Aug. 25, 1936. P. HOLLEY ET AL. 2,052,226

TRAVERSE BUTTON

Filed Feb. 19, 1934

Fig. 2

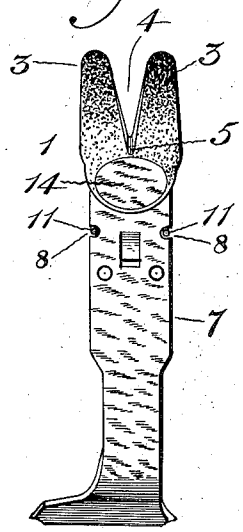


Fig. 1

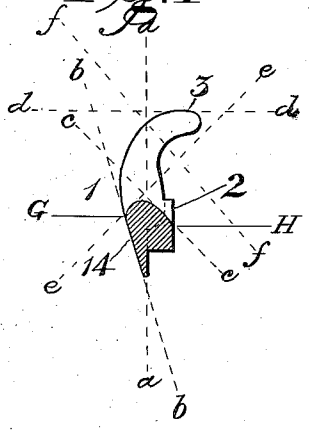


Fig. 3

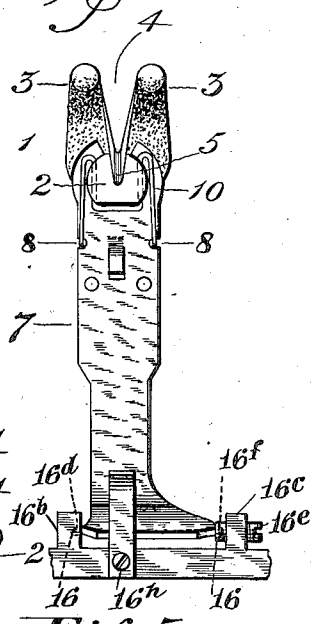


Fig. 4

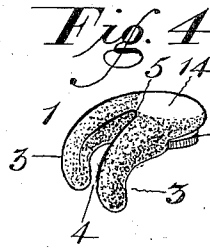


Fig. 6

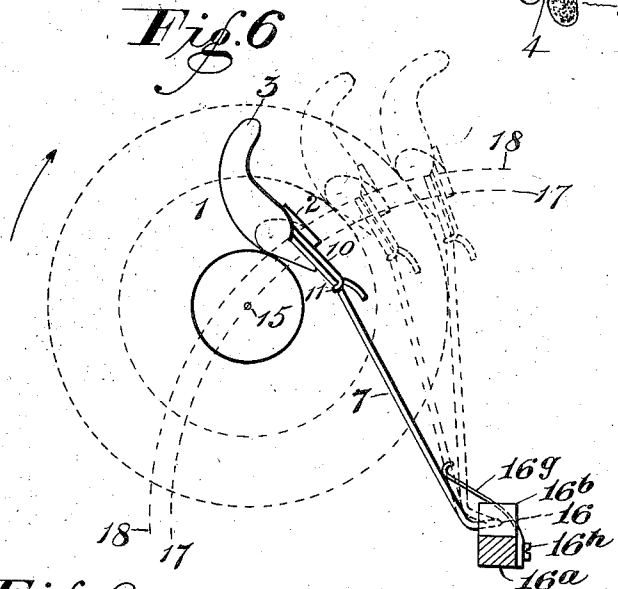


Fig. 5

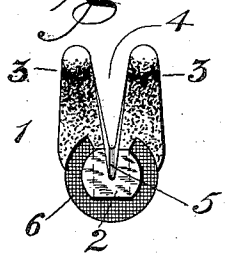


Fig. 7

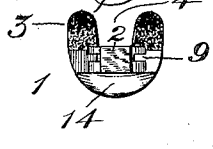


Fig. 8

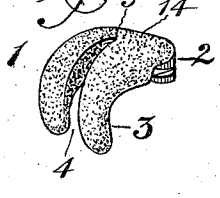
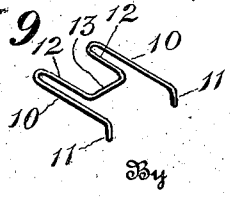


Fig. 9



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2,052,226

TRAVERSE BUTTON

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Application February 19, 1934, Serial No. 712,042

8 Claims. (Cl. 242—157)

Our invention relates to traverse buttons, and more particularly to a button of that character provided with forwardly projecting, divergent, runner-shaped fingers specially designed for use in coning thread and yarn.

