

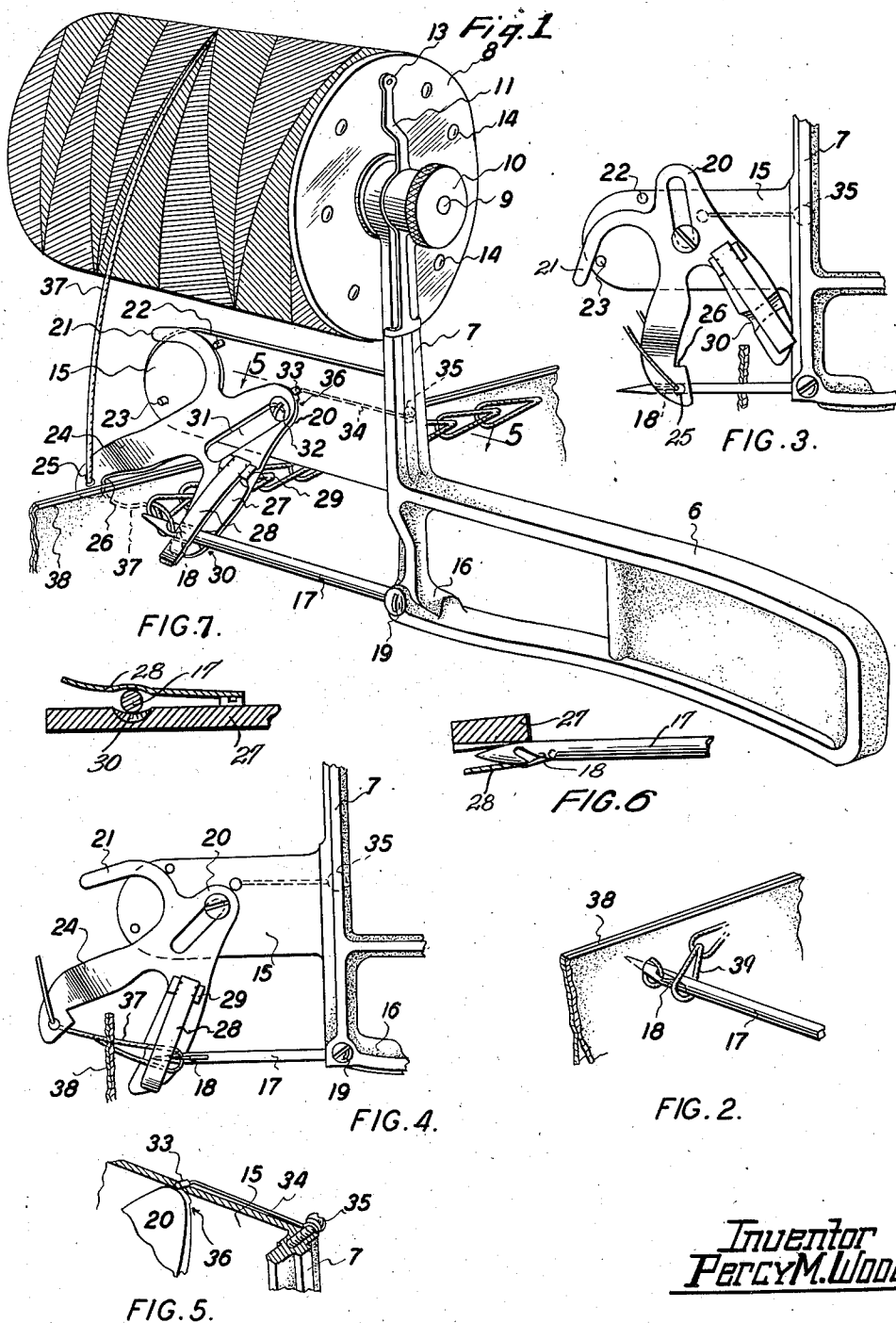
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HAND TOOL FOR SEWING THE NECK CLOSURES OF FABRIC SACKS

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HAND TOOL FOR SEWING THE NECK
CLOSURES OF FABRIC SACKS

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This invention relates to hand tools for sewing the neck closures of fabric sacks and the like.

The invention has been specially devised to provide a useful tool of comparatively cheap and simple construction for hand use, and whereby the neck closures of jute sacks and other fabric sacks are sewed, and furthermore the invention is also usable for repairing the rents in such sacks, and other important features are that the misforming and dropping of stitches is prevented and the tool does not slip off or away from the work.

According to this invention the hand tool comprises a handpiece having a latch needle affixed by its butt therein, a thread spool carrier also affixed to or integral with the said handpiece, and preferably having means for regulating the unwinding of the thread or for the tensioning thereof, a keeper fork or feeding and regulating member oscillatable along the needle and carried on a sliding pivot centre or fulcrum between stops on an arm of said handpiece, this keeper fork having a thread lead hole in one finger (the first finger) of it and devices for keeping it engaged with the work, and on the other or second finger of it a wiper spring to embrace the needle against that finger, and means associated with the said keeper fork for keeping tension thereupon and for controlling the oscillatable movement on its pivot centre and for guiding the first finger and the wiper spring and second finger to the needle so that the thread is effectively fed to said needle and the latch operated.

