Sept. 18, 1962 F. AUSTEL 3,054,248

DEVICE FOR SIMULTANEOUSLY APPLYING TRAVELLERS AND YARN TO TRAVELLER RINGS OF SPINNING AND TWISTING MACHINES

Filed July 17, 1961 3 Sheets-Sheet 1

Fig. 1

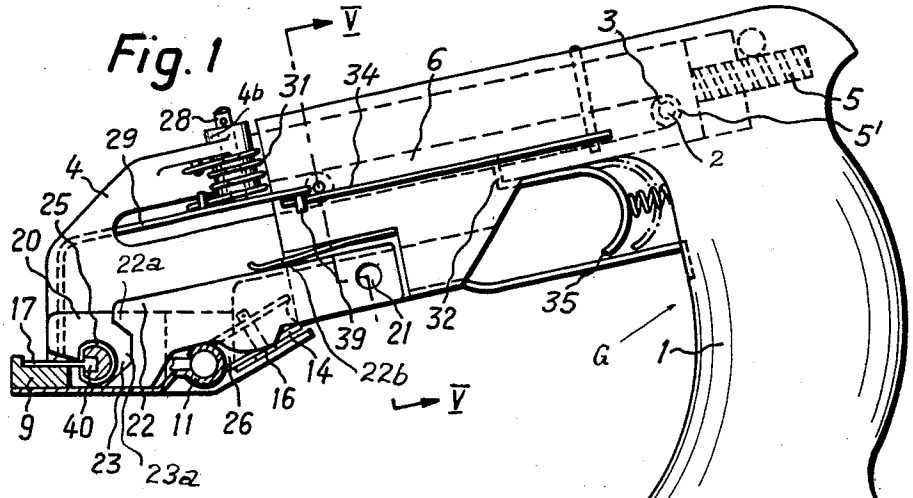



Fig. 2

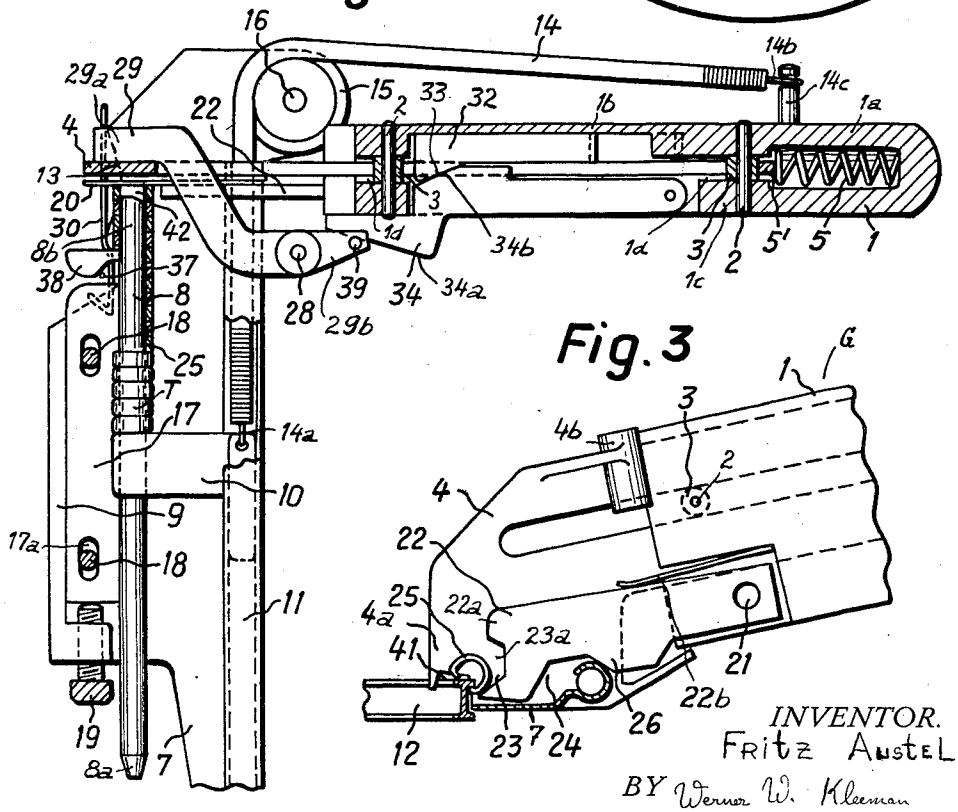