One of the greatest and most expensive troubles knitters have had in the past thirty or forty years, especially in the fine manufactures such as silk stockings and the like, is what is known in the trade as "press-offs".

In the manufacture of thread for knitting purposes it often happens that there are certain foreign substances which have not been eliminated from the stock from which the thread has been made, and as a result there is formed in the thread what is known in the trade as knots, slugs, waste or lumps; and these, of course, are in the thread when it is wound on spools or bobbins. Then when it comes to running the thread off the spools onto cones, the thread as it is unwound from the spools is slightly taut, and is drawn along the surface of the thread on the spools in a direction substantially longitudinal of the spools, which is approximately at right angles to the planes of the spirals, so that the thread, as it sweeps the surface of the revolving spools, is caught and pulled by these lumps and knots, not enough, however, to break the thread in many cases, but enough to pull the thread from the large head-end of the cone toward the centre, or from the centre toward the small end of the cone. This always forms a loop or balloon on the surface of the cone; and since the cone is revolving, this loop or balloon catches on the guide, or on the end of the metal holder, or in between the two, causing a break in the thread, which usually takes place at the end of the revolving cone.

The thread, as it is unwound from the spool, and delivered to the cone, tends to cover up the broken loop or balloon; but in the mean time, the knot or lump on the surface of the revolving spool-barrel keeps catching the thread every revolution of the spool, and so will cause any number of loops until such time as the spiral containing the foreign matter is finally reached and unwound, or until the thread breaks.

A cure for this annoying functioning defect has been sought a thousand times by plant owners, foremen, overseers, and superintendents; but in our more than forty years experience in the textile business, we have discovered nothing which will overcome this difficulty except the device herein shown and described.

The cure for press-offs is not to attempt the practically impossible elimination of lumps and knots from the thread, but on the other hand to form a guide on the traverse button such as we have shown in the present application, in which, along with its other advantages, the horns or protruding fingers curve rearwardly from the working face or side of the button. With this arrangement all the danger of looping or ballooning caused by knots, lumps and the like in the thread, is eliminated. The loop or balloon, as it comes around, will pass under the horns or protruding curved fingers of our extension guide, and the thread will be laid over the loop, so that it will presently be covered up by the running end of the thread as the same is fed to the cone, thus making a finished cone that is perfect in all respects.

The difficulties met with in coning, as partly outlined above are often accentuated by the fact that the ordinary V-shaped groove in traverse buttons puts an objectionable amount of tension on the thread or yarn as it passes through said groove, making out of the button a tensioning device at a point where guidance only, and not tension is required to do perfect work. In other words; the thread or yarn has more or less of a tendency to become wedged, as it were, in the apex of the ordinary V-shaped groove; and the longer the groove, the greater will be the tendency imparted to the thread at that point where it is gripped, so to speak, by the two sides of the groove at their meeting point. This fact is fully evidenced by the rapid wear which takes place at the apex of the groove in an ordinary button, thereby requiring frequent replacement. Furthermore, in ordinary traverse buttons, the angle of the buttom of the groove relatively to the circumference of the cone is constantly changing as the cone increases in size; and that, in turn, affects the grip of the button on the thread or yarn, so that the objectionable tension at that point is rendered more objectionable, and is more difficult to manage, by reason of the fact that it is constantly varying.