A needle guide recess is preferably provided on the inside face of the thread finger of the keeper fork while the second finger may have a guide recess or groove on its outer face under the wiper spring.

The guide for keeping the first finger or thread finger of the keeper fork engaged with the work so that it does not slip thereover consists in providing a hook-like portion or element on the inside edge of said finger preferably above the thread eye.

The means for keeping tension on the keeper fork and for controlling the movement of same may consist of a spring operated pintle adapted to bear against the said fork and ride upon a cam track or the like so shaped as to prevent rising of said fork away from the needle during the operation of the wiper spring upon the needle latch.

In operation the tool is held with the keeper fork straddled across the lips of the sack mouth and the needle is stabbed through the bag material and then withdrawn to make the stitches,

this to-and-fro stabbing and retiring movement being repeated whilst the tool is being moved step by step along the sack mouth. The cord or thread runs from the spool through the finger eye in the keeper fork and thence through the latch eye of the needle, and the wiper spring engages the needle latch opening it and closing it alternately in the forward and return strokes of the needle. The guide means in the control of the oscillatable movement of the keeper fork ensure that the said fork while engaging the work will not move away from the needle and that the thread is accurately brought thereto and engaged in the latch eye thereof, and that the latch is opened and closed correctly, as the thread is caught, the stitch formed and released.

In order to more fully describe this invention reference will be made to the drawing accompanying and forming part of this complete specification and wherein:—

Fig. 1 is a perspective view of the tool in working position, with the needle in its retiring movement carrying a loop of thread in the eye of it.

Fig. 2 is a fragmentary perspective view showing the needle advancing through the thread loop last formed.

Fig. 3 is a fragmentary elevational view with the keeper fork in its full back position and the needle fully advanced through the lips of the sack mouth, the needle jaw picking up the thread at this stage in the operation, and

Fig. 4 is a fragmentary elevational view with the keeper fork in its full back position and the needle at full retired position carrying the last formed thread loop in the latch eye.

Fig. 5 is a fragmentary section on line 5—5 in Fig. 1 showing the guide means for the keeper fork.

Fig. 6 is a cross section of one arm of the keeper fork and associated wiper spring, showing the action of the latter on the latch of the needle.

Fig. 7 is a longitudinal section through the arm of the fork having the spring associated with it.

The handpiece 6 is preferably of cast aluminium shaped to form a convenient handgrip and has a post or arm 7 integral therewith to the top of which a spool carrier 8 is pivoted on a stub arm 9 secured in place by a knurled nut 10 under which is a tension spring 11 having a head 13 engaging in recesses 14 in the end face of the said spool carrier 8 and so acting as a brake, and the tension of said spring 11 is adjusted by the said nut 10 and the tension on the thread varied as desired.

The post 7 has a flat lug or web 15 extending

therefrom (and which will be later referred to), and at the lower end or base of the handpiece 6 there is a housing or socket portion 16 for the reception of the butt of the latch needle 17, (having a latch 18) which is locked therein by a set screw 19. The needle length is such that its jaw is brought into the thread pick up position.

The keeper fork 20 of somewhat inverted V-shape has a curved check lug or tail 21 whose movement is checked by stop pins 22 and 23 on the lug 15, and the finger 24 has a thread guide or eye 25 therein and also has a stepped or hook portion 26 there above on the inner edge to engage with the work and prevent slipping off or away therefrom. The other and second finger 27 has the wiper spring 28 affixed thereto standing out from the face in a block 29 from which it may be slidably detached for replacement and said wiper spring 28 preferably has its lower end outwardly curved and rounded at the side edges. A groove 30 is provided on the outer face of the second finger 27 to act as a guide for the needle 17.

The keeper fork 20 has in its upper portion an elongated slot 31 by which it is mounted on a fulcrum pin 32. This slot 31 extends medially between the fingers more or less on a line drawn from the middle of the base and extending midway of the width between the finger tips and thus allowing easy sliding movement on the pin 32 as the inside edges of the fingers alternately abut the sack lips. To keep tension on said fork 20 during its oscillatory movement and to control such movement the means provided comprise a pin 33 protruded through an orifice in the lug 15 by a spring 34, from a retaining screw 35 and adapted to bear upon the inside face of said fork 20, and riding up in a shaped cam face 36 on the inside of said fork 20 (as shown in Fig. 5) when the latter moves downwardly as when the wiper spring 28 is operating the latch 18, and riding up over the top of said fork 20 and accurately guiding it in its movement and preventing any wobble, and forming a stop to prevent upward movement away from such latch 18 as same is opened and closed as the thread is caught the stitch formed and released and thereby obviating the dropping of and misforming of stitches.

