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SEWING MACHINE HEAD-LIFTING MECHANISM

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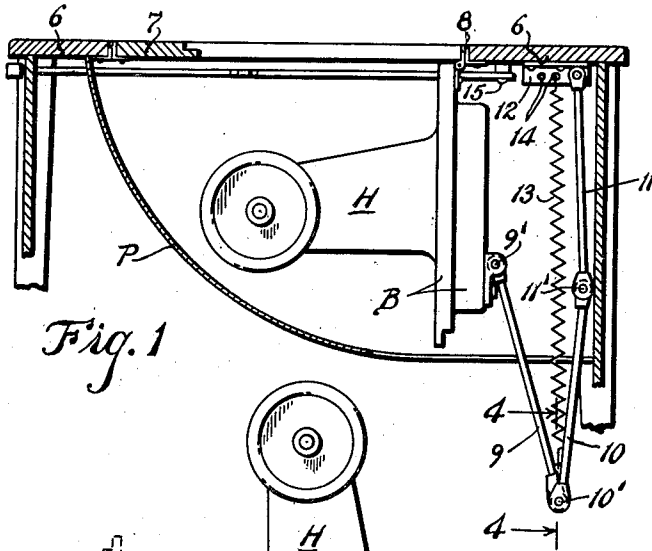


Fig. 1

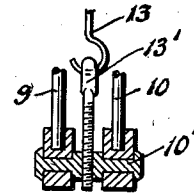


Fig. 4

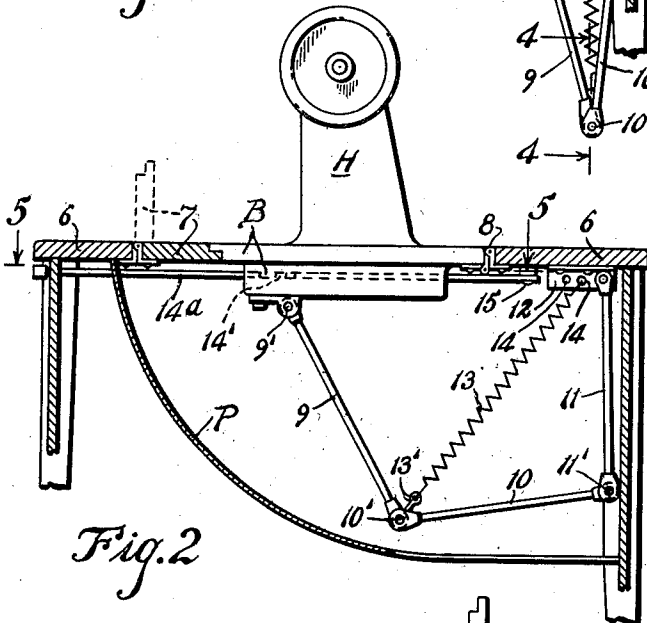


Fig. 2

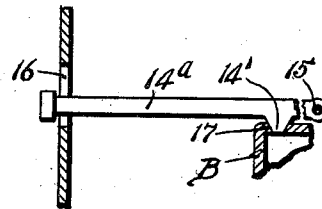


Fig. 5

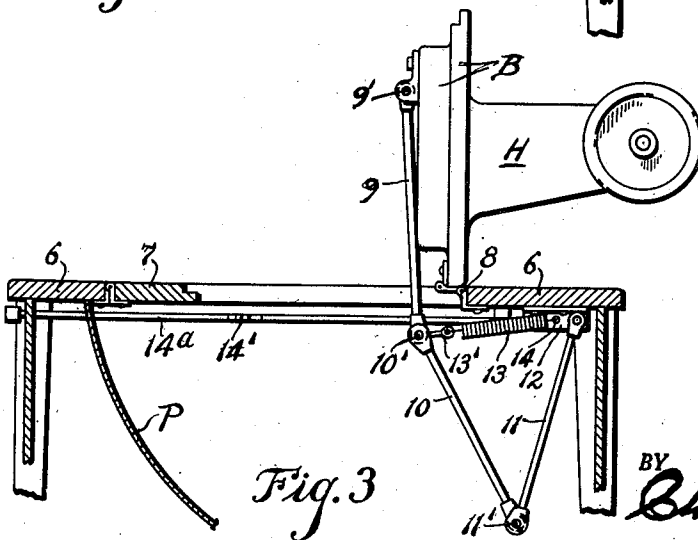


Fig. 3

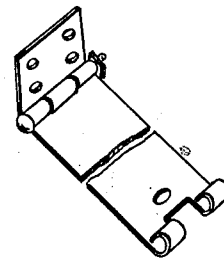


Fig. 6

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SEWING MACHINE HEAD-LIFTING MECHANISM

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3 Claims. (Cl. 312—30)

This invention relates to improvements in sewing machine head-lifting mechanisms, and it has among its salient objects:

To provide an improved head-lifting mechanism which requires a minimum of effort to lift said head from its down position to its raised or operating position, and furthermore, to provide an additional feature whereby it is easy to tilt said head over on its side, on top of its cabinet for cleaning and oiling purposes.

To provide a three toggle mechanism for lifting said head from its down position to its raised position, with a spring operating on two toggle links or members for raising said head to its up or raised position, with a third link or member to cooperate with the other toggle members when it is desired to tilt said head on its side for cleaning, thus providing a very simple, practical, and efficient toggle mechanism for raising a machine head from its down position to its raised or operating position, and then to a tilted cleaning position.

To provide means for holding said machine head steady and firm against the action of the spring, when in its operating position.

Other advantages of the invention will be apparent from the following description of one embodiment of the invention, taken with the accompanying sheet of drawings, in which:

Figure 1 is a sectional view of a machine cabinet, showing a sewing machine head in its down position;

Figure 2 is a similar view showing said head in its raised or operating position;

Figure 3 is a similar view showing the machine head tilted on its side for cleaning purposes, and also giving access to the space below the cabinet top, above the drip pan.