Moreover, the constant changing of the angular relation of the bottom of the groove as just referred to, causes a corresponding variation in the length of the last section of the thread extending from the point where the thread leaves the guide to the point where it is progressively laid on the cone. This always makes a difference in the closeness to each other of the spirals of thread as they are laid on the revolving cone by the traverse button which is constantly moving back and forth on the cone at a right angle to the longitudinal extent of the cone, or, in other words, at a right angle to the plane of revolution

of the cone. It is at once apparent that this lateral movement of the guide along the cone will cause the section of thread just referred to, to always extend at an angle to the plane of revolution of the cone; and that angle of inclination will vary according to the length of the section of thread, and will change from right hand inclination to left hand inclination, or vice versa, every time the guide reaches the end of the cone and there begins its return movement. At that point the section of thread referred to its apt to be at its longest; and hence it comes to pass that with the ordinary traverse button the ends of the cone where it is desirable that they should be most compactly coned are, as a matter of fact, the least compact part of the whole cone. From these consideration it is manifest that the shorter the last section of the thread extending from the point where the thread leaves the guide to the point where it is laid on the cone, the less variation there will be in the length of that section, and the more evenly and compactly will the thread be laid on the cone.

Now, in our construction and arrangement of parts the point where the thread leaves the guide is in very close proximity to the point where it is laid on the cone, and the position of these two points relatively to each other is substantially the same all the time during the formation of the cone from start to finish. And this fact which differentiates our traverse button from other traverse buttons is one reason why we are able to produce a surprisingly large percentage of perfect cones—in fact, a percentage heretofore unheard of in the trade, and deemed quite impossible, since, taking an average of the mills of the country, there will be from 15% to 25% defective cones, while with our device herein described, from 96% to 98% of the cones are perfect.

Again, it has been found by very extensive experiments that in order to insure the very finest work of this character, the guide button should present to the cone a material area of surface lying in face-to-face engagement with the cone beginning at the point where the thread first touches the cone as it is progressively laid thereupon. In this way a number of threads at each side of the delivery point of the button hereinafter designated as the contact point will be firmly held in place as the incoming strand of thread is laid upon them, so that the spirals of thread already wound upon the cone will not be crowded, as it were, to the right or to the left, or otherwise displaced by the tension of the incoming thread as it is laid upon them by the guide. In order that the flat working face of the guide-button may function perfectly at all times, it is necessary that its position relatively to the convexity of the cone should always be constant from the time the cone is started until it is finished; and that is what is accomplished with exactness by applicant's construction, as will be pointed out in detail in the appended description: this being one of the unique features of our construction and one of great importance.

Another objectionable feature about the most traverse buttons is that they have to be cemented to their holders, shellac being usually employed for this purpose. This occasions the loss of time and considerable inconvenience when the guide-buttons are secured in their holders, and especially when worn-out guides are to be replaced by new ones. The desirability of a thread guide which does not require cement, and that may yet be quickly and conveniently secured to its holder, or detached therefrom, is very apparent.

As may be easily surmised from the foregoing, one important object of the invention is to provide a traverse button that will easily glide over loops and balloons in coning, and will thus avoid the catching and breaking of the thread, and the formation of imperfect cones.

Another object is to produce a traverse button having its guide-groove provided with a novel-shaped bottom that will not unduly grip the thread, but will maintain an even frictional contact therewith in all positions of the guide in the formation of a cone.

A further object is to provide a traverse button so constructed and arranged that the cone from start to finish will always contact the button at substanially the same point on the underside of the button.

Still another object is to make the working face of the button of a materially greater area than is common in thread guides, the reason for this being set forth later.

Another object is to provide a device of the character described in which the button may be reliably and firmly held in its holder without cement of any kind, and may yet be easily attached to its holder, or detached therefrom for replacement purposes.

Other objects will appear in the subjoined description, since the protruding curved fingers, the curved bottom of the thread groove, the working face of the button, and the respective positions in which those parts are held relatively to each other and to the cone, are all important features of the invention.

The invention consists in certain novel features of construction and arrangement of parts, as will be hereinafter described and claimed, reference being had to the accompanying drawing, in which—

Fig. 1 is a central, vertical section of the guide-button.

Fig. 2 is a plan view of the working face of the guide in its holder.

Fig. 3 is a plan view of the reverse side of the button and holder showing at the lower end of the holder a fragment of the support upon which the holder rocks.

Fig. 4 is a perspective view of the button.

Fig. 5 is a plan view of the reverse side of the button.

