

April 16, 1946.

C. E. COLEGROVE

2,398,696

HEAD ELEVATING DEVICE FOR SEWING MACHINES

Filed Oct. 2, 1944

3 Sheets-Sheet 1

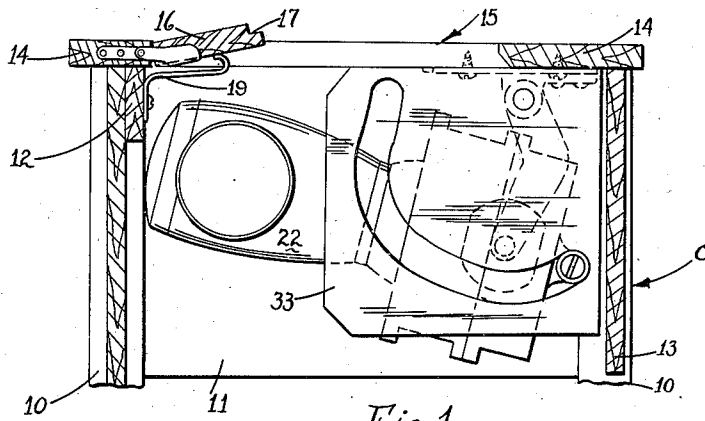


Fig. 1

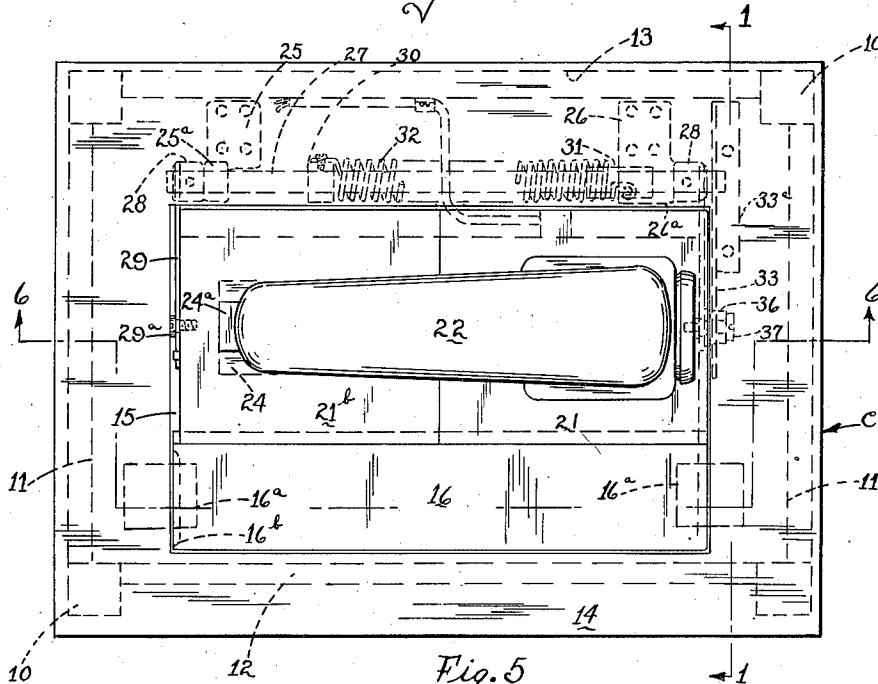


Fig. 5

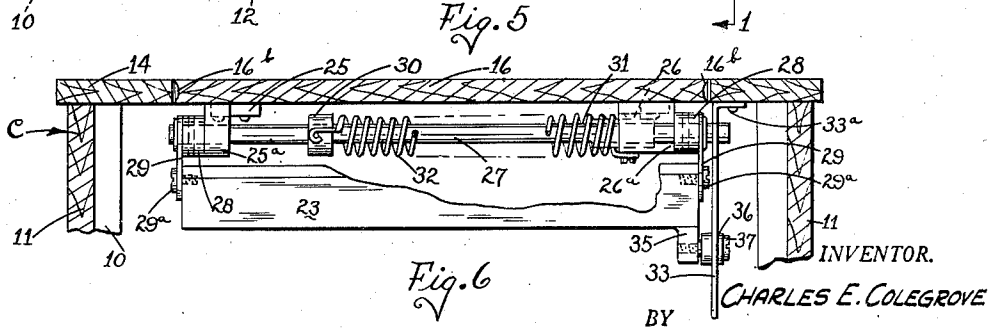


Fig. 6

INVENTOR.

BY

CHARLES E. COLEGROVE

Hvis Hudson Boughton & Williams
ATTORNEYS

April 16, 1946.

