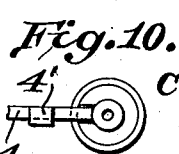
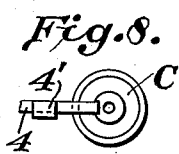
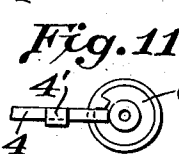
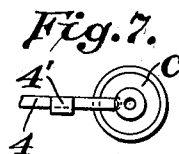
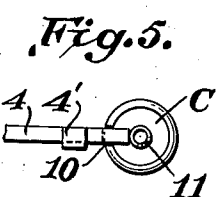
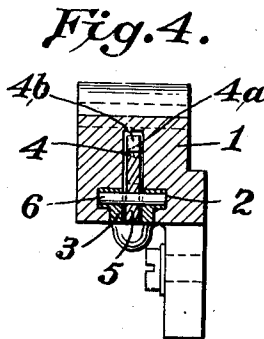
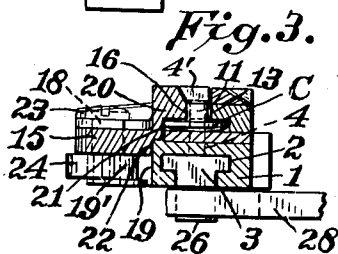
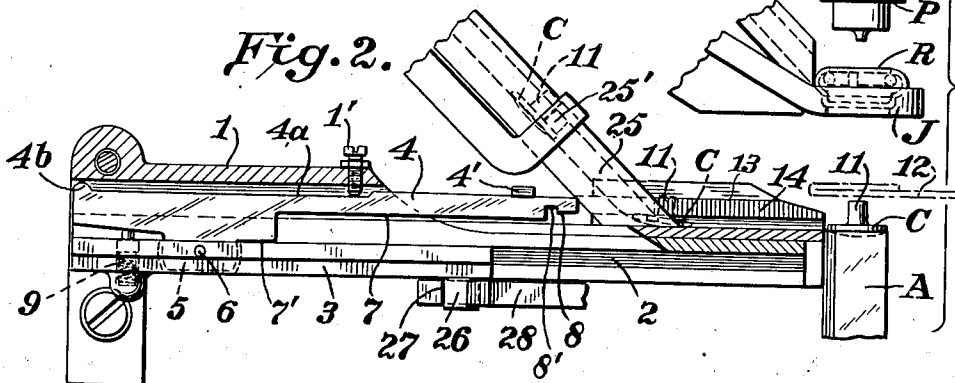
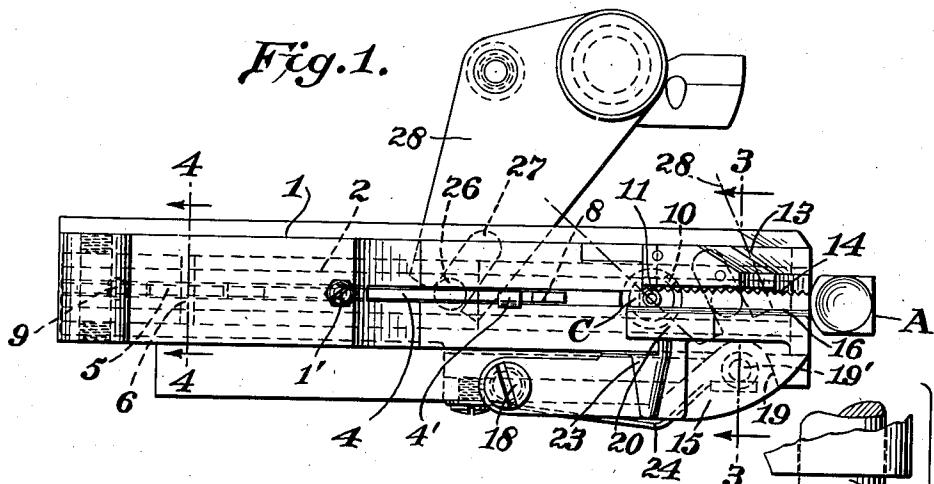


Dec. 9, 1941.