Fig. 6 is a side view of the button and holder and holder support, as shown in Fig. 3, with dotted lines indicating the relative position of the button to the cone at different stages in the formation of the cone.

Fig. 7 is a rear-end view of the button, showing particularly the shank thereof which is engaged by the securing spring.

Fig. 8 is another perspective of the working face of the button showing particularly a transverse outline of the surface at the heel of the button where it is engaged by the cone; and,

Fig. 9 is a perspective view of the securing spring which locks the button on the holder.

Referring further to the drawing, the numeral 1 indicates the button proper which is usually formed of porcelain; and is provided on its rear side with a shank 2, and on its forward edge with two long, forwardly-projecting curved fingers or runners 3 diverging laterally from each other to form a V-shaped thread groove 4 between them, which groove extends down into the shank 2 of the button and has a convex bottom

5, as will be more fully described hereafter. At the base of the shank 2, the button is recessed, as indicated at 6 to receive the bifurcated forward end of the holder 7 which is standard stock and is carried by all dealers in that line of goods. This holder in its usual form has the two semicircular recesses 8 in its side edges, as shown in Figs. 2 and 3 of the drawing, which recesses we utilize for a new purpose in our construction, as will presently appear.

The shank 2 projects outwardly beyond the rear face of the button, and is provided on its opposing sides with the parallel grooves 9 indicated in full lines in Fig. 7, and in dotted lines in Figs. 3 and 5.

The bifurcated forward end of the holder 7 is received into the groove 6 which is deep enough to receive said bifurcated end just below the parallel grooves 9 of the shank 2. The securing spring illustrated in Fig. 9 of the drawing has two outer parallel sections 10 terminating at their free end in two short downwardly-bent sections 11, and at their outer ends are bent inwardly upon themselves to form two parallel sections 12 in the same plane with the sections 10 but shorter, and connected with each other at their inner ends by a cross-section 13 extending at a right angle to the sections 10 and 12. The parallel grooves 9 in the shank 2 of the button are of a width to snugly receive the sections 12 of the securing spring; and the recess 6 of the button is of a depth fully equal to the thickness of the bifurcated head of the holder 8 plus the diameter of the sections 12 of the spring, so that the spring does not project outwardly beyond the rear face of the button when its sections 12 have been received into the grooves 9 of the shank to hold the button in firm engagement with its holder, as illustrated in Fig. 3 of the drawing, from which it will also be seen that the short downwardly-bent sections 11 of the spring are received into the small semicircular recesses 8 of the holder 7, whereby the spring is locked in its operative position on the device while it in turn holds the button securely locked on the bifurcated end of the holder.

The under face of the button (at the rear end of said face between the extreme end of the button and the outlet end of the bottom 5 of the V-shaped groove 4) is provided with a comparatively large, substantially flat surface 14 sharply inclined rearwardly. Special attention is called to this flat, rearwardly-inclined surface which, to avoid confusion of terms, is hereinafter designated as the "working face", since, due to the resiliency of the yarn the cone is in constant engagement with this flat surface when the device is at work of course the under sides of the fingers also form a part of the working face of the button, as a matter of fact, but they are not in such intimate and constant contact with the cone as is the oblong flat surface just referred to, which is designated in the claims as the "working face". It will be seen from Figs. 2 and 4 and 8 that this surface is oblong with its greatest diameter extending in the direction of the longitudinal extent of the cone. The reason of this will be explained in describing the operation of the device.

Special attention is also called to the peculiar shape of the bottom 5 of the V-shaped groove 4, as well as to the location of the different parts of said bottom relatively to the shank 2 of the button, and very particularly to the contact at the forward verge of the working face 14. For purposes of explanation, the button is supposed to occupy the position shown in Fig. 1, in which the dotted line *a—a* indicates the vertical, and *b—b* the angle of the inclination of the contact surface to the line *a—a*. Said bottom 5 of the V-shaped groove is upwardly convexed having its highest point closer to the working face of the button than to its rear or shank side. The dotted line *c—c* indicates about the average angle at which the thread enters tht V-shaped groove in engagement with the bottom 5 thereof, and the line *e—e* indicates about the average angle at which the thread is traveling just before it leaves the guide button. It will be noticed that the lines *c—c* and *e—e* are at angles of equal inclination to the vertical but that they intersect each other at a point to the left side of the vertical line *a—a*; and for certain kinds of work the contour of the groove bottom 5 may be such as to bring said point of intersection still farther to the left of the vertical line *a—a*; i. e., closer to the under side of the button.