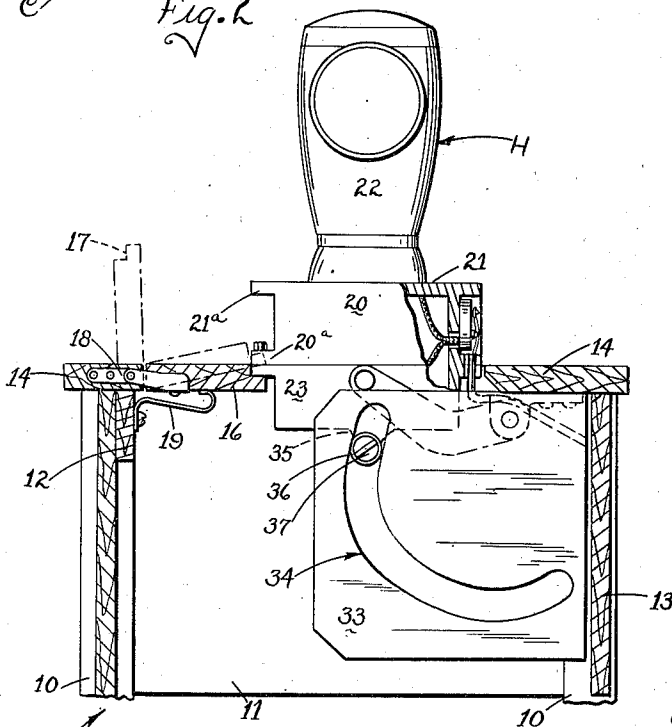
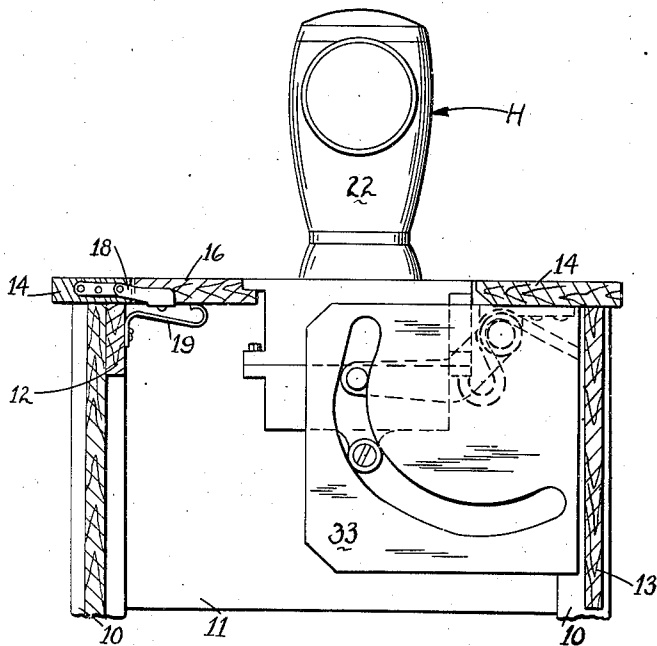
C. E. COLEGROVE

2,398,696

HEAD ELEVATING DEVICE FOR SEWING MACHINES

Filed Oct. 2, 1944

3 Sheets-Sheet 2



INVENTOR.

CHARLES E. COLEGROVE
BY

BY

Kris Hudson Boughton & Williams
ATTORNEYS

April 16, 1946.

C. E. COLEGROVE

2,398,696

HEAD ELEVATING DEVICE FOR SEWING MACHINES

Filed Oct. 2, 1944

3 Sheets-Sheet 3.

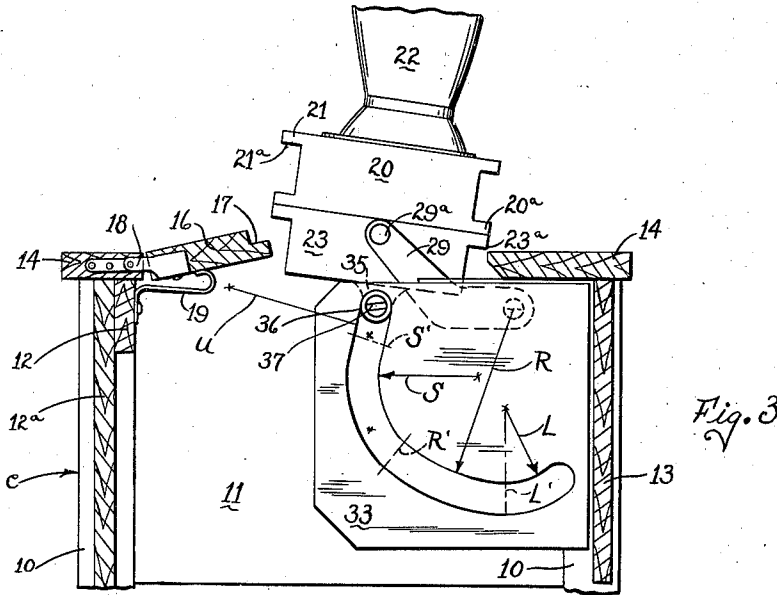
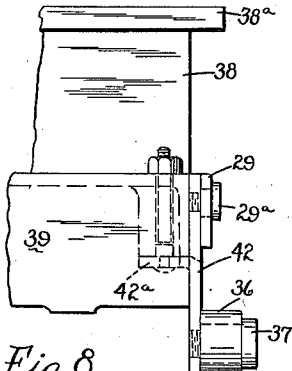


