

Aug. 13, 1963

P. RAMSEIER
 DEVICE FOR SEPARATING AND APPLYING STACKED
 TRAVELLERS IN SPINNING AND
 TWISTING MACHINES

3,100,334

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2 Sheets-Sheet 1

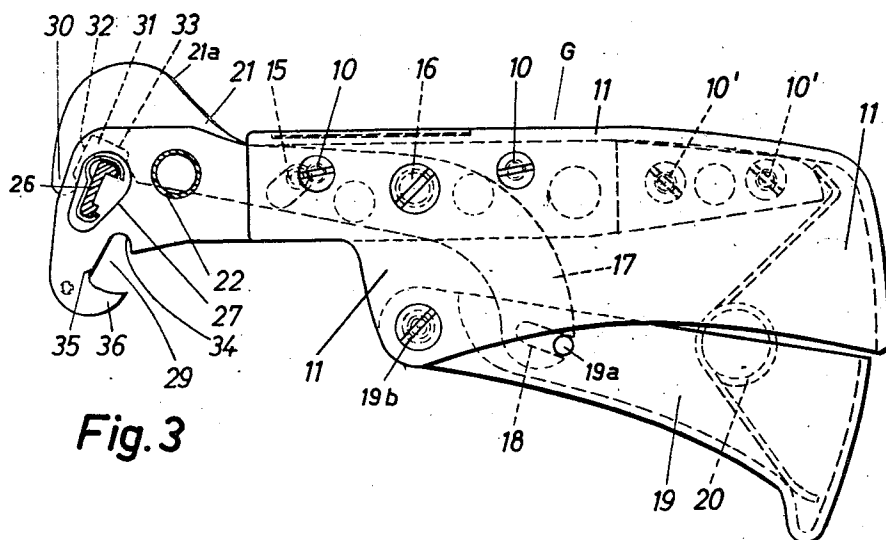


Fig. 3

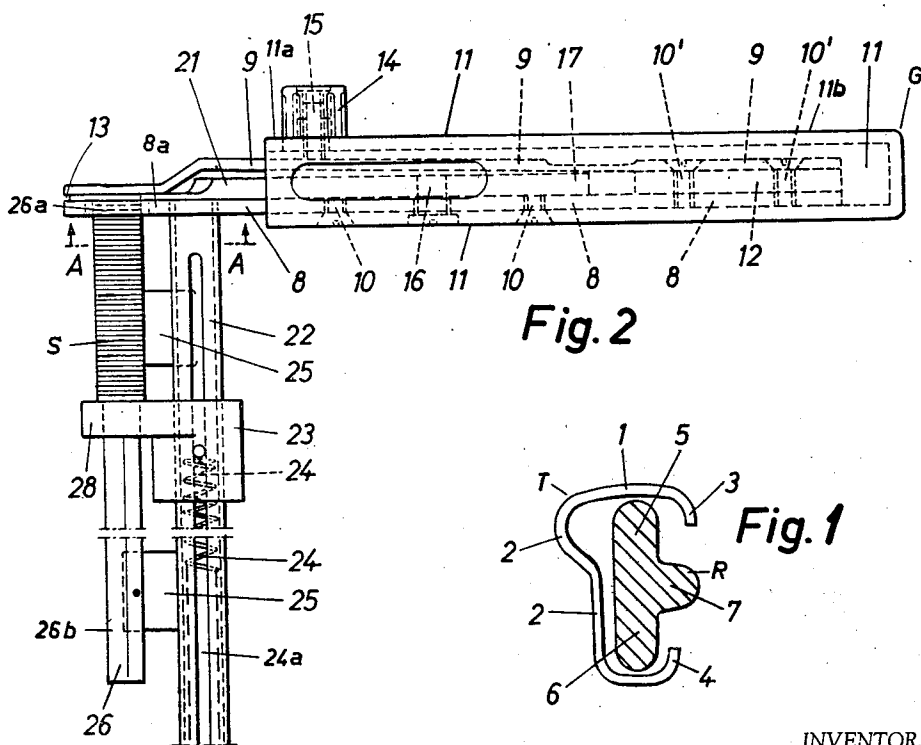


Fig. 2

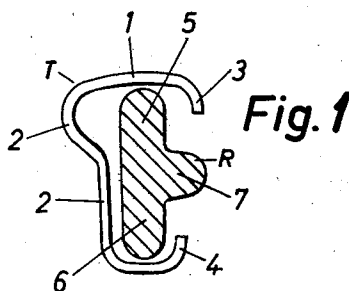


Fig. 1

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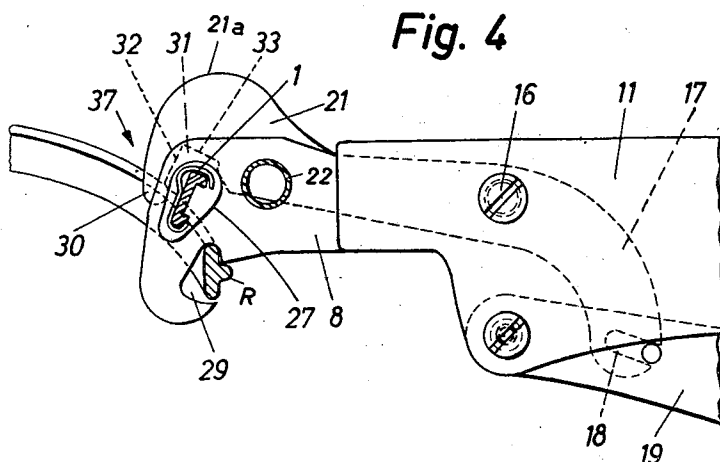
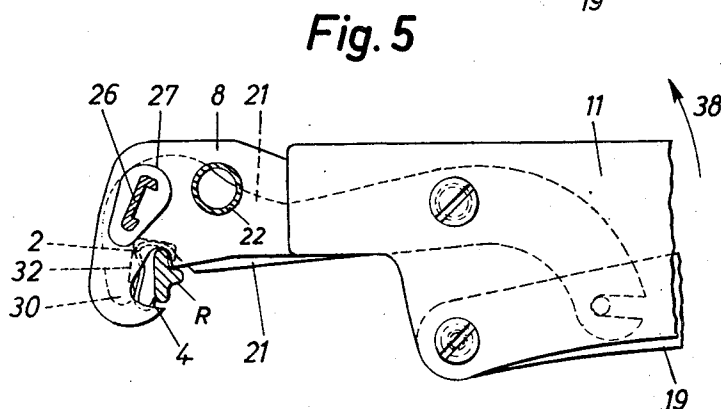
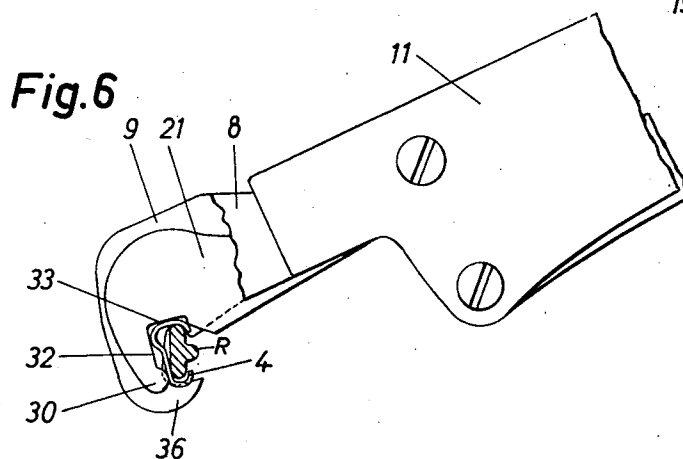
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DEVICE FOR SEPARATING AND APPLYING STACKED TRAVELLERS IN SPINNING AND TWISTING MACHINES

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The present invention relates to a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like. The applicator mechanism is particularly suitable for handling the so-called ear-type travellers which are to be pushed onto a correspondingly shaped traveller ring, and is particularly noteworthy for its simplicity in design as well as reliability in operation.

Devices are already known in the art which permit travellers to be clamped about a traveller ring of a spinning machine by a single pressure of the hand of a user. Such devices, however, are generally complicated in design, employing many components and, thus, are extremely subject to jamming and failure in operation, as well as being relatively more costly and complicated to manufacture.

Accordingly, an important object of the present invention is to provide a device for individually separating stacked travellers and for applying the separated travellers 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 means for separating a traveller from a stack of travellers and applying the same onto a ring member while safeguarding against shifting of such traveller into an undesired position upon separation from said stack.

Still a further object of the present invention is to provide means for guiding and advancing a traveller member in the direction of a ring about which it is to be applied, while ensuring that said traveller remains in its desired spatial orientation throughout such advancing movement thereof.

Another object of the present invention is to provide a gun mechanism permitting pushing of a traveller onto a traveller ring in a positive and reliable manner with a simple manipulation of an operating handle.