F. H. PETERSON
COMBINED TUCKER AND ORIENTING MECHANISM FOR
SNAP FASTENER ATTACHING MACHINES
Filed Oct. 18, 1938

2,265,574

2 Sheets-Sheet 1



Inventor:
Frederick H. Peterson,
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COMBINED TUCKER AND ORIENTING MECHANISM FOR
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2,265,574

2 Sheets-Sheet 2

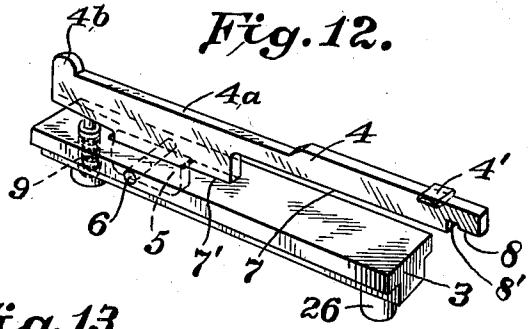


Fig. 12.

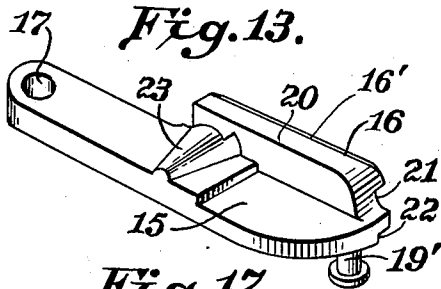


Fig. 13.

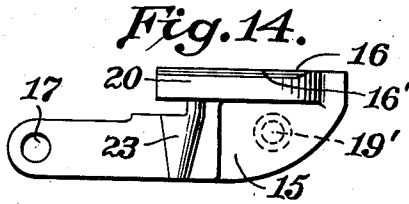


Fig. 14.

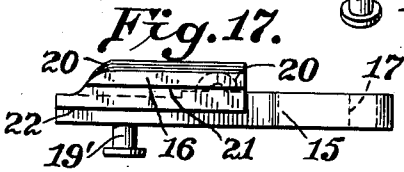


Fig. 17.

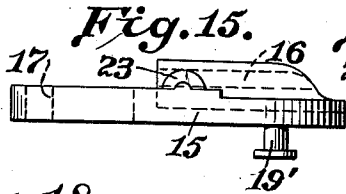


Fig. 15.

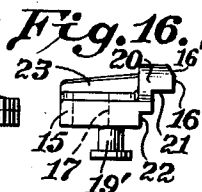


Fig. 16.

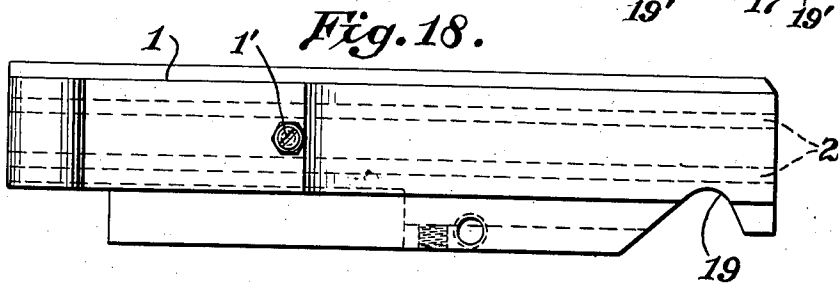


Fig. 18.

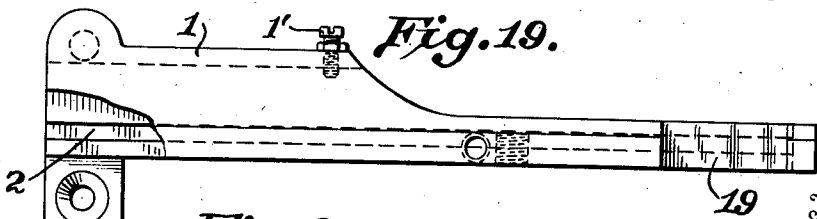
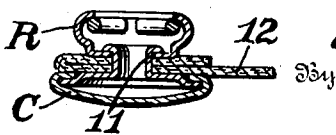


Fig. 19.