Fig. 3



UNITED STATES PATENT OFFICE

2,398,696

HEAD ELEVATING DEVICE FOR SEWING MACHINES

Charles E. Colegrove, Lakewood, Ohio, assignor,
by mesne assignments, to Sears, Roebuck &
Company, Chicago, Ill., a corporation of New
York

Application October 2, 1944, Serial No. 556,696

18 Claims. (CL 112—260)

This invention relates to a sewing machine and more particularly to an elevating device for the head of a drophead type of sewing machine.

One of the objects of the invention is to provide an improved and simplified device for elevating or lowering the head of a drophead sewing machine and for maintaining the head in its different positions.

Another object is to provide a device for raising and lowering the head of a drophead type sewing machine and for maintaining the head in its different positions and which device is so constructed that the weight of the sewing machine head when it is in its fully lowered position locks the same in said position.

The invention more particularly relates to a device for raising and lowering the head of a drophead type sewing machine and for maintaining the head in its different positions and wherein the machine is adapted for either plain or flat sewing on a flat work bed or for darning or similar operations performed on a cylindrical arm work bed.

In sewing machines for performing plain or flat sewing operations on flat articles there is usually a bed plate over which the work or material passes during the sewing and said plate is so located as to be substantially even with the top of the sewing machine cabinet when the machine is being operated. This bed plate practically prohibits using the machine to sew or darn tubular articles. Therefore sewing machines have been designed so that a substantial portion of the flat bed plate may be removed to expose a relatively narrow cylindrical arm lying below the bed plate and enclosing the sewing mechanism and said arm provides the requisite work surface for tubular articles such as sleeves, stockings and the like. A sewing machine of this character is shown in Hohmann et al. Patent 2,247,383, granted July 1, 1941.

The present invention has as an object thereof the provision of an improved and novel raising and lowering device for the head of a drophead sewing machine of the type that can be used selectively for plain sewing on a flat work bed or for darning or similar operations on a tubular work bed.

A further object of the invention is to provide in combination with the drophead of a sewing machine of the type which can be used for either plain sewing on a flat work bed or for darning operations on a tubular work bed, an improved and novel means for raising and lowering the head to and from any one of three positions; one

of which positions is an idle position wherein the head is contained in the sewing machine cabinet, another of which positions is an active position wherein the head is located in position for plain sewing operations and the third of which positions is an active position wherein the head is located in position for darning operations.

A further object is to provide a device as specified in the last named object and which device includes novel means for guiding and directing the movement of the sewing machine head to or from its different active and idle positions.

Another object is to provide a device such as specified in the last two named objects and which device is simple in construction and functions in an efficient and positive manner and does not require the use of lock bolt or other similar means to maintain the head in its different active positions.

Further and additional objects and advantages not hereinbefore referred to will become apparent in the detailed description which is to follow.

Referring to the accompanying drawings,

Fig. 1 is a transverse sectional view through a cabinet having connected thereto by a device embodying the invention a drophead sewing machine of the type which can be used for plain sewing or for darning operations; the sewing machine head being shown in its lowered or idle position and said Fig. 1 being taken substantially along line 1—1 of Fig. 5 (sheet 1) but being on a smaller scale than Fig. 5.

Fig. 2 (sheet 2) is a view similar to Fig. 1, but showing the sewing machine head raised to its active position wherein the machine is adapted for plain, flat or ordinary sewing operations on a flat work bed.

Fig. 3 (sheet 3) is a view similar to Figs. 1 and 2 and illustrates the uppermost position of the head and the parts of the elevating device before said head is slightly lowered into its active position wherein the sewing machine is adapted for darning operations on a tubular work bed.

Fig. 4 (sheet 2) is a view similar to Figs. 1 to 3 inclusive but shows the sewing machine head in its raised or active position wherein the machine is adapted for darning operations on a tubular work bed.

Fig. 5 (sheet 1) is a top plan view of the sewing machine showing the head in its raised active position wherein the machine is capable of performing plain or flat sewing operations on a flat work bed.

Fig. 6 is a sectional view taken on irregular line 6—6 of Fig. 5 looking in the direction of the

arrows, with certain of the parts omitted and with the elements of the elevating device being shown in the position they have when the sewing machine head is lowered within the cabinet to its idle position.

Fig. 7 (sheet 3) is a front elevational view of the sewing machine head shown in Fig. 4 of the type wherein the machine can be used for either plain or flat sewing operations on a flat work bed or for darning operations on a tubular work bed.

Fig. 8 (sheet 3) is a fragmentary front elevational view on a larger scale showing a portion of the base of the sewing machine head and which base is of slightly different construction than is the base previously illustrated.

