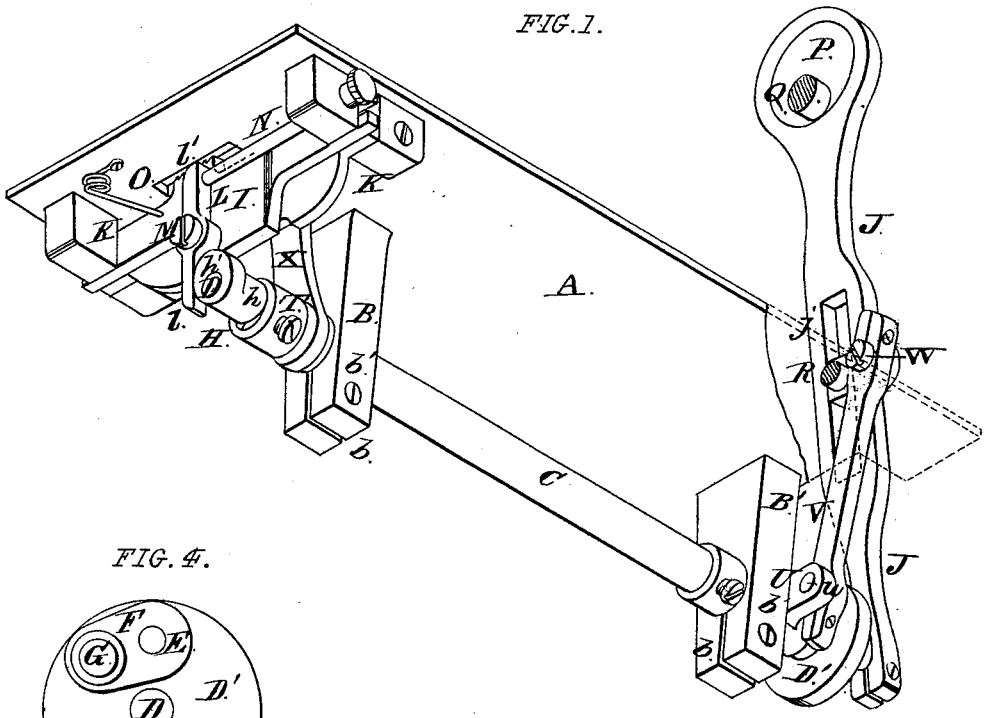


FIG. 4.

FIG. 5.

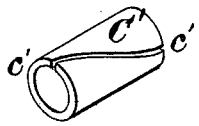
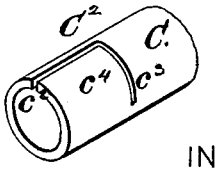


FIG. 6.



ATTEST:

Geo. H. Knight Jr.

Walter Allen

INVENTOR:

William J. Stewart

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Attys.

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FIG. 2.

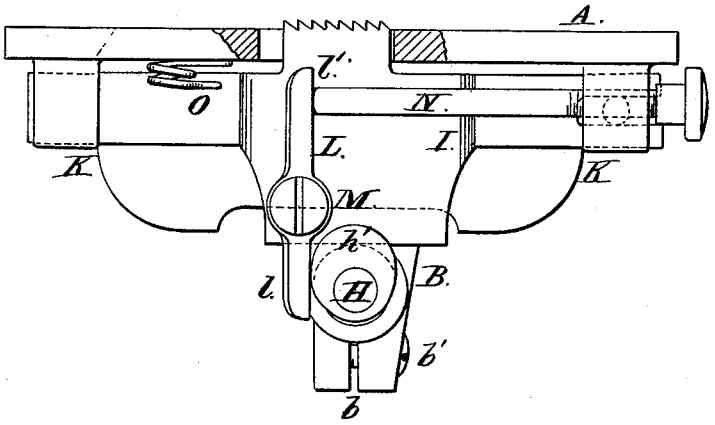
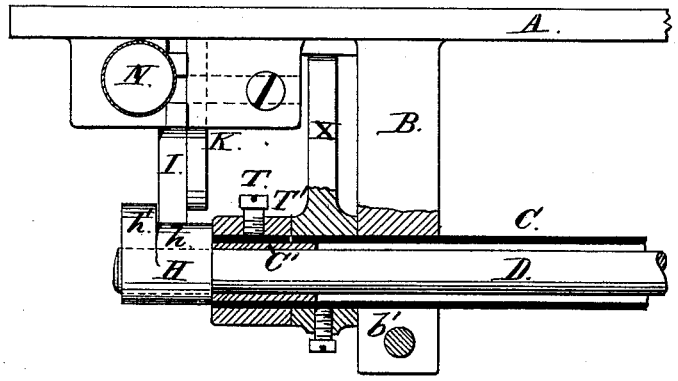


FIG. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM J. STEWART, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **219,992**, dated September 23, 1879; application filed March 27, 1879.

To all whom it may concern:

Be it known that I, WILLIAM J. STEWART, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvement relates to means for operating the shuttle-carrier and feed-operating devices from the driving-shaft; and it consists in a novel combination and arrangement of devices, hereinafter fully set forth.