It will also be noticed that the shorter curved end (the left end) of the bottom of the V-shaped groove emerges from the under face of the button at a point slightly higher than the entrance end (the right end) of said bottom. The difference in the elevation of these two points (the one showing where the thread leaves the groove, and the other showing where it enters it) are indicated by the lines G and H respectively in Fig. 1.

It will also be noticed, as indicated by the dotted line *d—d* in Fig. 1, that the curved ends of the fingers 3 of the button point in a direction approximating right angles to the vertical.

Fig. 6 is a side view of the traverse button showing its position relative to the cone at the time coning begins, and showing in dotted lines how this relative position is maintained unchanged throughout the formation of the cone from start to finish, however large the cone may be made, as will appear from the following considerations: The numeral 15 indicates the centre upon which the cone rotates, and 16 the centre upon which the traverse button rocks: the circular dotted line 17 passes through the centre 15 of the cone, and is struck from the centre 16 upon which the traverse button rocks. This line 17 passes through the centre of the working face 14 of the button, so that said face maintains a constant angular relation to said line 17, even if the button were rotated an entire revolution on its rocking centre 16, since the centre of the working face 14 would always be the same distance from the centre of rotation 16 of the button; and all points in the circle 17 would likewise be the same distance from the centre 16 from which said line is struck. The working face 14 is disposed in a plane at a tangent to the circumference of the cone; and the degree of this tangential inclination to the circumference of the cone will be constant—always and invariably the same relatively, in all positions of the button.

Of course, it will be understood that, to start with, the absolute degree of inclination of the working face 14 may vary in buttons intended for different purposes; but the point here stressed is that the angle of inclination of this working surface relatively to the circumference of the cone at the beginning of the coning operation, will be maintained unchanged throughout the formation of the cone. That is to say, the angle of inclination only changes to accommodate itself to changes of the cone, so that its relative angle of inclination to the circumference of the cone remains constant from start to finish. The curved

dotted line 18 is also struck from the rocking centre 16 of the traverse button holder, and it touches the oblong working face 14 of the button at the upper edge of the oblong contact surface 14, or at what may be termed the contact point, because it is the point at which the thread leaves the V-shaped groove and begins to contact with the cone as it is wound thereupon. It will be seen that this contact point of the button always touches the cone at a point in the curved line 18 regardless of the size of the cone, and that therefore the position of the bottom of the V-shaped groove relatively to the circumference of the cone is constant, regardless of the size of the cone, so that the button and cone are always in the correct position relatively to each other to produce the best possible results.

What has been said about the unvarying relative position of the working face 14 and the curved bottom 5 of the V-shaped groove applies with equal force to the curved fingers 3 which also maintain a constant position relative to the line 17 (which passes through the centre of the cone) in all stages of the formation of the cone.

The button holder is carried by the supporting bar 16*a*, which has two ears 16*b* and 16*c*. The ear 16*b* has a slight conical recess 16*d* on its inner face, and the ear 16*c* has a screw 16*e* extending inwardly through the same and provided on its inner end with a slight conical recess 16*f* similar to the conical recess 16*d* of the ear 16*b*. A leaf spring 16*g* is rigidly secured at its lower end to the supporting bar 16*a* by means of the screw 16*h*, with the upper free end of this spring pressing the holder inwardly toward the cone, whereby to normally hold the traverse button in yielding engagement with the revolving cone.

It should be also noted in this connection that the incoming thread, (because of the tension imposed upon it, and because of the direction in which it comes to the button, as set forth in the description of Fig. 1), also tends to hold the button in engagement with the revolving cone independently of the action of the spring 16*g* upon the holder.