Fig. 9 is an end elevational view of the base shown in Fig. 8, and

Fig. 10 is a detail view of a form of hinge connection which may be employed to connect the left hand end (as viewed in the drawings) of the head to the cabinet.

The cabinet C for the drophead sewing machine is of conventional construction and comprises the legs 10 located at the four corners of the cabinet and to which are secured the end walls 11, front wall 12 and rear wall 13. Ordinarily doors 12a will be provided at the front of the cabinet to provide access to the interior thereof. A top or table 14 is secured to the upper ends of the legs 10 and the upper edges of the walls and is provided with an opening 15 through which the sewing machine head passes in moving to an active position or in moving to an inactive position wherein it is contained within the cabinet as is clearly understood in the art. At the side of the opening 15 which is adjacent to the front of the cabinet a leaf 16 is provided which partially fills said opening and said leaf has its inner longitudinal edge provided with a shoulder 17 for a purpose later to be explained. The opposite longitudinal edge of the leaf is hingedly connected to the top or table 14 by hinge means 18, as will be well understood in the art and said leaf 16 is normally urged in an upward direction by spring means 19 secured to the inner side of the front wall 12 and engaging the lower side of the leaf 13 as is usual in sewing machine cabinet constructions. In order to positively support the leaf 16 in its lower position suitable stops 16a may be secured to the underside of the top or table 14. The leaf 16 at its opposite ends is provided with finger recesses 16b (see Figs. 5 and 6). A cover, not shown, may be hingedly connected to the left hand side of the table or top 14 as viewed in Fig. 5 and said cover can be swung over the table or top 14 and the opening 15 when the sewing machine head is in its idle position within the cabinet or it can be swung outwardly in an extension of the table or top 14 when the sewing machine head is in an active or sewing position. This arrangement is conventional and well understood and for that reason has not been illustrated.

In Fig. 7 there is disclosed a sewing machine head of the type which can be used for plain or flat sewing operations on a flat work bed or can be used for darning or similar operations on a tubular work bed or horn. The sewing machine head comprises a base 20 of generally box-like construction and having at its upper side a flat surface 21 forming part of the flat work bed of the head. The flat surface 21 projects laterally at each longitudinal side of the base 20 to pro-

vide shoulders 21a, with the front shoulder 21a adapted to cooperate with the shoulder 17 of the leaf 16 when the sewing machine head is in the active position for flat sewing operations. The standard or gooseneck of the head is indicated at 22 and extends upwardly from the surface 21 of the base 20 as is usual in sewing machine constructions. A sub-base 23 of generally box-like construction is secured to the lower end or bottom of the base 20 by means of flanges 23a extending along the longitudinal upper edges of the sub-base 23 and rigidly connected to the flanges 20a at the lower longitudinal edges of the base 20 by means of securing screws or other suitable means 23b. A tubular work support, horn or bed 24 extends from the left hand end of the base 20 as viewed in Fig. 7 and has its free end underlying the needle and presser mechanism carried by the standard 22 and said free end is provided with the stitching and feed mechanisms as will be well understood. The tubular work support 24 and the base 20 house the motor and drive for the feed and stitching mechanisms as will be understood in the art. The tubular support 24 is provided on its upper side with a flattened surface 24a, as indicated in Fig. 5.

When the sewing machine head is in its active position for flat sewing the surface 21 of the base is substantially flush with the upper surface of the table or top 14 and the leaf 16, with the front shoulder 21a engaging the shoulder 17 of the leaf. At this time a bed plate 21b is arranged in an extension of the surface 21 of the base and fills the remainder of the opening 15, said bed plate being provided with a longitudinal opening registering with the top surface 24a of the tubular member 24. When the sewing machine head is in its active position for tubular sewing or darning operations the plate 21b is removed and the head stands elevated relative to the top or table 14 of the cabinet and in a position wherein the underside of the front flange 23a of the sub-base 23 rests upon the shoulder 17 of the leaf as indicated in Fig. 4. At this time the tubular work bed 24 is located above the level of the table 14 and in a position where tubular articles can be passed over the tubular bed or horn and sewing operations performed thereon.

The improved means for connecting the head H to the cabinet and for enabling it to be raised and lowered to and from its two active positions and its idle position will now be described.

Referring first to Figs. 1 to 6 inclusive, the manner in which the head is hingedly connected to the cabinet will now be explained. Secured to the underside of the table or top 14 adjacent to the rear left hand edge of the opening 15 as viewed in Fig. 5 is a bracket 25 having a bearing boss 25a. A second bracket 26 is secured to the underside of the table 14 adjacent the rear right hand edge of the opening 15 and said bracket 26 is provided with a bearing boss portion 26a. A shaft 27 is rockably mounted in the bosses 25a and 26a and extends parallel to the rear edge of the opening 15 and longitudinally of the head H. Collars 28 are pinned to the shaft 27 adjacent the outer sides of the bosses 25a and 26a and said collars hold the shaft against axial movement. Fixedly mounted on the opposite ends of the shaft 27 outwardly of the collars 28 are angular hinge levers 29, the free ends of which are pivotally connected to the ends of the

sub-base 23 by means of pivot screws 29a. It will be seen that the head H can be swung on the axis of the shaft 27 with the latter moving in unison with the hinge levers 29 and also that the head H can swing or take different angular positions relative to the hinge levers 29 about an axis parallel to the axis of the shaft 27 due to the pivotal connection between the head and the free ends of said levers.