Fig. 3




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Fig.4

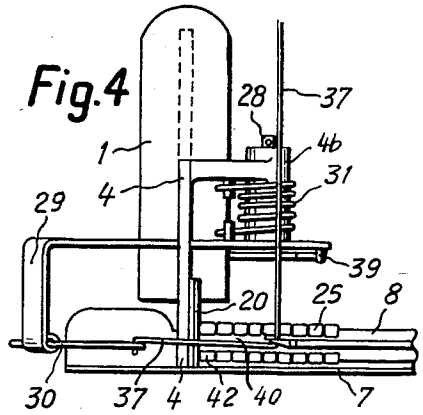



Fig.5

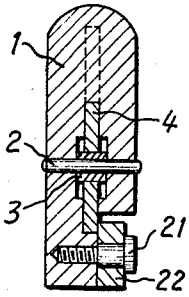



Fig.6

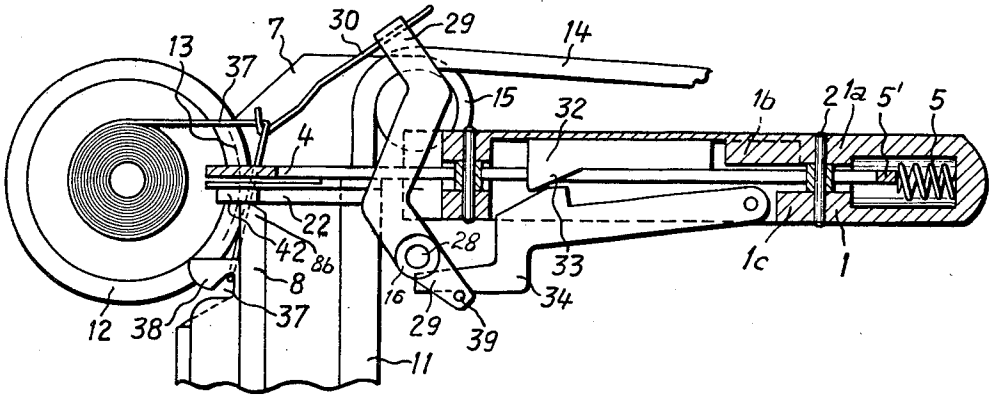
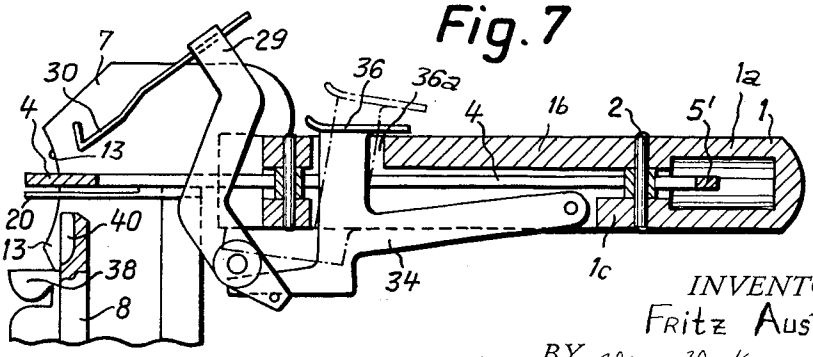



