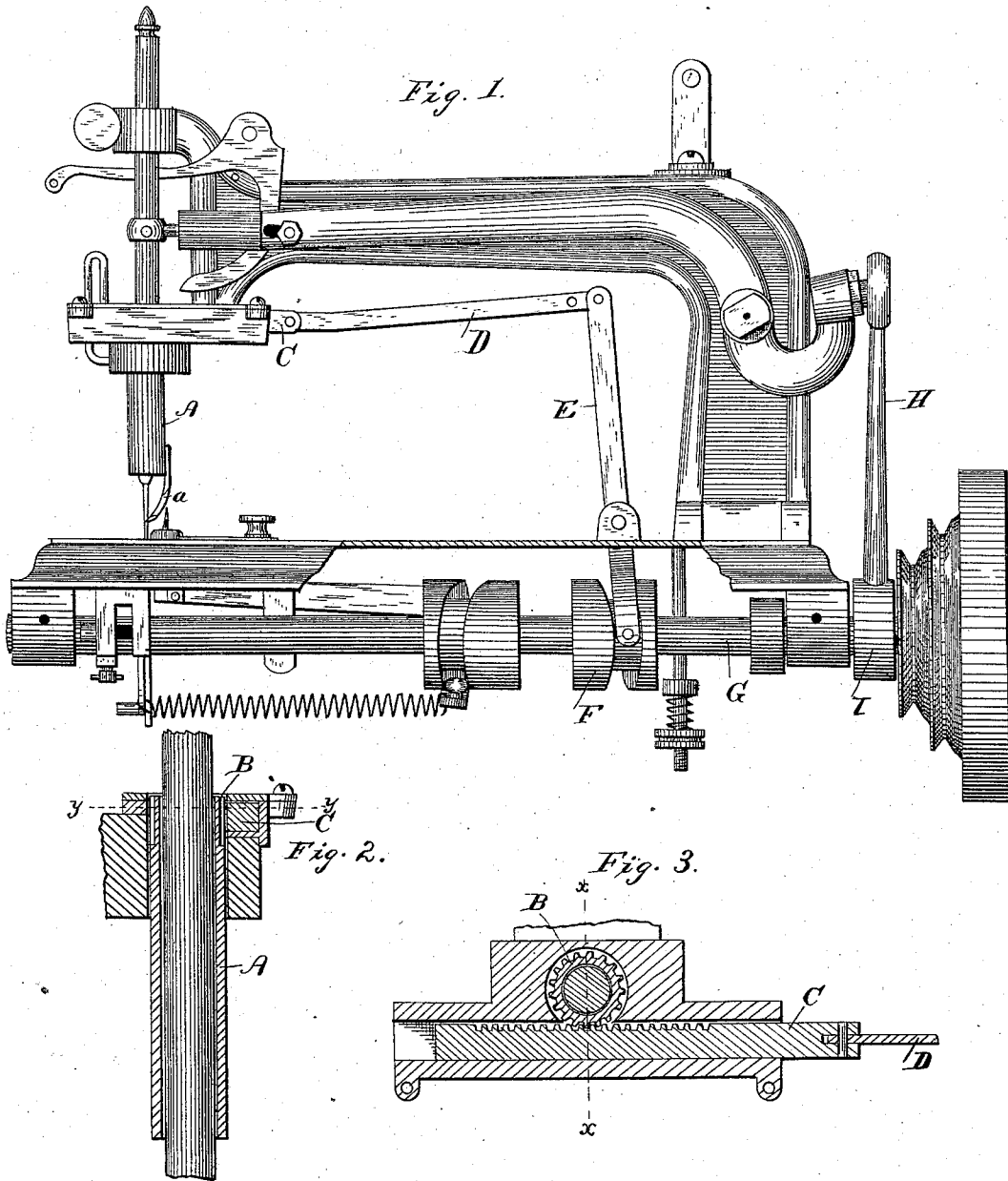


(No Model.)

W. B. PALMER.
SEWING MACHINE.

No. 305,531.

Patented Sept. 23, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM B. PALMER, OF GREENWICH, NEW YORK.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 305,531, dated September 23, 1884.

Application filed March 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. PALMER, of Greenwich, in the county of Washington and State of New York, 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 a part of this specification, and to the figures and letters of reference marked thereon.