The present invention employs a device shaped in the form of a pistol provided with a laterally projecting feed mechanism for continuously advancing a stack of ring travellers, wherein each ring traveller may be separated from the stack by means of a double arm lever actuated by an operating trigger provided for the pistol handle. The separated traveller may then be clipped over a traveller ring located in a guideway provided for the device. In order to effectively carry out the separating and applying of ear-type ring travellers to correspondingly shaped traveller rings in such devices, the present invention provides the head portion of the double arm lever with a pressing nose adapted to project beyond the walls of the guideway designed to grasp about the traveller rings. The head portion of the double arm lever is adapted to be guided between two side plates and is actuated directly from the handle of the device. The pressing nose located in the free end of the tongue-shaped head portion of the lever is arranged adjacent to a holding recess provided in said head portion, the walls of which are disposed at an angle substantially corresponding to the shape of the traveller member. This ensures that the traveller is securely held during the entire application process of such traveller onto an associated ring member. In order to ensure secure seating of the traveller also in the last phase

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of the application process, the present invention further provides for a portion of the guideway formed in the respective side plates for swivably grasping about the traveller ring, to be extended to form a hook adapted to engage underneath said traveller ring. This hook-shaped extension will guarantee that each traveller will remain accurately aligned throughout the application process and, accordingly, also during the last brief clipping process of the traveller onto the ring.

In addition, the device according to this invention is capable of effectively handling any conventional width of ear-type traveller and, the special construction of the device prevents the traveller from being canted or shifted during separation from the stack and during application thereof, particularly during the last phase of the application process.

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 diagrammatic view of an ear-type traveller applied to its associated traveller ring;

FIGURE 2 is a plan view of an applicator mechanism designed according to the present invention;

FIGURE 3 is a front elevational view of the applicator mechanism shown in FIGURE 2, taken partly in section along line A—A of FIGURE 2;

FIGURES 4 to 6 illustrate three successive stages of the application of a traveller onto an associated traveller ring by means of the applicator mechanism.

Referring now to FIGURE 1, the present invention is particularly suitable for applying the so-called ear type ring travellers T onto an associated traveller ring R. As illustrated in FIGURE 1, such travellers T consist of two flexed, angularly disposed leg portions 1 and 2. The leg portion 1 has its free end 3 bent into the form of a hook, with the leg portion 2 having its free end 4 similarly bent into the form of a hook. The hook-shaped portion 3 of the traveller T is adapted to engage a shank 5 of the traveller ring R, whereas the hook-shaped portion 4 of the traveller T is adapted to engage a diametrically opposed shank 6 of said traveller ring. The traveller ring R is provided with a T-shaped cross-section which includes a laterally extending web portion 7, directed away from the center of the ring R, so that the leg portion 2 of the traveller T when in engaged position, is located on the inside of the ring R.

Referring now specifically to FIGURES 2 and 3, there is illustrated a gun mechanism G which is readily adapted for individually separating and applying travellers T of the configuration described with respect to the discussion of FIGURE 1. The gun mechanism G is provided with a U-shaped housing member 11 which defines a handle and carries internally thereof a pair of spaced, side plate members 8 and 9 which extend externally of one end 11a of the housing 11. The side plate 8 is attached to the inside of the housing 11 by means of bolt members 10. The side plate 9 is connected with the side plate 8 by means of bolt members 10' adjacent the rear end 11b of the housing 11. In order to maintain the side plates 8 and 9 at a predetermined distance from one another, a spacer member 12 is inserted between the side plates 8 and 9 and is threadably engaged by the bolt members 10'. The side plates 8 and 9 are formed of a material which permits a certain resiliency so that the free ends of the side plates 8 and 9 extending exteriorly of the housing

11 may be adjustably spaced from one another a desired distance to define a slot 13. The width of this slot 13 may be varied by means of an adjusting nut 14 in order to accommodate travellers T of different widths. The adjusting member 14 is carried by a threaded bolt member 15 which is secured to the side plate 9 and projects through an adjacent wall of the U-shaped housing 11 in such a manner that the adjusting nut 14 may bear against this wall of the housing 11.

Arranged between the two side plates 8 and 9 is a double arm lever member 21 pivotably mounted on a bolt member 16 which extends through the side plate 8. The tail portion or arm 17 of the lever member 21 is provided with a slot 18 engageable with pin member 19a carried by an actuating trigger 19 pivotably mounted on the handle 11 by fastening member 19b. A return spring 20, carried internally of the housing 11 and trigger member 19, returns said trigger member to its inoperative position. The other arm 21a of the double arm lever 21 is designed as a tongue-shaped head portion and is mounted such that it is capable of entering the slot or guide space 13 and is freely pivotably movable therein. On the front end 8a of the side plate 8 there is arranged a shaft or bushing 22 which carries internally thereof a compression spring 24, and is further provided with a longitudinally extending slot 24a. The shaft member 22 is arranged in such a manner as to extend transversally of the side plate 8 and housing 11. This shaft member 22 slidably supports a pressure member or slide 23 which is continuously urged along the longitudinal slot 24a in the direction of the side plate 8 by the action of the spring member 24. A slide bar 26 is supported by the bushing member 22 through the intermediary of the link members 25. A stack of ring travellers S is adapted to be slid onto the free end 26b of the slide bar 26. The other end 26a of the slide bar 26 projects into an opening 27 formed in the side plate 8. The width of the opening 27 depends upon the thickness of the side plate 8, and the gap or slot 13 formed between the two side plates 8 and 9, in which the tongue-shaped head member 21a of lever 21 is located, remains free.

