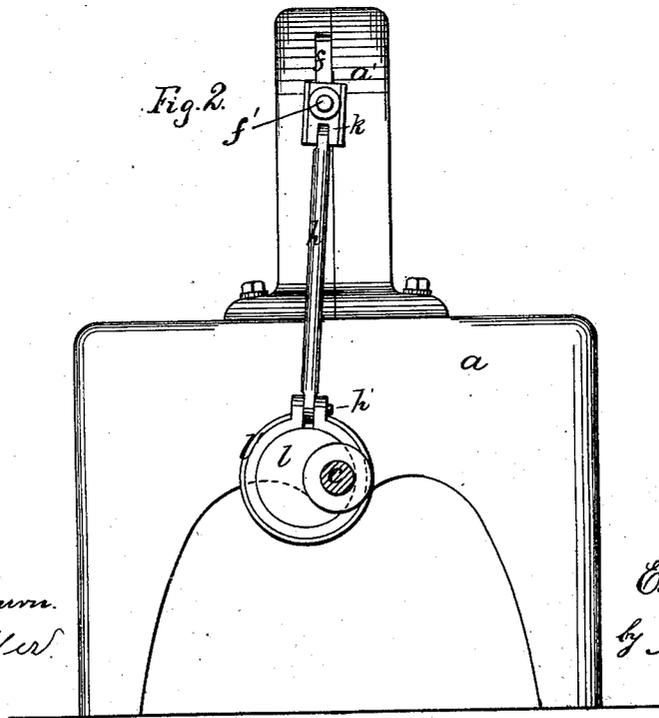
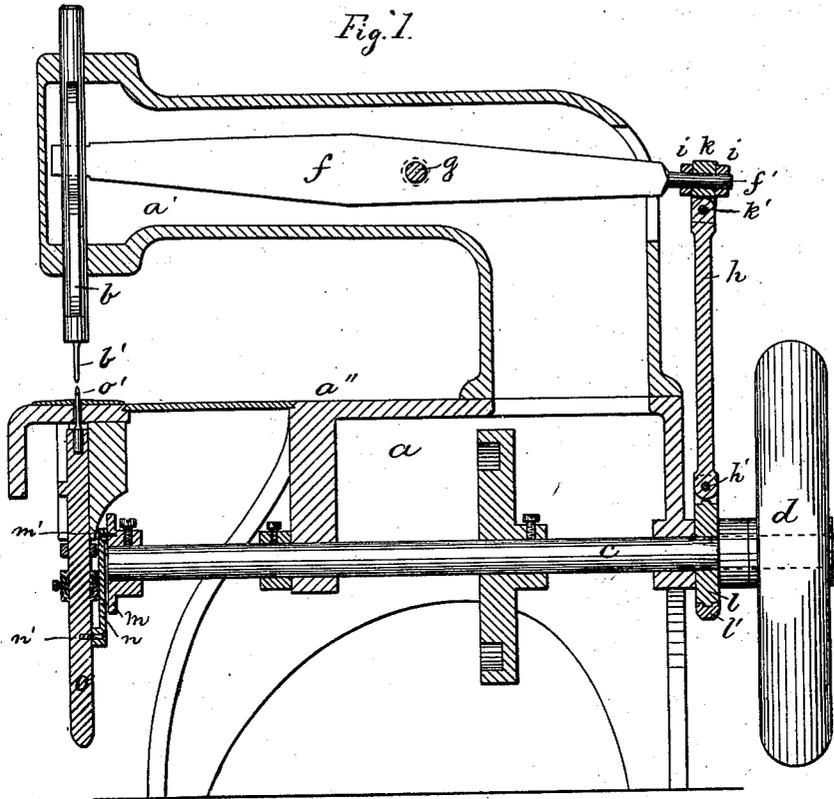


E. E. BEAN.
Wax-Thread Sewing-Machine.

No. 216,078.

Patented June 3, 1879.



Witnesses:

Henry Chadbourne.
L. W. Müller.

Inventor:

Edwin C. Bean
by *Alvan Audrién*
his atty.

UNITED STATES PATENT OFFICE.

EDWIN E. BEAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN WAX-THREAD SEWING-MACHINES.

Specification forming part of Letters Patent No. **216,078**, dated June 3, 1879; application filed November 27, 1878.