Fig. 20.



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UNITED STATES PATENT OFFICE

2,265,574

COMBINED TUCKER AND ORIENTING MECHANISM FOR SNAP FASTENER ATTACHING MACHINES

Frederick H. Peterson, Watertown, Conn., assignor to The Patent Button Company, Waterbury, Conn., a corporation of Connecticut

Application October 18, 1938; Serial No. 235,650

8 Claims. (Cl. 218-6)

My invention relates to a new and useful improvement in a combined tucker and orienting mechanism for snap fasteners, buttons, or the like.

In the patent granted to Franklin R. White, Number 1,567,882, of December 29, 1925, there is shown a button-attaching machine with its tucker mechanism. The present invention relates particularly to an improved form of this tucker mechanism, so that it will not only perform all of its previous functions, but will, in addition thereto, orient the button or snap fastener in its passing to the attaching station.

Also, in the above-mentioned patent, the button heads are fed from one hopper to button-holding jaws, while the tacks are fed to the attaching station directly beneath the jaws where, on the descent of the plunger, the button head is driven down on the tack, which, in turn, is forced through the goods up into the button head and there deformed to thus tightly fasten it to its cloth.

The means for advancing the tacks to the attaching station is known as the "tucker mechanism," and the present invention has to do with an improved form of tucker mechanism wherein the tucker slide forces the inverted snap fastener cap (with its hub upstanding) to the attaching station directly beneath the shell-holding jaws, so that when the plunger descends, the hub of the snap fastener cap is driven through the cloth and rimmed within the snap fastener shell to thus tightly fasten the cap to its material.

Still another object of the invention is to not only progressively advance these snap fastener caps to the attaching station of the machine but to orient them during their travel from their chute to their attaching station, so that the insignia or reading matter on the upper face of the cap will be in proper readable position when attached to the garment.

The snap fastener capable of the orienting movement forms the subject-matter of a companion case filed on July 14, 1938, Serial Number 219,254, for "Snap fasteners."

Still another object of the invention is to provide a tucker mechanism (that is to be used in a button-attaching machine or snap fastener attaching machine) having a finger that bears on the under surface of the rim of the cap (it being remembered that the cap is in an inverted position while in the machine), so that the cap, during its advancing movement, will be slowly rotated while being moved forwardly until such time as the tucker finger springs within a cut-out or notch in the under rim of the cap, which

notch bears a certain definite relation to the embossing on the cap.

After the tucker slide has snapped within the notch, the cap is then in its properly oriented position and will be moved forwardly in this position until it reaches the attaching station, so that on the descent of the plunger, the cap will be properly oriented with respect to the goods to which it is to be attached.

Still another object of the invention is to provide a simple form of tucker mechanism wherein the tucker slide or finger is spring-pressed near its pivotal rear end, so that the forward portion of the finger may eventually snap within the notched under surface of the cap and wherein the walls bounding the passageway for travel of the snap fastener cap to the attaching station are, respectively, plane on the one side and serrated on the opposite side. Thus, the button or cap will normally be slowly rotated as the hub contacts with the serrated portion until held against rotation by the tucker finger, after which the button will move forwardly in its oriented position without further rotation and thus be properly positioned on the attaching station.

Still another object of the invention is to provide a tucker slide for snap fastener caps wherein the hub of the cap will press on its one side against a serrated wall and on its opposite side against a smooth wall, which latter wall is slightly spring-pressed, so that the two walls will present enough friction to revolve the cap until the tucker finger slips into position, after which the spring wall may give slightly, and the button or cap be forced without rotation in its truly oriented position to the attaching station.

Still another object of the invention is to so arrange the mechanism that after the tucker finger has snapped into position to advance the button or cap in its oriented position, it (the cap) will be advanced without rotation, but the friction of the side walls will be removed, so that the hub of the cap will in no way be damaged when traveling to its attaching station.