Fig.7




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Fig. 8

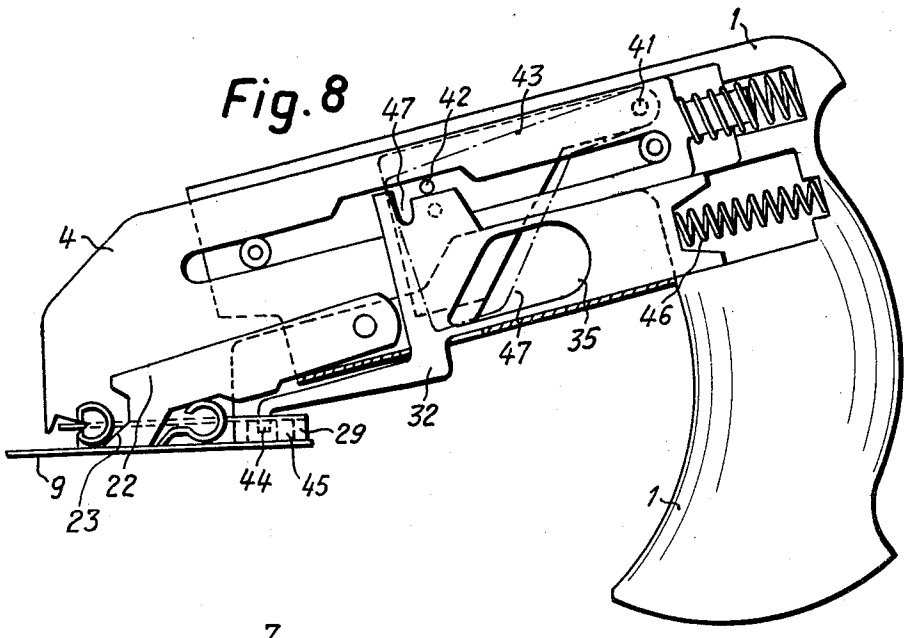



Fig. 9

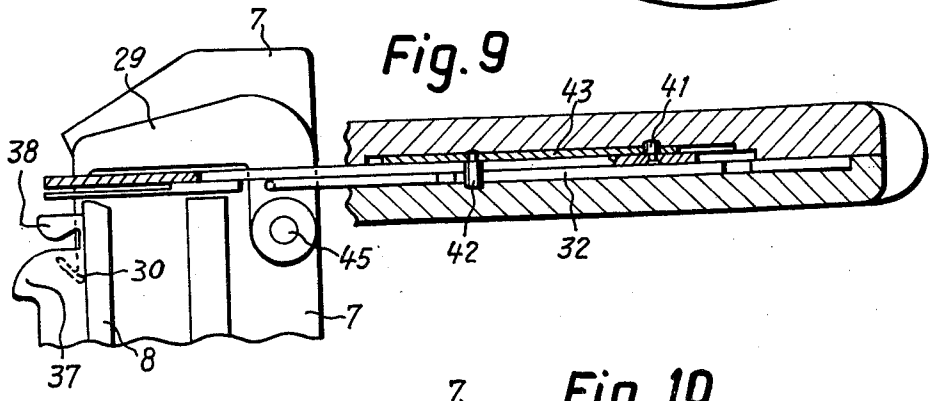
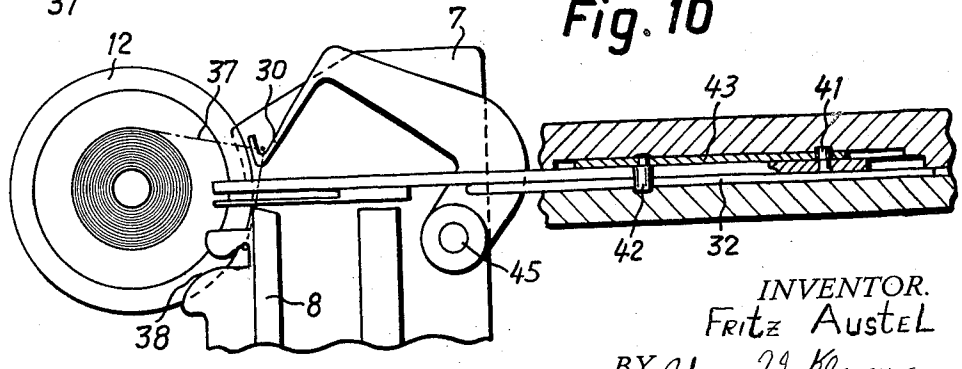



