(No Model.)

M. H. PEARSON.

WAXING DEVICE FOR SEWING MACHINES.

No. 483,083. Patented Sept. 20, 1892.

Fig. 1.

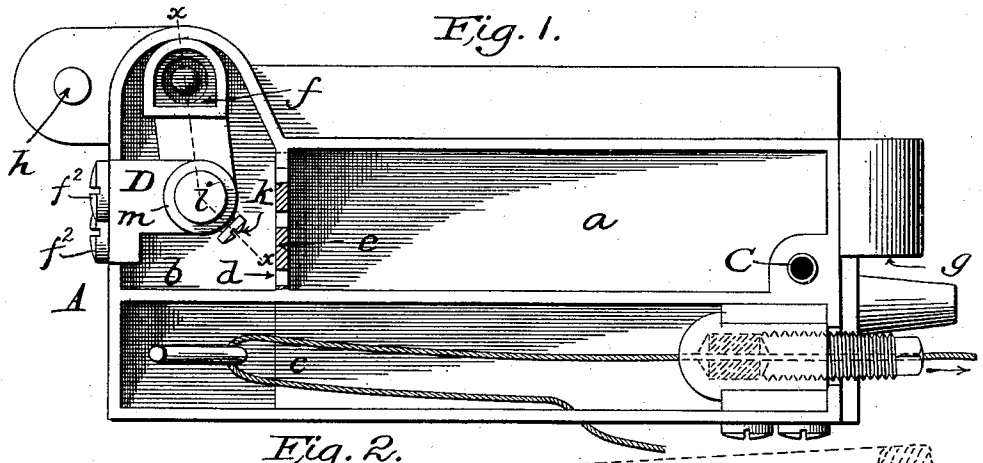


Fig. 2.

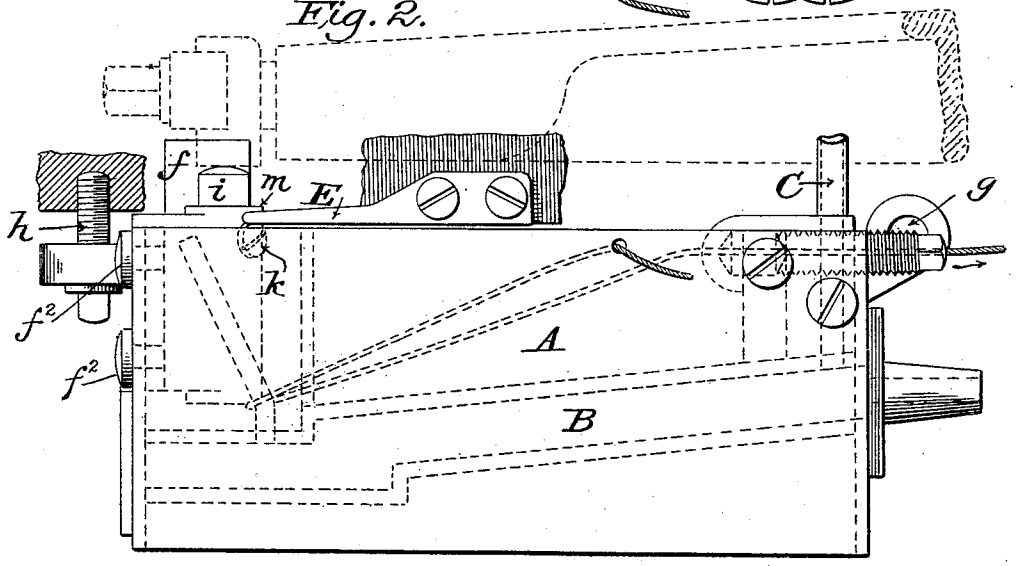
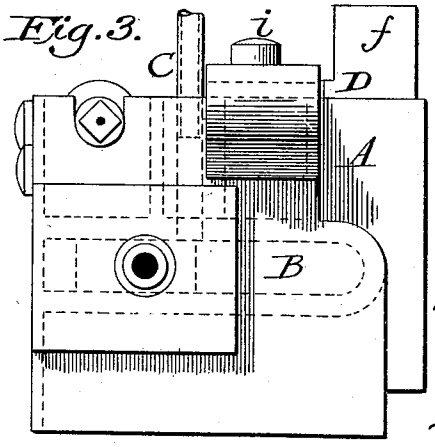
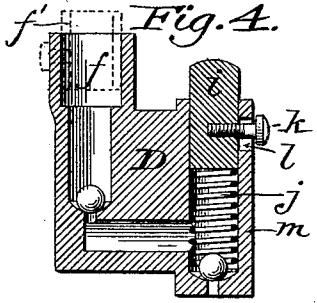