Still another object of the invention is to provide an improved tucker mechanism for orienting snap fasteners, which fasteners have a notch or depression on the under side of the rim, as shown in my companion application.

The present tucker mechanism is also designed to work equally as well with tack buttons wherein there is a notch or cut in its under portion, or wherein the button or snap fastener has an indentation in its hub to receive the end of the tucker finger, as will be hereinafter explained more in detail.

Still another object of the invention is to provide an attachment for a button-attaching machine that may be quickly substituted for the tucker mechanism now in use on button-attaching machines of the type shown in Patent Number 1,567,882, so that the embossed snap fasteners (caps) may be placed in one hopper of the button-attaching machine, the shells in another, and the caps properly oriented on their way to the attaching station, thus doing away with a separate machine for orienting the caps, as has been tried heretofore.

Still another object of the invention is to so arrange the tucker mechanism that as the cap is deposited on its attaching station, the tucker slide will be slightly elevated at its forward end, so that there will be no danger or likelihood of the cap being pulled rearwardly as the tucker slide returns.

Still another object of the invention is to provide a tucker slide finger with a wedge portion on its upper surface which will engage one of the spring-pressed frictional walls along which the cap passes, so that after the button is properly oriented, the spring wall is forced slightly away from the hub and thus avoid any filing or cutting action with respect to the hub.

With these and other objects in view, the invention consists in certain new and novel features and combination of parts, as will be hereinafter more fully explained and pointed out in the claims.

Referring now to the drawings showing a preferred embodiment and several styles of snap fasteners that may be oriented with my improved tucker slide mechanism,

Fig. 1 is a top plan view of the improved tucker slide mechanism for orienting snap fasteners and the like, together with parts of the button-attaching machine for operating the tucker mechanism;

Fig. 2 is a longitudinal central section to Fig. 1, showing a fragmentary portion of the feeding chute for the caps, a fragmentary portion of the supporting arm and jaws for the shells, and a fragmentary portion of the plunger for forcing the shells on the caps;

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a detailed sectional view on the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary detailed bottom plan of a notched cap member of the snap fastener, showing the latter held in an oriented position by the finger of the tucker slide;

Fig. 6 is an enlarged top plan view of the cap member of the snap fastener, showing the notch underneath in dotted lines in proper relation to the insignia on the cap;

Fig. 7 shows a slightly modified form of cap member with an indentation in its hub to form the contacting point with the forward end of the finger of the tucker slide;

Fig. 8 is a similar view of a further form of notched cap fastener;

Fig. 9 shows a notched cap fastener with a rib on its under surface to be contacted with the tucker slide;

Fig. 10 shows a cap fastener with a groove on its under side to receive the tucker slide;

Fig. 11 shows a cap member with a tab on its under side that is to contact with the forward end of the tucker slide to be oriented;

Fig. 12 is a detailed perspective of the tucker slide and its pivotal dog member;

Fig. 13 is a perspective view of the smooth-faced pivotal arm or member of the slide;

Fig. 14 is a top plan view of the same;

Fig. 15 is a view in side elevation of the member as shown in Fig. 14;

Fig. 16 is an end view thereof;

Fig. 17 is a side elevation of the arm from the reverse side of Fig. 15;

Fig. 18 is a plan view of the frame mounting or table of the tucker slide and its pivotal member;

Fig. 19 is a front elevation thereof; and

Fig. 20 shows the stud portion of the snap fastener as attached to its cap.

Referring now more particularly to the several views, there is shown in Fig. 1 the improved tucker mechanism and several of its associated parts for orienting snap fasteners or the like with relation to the garment to which they are to be attached.

In a companion application filed by me on July 14, 1938, Serial Number 219,254, for "Snap fasteners," there is shown a snap fastener cap similar to that shown in Fig. 6, which has a notch cut in the under surface of its rim, so that the finger of the tucker slide will drop within the notch when the cap is in proper alignment to receive the finger, and in this oriented position, the cap of the snap fastener will be moved outwardly to the attaching station.