In the drawings, Figure 1 is an under perspective view of the cloth-plate. Fig. 2 is an end view of the cloth-plate, showing the feed-bar in side view. Fig. 3 is a detail view, enlarged, showing the feed-cam in side view and the bearing of that end of the shaft in axial section. Fig. 4 is a side view of the crank-disk at the opposite end of the feed-shaft from the feed-cam. Fig. 5 shows one of the adjustable sleeve-bearings. Fig. 6 shows a contractile end of the tubular rock-shaft by which the shuttle is driven.

A is the cloth-plate. B B′ are bearing-lugs upon its under side, giving journal-bearing to the shafts by which the shuttle and the feed-bar are operated. These lugs have at their ower ends s lots *b*, as shown, so that they can be contracted upon the shaft to compensate for wear. This contraction is accomplished by a screw, *b′*, in a manner which will be fully understood without special description, the screw passing loosely through one end and screwing into the other, so that as it is turned up the parts will be drawn together upon the shaft.

C is the shuttle-driving rock-shaft. This shaft is tubular, and through it passes axially the feed-operating shaft D. The shaft D has upon one end a disk, D′, through which passes a screw, E, by which a crank-arm, F, is secured to the disk.

The crank-arm can be adjusted on the screw E as a pivot when the screw is loose, and the crank is held firmly in position upon the disk when the screw is tight.

By the described means of adjustment the crank-pin G may be fixed at any distance from the axis of the shaft, so as to accommodate it to the throw of the pitman J, by which it is operated. This shaft D has at the end opposite to the disk D′ a cam, H, by which the feed-bar I is operated. The cam H has two projecting parts, *h h′*, the first of which causes the upward movement of the feed-bar by direct action against its under edge, and the latter, *h′*, causes the forward movement of the feed-bar when it is in its upper position, so as to act upon the cloth to feed it beneath the needle.

The inclines upon both sides of the working-face of projection *h* are alike, so that in whichever direction the cam is turned it shall act in the same manner to raise the feed-bar. In like manner both the working sides of the cam-projection *h′* are alike, so that it shall act to move forward the feed-bar in the same manner, whatever the direction of rotation.

It will be understood that the projection *h* holds the feed-bar up in engagement with the cloth during the forward movement, and allows it to descend and to remain in its lower position during the backward movement.

The feed-bar I slides in bearings K beneath the cloth-plate, and is sustained by the cam H.

Upon the side of the feed-bar is a lever, L, oscillating on a fulcrum, M. Its lower end, *l*, is acted on by the part *h′* of the cam, while the upper end, *l′*, of the lever rests against the point of an adjusting-screw, N, which is turned inward to increase the length of the stitches, and turned outward to decrease their length.

It will be evident that as the screw N is turned in farther, the feed-bar will be carried farther by the cam acting upon the lower end of the lever L. The return or inoperative end movement of the feed-bar is accomplished by a spring, O, which is attached to the under side of the cloth-plate, and whose point engages in a hole in the feed-bar.

The pitman J is actuated by an eccentric, P, upon the driving-shaft Q, turning in the goose-neck of the machine. This pitman gives a positive rotation to the shaft D by vibrating upon a pin, R, upon which it has end reciprocation, the pin working in a longitudinal slot, *j*, of the pitman.

The shaft D has bearing in bushings C[1]

within the ends of the tubular rock-shaft C. The shaft C has bearing in the lugs or hangers B B′.

I have already described the way of taking up lost motion or compensating for wear in the bearings B B′. I will now describe the device for taking up the lost motion in the bearings C^1 of the shaft D. The bushings C^1 are slotted from end to end at c^1, so as to allow them to be contracted upon the shaft D. These bushings are surrounded by the end C^2 of shaft C, which are slotted longitudinally at c^2, and the slot continued in a circumferential direction at c^3, so that it can be contracted upon the bushing C^1, and spring the latter inward to fit closely the shaft D. The lip c^4 is sprung inward by a screw, T, screwing in a collar, T′, surrounding the end C^2 of the tubular shaft C.

The rock-shaft C is actuated by the following means: At one end of the shaft is a crank-arm, U, whose pin *u* has upon it the lower end of a connecting-rod, V, whose upper end is engaged upon a pin, W, upon the side of the pitman J. The crank-arm U is of such length as to give the shuttle-driving rock-shaft C the proper amount of oscillating movement.

X is the shuttle-driving arm, which is connected with the shuttle-driver in any suitable manner. I claim no novelty in such construction.

I claim herein as new and of my invention—

1. The combination of tubular rock-shaft C, carrying shuttle-driving arm X and interior rotating shaft, D, and means, substantially as described, for rotating the same, said shaft being provided with double cam H, having parts *h h′*, the feed-bar I, lever L, and screw N, substantially as and for the purpose set forth.

2. The combination of the driving-shaft Q, eccentric P, pitman J, pin R, crank-disk D′, crank F and its connections, rotary shaft D, provided with double cam H, having parts *h h′*, feed-bar I, lever L, screw N, and spring O, substantially as and for the purpose set forth.

3. The combination of interior shaft, D, slotted contractile bushings C^1, tubular shaft C, having spring section or lip c^4, temper-screw T, and collar T′, substantially as set forth.

WM. J. STEWART.

Witnesses:
SAML. KNIGHT,
GEO. H. KNIGHT.