In use the thread 37 being led through the fork eye 25 and the fork 20 being straddled across the abutted lips 38 of the sack mouth, the needle 17 is stabbed through the bag material and the thread finger 24 holds the said keeper fork 20 in engagement therewith by reason of its stepped or hooked portion 26 which prevents slippage, and in the needle retiring movement the thread 37 is picked up in the open jaw of the needle 17, the latch 18 being open at this stage and is drawn back. The latch 18 is reversed as the needle is drawn back through the hole in the sack and is closed by the wiper spring 28 and the fall of thread is thus locked in the needle jaw and is drawn back by the needle 17. In the next forward movement the needle latch 18 is opened by the wiper spring 28 and the thread loop 39 then slips out of the needle jaw and over the needle stem as seen in Fig. 2 and the needle point runs over the down-coming thread 37 as that thread leaves the keeper eye 25 and draws up against the needle side and enters the open jaw thereof. The thread fall 37 is at each movement drawn through the loop which was made and cast loose in the preceding movement and a running chain stitch as seen in Fig. 1 is thus formed. During the formation of stitch at the end of the thrust

movement of the needle 17, the keeper fork 20 is pushed back to the position shown in Fig. 3 by the contact of its finger 24 with the sack lips 38. In this backing movement of the keeper fork 20 its check tail 21 strikes down on the stop pin 22 and the said fork 20 then slides upwardly on its fulcrum pin 32, and the thread finger 24 being thus raised relatively to the needle line, the incoming thread is drawn up against the side of the needle 17, and is caused to enter the jaw thereof, which is then open and the hook portion 26 engages the sack lips 38. In the retiring movement the keeper fork 20 is caused to tilt in the reverse direction as seen in Fig. 4 upon the thread finger 24 coming against the far side of the sack lips 38, the said fork slides down on the fulcrum pin 32 the pin 33 riding up on the cam face 36 and taking over the top of the said fork 20 prevents same from rising thus holding it in the position shown in Figs. 1 and 4 during the stabbing movement until the needle latch 18 has been slipped open by the wiping action of the wiper spring 28 and thus preventing any dropping of stitches and ensuring accurate operating action. When the second finger 27 encounters the sack lips 38 and the keeper fork 20 is reversed to allow the formed loop 39 to leave the needle jaw and hang around the needle 17 until the back stroke thereof the next loop of thread is drawn back through it to form the chain stitch as seen in Fig. 1, thereafter the keeper fork 20 is reversed again and so on stitch-by-stitch. The tension exercised on the keeper fork 20 by the pin 33 ensures proper guiding movement of said fork in relation to the needle for forming the stitch, casting same off and so on.

I claim:

1. A sack hand sewing tool comprising a hand-piece having a latch needle held therein, a thread spool carrier associated with said handpiece, a keeper fork oscillatable along the needle and carried on a sliding fulcrum between stops, a thread eye in one finger of the said keeper fork, means embodied in said fork for engaging it with the work, a wiper spring on the other finger of the said keeper fork to embrace the needle against that finger and engage the needle latch in the forward and return movements of the needle, and means associated with the said keeper fork adapted to control and guide the oscillatable movement thereof so that the needle latch is operated correctly as the thread is caught, the stitch formed, and released.

2. A sack hand sewing tool comprising a latch needle, a hand piece, a keeper of inverted V-forked shape oscillatably mounted on said hand-piece and co-acting with said latch needle, said keeper having a thread lead eye in one arm thereof and a needle latch wiper spring device on the other arm thereof and a movement checking extension at one side, and a thread spool carrier with thread tensioning means adapted for operation by to-and-fro and step-by-step movement of the handpiece to operate the needle across and along a sack mouth to form a chain stitch closure.

3. A sack hand sewing tool adapted for closing a sack mouth with a chain stitch and comprising a latch needle and a forked rocking keeper co-acting therewith the position of said keeper in relation to the needle being reversed by contact with the mouth of the sack on opposite sides thereof in the thrust and retiring movements of the needle across the same.

4. A sack hand sewing tool comprising a hand

piece, a latch needle, a keeper fork consisting of a pair of angularly set fingers radiating downwardly from a common base portion, one finger having a thread guide therein and means for engaging with one side of the mouth of a sack, a trip spring mounted on the other finger, means for oscillatably mounting said fork upon said handpiece, and a curved tail check extension at one side on said fork coacting with stops connected to said handpiece, said trip spring being adapted to operate the latch of the needle as said fork is oscillated.

5. A sack hand sewing tool as defined in claim 4, wherein the means for engaging the thread finger of the keeper fork with the work consist of a hook portion provided upon the inner face of the said finger above the thread guide eye therein.

6. A sack hand sewing tool as defined in claim 4, wherein the means for oscillatably mounting the keeper fork comprise a fulcrum pin connected

to the handpiece and working in an elongated slot extending longitudinally and substantially medially of the base of said fork between its fingers.

7. A sack hand sewing tool as defined in claim 3, wherein the forked keeper has means coacting therewith to control its movement relatively to the latch needle, such means consisting of a spring device bearing against said fork and exerting tension thereupon, and a track upon the face of said fork over which the said spring device rides up to engage over the edge of said fork and prevent upward movement thereof while the needle is being retired, said spring device releasing the engagement over said edge on the thrust movement of said needle.

8. A sack sewing hand tool as defined in claim 4, wherein the finger carrying the trip spring is provided with a transversely arranged groove acting as a guide for the needle.

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