In the instant application, Figs. 1 to 4, inclusive, may be seen the block or table 1, in which moves the tucker slide, and there may also be seen an adjustable set-screw 1', the purpose of which will be later described. There is a groove or channel 2 in this block for the tucker slide, the groove being in the shape of a T to prevent the tucker slide from tilting or canting during its travel.

A button-attaching machine in which the tucker slide may be incorporated is shown in the patent to Franklin R. White, number 1,567,882, of December 29, 1925. Other similar button-attaching machines are shown in patents, numbers 1,079,968 and 1,157,743, also granted to Franklin R. White.

In the present instance, however, the tucker slide has the finger arranged to pivotally move upwardly and downwardly, as well as forwardly and rearwardly.

Referring for the moment to Figs. 2 and 12, there is shown the slide or base 3 of the tucker, which is substantially T-shaped to move within the groove 2 of the block 1, already mentioned.

On the slide 3 is pivotally mounted the finger 4 and there will also be noticed the small overhanging wedge-shaped ear 4' that is adapted to bear against a spring-pressed arm, later to be mentioned, to force this spring-pressed arm outwardly as the wedge-shaped portion contacts therewith. On the under portion of the finger 4 there is the downwardly projecting lug or ear 5, through which passes the pivotal pin 6. The finger 4 is reduced on its under portion, as at 7, leaving a stop 7', while at its extreme forward end, there is the hook portion or nose 8 with the notch 8', so that the nose 8 can contact with the under surface of the cap and hub (the snap fastener element being inverted) and the notch 8' overlies the peripheral edge or rim of the snap fastener element.

Also, as may be noticed, especially from Fig. 12, the finger 4 is reduced on its upper surface at 4^a, leaving the projecting cam surface 4^b at its extreme rear end.

It might be mentioned at this point that as the tucker slide and finger advance to the outermost position, the cam surface 4^b will contact with the set-screw 1', heretofore mentioned, and cause the forward end of the tucker finger 4 to elevate. Thus, when the tucker finger starts its return, there is no danger of pulling the cap rearwardly with it.

To the rear of the pivotal point 6 is the small spring 9, which tends to depress the outer end 8 of the finger but will permit said outer end to raise slightly to override the rim of the snap fastener element and will then hold the finger down on said rim, so that it will snap down into the notch in the under side of the snap fastener cap, as will be shortly explained.

As is well understood, and as may be apparent from Patent Number 1,567,882, the normal function of a tucker mechanism is to move the tack or staple (after it has left the chute) to the attaching station, so that when the plunger descends with a button head, the tack will be on the anvil of the attaching station; and as the button head is forced down from its button-receiving cup, the movement of the button head will force the tack through the material to which the button is to be attached, up into the button head, and there deform it.

The tucker slide works in synchronism with the feeding and positioning of the button head, so that there will always be a tack in position when the plunger descends with its button head.

In the present invention, the tucker slide successively pushes or moves the snap fastener cap C (Fig. 6) to the attaching station A (Figs. 1 and 2), so that there will always be one on the attaching station when the plunger P (Fig. 2) moves downwardly to force the ring member R from the cap-holding jaws J onto the snap fastener cap C to thus attach the cap member to the ring member, these two parts forming the female member of the ordinary snap fastener.

I have only diagrammatically shown the plunger P and its supporting jaws J of the attaching machine, as these are standard parts of a machine, shown in the patents above-mentioned and per se form no part of the present invention.

As heretofore mentioned, the snap fastener C, as shown in the companion application, Serial Number 219,254, has a cut-out portion or notch 10 on its under surface, which is preferably located at a 45° angle to the readable position of the insignia on the snap fastener cap.

The cap is provided with the sharp-edged hub 11, which is to pierce the cloth 12, as shown in Fig. 20, and is then to be rimmed over the shell or ring member R to thus tightly hold the cap and ring member or shell to the cloth, which cap will later accommodate a registered male member or stud of the snap fastener, as is well understood.

The present tucker finger is not only designed to move the cap member to the attaching station, but it is also designed to pivotally snap into the notch formed on the under surface of the cap when the notch comes into alignment with the said finger of the tucker slide.