Fig. 10




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3,054,248

# DEVICE FOR SIMULTANEOUSLY APPLYING TRAVELLERS AND YARN TO TRAVELLER RINGS OF SPINNING AND TWISTING MACHINES

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Claims priority, application Germany July 19, 1960
12 Claims. (Cl. 57—34)

The present invention relates to a novelly constructed device for individually separating stacked travellers and for simultaneously applying the separated travellers together with the yarn strand onto a traveller ring of spinning machines and the like.

In the prior art devices for applying travellers to spinning rings wherein the thread was to be drawn into the confines of the traveller simultaneous with clipping onto the ring, no attention has been given to a suitable design of the handle particularly suited for such a purpose. In contradistinction, the present invention provides an applicator tool, in the form of a gun mechanism, which is extremely suitable for the concomitant drawing in of the thread through the traveller while applying the latter to the traveller ring by virtue of the advantageous construction of the handle as well as the efficient positioning and arrangement of the movable members of the device. In view of the slidable arrangement of the handle on the tool fork or intermediate plate, which plate has secured thereto a tongue member for applying the travellers and a control lever for actuating the thread draw-in mechanism, all movements of the tool necessary for clipping the traveller onto the ring and for drawing the thread through said traveller can readily and reliably be performed by the same hand that clasps the handle of the applicator mechanism.

Operation of the tool becomes particularly efficient if the control lever arranged on the handle and designed to actuate the thread draw-in device is so disposed that it can be operated by the index finger of the hand clasping the handle. The tool held in one hand can be guided still more securely and firmly if the lever provided to trigger the thread draw-in mechanism is actuated by displacing a sliding member arranged in the handle in a manner similar to the trigger of a pistol. In order to enable a thread extending susbtantially vertically in the spinning machine to be quickly and securely seized by the tool member when held in one hand, it is of advantage to attach to the supply shaft for the travellers a thread guide provided with a fork-type opening and arranged towards the front end of the supply shaft. The thread caught in the thread guide can very securely and efficiently be held and pulled beyond the end of the slide bar or supply shaft by means of a thread guide hook attached to a thread-guide lever swivably mounted on the intermediate plate or tool fork.

The catcher means provided on the ring traveller applying tool according to the teachings of the present invention enables the thread located in the thread guide to be seized by the thread-guide hook when the tool is actuated, then to be flexed at right angles when located at the height of the center-line or longitudinal axis of the slide bar and to be pulled in this position beyond the end of said slide bar until it comes to rest in a recess provided at the center of this slide bar, so that the thread resting in said recess will slip through the mouth or opening of the ring traveller when the front ring traveller is separated from the stack and pushed forward, to thereby become threaded in the ring traveller. In a variant form of the invention, the tool may be simplified in operation by locking the sliding member provided in the handle for moving the thread-guide hook by means of a lever pivoted to the tool fork or plate. When the ring traveller is being applied, this will free the index finger from having to hold the sliding member so that operation of the tool is considerably facilitated.



Accordingly, it is an important object of the present invention to provide a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with the thread or yarn onto a traveller ring of spinning machines or the like in an efficient manner, which device is relatively simple in construction yet highly reliable in operation.

A further object of the present invention is to provide a gun mechanism of the type described wherein the handle member serves as the control organ for causing catching of the thread and clipping of the traveller with the thread engaged thereby, onto a traveller ring or the like.

Still a further object of the present invention is to provide an applicator mechanism for simultaneously drawing the thread through the traveller and clipping the traveller in such condition onto a traveller ring in an efficient manner by a simple manipulation of the handle of said mechanism.

Another important object of the present invention is to provide a gun mechanism for simultaneously applying travellers and yarn engaged thereby to a traveller ring or the like which can be carried out by a single hand of the user, which mechanism has relatively few moving parts, is easy to load and service and is not subject to jamming.