The holder support 16*a* is mounted on the coning machine to move back and forth thereon in parallelism with the axis of the cone.

The difficulty always encountered in the handling of threads and yarns because of the tendency of the same to form kinks and loops, has already been referred to herein as ballooning. A matter of the utmost importance in coning is to properly control and handle the thread when it gets to ballooning. This is especially the case with modern high-speed machines when the ordinary guide buttons are used, because the kinks or loops in the rapidly-moving strand of thread or yarn will cause it to jump out of the guide-groove of the button, thus leaving the button unthreaded, and causing breakage and loss of time in stopping and re-knotting and re-threading the guide button. But the fingers 3 of our device are so constructed and disposed that they will keep the strand of thread in its proper traveling space, while at the same time ironing over and covering up the kinks and loops, thereby avoiding the above-mentioned annoyance and extra labor and loss of time, getting more work done, and all the while turning out perfect cones free from knots due to breakage.

In the outset, our traverse button is placed in the proper relative position to the circumference of the cone to insure perfect work, and it will maintain its relative position throughout the entire formation of the cone. This is in sharp contrast with the old type button guide which was in perfect position relatively to the cone, only when the cone was half wound. That was where the trouble came in, for it only allowed one particular time in the coning of the whole cone when the point of contact was correct. But, as already pointed out, the point of contact in our present device is always correct, and is at the point where the dotted line 18 intersects the working face of the button.

The details of the button pointed out have been worked out with great care by the aid of extensive experiments, so that the niceties of construction and arrangement of parts above noted, all have their significance, and conspire together to produce marvelously perfect work heretofore deemed impossible.

The operation of the device is as follows:—

The porcelain button is placed in the metallic holder, with the shank 2 of the button received into the bifurcated head of the holder in the usual way, but without any cement of any kind. The two forwardly-extending loops of the locking spring illustrated in Fig. 9, are inserted into the grooves 9 of the button shank from the rear side of the shank. When the spring is pushed forwardly in said grooves till the cross-section 13 abuts the rear side of the groove, the short sections 11 at the extreme rear end of the spring will drop into the recesses 8 at the side edges of the metallic holder 1, since said recesses are open at their outer sides, and the sections 11 can be easily sprung from each other so as to straddle the holder 1 preparatory to being pushed forwardly thereupon to move the loops of the spring into the grooves 9. The cooperating parts are so arranged that the parallel sections 12 of the spring press the button into firm engagement with the holder; and when the short right-angled sections 11 have sprung into the small semicircular recesses 8 through their open, outer sides, the spring is locked in operative position, and will hold there, if need be, till the button is worn out. When it is desired to remove the button or to replace it, it is only necessary to spring the two sections 11 laterally out of the recesses 8, and then the securing spring can be easily withdrawn.

In ordinary practice porcelain guide buttons are secured in their holders with shellac, which arrangement is one of the most prolific causes of complaint in the trade, as respects time, labor and cleanliness. The present arrangement eliminates these complaints which have heretofore been so general, and assures the users of the device that the button will be reliably and permanently held on its holder in a manner not found possible with shellac or any other kind of cement, which is liable to work loose, and is always inconvenient, and disagreeable to handle when changes are to be made.

When the thread is passing through the button to the cone, it enters the V-shaped groove through the shank 2 of the button, and is drawn upwardly over the longer end-section of the convex bottom 5 of said V-shaped groove, and then downwardly over the shorter section of said bottom (see Fig. 6) and emerges from said groove barely above the upper side of the working face 14 (see also Fig. 2) at practically the point where the working face of the button is intersected by the dotted line 18 in Fig. 6. The thread is delivered to the guide from a bobbin or spool loosely mounted on a standard, so that it revolves with