So that the notch 10 is bound to come into registry with the finger of the tucker slide, means are provided for slowly revolving the cap C while being moved by the tucker slide until such time as the notch comes into registration with the finger 4, after which the cap, of course, will be prevented from turning by the finger and will be

forced in its properly oriented position onto the attaching station.

This is accomplished by providing one wall 13 of the block in which the tucker slide moves, and which bears against the hub 11, with a plurality of small serrations 14, while contacting with the other side of the hub is a spring-pressed arm 15 (Fig. 1), its contacting wall, that is, its hub-contacting wall 16, having a plane surface. The strength of the spring 24 is such that as the snap fastener cap is moved along the plane and serrated walls by the action of the tucker finger contacting with the upstanding hub 11 of the cap, the cap will be revolved until such time as the forward end of the tucker finger drops within the notch 10 of the cap, after which the cap will be held against rotation and advanced to the attaching station, so that it will thus be moved in its properly oriented position and deposited on the attaching station A, as is clearly shown in Fig. 2. However, the spring arm 15 will be forced slightly away from the hub by the action of the ear 4', as will be later mentioned.

This arm 15 is shown in detail in Figs. 13 to 16 and will now be explained more in detail.

It will be seen that the arm 15 is provided at its rear end with the aperture 17, through which the stud 18 may pass to pivotally mount the arm to one side of the table in which the tucker slide is mounted.

The table is cut away, as at 19, as may be seen in Fig. 18, so that the arm 15 with its downwardly extending pin 19' may fit conveniently within the table. The arm 15 has the raised portion 20 and it is a part of the face of this raised portion that forms the plane wall 16 that is adapted to contact with the hub 11 of the fastener cap C, the raised portion 20 being undercut on this face at 21 to properly overlie the cap, as may be seen in Fig. 3 and Fig. 16. The arm is again slightly undercut, as at 22, so as to overlie the part of the block 1 in which the tucker slide is mounted.

It will also be noticed that the upper edge of the wall 16 is cut away to form the beveled surface 16' that coacts with the beveled surface of the ear 4' on the tucker finger, so that as the spring 9 forces the forward end of the finger down into the notch 10 in the rim of the cap C, the slight lowering of the forward end of the finger 4 will cause the ear 4' to bear against the beveled surface 16' of the arm 15 and thus force it outwardly and relieve the friction on the hub.

The raised portion 20 is strengthened by the rib 23, which may be clearly seen in Fig. 13.

Bearing against the pin 19' is the aforementioned spring 24 that may be seen in Fig. 1, which underlies the arm 15, the spring extending rearwardly and held to the frame part, just back of the pivotal point 19, so that the arm will be spring-pressed, as shown in Fig. 1. The wall 16 of the arm, it will be noticed, is in parallel alignment with the undercut slot or groove in which the cap and finger of the tucker slide moves, and the space between the opposite wall 13 and the face wall 16 of the spring-pressed arm 15 is slightly less than the diameter of the hub 11 of the cap, so that normally the hub of the cap will be frictionally held against the serrated wall 13. Thus, as the tucker slide moves forwardly, the cap that has been deposited from its chute in front of the tucker slide will be revolved as it is pushed towards the attaching station by the tucker finger 4 until such time as said cap is held against rotation by the said finger engaging the notch 10 in the cap, at which time the spring arm 15 will

be forced back slightly, so that the cap fastener will now travel in its oriented position to the attaching station A.

By referring to Fig. 2 for the moment, there may be seen the serrated wall 13, which frictionally engages the hub 11 of the cap C. In this sectional view, the spring arm 15 does not show. There is shown, fragmentarily, the chute 25 down which the cap is fed to the tucker slide and the escapement 25' for holding the cap until such time as it is to be liberated. Also shown, fragmentarily, are the supporting arm for the jaws J, which hold the ring member R, and the plunger P, which is directly over the attaching station A. From this showing may be understood the relative position of the tucker mechanism with relation to the plunger of the button-attaching machine.