Fig. 3.



f'

Fig. 4.



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WAXING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 483,083, dated September 20, 1892.

Application filed November 2, 1891. Serial No. 410,561. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL HENRY PEARSON, a citizen of the Kingdom of England, residing at Leicester, in the county of Leicester, Kingdom of England, have invented certain new and useful Improvements in Wax-Thread Sewing-Machines, of which the following is a specification.

This invention relates to what is known as the "dipping process" of waxing, wherein the needle after penetrating the material being sewed is made to dip into a bath of melted wax. As the needle rises a certain amount of wax adheres to the needle and is deposited in the hole the needle has left.

The invention consists of a novel construction and arrangement of apparatus for melting the hard wax, for conducting the wax to the needle, for regulating the supply of wax, or for stopping the supply altogether, combined with an apparatus for waxing the shuttle-thread.

In the accompanying drawings, Figure 1 is a plan of the apparatus as arranged to suit the machine known as "Pearson's" wax-thread machine; but the details may be altered to suit any sewing-machine of that class. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation of the same; and Fig. 4 is a vertical section through the pump, &c., on line *x x*, Fig. 1.

The apparatus for melting the hard wax (hereinafter called the "boiler") may be of any convenient size or shape to suit the machine for which it is intended, and consists of a vessel A, made of any suitable material and provided with a water space or "jacket" B to prevent the wax being heated above the boiling-point of water, a higher temperature than this being very detrimental to the wax. The water-space B is supplied with water from any convenient source and is furnished with a tube C, through which any steam that may be generated in the boiler may escape.

The boiler may be heated in any common or convenient manner by a lamp, gas, or steam.

The upper part of the boiler A is divided into three compartments, hereinafter termed, respectively, the "cold-wax compartment" *a*, the "pump-compartment" *b*, and the "shuttle-thread compartment" *c*, the two former only being used for supplying wax to the needle, while the last-named is for waxing the shuttle-thread previous to its being wound on the shuttle-reels or into cops.

The cold hard wax is broken into small pieces and placed in the cold-wax compartment *a*, whence it flows when melted through holes *d* in the partition *e* (which acts as a strainer) into the pump-compartment *b*, leaving any paper or refuse that may have adhered to the wax in the cold-wax compartment, where it accumulates and is removed from time to time.

Within the pump-compartment *b* is fixed a small pump D, with its discharge arranged in such a position that the needle will dip into the wax when in its lowest position. The pump is made to discharge more wax than is usually required for the sewing, and all that is not taken up by the needle overflows the cup or discharge-tube *f* and returns to the pump-compartment *b*. The surface of the wax into which the needle dips may thus be kept at a constant level irrespective of the amount of wax in the cold-wax or pump compartment.

The amount of wax raised by the needle is dependent upon the distance to which the needle dips into the wax, and as it would be inconvenient to vary the height of the needle the level of the wax must be adjustable to suit the varying amount of wax required. This may be done by having a telescopic discharge-tube *f'* (shown in dotted lines in Fig. 4) and the edge of it where the wax overflows raised or lowered, as found necessary, or the pump may be adjustably mounted within the boiler by means of screws f^2; but I prefer to make the pump and discharge as shown in Fig. 4 and to raise or lower the pump and boiler together. To effect this I pivot the boiler A to the machine at the end farthest from the pump, (as at *g*,) and at the pump end I support it by a vertical adjustable screw *h*, which, when turned, raises or lowers that end of the boiler and of course the pump also. In this manner by varying the height of the pump-discharge the distance to which the needle dips into the wax may be regulated.