great ease and consequently imparts very little tension to the thread as it passes up the longer convex end of the bottom 5 of the V-shaped groove. The thread is then drawn downwardly over the shorter end of said convex bottom which frictionally engages the thread and imparts sufficient tension to it to cause the revolving cone to draw the thread straight as it is laid on the cone, but the downwardly-curved end of the bottom 5 of the groove is so short that no objectionable frictional contact can be developed therein such as would occasion anything more than the desirable amount of tension in the thread. If the groove bottom 5 were straight instead of convex, the thread would wedge down tight in the bottom of the groove and draw hard, but the employment of the convex bottom with the exit-end portion thereof comparatively short overcomes the difficulty tendency to objectionable wedging that would be encountered in a straight groove. This is specially true of the present construction, because the shank 2 has to be long enough to receive the securing spring, and consequently the bottom of the V-shaped groove is sufficiently long to occasion an objectionable amount of wedging and consequent tension in the exit end of the thread if the groove were straight. But the present arrangement completely avoids that difficulty which would otherwise be quite objectionable, even to the extent, perhaps, of forbidding the employment of the spring at all because of the added length to the groove bottom which it compels on account of requiring the shank 2 to project beyond the rear face of the button.

It will be observed from Fig. 6 that each end of the groove-bottom 5 (indicated in dotted lines) touches the dotted line 18. This causes the exit-end of the groove-bottom (termed herein the "contact point") to be slightly in advance of the point in the shank where the groove-bottom enters the shank. Hence, this forms the geometrical rule for determining how far the plane of the line G should be located above the plane of the line H in Fig. 1 of the drawing.

In the extensive careful and painstaking experiments which have been conducted in order to bring this device to perfection, it has been found that if the bottom 5 of the V-shaped groove were so formed that the lines G and H in Fig. 1 were both in the same plane, the device would not do quite as good work: so that the exact points at which the groove bottom should start and stop bear an exact mathematical relation to the thickness of the button, and to the length of the radius extending from the point 16, upon which the button rocks, to the point where it contacts with the cone.

Of course, the exact construction of the porcelain button as herein given presupposes the use of the holder 7 which is a standard article in common use as a holder for traverse buttons, and is carried in stock by all dealers in goods of this character. This fact is mentioned here because, as shown in Fig. 6 of the drawing this holder 7 has a slight bend near its upper end in alinement with the semicircular notches 8; and if this bend were modified to a material degree, or were dispensed with, the angular inclination of the working face 14 (as indicated by the dotted line *b*—*b* in Fig. 1 of the drawing) would have to be correspondingly changed; and the other parts of the button would also have to be changed to correspond to the change of inclination of said working face 14, through the centre of which passes the curved line 17, which line also passes through the axis of the cone, as indicated at 15.

As the incoming strand of thread is being laid upon the cone under the slight tension which the pull of the revolving cone produces in the thread at that point, the coils of thread at either side of said incoming strand are pressed by the oblong working face 14 of the button, and are thus held against any lateral displacement that might be occasioned by said tension.

For all practical intents and purposes, the thread may be considered to begin to be wound upon the cone at the exit end of the V-shaped groove without any intervening space between these two points for lateral play of the thread, so that the guide progressively places the thread at exactly the right place upon the cone, and does so in a most accurate and positive way; and as the incoming strand is laid upon the cone, it is ironed down on the cone in that exact position by the working face 14 of the button, which, being oblong in contour, irons many spirals of the thread every revolution of the cone, so that each individual spiral has been ironed down over and over before said contact face has passed beyond it.

In order to mount the holder 7 on its supporting member 16*a*, it is only necessary to unscrew the screw 16*e* sufficiently to permit the lower end of the holder with its two points to be received between the two ears 16*b* and 16*c*. The left point is then entered in the conical recess 16*d* on the inner face of the ear 16*b*; and the screw 16*e* is screwed inwardly till the conical recess 16*f* on its inner end has snugly received the other point 16 of the holder.

The leaf-spring 16*g* is then secured to the supporting member 16*a* by means of the screw 16*h*, with the upper end of said spring pressing inwardly against the holder 7. In this way the holder is pivotally mounted on its support 16*a*.

The specific structure of the mounting for the button holder forms no part of the present invention.

By the means herein shown and described, cones of marvelous evenness and beauty are rapidly produced with scarcely a faulty cone among them.