A collar 30 is fixed to the shaft 27 intermediate the bearing bosses 25a and 26a, while a sleeve 31 is mounted on the shaft 27 and extends into the bearing boss 26a. A coil spring 32 is mounted on the shaft 27 intermediate the collar 30 and the bearing boss 26a and said spring has its opposite ends anchored to the collar 30 and said bearing boss 26a as indicated in Figs. 5 and 6. The spring 32 is tensioned during downward movement of the head into the cabinet, wherefore said spring assists in the upward movement of the head and acts as a counterbalance to resist the downward movement of the head.

In order to impart to the head the desired and required swinging movements thereof relative to the hinge levers 29 to enable the head to move from its inactive position in the cabinet to either of its two active positions and vice versa the following construction is employed. A guide plate 33 is provided at its upper end with a laterally extending flange 33a and said flange is secured to the underside of the table or top 14 adjacent the right hand end of the opening 15, as viewed in the drawing, so that the plate 33 will project vertically downwardly into the cabinet in a plane slightly to the right of the right hand end of the opening 15. This guide plate 33 is provided with a guide slot 34 which will be discussed in greater detail hereinafter.

In Figs. 1 to 6 inclusive the sub-base 23 at its lower right hand corner as viewed in Fig. 6 is provided with an integral lug 35 and a roller 36 is connected to said lug by means of a headed supporting pin 37 which has a reduced threaded portion screwed into a threaded opening in the lug. The roller 36 extends into the guide groove 34 and the edges of said groove act on the roller to rock the head H about the axis 29a and relative to the hinged levers 29, wherefore the movement of the head into and from its idle and active positions is guided in accordance with the contour or curvature of the guide slot 34.

Referring to Fig. 3 the slot 34 is formed on the radius L from approximately the dot-dash line L' to the lower right hand end of the slot. The radius L is eccentric to the axis of the hinge levers 29. Between the dot-dash line R' and the line L' the slot is formed on the long radius R, the center of which is the axis of the shaft 27 and the hinge levers 29, wherefore this portion of the slot has a curvature concentric with the axis of the hinge levers. The slot 34 from the dot-dash line S' to the line R' is formed on the curvature of the short radius S and therefore this portion of the slot is eccentric to the axis of the hinge levers. From the line S' to the upper end of the slot the curvature thereof is on the radius U, with the center located outwardly of the convex side of the slot and eccentric with respect to the axis of the hinge levers 29. The portions of the slot 34 which are eccentric to the axis of the hinge levers 29 are also eccentric to each other and hence will impart different swinging movements to the head relative to the hinge levers.

Assuming that the head H is in its idle position within the cabinet as indicated in Fig. 1, the

roller 36 will be in the lower right hand end portion of the slot 34 to the right of the line L'. The weight of the sewing machine head when in this position causes said head to rock about the screws 29a as an axis relative to the hinge levers 29 with the roller 36 traveling in the portion of the slot, the curvature of which is the short radius L eccentric to the axis of the hinge levers 29. Consequently the weight of the sewing machine head serves the function of maintaining the roller in this portion of the slot and of locking the head in its idle position within the cabinet and against the tendency of the spring 32 to raise the head. When it is desired to move the head from its idle position shown in Fig. 1 to its active position for plain sewing on a flat work bed, as indicated in Fig. 2, the leaf 16 of the cabinet is moved to its uppermost position to provide clearance for the head as it passes through the opening 15. The operator manually lifts the head swinging it relative to the hinge levers 29, whereupon the roller 36 moves in the slot out of the locking portion thereof to the left of the line L'. The continued lifting movement of the head swings the hinge levers 29 while the roller travels in the slot from line L' to line R'. Since this portion of the slot is concentric with the hinge levers 29 and rod 27 there will be no relative rocking movement between the head and the hinge levers about the pins 29a as an axis. When the roller 36 has reached the line R' of the slot the sewing machine head is almost completely through the opening 15 but said head is inclined toward the left as viewed in the drawings. However, as soon as the roller passes the line R' and enters that portion of the slot lying between said line and the line S', the head rocks in a clockwise direction relative to the hinge levers 29 and about the pins 29a as an axis. This is because that portion of the slot lying between the lines R' and S' is on the short radius S and hence the path of the roller is eccentric with the axis of the hinge levers. The head is raised to a point somewhat above its active position for plain sewing, whereupon the leaf 16 is lowered and then the head is slightly lowered and turns relative to the hinge levers in an anticlockwise direction until the shoulder 21a of the base 20 rests upon the shoulder 17 of the leaf, at which time the roller 36 is located in the slot slightly above the line R'. Also at this time the sewing machine head is in a position wherein the surface 21 of the base 20 is horizontal and is substantially flush with the plane of the table or top 14 and the leaf 16.