These and still further objects and the entire scope of applicability of the present invention will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

In the drawings:

FIGURE 1 is a side view of a first embodiment of an applicator mechanism of the type described designed according to the teachings of the present invention;

FIGURE 2 is a plan view, partly in cross-section, of the applicator mechanism shown in FIGURE 1;

FIGURE 3 is a fragmentary view illustrating the details of the head portion of the applicator mechanism shown in FIGURES 1 and 2 in the position when the traveller is being applied to the traveller ring;

FIGURE 4 is a front view of the applicator mechanism shown in FIGURE 2 depicting the position of the thread when engaged by the thread catching mechanism;

FIGURE 5 is a cross-sectional view of the applicator mechanism taken along lines V—V of FIGURE 1;

FIGURE 6 is a plan view, partly in cross-section, of the applicator mechanism as applied to the traveller ring, illustrating the path of travel of the thread when engaged by the hook member of the catcher mechanism;

FIGURE 7 is a plan view similar to FIGURE 6 illustrating a modified form of the actuating means for the thread catcher mechanism;

FIGURE 8 is a side view of a further embodiment of an applicator mechanism designed according to the teachings of the present invention;

FIGURE 9 is a plan view of the applicator mechanism shown in FIGURE 8; and

FIGURE 10 is a plan view of the applicator mechanism shown in FIGURE 8 but applied to a spinning ring with the catcher mechanism in operative thread engaging position.

Referring now to the drawings and, more particularly, to FIGURES 1–6, inclusive, there is illustrated an applica-

tor mechanism in the form of a gun G for applying travellers onto traveller rings 12 or the like while simultaneously threading the yarn or thread filament through the applied traveller. The gun mechanism G comprises a handle or frame portion 1 formed of the two halves 1*b* and 1*c* internally provided with the axially extending bore 1*d* for slidably receiving a member in the form of the intermediate plate or fork member 4 having a guide recess 41 adapted to engage a traveller ring 12 or otherwise. The intermediate plate member 4 is provided with a longitudinally extending slot 6 receiving therein the rollers 3 carried by the pins 2 secured to the frames halves 1*b*, 1*c* in order to permit sliding movement of the handle member 1 relative to the plate member 4, for reasons more fully to be described. A compression spring 5 located in the region of the rear end 1*a* of the handle 1 bears against said handle 1 and the plate member 4 in such a manner that the rearmost roller 3 is normally forced against the back face 5' of the longitudinally extending slot 6 provided in the plate member 4.

Rigidly secured at the lower end of the plate or fork member 4 is a supporting or base plate 7 provided with a stop face 9 for carrying a feed mechanism for advancing a stack of ring travellers T in the direction of the plate member 4. The feed mechanism for the travellers T includes a laterally extending slide bar 8 and a guide tube or shaft member 11 supported by the base plate 7. The slide bare 8 is so arranged that a stack of travellers T may be slipped over its free end 8*a* and advanced in the direction of the opposite end of said slide bar by means of the spring-biased feed arm 10 slidably arranged on the shaft member 11. The base plate 7 carries a guide roller 15 by means of the bolt member 16, which guide roller serves to guide a tension spring 14 having one end 14*a* attached to the feed arm 10 and the other end 14*b* to a stub shaft 14*c* mounted at the rear end 1*a* of the handle 1. In order to avoid slipping of the gun mechanism G when applied to the spinning or traveller ring 12, the base plate 7 is provided at the region of ring contact with an arcuate surface 13 approximately corresponding to the curvature of the traveller ring 12.