To all whom it may concern:

Be it known that I, EDWIN E. BEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Wax-Thread Sewing-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, making a part hereof.

In the drawings, Figure 1 is a section, and Fig. 2 a rear view, of a machine embodying my invention.

In that class of sewing-machines known as "wax-thread machines," in which a hooked needle is used on one side of the work and an awl on the other side, much difficulty has been experienced in the construction of mechanism for actuating the needle and awl, because of the peculiar timing necessary in the reciprocating motions of the needle and awl. The points of the needle and awl should be well apart when the needle-point, in descending, gets below the surface of the work-plate, in order to allow the material to be readily put on and taken off the work-plate; but they should be close together in their ascent, in order that the needle shall enter the work before the awl leaves it.

Various mechanisms have been heretofore devised for thus actuating the hooked needle and awl; and my present invention consists in a new combination of mechanism for that purpose, which is simple, of few parts, light-running, durable, and much less noisy than the mechanism for which it is designed as a substitute, for my invention is especially valuable in altering over the old-style machines, to make them closer to the present standard.

My invention consists in the combination, with the awl and needle-bars of a wax-thread sewing-machine, of a main shaft having upon it a disk, which is connected by a link with the needle-bar, and also an eccentric connected by a strap and universally-jointed link with the lever fulcrumed in the goose-neck, which actuates the awl-bar, the disk and eccentric being so set on the shaft that when one is at its dead-point the other shall be a short distance to the right or left of its dead-point, a variation in the setting of either changing the relative motions of the awl and needle.

In altering over the old "flat-table machine," so called, the end of the shaft can be brought up so close to the needle-bar that a single link will answer to connect the needle-bar with its crank; but in altering over the "post machine," so called, as the end of the shaft cannot be brought close to the needle-bar, the link should be connected to the rock-shaft commonly used in the post machine, as will be clear to all skilled in the art.

In both these old-style machines the main objection is to the bell-crank lever and cams for actuating the awl and the needle-bars; and the object of my invention is not only to do away with the bell-crank lever and cams, but to provide a mechanism which will enable me to alter over these old-style machines and make them substantially as good as the best machines now in the market. The bell-crank lever and cams for operating the awl and needle bars in the old-style flat-table and post machines can be replaced by my new mechanism at an expense not greater than the annual expense of repairs.

In the drawings, *a* represents the frame of a wax-thread sewing-machine, and *b* is the awl-bar, located in vertical bearings in the forward end of the goose-neck *a'*, as usual. *c* is the rotary driving-shaft, located in bearings below the work-plate *a''*, and provided with a fly-wheel, *d*, as usual. *f* is the awl-operating lever, supported on the fulcrum-pin *g* in the goose-neck of the machine, and connected at its forward end to the awl-bar *b* and at its rear end to the eccentric.

On the end of the lever *f* is a sleeve, *k*, prevented from endwise movement by the collars *i i*, which are secured to the lever with the sleeve *k* between them. The connecting rod or link *h* is connected to the sleeve *k*, as shown, at one end, and to the eccentric-strap *l* at the other end, so that the motion of the eccentric *l* will vibrate the lever *f*, and the rod *h* be free to move in all directions necessary to prevent cramping.

The needle-bar is connected to the crank *m* by the wrist-pin *m'*, link *n*, and wrist-pin *n'* in the flat-table machines of the old style; but in altering over the old post machines the connecting-link *n* is not connected directly to the needle-bar *o*, but the rock-shaft in the ma-

chine by which the needle-bar is directly actuated. The awl is marked *b'*, and the hooked needle *o'*.

As my invention is only a new combination of mechanism designed to replace the bell-crank lever and cams now used in large numbers of wax-thread sewing-machines for actuating the needle and awl bars, I have shown only such parts as are necessary to explain it. The construction and operation of all other parts will be clear to all skilled in the art.

What I claim as my invention is—

The combination, with the awl and needle

bars of a wax-thread sewing-machine, of link *n*, disk *m*, shaft *c*, eccentric *l*, eccentric-strap *b'*, link *h*, sleeve *k*, and lever *f*, fulcrumed near its middle in goose-neck *a'*, all combined and arranged together substantially as described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

EDWIN E. BEAN.

Witnesses:

ALBAN ANDRÉN,
L. N. MÖLLER.