The operator may now position the removable bed plate 21b, as indicated in Fig. 5, to complete the flat work bed used when the machine is performing plain sewing operations. If it is desired to change the position of the head from its active plain sewing position, indicated in Fig. 2, to its active position for darning or sewing operations on a tubular work bed the operator slightly lifts the head to clear the shoulder 21a from the shoulder 17 of the leaf 16 to enable him to swing the leaf 16 upwardly after which the operator swings the head upwardly to the position shown in Fig. 3, with the result that the roller 36 passes through that portion of the slot lying between the lines R' and S' and the head H is rocked relative to the hinge levers 29, being canted toward the right or clockwise as indicated in Fig. 3. In this movement of the head the right hand flanges 20a and 23a of the base 20 and sub-base 23 of the head clear the right hand edge of the open-

ing 15 in the top of the cabinet. The operator now presses the leaf 16 into its horizontal position and then lowers the head from the position shown in Fig. 3 to the position shown in Fig. 4. This lowering movement of the head causes the roller 36 to move from the extreme upper end of the slot 34 to a point just above the line S' and since the portion of the slot through which the roller so moves is defined on the radius U it will be evident that the head is rocked slightly in a counterclockwise direction about the pins 29a from the position shown in Fig. 3 into the horizontal position shown in Fig. 4, at which time the front flange 23a of the sub-base 23 is resting upon and supported by the shoulder 17 of the leaf 16.

From the foregoing description it will be clear that the guide slot 34 cooperating with the roller 36 imparts the required guiding movements to the sewing machine head, i. e., its rocking movements about the pins 29a relative to the hinge levers 29 to enable the head to be swung on the hinge levers 29 to either of its said active positions or to its inactive position within the cabinet and that in the latter position the weight of the head locks the head in its idle position with the roller 36 located in the slot to the right of the line L'. When the sewing machine head is in either of its active positions it is supported by its connection to the hinge levers 29 and also by the engagement of the shoulder 21a or the flange 23a with the shoulder 17 of the leaf 16.

The construction described provides a simple and efficient means for raising and lowering the head to or from its two active positions wherein the standard or gooseneck 22 is outside of the cabinet, or to or from its idle position wherein the head is contained entirely within the cabinet and is held in such position against the tendency of the spring 32 to rock the head upwardly by the weight of the head itself and the engagement of the roller 36 in the extreme right hand portion of the slot 34.

In Figs. 8, 9 and 10 a modified construction of the base and sub-base of the sewing machine head is shown and in such modification one of the hinge levers 29 is pivotally connected to a plate 42 which is secured to the sub-base and which plate also carries the roller 36. In this arrangement the base is indicated at 38 and it is of downwardly facing U-shape in cross section. The base 38 is provided at its upper longitudinal edges with overhanging flanges 38a, similar to the flanges 21 previously described, while the lower ends of the legs of the base are provided with laterally extending flanges 38b that rest upon and are secured to the upper side of the sub-base 39 by bolts 40. The sub-base 39 adjacent its right hand end is provided with spaced bosses 41 having vertical openings therethrough. A plate 42 is pivotally connected at its upper end to the right hand hinge lever 29 by means of a screw 29a passing through an opening in the hinge lever and having its reduced threaded end screwed into a threaded opening in the plate. The plate 42 directly below its point of connection to the hinge lever 29 and adjacent the lower end of the plate is provided with a threaded opening into which screws the reduced threaded end of the screw 37 on which the roller 36 is mounted. In other words, the plate 42 is carried by the hinge lever 29. The plate 42 adjacent its front and rear edges is provided with laterally extending flange portions 42a which have secured therein upwardly extending bolts 43. These bolts adjacent the

portions 42a of the plate have a portion 43a of such diameter as to interfit the openings through the bosses 41 of the sub-base 39, while outwardly of the portions 43a the bolts 43 are of less diameter than the diameter of said openings. In connecting the sub-base 39 to the plate 42 the bolts 43 are passed through the openings in the bosses 41 and then nuts 44 are screwed onto the upper ends of the bolts to draw the portions 42a of the plate into tight contact with the lower ends of the bosses 41.

It will be seen that the sewing machine head can be detached from the plate 42 and the right hand hinge lever 29 by merely removing the nuts 44 and lifting the sewing machine head off of the bolts 43. It will also be seen that in assembling the head and the plate 42 the reduced portion of the bolts 43 can be inserted into the openings in the bosses 41 of the sub-base very readily, such reduced portion of the bolts acting as pilots to properly locate the sub-base relative to the plate 42. Of course as soon as the enlarged portions 43a of the bolts enter the openings in the bosses the plate and the sub-base will be properly related.

