

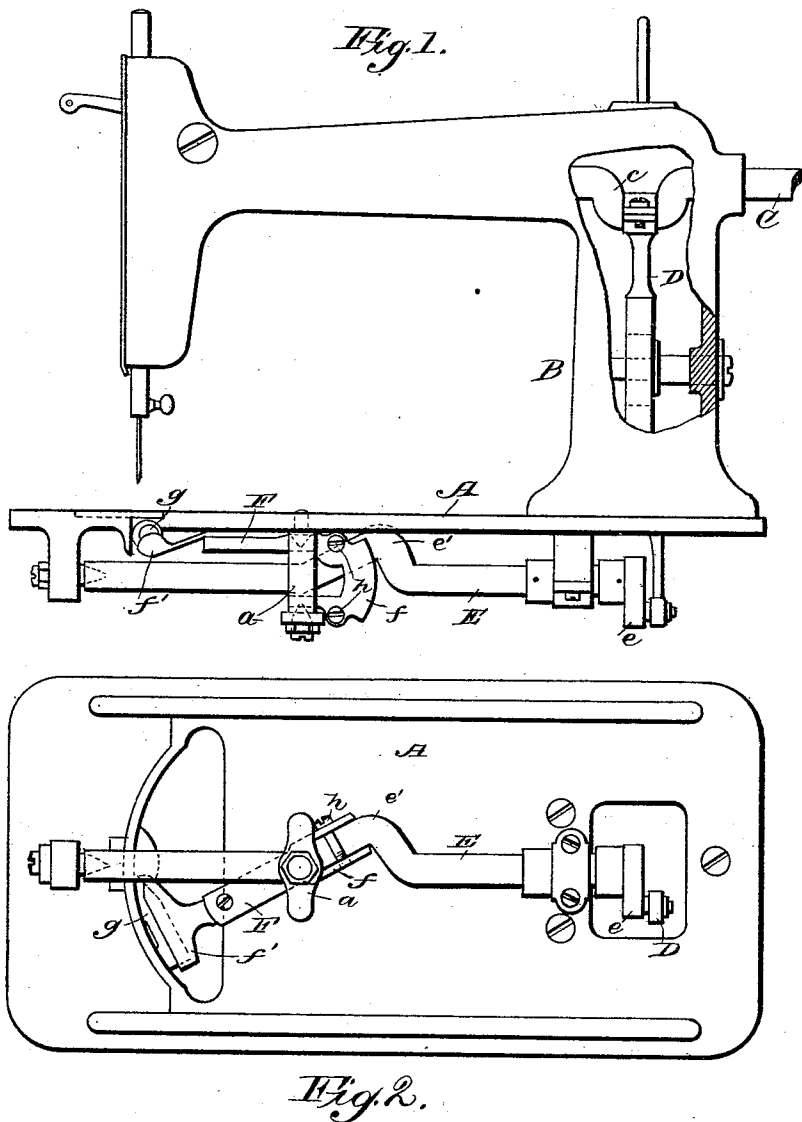
(No Model.)

J. BOLTON.

SHUTTLE OPERATING MECHANISM FOR SEWING MACHINES.

No. 484,397.

Patented Oct. 18, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES BOLTON, OF CHICAGO, ILLINOIS.

SHUTTLE-OPERATING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 484,397, dated October 18, 1892.

Application filed February 2, 1892. Serial No. 420,038. (No model.)

To all whom it may concern:

Be it known that I, JAMES BOLTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shuttle-Operating Mechanisms for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of sewing-machines in which a shuttle operated by a vibrating shuttle-lever beneath the work-plate of the machine co-operates with an eye-pointed needle arranged above the work-plate of the machine and in which the shuttle-lever receives its movement from a rotating shaft beneath the work-plate actuated by a rotating shaft arranged in the upper part of the arm of the machine.

The object of my invention is to improve the class of machines referred to by providing a short shuttle-carrying lever and operating the same from the lower rotating shaft in such a way as to apply the power in a direct and positive manner, and to afford such a connection between the crank on the lower rotating shaft and the shuttle-carrying lever that the movements of the latter will be smooth and positive, the bearing-surfaces between the parts being such that the wear will be reduced to a minimum, and so that the wearing-surfaces will always maintain their proper relations to each other, the wear being uniformly distributed over the same.

In carrying my invention into effect the lower rotating shaft is provided with an inclined crank about midway of its length, and the short shuttle-carrying lever, which is pivoted between its ends, is provided rearward of its pivot or fulcrum point with a yoke embracing said crank and of such vertical dimensions that there will always be extended bearing-surfaces between the yoke and crank whatever may be the positions of the parts in the operation of the machine.

In the accompanying drawings, Figure 1 is a side view partly broken away of a sewing-machine embodying my invention, and Fig. 2 is a bottom view of the same.

A denotes the work-plate of the machine, and B the bracket-arm thereof. Journaled

in the upper portion of the bracket-arm is the main driving-shaft C, provided with a crank *c*, connected by a pitman-lever D with a crank *e* on the rear end of the shuttle-operating shaft E, suitably supported beneath the work-plate of the machine, and provided about midway of its length with an inclined crank *e'*, the operative portion of which is embraced by a yoke *f* on the rear end of the shuttle-lever F, the latter being provided at its forward end with a shuttle-carrier *f'* of any ordinary or suitable construction to hold and carry any ordinary cylindrical shuttle *g*. The shuttle-lever F is suitably pivoted in a lug or bracket *a*, which in practice will be cast upon a bed-plate A, and the yoke *f* of the said lever is of such dimensions vertically that it will always present a steady bearing-surface to the inclined crank *e'*, so that the said crank will at all times have an extended horizontal portion in contact with the inner faces of the said yoke, whatever may be the relative position of the parts. As a result of this construction, the wear which necessarily occurs between the crank and yoke will be uniformly distributed throughout the surfaces thereof, and the wear in any one place, therefore, will be reduced to a minimum, and owing to the uniform distribution of the wear it can readily be compensated for by tightening the set-screws *h* to draw the flanges or parts of the yoke together, the yoke being suitably constructed, so that this may readily be done.

From the foregoing it will be apparent that when the driving-shaft C is set in operation a reverse rotary movement will be transmitted therefrom to the shuttle-carrying shaft E through the pitman-lever D in a well-known manner, and the said shaft E will thus impart the requisite vibratory movements to the shuttle-lever F to operate the shuttle *g*. By arranging the inclined crank *e'* about midway of the length of the shaft E, I am enabled to use a comparatively-short shuttle-lever, so that the operation thereof will be much steadier than though a longer lever were employed, and by pivoting this short shuttle-lever between its ends the arms or portions thereof on opposite sides of the fulcrum-point are so short that a compara-

tively-light lever is provided without detracting from the necessary strength and stiffness thereof, as will be apparent.

Having thus described my invention, I
5 claim and desire to secure by Letters Patent—

In a sewing-machine, the combination, with
the main rotating driving-shaft C, of the sec-
ondary rotating shaft E, arranged beneath
10 the work-plate of the machine and provided
about midway of its length with the inclined
crank *e'*, the pitman-lever D, connecting said

shafts C and E, and the shuttle-lever F, piv-
oted between its ends forward of said crank
and provided rearward of its pivot or ful- 15
crum point with the yoke *f*, embracing the
said inclined crank *e'*, substantially as set
forth.

In testimony whereof I affix my signature in
presence of two witnesses.

JAMES BOLTON.

Witnesses:

HENRY CALVER,
HELON V. CUSHMAN.