When it is required to run the machine without using the melted wax, the screw *h* is turned until the pump-discharge is below the point of the needle.

The plunger *i* of the pump may be actuated positively in both directions by suitable mechanism connected to any convenient moving part of the machine, or the plunger may be thus depressed and then raised by a spring *j* within the pump, as at Fig. 4.

To obtain the best result, I find it necessary to limit the amount of wax discharged by the pump to the maximum amount required for the sewing, and though this may be simply effected by so proportioning the mechanism actuating the pump-plunger that the stroke or movement of the plunger may not exceed the required limit, still I prefer to allow the plunger to partake only of part of the motion of the moving part of the machine it is connected with and to provide an adjustable arm or finger E (screwed to the machine) to engage with a projection on the plunger, and thus prevent the plunger from rising too high. I form the projection on the plunger, by inserting a screw *k* through a slot *l* in the pump-barrel *m* into the plunger *i*.

When the waxing apparatus is not required and the boiler is lowered by the screw *h* below the point of the needle, the pump-plunger will also be carried down or depressed out of reach of the awl-lever or other moving part of the machinery. By means of this contrivance the machine may be used for sewing with solution of wax or dry thread without removing the waxing apparatus.

The front compartment of the wax-boiler is for use only when winding shuttle-reels with waxed threads. Heretofore these have usually been made separate from the needle-waxing apparatus; but I now combine them, thereby doing away with the necessity of having separate heating devices for the two operations.

A sufficient quantity of wax is placed in the compartment *c*, and when it is melted the thread is passed through the hole in the side of the boiler, round the inclined pin, and through the stripper, which removes all the superfluous wax from the thread. From the stripper the thread is conducted directly to the winder, where the shuttle-reels are filled.

In Fig. 2 I have shown in dotted lines the awl-lever of the Pearson machine in such position as to actuate the pump as it descends; but this is merely illustrative and not intended as a limitation to such mechanism, which of course will have to be modified according to the style of machine to which the invention is applied.

Having thus described my invention, what I claim is—

1. In combination with a sewing-machine, a hinged or pivoted waxing apparatus containing a pump to be actuated by a moving part of the machine, and means, substantially such as shown and described, for moving the free end of the said waxing apparatus into and out of line with the said moving part, whereby the actuation of the pump may be controlled.

2. A waxing apparatus comprising a cold-wax compartment *a*, pump-compartment *b*, shuttle-thread compartment *c*, and a heating-chamber common to all, substantially as shown and described.

3. A waxing apparatus comprising a cold-wax compartment *a*, a pump-compartment *b*, interposed upright partition *e*, having the holes or perforations *d* at its lower end near the base of the compartment *a*, and a heating-chamber common to the compartments *a* and *b*.

4. In combination with a sewing-machine, a waxing apparatus provided with a pump having a plunger to be actuated by a moving part of the machine, the slotted case, the screw projecting from the plunger through the slot, and the plunger-spring.

5. In combination with a sewing-machine, a waxing apparatus provided with a pump having a plunger to be actuated by a moving part of the machine, the slotted case, the screw projecting from the plunger through the slot, the plunger-spring, and the arm bearing upon the screw.

6. In combination with a boiler having the compartment *b*, a pump located therein and adapted to take its supply of wax therefrom, and a wax-cup into which the needle dips and which is also located in the said compartment *b*, all substantially as shown, whereby the surplus wax flowing from the wax-cup is delivered directly into the compartment *b*.

In witness whereof I hereunto set my hand in the presence of two witnesses.

MARSHALL HENRY PEARSON.

Witnesses:
ARCHIBALD MACLAINE HARWAR,
FRED FELLOWES WIGGINS.