In Fig. 10 there is shown a form of hinge lever 45 which may be employed for the left hand hinge lever 29. The hinge lever 45 is fixed to the left hand end of the shaft 27 as in the previous case and the free end of said hinge lever is provided with a slot 46, the inner end of which has a circular configuration as indicated at 46a. The left hand end of the sub-base may be provided with a rigid pin 47, the opposite sides of which are flattened as indicated at 47a. With the hinge lever 45 in the horizontal position the pin 47 can be passed into the slot 46 in the free end of the hinge lever. Then as the hinge lever swings relative rocking movement will take place between the pin 47 and the hinge lever, with the result that the pin will lock itself in the circular portion 46a of the slot.

In Fig. 10 the hinge lever is shown in full lines in the position it occupies when the pin 47 is inserted into the slot 46. Also in Fig. 10 the lever 45 is shown by dot and dash lines in a lowered position wherein the pin 47 has turned relative to the lever and has locked itself in the circular portion 46a of the slot 46.

It will be seen from the description relative to Figs. 8 to 10 inclusive that provision is made whereby the sewing machine head may be quickly and easily detached from or secured to the right hand hinge lever 29 and the plate 42 which carries the roller 36 and also to the hinge lever 45 that connects the left hand end of the head to the sewing machine cabinet.

It will be understood that although the head elevating device of the present invention has particular utility when used with a sewing machine head of the type that can be positioned for plain sewing or for darning operations, it also has utility if used with a sewing machine head that has only one operative position, i. e., a plain sewing position, and certain of the claims are intended to cover such latter use of the elevating device.

Although certain embodiments of the invention have been illustrated and described herein it will be understood that the invention is susceptible of various modifications and adaptations within the scope of the appended claims.

Having thus described my invention, I claim:

1. In combination with a sewing machine cabinet and a drophead sewing machine, a device for

hingedly connecting the sewing machine head to the cabinet and for guiding the head in moving to and from its idle position within the cabinet and its active position above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relative thereto, and cooperating interengaging relatively movable means carried by said cabinet and head for swinging said head relative to said hinge means in a predetermined manner and automatically during the swinging movement of the hinge means as the head is raised and lowered.

2. In combination with a sewing machine cabinet and a drophead sewing machine of the type which can be used for flat sewing on a flat work bed or for darning operations on a tubular work bed, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relative thereto, and cooperating interengaging relatively movable means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner and in opposite directions during the raising or lowering of the head.

3. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and its active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relative thereto, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner and during the raising and lowering of the head and including an element provided with a guide slot therein and a roller traveling in said slot.

4. In combination with a sewing machine cabinet and a drophead sewing machine of the type adapted for flat sewing on a flat work bed or for darning operations on a tubular work bed, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relative thereto, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner during the raising and lowering of the head and including an element provided with a guide slot having different portions for swinging said head relative to said hinge means in opposite directions and a roller cooperating with said slot.

5. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and its active sewing position above the cabinet, and comprising hinge means pivotally connected to the cabinet to swing about an axis ex-

tending longitudinally of the head, means pivotally connecting the head to said hinge means to swing relative thereto about an axis parallel to the axis of said hinge means, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner during the raising and lowering of the head.

6. The combination defined in claim 5 and wherein said cooperating means includes an element having a guide groove therein and a roller traveling in said groove, said groove having a portion concentric with the axis of said hinge means and a portion eccentric thereto.

7. In combination with a sewing machine cabinet and a drophead sewing machine of the type which can be used for flat sewing operations on a flat work bed or for darning operations on a tubular work bed, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising hinge means pivotally connected to the cabinet to swing on an axis extending longitudinally of the head, means pivotally connecting the head to said hinge means to swing relative thereto on an axis parallel to said hinge axis, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner during the raising and lowering of the head and including an element having a groove, and a roller traveling in said groove, said groove having a portion concentric with the axis of said hinge means and separate portions eccentric with respect to each other and to the axis of said hinge means.

8. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and an active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet to swing about an axis extending longitudinally of the head, spring means acting to urge said hinge means in a head raising direction, means pivotally connecting the head to said hinge means to swing relative thereto about an axis parallel to the axis of said hinge means, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner during the raising and lowering of the head and including an element having a guide groove therein and a roller traveling in said groove, said groove having a portion at its lower end curved eccentrically to the axis of said hinge means and in which portion said roller is held by the weight of the head and against the action of said spring means when said head is in its idle position within the cabinet.

9. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and an active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relatively thereto, a roller operatively associated with said head below the point of its pivotal connection to said hinge means, and a plate secured to said

cabinet and provided with a guide slot in which said roller travels.