Having now described our invention, what we claim as new, and desire to protect by Letters Patent is:

1. A traverse button comprising a main body portion provided at its forward side with two integral runner-shaped fingers extending forwardly-and-upwardly and diverging from each other to form a deep V-shaped thread groove between them, the working face of said body portion extending from the apex of the V-shaped groove to the rear edge of the button, and being flat, and oblong transversely of the button.

2. A traverse button comprising a main portion elongated at its forward side and formed into a pair of integral forwardly-extending fingers diverging from each other to form a V-shaped thread groove between them, said main portion having a flat, receding working face lying in a plane extending from the apex of said thread groove to the rear edge of the button.

3. A traverse button comprising a main portion elongated at its forward side and formed into a pair of integral forwardly-extending fingers diverging from each other to form a V-shaped thread groove between them, said main portion having a flat, receding working face lying in a plane extending from the apex of said thread

groove to the rear edge of the button, the bottom of said V-shaped groove being of convex formation, and said flat contact face being of a width greater than its length.

4. A traverse button comprising a main portion elongated at its forward side and formed into a pair of integral forwardly-extending fingers diverging from each other to form a V-shaped thread groove between them, said main portion having a flat, receding working face extending from the apex of said V-shaped groove to the rear end of the button, the bottom of said groove being of convex formation from its entrance end to its exit end, the convexity of the exit end being greater than the convexity of the entrance end.

5. A traverse button comprising a main portion elongated at its forward side and formed into a pair of integral forwardly-extending fingers diverging from each other to form a V-shaped thread groove between them, said main portion having a flat, receding working face extending from the apex of said V-shaped groove to the rear end of the button, the bottom of said groove being of convex formation from its entrance end to its exit end, the convexity of the exit end being greater than the convexity of the entrance end, the extreme exit end of the groove being at a point slightly in advance of the extreme entrance end.

6. A device of the character described, comprising a button proper having on its forward side a V-shaped thread groove, and to the rear thereof and on the reverse side of the button a shank projecting beyond the face of the button, said rear reverse face of the button having a recess surrounding said shank; a metallic button holder having a bifurcated head-end arranged to be received into said recess surrounding the button shank, said shank having opposing longitudinally extending grooves; a bifurcated spring having opposing loops disposed in the same plane and arranged to be received into said opposing grooves, the outer section of each of said loops of the spring being extended rearwardly and terminating in short right-angled sections turned forwardly, said holder having open-sided recesses in its edges arranged for the reception of said right-angled ends of the extended sides of the spring loops, said recess around the shank of the button being of a depth to receive the bifurcated head of the metallic holder plus the thickness of the spring, whereby said spring does not project beyond the face of the reverse side of the button.

7. A device of the character described, comprising a button proper having a V-shaped thread groove at its forward side, and on its reverse side a shank projecting beyond the face of the button with the apex of said groove extending into said shank approximately to the central portion thereof, said rear reverse face of the button having a recess surrounding said shank but terminating short of said V-shaped recess, whereby to leave a narrow space between each end of said recesss and said V-shaped groove; a metallic button holder having a bifurcated head-end arranged to be received into said recess surrounding the button shank, said shank having opposing longitudinally-extending grooves; a bifurcated spring having opposing loops both disposed in the same plane and arranged to be received into said opposing grooves from the rear side of the shank, the outer section of each of said loops of the spring being extended rearwardly and terminating in short right-angled sections turned forwardly, said holder having open-sided recesses in its edges arranged for the reception thereinto of said right-angled ends of the extended sides of the spring loops, said recess around the shank of the button being of a depth to receive the bifurcated head of the metallic holder plus the thickness of the spring, whereby said spring does not project beyond the face of the reverse side of the button, said short forwardly-turned right-angled section of the spring being of a length not exceeding the thickness of the holder, whereby said ends will not project beyond the front face of the holder.

8. A traverse button comprising a body portion provided at its front side with two integral, runner-shaped fingers extending forwardly and rearwardly and diverging from each other to form a deep V-shaped thread groove between them, the bottom of said thread groove being of pronounced convex formation, said body portion having a working face extending rearwardly a material distance from the apex of the groove, and being flat and oblong transversely of the button.

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