On the under surface of the tucker slide 3, there is shown the pin 26, which fits within the slot 27 of the lever 28, which latter is shown in a full line and dotted line position in Fig. 1. It will be understood that on an operation of the main crank (not shown) of the button-attaching machine, this lever 28 is moved to drive the tucker slide and its finger forwardly, whereby the end of said finger will pass over the outer rim of the inverted cap C and impinge against the hub of the cap to advance the same. The cap will then be revolved as it contacts with the serrated and plane walls of the mechanism heretofore described until such time as the finger snaps downwardly into the notch, after which the spring arm 15 will yield as the hub contacts the serrations and permit the cap to travel in its oriented position to the station A. Here the synchronized plunger P will enter the spring member R and force it through its supporting jaws down upon the cloth and over the hub of the cap C to thus rim the hub over the spring member, as clearly shown in Fig. 20.

It will be understood that in Figs. 7 to 11, I have shown slightly different forms of snap fasteners—that is, different in that the hub may have a slight dent or notch in it to receive the finger, the cap may have a rib or tab to impinge against the finger, or there may be a groove in its under surface to receive the finger. In any of these instances, however, the finger, once locating the notch or tab or groove, will prevent the snap fastener cap from further rotation and thus properly orient it as it is moved to its attaching station.

It will also be understood that the present mechanism for orienting the snap fasteners is a relatively simple attachment which may be easily fitted to a standard type of button or snap fastener attaching machine, as illustrated in the White patents, supra.

After the cap and the spring ring member have been fastened to the cloth, the operator will readjust the cloth. On the next stroke of the crank (not shown), the lever 28 will retract the tucker slide and another cap will be fed into position, so that on the next forward movement of the tucker slide, a cap will be oriented and in position to be attached in the same manner.

It will also be remembered that as the tucker slide deposits the cap C on its attaching station A, the cam 4^b, contacting with the setscrew 1', will slightly elevate the forward notched end of the tucker slide and will thus prevent any undesired returning of the cap C which might otherwise happen.

I have not shown all of the parts of the button-

attaching machine, or the locks for the tucker slide, or the various escapements, as they per se do not form any part of the present invention. However, they are clearly described and illustrated in the patents earlier mentioned.

From the foregoing, it will be seen that I have provided an orienting mechanism that may be quickly and readily built in or attached to a standard type of button-attaching machine, so that snap fasteners, as shown in the co-pending application and in the present application, may be correctly positioned (oriented) on the way to the attaching station, and the insignia or trademark will be in the correct, readable position when fastened to its goods.

Although the machine will operate in a rapid manner, the caps will always be properly oriented, as the length of the serrated wall 13 and the length of the raised face portion 20 with its plane face 16 are greater than the circumference of the hub 11, thus assuring that the notch 10 of the revolving cap will at some time come into registry with the finger during the travel of the cap before it reaches the attaching station A.

Furthermore, in reality, the notch quickly comes into registry with the finger 4 and at this time the ear 4' will slightly press back the spring arm 15 and thus prevent any damage to the hub of the cap.

It will be understood that many slight changes might be made without departing from the spirit and scope of the invention.

Having thus described the same, what I claim as new and desire to secure by Letters Patent is:

1. In a snap fastener attaching machine, a tucker mechanism, means for operating the same, said tucker mechanism including a slide and a finger, said finger being pivotally mounted near its rear end, the forward portion of the finger being adapted to overlie and contact with the under periphery of the snap fastener cap and the forward end of the finger to contact with the outer periphery of the hub and advance said cap, spring-pressed means associated with the tucker slide to also engage the outer periphery only of the hub of the snap fastener cap and thus cause the cap to frictionally rotate as the same is advanced, and the aforementioned finger arresting the rotation of the cap when the cap is in a certain predetermined rotative position with respect to said finger.