Figure 4 is a detail in section, taken on line 4—4, Fig. 1;

Figure 5 is a view on line 5—5, Fig. 2, showing a lock or latch bar to be moved into latch engagement with the base of the machine when in its raised or operating position, as seen in Fig. 2.

Figure 6 is a perspective of the type of toggle link or member which will be used, whereby to avoid possible lateral movement at the hinge.

Referring in detail to the drawings, the cabinet can be of any desired style or construction, having a top 6, with the usual hinged flap 7, for supporting the free edge of the machine base, as indicated in Fig. 2, said flap being raised as the machine base is raised to its up position, and then moved down into its normal supporting position, as shown in said Fig. 2.

The machine head is designated H, with a base B, hinged to the top of the cabinet, as at 8, the front edge of said base being cut to fit the edge of said flap 7, as indicated, when in its raised position.

The mechanism thus far described is more or less standard and well known.

My invention proper involves a toggle mechanism for raising the head from its position as shown in Fig. 1,

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to the position shown in Fig. 2, and then to the tilted position shown in Fig. 3.

I will refer to this as a three toggle members combination, as shown, including a toggle member 9, pivotally connected to the machine base, as at 9', and pivotally connected to a second toggle member 10, pivotally connected to said first toggle member, as at 10', said second toggle member being pivotally connected to the lower end of a third toggle member or link 11, as at 11', said third toggle member being pivotally connected to the under side of the top, as to a bracket 12, as clearly shown.

A coiled spring 13 is connected to the joint between toggle members 9 and 10, as at 13', and to the bracket 12 on the under side of the top. Said bracket is provided with plural holes 14, whereby one or more springs can be used, as may be desired. Said spring is under tension when said machine head is in its down position as seen in Fig. 1, and tends to raise or straighten toggle members 9 and 10 and to lift said head to its up position, thus making it very easy to raise the head to operating position. The two links 9 and 10 are sufficient to raise said head as just described, but it is not possible to tilt the head over on its side, as shown in Fig. 3, without a movable connection for the end of toggle member 10, and this is provided by using a third link or member, as 11, which has a sufficient anchorage during the spreading action of toggle members 9 and 10, as in Fig. 2, and then, when the machine head is tilted over on its side, as in Fig. 3, said third toggle link or member moves outwardly sufficiently to give clearance of the joint 10', as will be clear from Fig. 3. The lower end of said spring 13 is connected to the hinge joint 10', as by means of an eye bolt 13', Fig. 4. This makes it possible to increase the tension of said spring 13, when desired.

As a means for latching the machine head in its raised or operating position, as seen in Fig. 2, I have provided a latch bolt 14a, pivotally connected at its inner end to the top, as at 15, and having its outer end extended through a slot 16 in the cabinet wall, as indicated in Fig. 2 and Fig. 5. Said latch bolt is provided intermediate its ends with a latch lug or portion 14' which can be moved into and out of a recess 17, in the further side of the machine base B, as indicated in Fig. 5, which is a sectional view on the line 5—5, Fig. 2. Thus by moving the outer end of said latch bolt 14, the latch lug 14' can be moved into and out of latching position with the machine head base, as indicated.

Thus I have provided a very simple, practical and efficient lifting mechanism for raising and lowering a sewing machine head from its down position to its raised, or operating, position, and also for tilting said machine head over on its side for oiling or cleaning. It will be noted also that said spring functions to help tilt said machine head on its side, and until toggle link 9 bears against the bottom of the base B of the head, as seen in Fig. 3.

I do not limit the invention to the details of construction and arrangement here shown for explanatory purposes, except as I may be limited by the hereto appended claims forming a part of this application.

I claim:

1. In a sewing machine cabinet having a supporting top and a wall, and a sewing machine head hingedly supported in the top of said cabinet and adapted to be moved down into said cabinet and to be raised again to its operating position, of means for raising said machine head from its down to its raised position, said means including three toggle members, the end of one toggle member being pivotally connected to said machine head, the end of the second toggle member being pivotally connected to the lower end of said first toggle member

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with its other end pivotally connected to the lower end of the third toggle member which is pivotally suspended from the top of said cabinet, and a coiled spring connected to the hinge joint of toggle members one and two and to the top of said cabinet whereby to put tension on said toggle members one and two for raising said machine head from its down position to its raised position, the lower end of said third toggle member being movable forwardly to permit said machine head to be tilted rearwardly on its side for oiling and cleaning.

2. In a sewing machine cabinet having an open top and a back wall, the combination with a sewing machine head and base hingedly connected at one side with the top of said cabinet and having its opposite side free to be raised and lowered from a down position in said cabinet to a raised or operating position on the top of said cabinet, of means for raising and lowering said machine head, said means including three toggle members pivotally connected together, the end of one toggle member being pivotally connected to said machine head, the end of the third toggle member being connected to the top of said cabinet with its lower end depending adjacent the wall of said cabinet and pivotally connected to the second toggle member, a coiled spring connected at its lower end to the hinge joint between said first and second toggle mem-

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bers, and at its upper end to the top of said cabinet, said spring being under tension when said machine head is in its down position in said cabinet and said first and second toggle members are in V-position down in said cabinet, and exerts a pull on said toggle members to raise said machine head to its operating position, said machine head being tiltable on its side on top of said cabinet for cleaning and oiling, said third toggle member moving outwardly at its lower end to permit said first and second toggle members to move upwardly to hold said head in its tilted position.

3. A sewing machine head lifting mechanism as set forth in claim 2, which includes a latch member movable into holding position relative to said machine head for holding it against movement.

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