The feed or slide bar 8 is displaceably attached to the stop face 9 of the base plate 7 through the intermediary of the bracket member 17 extending into a recess 40 provided for the slide bar 8. The bracket member 17 is provided with the slots 17*a* cooperating with the pins or screws 18 in such a manner that the slide bar 8 may be axially displaced via the setscrew 19 to accommodate for various widths of travellers T. By means of the setscrew 19, the forward end 8*b* of the slide bar 8 should be spaced from a traveller stop or contact plate 20, resiliently attached to the plate member 4 in a conventional manner, a distance somewhat smaller than the width of a traveller T. A traveller applying lever or tongue 22 which may be biased downwardly by a spring 22*b* is swiveled to the handle 1 by means of the bolt 21 and is provided at its head portion 22*a* with a recess or slot 23*a* including a stop face 23 enclosing an acute angle with respect to the direction of movement thereof. At the lower end of the lever or tongue 22 there is provided a further cutout or guideway slot 24 which cooperates with the shaft member 11 for applying the travellers T to the traveller ring 12. Thus, at the outset of the movement of the handle 1, the tongue 22 will be advanced toward the traveller ring 12 (see FIGURE 3) and move the width of the cutout 24 until the inclined face 26 of said cutout 24 overlies the shaft 11. As soon as the stop face 23 of the recess 23*a* has come to rest underneath the traveller 25, the tongue member 22 is raised by the inclined nose or face 26 contacting the shaft member 11 so that the traveller 25 can very easily be clipped onto the traveller or spinning ring 12.

In order to provide for simultaneous application of the traveller to the traveller ring 12 as well as threading of the yarn 37 through the applied traveller, there is provided a catcher mechanism (see FIGURES 4–6) for grasping and drawing the yarn 37 past the groove 40 of the forward end 8*b* of the slide bar 8 into the path of travel of the oncoming traveller for engagement by the foremost traveller 42 prior to clipping onto the ring member 12. To this end, there is swivelably attached to a support bracket 4*b* of the plate member 4, via a bolt member 28, a thread guide lever 29 to which a thread guide or catching hook 30 is rigidly secured. A spring 31 cooperates with the thread guide lever 29 to maintain the latter normally seated at its front end 29*a* against the plate member 4 (see FIGURE 2). At the rear end 29*b* of the guide lever 29 there is provided a cam follower or pin 39 which normally rides on the inclined cam surface 34*a* of an outwardly pivotable control lever or bar 34. Arranged in the bore 1*d* of the handle 1 is a slide block 32 having an inclined face 33 which cooperates with the inclined face 34*b* of the bar 34 to cause outward movement of the bar 34, with the result that the surface 34*a* cooperates with the cam follower 39 to cause the hook 30 to pull the thread 37 positioned adjacent the aligning lip or projection 38 provided for the slide bare 8 past the mouth of the foremost traveller 42. Secured to the slide block 32 is a spring biased trigger member 35 in the curved portion of which the index finger of the user will comfortably rest, whereby actuation thereof causes rearward movement of the slide block 32 to bring about the desired thread catching and aligning operation.

In FIGURE 7 there is shown a possible variation of the triggering mechanism for the thread guide lever 29 carrying the hook 30. The modification herein disclosed differs from that shown in FIGURES 1–6 insofar as outward displacement of the lever or bar 34 is achieved by means of the plate 36 secured directly to the lever 34 and extending through the opening 36*a* provided in the handle 1, which plate 36 may be acted upon directly by the index finger of the hand of the user holding the handle 1.

The operation of the device previously disclosed for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like while simultaneously drawing in the yarn through the applied traveller, is as follows:

The thread 37 vertically depending from the drawing frame of the spinning machine or the like, is initially caught and positioned in the thread aligning guide 38 attached to the slide bar 8 of the gun mechanism which may be advantageously held in one hand. Subsequently, the lever 34 pivoted to the handle 1 is actuated by the index finger of the hand holding the handle 1 either via the trigger 35 (FIG. 1) or finger plate 36 (FIG. 7). The lever 34 contacts the pin 39 and causes the guide lever 29 to pivot about its support 28, so that the thread guide hook 30 which performs the same movement will seize the thread 37 held in the thread guide 38. The guide hook 30 will pull the thread 37 beyond the end 8*b* of the slide bar 8 and place it in a recess 40 provided at the center of the slide bar 8. The tool, with the thread 37 secured against slipping in the thread guide 38 and in the thread guide hook 30 is then moved in the direction of the spinning or traveller ring 12 so that the tool fork or plate 4 will first come to rest against the spinning ring 12 by means of its guide recess 41 (FIG. 3). By means of the handle, and without releasing the thread guide lever 29 which is forced back by the index finger of the user, the tool is then moved toward the spinning ring 12, the tool fork or plate 4 sliding on the spinning ring 12 until the end of the guide recess 41 firmly rests on said spinning ring.