Figure 1 is a side elevation of the complete machine; Fig. 2, a section of the means for operating the loop-carrying mechanism, and Fig. 3 a section on the line *yy* of Fig. 2.

My invention has for its object to improve that class of sewing-machines which are employed in button-hole or overseaming work; and it consists in certain novel improvements, which will be hereinafter described and claimed.

The machine made by the American Button Hole Overseaming and Sewing Machine Company may be taken as a type of that to which my improvements are intended especially to be applied. The patent of George Rehfuss, dated November 21, 1865, No. 51,086, may be referred to as showing the general features of such machine. Upon examination of this patent it will be seen that the needle-arm is given a vibratory motion by means of a cam located on the main drive-shaft and operating upon one of its ends; that the needle-bar is connected to the needle-arm and receives vertical reciprocating motion therefrom; that said needle-bar plays through a sleeve, which carries at its lower end a hook or finger for transferring the loop of thread from the lower needle into the path of the upper needle; that said needle-bar is provided with a pin or projection, which enters a corresponding spiral slot in the sleeve, whereby as the needle-bar is moved up and down, the pin on it traveling in the spiral slot causes the sleeve and its finger to be rotated, the upper end of the sleeve being held so as to permit of such rotation, but at the same time prevent it from being displaced vertically.

It is found that in the practical working of a machine constructed as just described the operation of the needle-bar pin in the slot

of the sleeve causes the edges of said slot to be in a short time worn to such an extent as to permit an objectionable amount of lost motion between the co-operating surfaces, which affects the promptness and regularity of the throw of the loop-shifting finger on the sleeve; furthermore, that the communication of motion to the sleeve from the vertically-reciprocating needle-bar tends to loosen the sleeve in its upper bearings. These defects I propose to remedy as follows: I dispense entirely with the slot in the sleeve and the corresponding pin on the needle-bar, and I form upon or attach to the upper end of the sleeve (lettered A in the accompanying drawings) a pinion, B, and with this pinion I cause a horizontally-reciprocating rack-bar, C, to engage, said bar being operated at suitable intervals from some moving part of the machine, though preferably by means of a connecting-rod, D, jointed to a pivoted lever, E, whose lower end co-operates with an actuating-cam, F, on the main drive-shaft G of the machine. By this arrangement of mechanism the sleeve A, carrying the loop-transferring finger *a*, is given the necessary rotary motion, while the application of power to it is in a direction which does not tend to loosen it in its bearings nor to alter the relation of the loop-transferring finger to the needles, even after long-continued use, as is the case in the machines employing the pin and spiral-slot arrangement first described. This change in the means for actuating the sleeve of the loop-transferring finger is advantageous in another respect—to wit, it relieves the needle-arm of the labor of operating the sleeve through the instrumentality of the needle-bar, and causes the sleeve to be operated by independent devices driven from the main shaft, leaving the needle-arm to only perform the function of driving the needle-bar, and rendering the machine as a whole capable of being run more rapidly and effectively.

To still greater increase the efficiency of the machine I have, instead of extending downward the inner part of the needle-arm and causing it to engage with a cam on the main drive-shaft, as heretofore, somewhat shortened said inner part of the needle-arm and connected to it by a universal joint a pitman or connecting-rod, H, formed at its lower end to

embrace an eccentric, I, on the main shaft G. By this arrangement when the main shaft rotates the needle-arm is vibrated with greater smoothness and regularity than where its end is caused to work against a cam, as heretofore.

I have illustrated in the drawings a complete machine, but have not described in detail all its parts nor their mode of operation, as they are, except in the particulars especially indicated herein, well known and familiar to any person skilled in the art.

I claim as my invention—

1. In an overseaming sewing-machine, and in combination with the reciprocating needle-bar and the stitching mechanism thereof, the sleeve surrounding the needle-bar, carrying the loop-transferring finger and the pinion or

gear-section, and the reciprocating rack mounted in the overhanging arm or head of the machine and engaging the said pinion, substantially as described.

2. In an overseaming sewing-machine, and in combination with the stitch-forming mechanism thereof, the needle-bar, sleeve A, carrying the loop-transferring finger *a* and pinion B, the rack C, arranged to slide in the head and co-operate with the pinion B, as described, and the pivoted connecting-rod D, the lever E, and the operating-cam, substantially as and for the purpose set forth.

WILLIAM B. PALMER.

Witnesses:

JESSE V. PALMER,
MELVILLE CHURCH.