2. In a machine for attaching snap fasteners which have embossing on their outer faces and broken under surfaces in their peripheries in a certain definite relation to the embossing, a reciprocating tucker mechanism including a spring-pressed finger, the forward end of the finger being adapted to contact with the outer periphery of the hub of the snap fastener for advancing the same and the said finger being normally in contact with the under peripheral surface of the snap fastener, means for operating the tucker mechanism, means for frictionally engaging the outer periphery only of the hub of the snap fastener for causing rotation of the same as it travels to the attaching station of the machine, and the said finger being also adapted to spring within the broken under surface of the snap fastener when in registry therewith to thereby arrest the rotation of the snap fastener and hold it in its oriented position during its travel to the attaching station.

3. In a machine for attaching snap fasteners which latter have embossing on their outer faces and notched under surfaces in a certain definite

relation to the embossing; an automatic reciprocating tucker mechanism including a spring-pressed finger overlying and resting on the under peripheral surface of the snap fastener and also adapted to contact with the hub of the snap fastener for advancing the same, means for operating the tucker mechanism, frictional means adjacent the tucker mechanism including a fixed wall and a spring-pressed movable wall both of which are in contact with the outer periphery of the hub of the snap fastener, the stationary wall being provided with vertical serrations whereby the snap fastener is rotated as it is advanced by the said finger, and said finger also snapping into said notch when in registry therewith to arrest the rotation of the snap fastener and thus properly orient the same during its travel to the attaching station.

4. In a machine for attaching snap fasteners which fasteners have embossing on their outer faces and grooves on their under surfaces in a certain definite relationship to the said embossing; tucker mechanism including spring-pressed means adapted to overlie and contact with the under peripheral surface of a snap fastener and the end of said means contacting with the outer surface of the hub of the said fastener, the said means being adapted to move the said snap fastener outwardly to an attaching station, means for frictionally engaging the outer periphery only of the hub of the snap fastener to cause the rotation of the same as it travels toward the attaching station, the said means being adapted to register within the aforementioned groove in the under surface of the fastener when in registry therewith to thereby arrest the further rotation of the snap fastener and hold it in a predetermined position during its travel to the attaching station, and means connected with the last-mentioned means for simultaneously removing the friction on said hub when said rotation is arrested.

5. In a snap fastener attaching machine, a tucker mechanism, means for operating the same, and tucker mechanism including a slide and a finger and said finger being pivotally mounted and adapted to contact with the hub of a snap fastener cap for advancing the same, means associated with the tucker slide for contacting with the outer periphery of the hub and adapted to frictionally rotate the snap fastener

cap, the said finger arresting the rotation of the cap in a certain predetermined position, and means to remove the friction at the same time the finger arrests the rotation of the cap.

6. In a snap fastener attaching machine having an attaching station and a tucker mechanism, frictional means for engaging the hub only of the snap fastener to cause the same to rotate for a portion of its way to the attaching station, means for arresting the rotation, and means for relieving the friction at the same time the rotation is arrested.

7. In a machine for attaching snap fasteners which latter have embossing on their outer faces and broken under surfaces in a certain definite relation to the embossing, a reciprocating tucker mechanism including a spring-pressed pivotal finger for advancing the snap fastener, means for operating the tucker mechanism, frictional means for engaging the hub only of the snap fastener for causing the rotation of the snap fastener as it travels to the attaching station of the machine and said finger being adapted to drop into said broken surface when in registry therewith to arrest the rotation of the snap fastener to thus orient the same during its travel to the attaching station, means for relieving the friction simultaneously with the snapping of the finger into position, and means for elevating the forward end of the tucker finger as the snap fastener is deposited on the attaching station.

8. In a tucker slide mechanism, the sub-combination of a reciprocating finger for advancing a notched snap fastener to an attaching station, said finger being pivoted for a tiltable movement; together with means for frictionally contacting the hub of the snap fastener to cause rotation of the same at it advances to the attaching station, said finger overlying and contacting with the periphery and the hub of the snap fastener, said finger being also arranged at its forward end to arrest the rotation of the snap fastener, said finger being provided with means to relieve the friction on the hub of the fastener at the same time the latter has ceased rotation, and said finger being provided with means to tilt the same to disengage it from the snap fastener when the snap fastener arrives at the attaching station.

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