During this displacement of the tool, the foremost ring traveller 42 stacked on the slide bar 8 has previously had its legs slipped over the flange of the spinning ring 12 (see FIGURES 2 and 3). As soon as the plate member 4 fiirmly rests on the spinning ring 12, a further displacement of the handle 1 under spring pressure will cause the ring traveller tongue 22 swiveled to the handle 1 to engage by means of its stop face 23 the ring traveller 25

separated from the stack. Since this traveller 25 has already had its legs slipped over the flange of the spinning ring 12 it can easily and safely be clipped onto said spinning ring by means of the stop face 23 arranged at an acute angle relative to the direction of movement. The ring traveller 25 separated by the ring traveller tongue 22, when slipped over the spinning ring has its legs slipped over the thread 37 resting in the recess 40 of the slide bar 8 so that the thread is automatically drawn into the traveller 25 when the latter is applied to the ring 12.

When the ring traveller tongue 22 engages the spinning ring, application of the traveller is completed. Without allowing the thread guide lever 29 to return to its normal position, the gun mechanism G is first lifted off the spinning ring 12 and handled in such a manner that the thread 37 will first come out of the thread guide 38, whereupon the thread guide hook 30 will return to its initial position when the lever 34 is released so as to release the seized thread. The tool is then ready for the next operation.

In the embodiment according to FIGURES 8 through 10, wherein like reference numerals generally denote similar parts, there is illustrated a further arrangement for actuating the thread guide lever 29 and hook member 30. In this variant form of the invention, there is pivotably secured to the plate member 4 via the pivot pin 41 a pawl lever 43 provided with a fixed locking pin 42. The slide block 32 also arranged in the handle 1 engages via its nose portion 44 a slotted recess provided for the thread guide lever 29 which is swiveled to the base plate 7 by means of the pin 45. At the free end of the thread guide lever 29 there is similarly provided the thread guide hook 30.

After catching and positioning the thread 37 in the thread guide 38, the index finger of the hand holding the handle 1 actuates the trigger member 35 to move the slide block 32 biased by the spring 46 towards the rear end of the handle 1. As a result, the fixed pin 42 secured to the pawl lever 43 drops into the recess 47 formed in the slide block 32 so as to lock the slide block 32 with the tool fork or plate 4. In this rearward position of the slide block 32, the thread guide hook 30 has pulled the thread 37 beyond the end of the slide bar 8 (FIG. 10) so that the tool can be applied to the spinning or traveller ring 12. If the handle 1 is then moved towards the spinning ring 12, the tongue 22 will perform a corresponding movement, whereas the slide block 32 and, along with it, the thread guide lever 29 remain in their locked position.

After the ring traveler tongue 22 has engaged the spinning ring in a manner previously described, the tool is again lifted off the spinning ring 12 and the thread allowed to slip out of the thread guide 38 and hook 30. With the back of the index finger, the pawl lever 43 projecting into the trigger guard 47 is pushed back so that the pin 42 moves out of slot 47 and will release the spring-biased slide 32, in order that the latter and the thread guide hook 30 will swing back into their initial position.

As a result of the arrangement and operation of the gun mechanism designed according to the teachings of the present invention, there is positively ensured that the thread will be initially threaded through the traveller prior to application on the traveller ring in a simple and reliable manner. It should thus be readily apparent, that the gun mechanism of the present invention while relatively simple in construction and operation is highly reliable and well suited for carrying out its required operation.

Having thus described the present invention what is desired to be secured by United States Letters Patent is:

1. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a yarn strand onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore, said handle member being axially movable relative to said plate member, feeding means for advancing a stack of travellers in the direction of said plate member, advancing means cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, and catcher means actuated from said handle member for engaging said yarn strand and drawing the same into the path of travel of said individual traveller, whereby said individual traveller is simultaneously applied together with said yarn strand onto said traveller ring.

2. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a yarn strand onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore and having a head portion extending externally thereof, said handle member being axially movable relative to said plate member, feeding means for advancing a stack of travellers in the direction of said head portion of said plate member, advancing means cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, and catcher means actuated from said handle member for engaging said yarn strand and drawing the same into the path of travel of said individual traveller, whereby said individual traveller is simultaneously applied together with said yarn onto said traveller ring.

3. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a yarn strand onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore and having a head portion extending externally thereof, said handle member being axially movable relative to said plate member, feeding means for advancing a stack of travellers in the direction of said head portion of said plate member, advancing means including a tongue member cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, and catcher means actuated from said handle member for engaging said yarn strand and drawing the same into the path of travel of said individual traveller, whereby said individual traveller is simultaneously applied together with said yarn strand onto said traveller ring.

4. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a yarn strand onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore and having a head portion extending externally thereof, said handle member being axially movable relative to said plate member, feeding means for advancing a stack of travellers in the direction of said head portion of said plate member, advancing means including a tongue member cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, and catcher means including a pivotable hook member actuated from said handle member for engaging said yarn strand and drawing the same into the path of travel of said individual traveller, whereby said individual traveller is simultaneously applied together with said yarn strand onto said traveller ring.

5. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore and having a head portion extending externally thereof, said handle member being axially movable relative to said plate member, feeding means for advancing a stack of travellers in the

direction of said head portion of said plate member, advancing means cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, catcher means for engaging said thread and drawing the same into the path of travel of said individual traveller, and means for actuating said catcher means, whereby said individual traveller may be simultaneously applied together with said thread onto said traveller ring.

6. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like according to claim 5; wherein said actuating means for said catcher means is a pivotable bar member carried by said handle member.

7. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like according to claim 5; wherein said actuating means for said catcher means is a pivotable bar member carried by said handle member, a slide block mounted in said longitudinal bore for causing pivotable movement of said bar member, and trigger means in registry with said slide block to displace the latter to initiate said pivotable movement of said bar member.

8. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like according to claim 5; wherein said actuating means for said catcher means is an axially displaceable slide member located in said longitudinal bore, and a pivotable locking pawl mounted on said plate member cooperating with said slide member to hold the latter in its operable thread catching position.

9. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like according to claim 5; wherein thread aligning means are provided adjacent said head portion of said plate member for initially positioning said thread prior to engagement by said catcher means.

10. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like; a handle member provided with a longitudinal bore, a plate member slidably arranged in said longitudinal bore and having a head portion extending externally thereof, said handle member including means permitting movement thereof relative to said plate member, feeding means carried by said plate member for advancing a stack of travellers in the direction of said head portion of said plate member, advancing means including a tongue member cooperable with said handle member for separating and applying an individual traveller onto a traveller ring, thread aligning means for prepositioning said thread relative to said plate member, catcher means including a thread engaging hook for grasping said thread when positioned in said thread aligning means and drawing the same into the path of travel of said individual traveller, and means for actuating said catcher means, whereby said individual traveller is simultaneously applied together with said thread onto said traveller ring.



11. In a device for individually separating stacked travellers and for simultaneously applying the separated travellers together with a thread onto a traveller ring of spinning machines and the like according to claim 10; wherein said feeding means include a slide bar provided with a longitudinally extending recess adapted to receive said thread when drawn by said catcher means, said slide bar carrying said stack of travellers.

12. In a device for simultaneously applying a traveller together with a yarn strand onto a traveller ring; the combination of: a handle member, a plate member supported by said handle member, supply means for supplying one or more travellers in the direction of said plate member, advancing means mounted to move relative to said plate member for separating and applying an individual traveller onto a traveller ring, catcher means for engaging a yarn strand and drawing the same into the path of travel of said individual traveller, and operable means cooperating with said catcher means to actuate the latter.

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