10. In combination with a sewing machine cabinet and a drophead sewing machine of the type adapted for flat sewing on a flat work bed or for darning operations on a tubular work bed and having a base and a sub-base, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the sub-base of said head to said hinge means, wherefore said head may swing relative to the hinge means, a roller operatively connected with said sub-base below the point of its pivotal connection with said hinge means, and an element carried by said cabinet and provided with a guide slot in which said roller travels during the raising and lowering of the head.

11. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and an active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the head to said hinge means to swing relative thereto, and cooperating means carried by said cabinet and head for swinging said head automatically relative to said hinge means in a predetermined manner and during the raising and lowering of the head and including an element provided with a guide track, and a follower element traveling along said guide track.

12. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and an active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet to swing about an axis extending longitudinally of the head, means pivotally connecting the head to said hinge means to swing relative thereto about an axis parallel to the axis of said hinge means, a follower element operatively connected with said head below the point of its pivotal connection to said hinge means, and an element secured to said cabinet and provided with a guide track cooperating with said follower element for swinging the head automatically relative to said hinge means in a predetermined manner during the raising and lowering of the head.

13. In combination with a sewing machine cabinet and a drophead sewing machine, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and an active sewing position above the cabinet and comprising hinge means pivotally connected to the cabinet, means pivotally connecting the opposite ends of said head to said hinge means to swing relative thereto, a follower element operatively connected with one end of said head beneath the point of the pivotal connection thereof to said hinge means, and an element secured to said cabinet and provided with a guide track with which said follower element cooperates.

14. In combination with a sewing machine cabinet and a drophead sewing machine of the type which can be used for flat sewing on a flat work bed or for darning operations on a

tubular work bed and having a base, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising a shaft extending longitudinally of the head and rockably supported by said cabinet, spaced hinge arms secured to said shaft, spring means for rocking said shaft in a head raising direction, means pivotally connecting said hinge arms to the opposite ends of said base wherefore said head may swing relative to said arms, a follower element operatively connected with said base at one end thereof and beneath the point of pivotal connection of the base at said end to one of said hinge arms, and an element secured to the cabinet and provided with a guide track cooperating with said follower element, said track having a portion concentric with the axis of said shaft and separate portions eccentric with respect to each other and to the axis of said shaft.

15. In combination with a sewing machine cabinet and a drophead sewing machine having a base, a device for hingedly connecting the sewing machine head to the cabinet and for guiding the head in moving to and from its idle position within the cabinet and an active position above the cabinet and comprising spaced hinge arms pivotally connected to the cabinet, with one of said arms pivotally connected to a plate provided with a follower element located below the point of the pivotal connection between the plate and the arm, means for detachably securing said plate to said base at one end thereof, the other of said hinge arms being pivotally connected to said base at the opposite end thereof, and an element secured to said cabinet and provided with a guide track of predetermined shape and with which said follower element cooperates.

16. The combination as defined in claim 15 and wherein the base of said sewing machine head includes a sub-base detachably secured thereto and provided with transversely spaced vertically disposed openings, while said plate is provided with laterally extending flange portions adapted to underlie said openings and having rigidly mounted therein vertically extending bolts, the upper ends of which bolts are reduced in diameter while the lower ends thereof interfit said openings wherefore said sub-base can be assembled readily with said plate by passing said bolts through said openings, and nuts screwed on the upper ends of said bolts and drawing said flange portions of said plate into tight engagement with said sub-base.

17. The combination defined in claim 15 and wherein the other of said hinge arms and which is pivotally connected to the opposite end of said base is provided with a transversely extending slot the inner end of which is of circular configuration, while said base is provided at said opposite end with a pin the cross-section of which is circular except for flats on the diametrical opposite sides thereof, whereby said opposite end of said base can be pivotally connected to said hinge arm by passing said pin into said slot and then turning the pin relative to said hinge arm to cause the pin to lock itself in the inner circular portion of said slot.

18. In combination with a sewing machine cabinet and a drophead sewing machine of the type which can be used for flat sewing on a flat work bed or for darning operations on a tubular work bed, a device for hingedly connecting the

sewing machine head to the cabinet and for guiding the same in moving to and from its idle position within the cabinet and either one of its two active positions above the cabinet and comprising hinge means pivotally connected to the cabinet on an axis extending longitudinally of the head, spring means tending to urge said hinge means in a head raising direction, means pivotally connecting the head to said hinge means to swing relative thereto and on an axis parallel to said hinge means axis, and cooperating means carried by said head and cabinet for swinging said head automatically relative to said hinge

means in a predetermined manner and in opposite directions during the raising or lowering of the head and including a follower element and an element having a guide track thereon, with said guide track having at its lower end a locking portion eccentric to said hinge means axis and adjacent to said locking portion a portion which is concentric to said hinge means axis while outwardly of said latter portion said track has two successive portions of opposite curvature and both eccentric to said hinge means axis.

CHARLES E. COLEGROVE.