The pressure member 23 is provided with a feed arm 28 which engages the top of the slide bar 26 and rests behind the last traveller of the stack of ring travellers S arranged for sliding movement on the slide bar 26. The feed arm 28 causes the stacked ring travellers S, arranged on the slide bar, 26, to be continuously supplied in a desired position in the direction of the slot or gap 13 under the action of the spring 24 until the supply magazine is nearly exhausted and a new magazine is slipped over the slide bar 26. Each side plate 8 and 9 is provided with a guideway or mouth portion 29 designed to pivotably clamp about a traveller ring (see FIGURE 4). The respective guideway portions 29, formed on each of the side plates 8 and 9, correspond in shape to one another and are arranged alongside one another in such a manner that a spacing or gap 13 is formed between them as well.

The head portion 21a of the double arm lever 21 is provided at its free end with a pressure nose portion 30. This nose portion 30 is so arranged that it is adapted to project beyond the guideway or mouth 29 and is disposed adjacent a traveller holding recess 31 formed in the tongue-shaped lever arm or head portion 21a. The traveller holding recess 31 is defined by the wall portions 32 and 33, which are angularly arranged relative to one another and corresponding to the position of the leg portions 1 and 2 of the traveller T. The guideway or mouth 29 is provided with the jaw portions 34 and 35, with the jaw portion 35 having an extended hook portion 36 adapted to clampingly engage underneath a traveller ring (see FIGURE 6). Thus, by squeezing the actuating trigger 19, the double arm lever 21 is caused to pivot between the side plates 8 and 9 into the slot 13 to engage a traveller T located therein and advance the same in the

direction of a ring member R to which it is to be applied, as will be more clearly explained below.

With reference now to FIGURES 4 to 6, the operation of the device will be disclosed in detail. The individual travellers T are successively supplied to the gap 13 by the feed arm 28 of the slide member 23. The guide mouth 29 provided on each of the side plates 8 and 9 is applied to the traveller ring as best seen in FIGURE 4. If the operating trigger 19 of the gun mechanism is actuated, the tongue-shaped head portion 21a of the double arm lever 21 is lowered and causes a single ring traveller T to be separated from the stack S by means of its holding recess 31. The wall portion 33 of the traveller holding recess 31 engages the leg 1 of the traveller T and slides it downwards in the direction of the arrow 37. During the subsequent arcuate movement of the head portion 21a, the wall portion 32 and the nose portion 30 come to rest against the leg portion 2 of the traveller T (see FIGURE 5). The entire applicator mechanism G is then swung or pivoted in the direction of the arrow 38 (FIGURE 5), so that the fixed portion 4 of the traveller T is caused to clip about the shank portion 6 of the ring R. Particularly, during this movement, the flexed hook-shaped portion 4 of the traveller T initially rests in the gap 13 formed between the side plates 8 and 9 and it will only emerge from this gap at the end of this movement (see FIGURE 6).

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 traveller T may be successfully separated from a stack of travellers and applied to a ring member R in a simple and reliable manner ensuring positive engagement with the ring member without canting of the traveller T. It will thus be readily appreciated that the present invention provides a gun mechanism relatively simple in construction but readily capable of carrying out the functions for which it was designed.

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

1. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions normally spaced from one another to define a slot adapted to clampingly engage at least one traveller, lever means mounted for pivotable movement within said slot, said lever means being provided with a recess defined by wall portions contoured to grip a traveller from between said plate members and adapted to apply such traveller onto a traveller ring, actuating means cooperable with said lever means to cause pivoting movement of said lever means to advance the latter through said slot for engagement by said recess with a traveller, said plate members serving to guide said traveller during movement through said slot.

2. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, lever means having a head portion and a tail portion mounted for pivotable movement within said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with a recess defining a mouth portion adapted to swivably

grasp about a traveller ring in order to permit clipping of said traveller onto said traveller ring.

3. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, adjusting means cooperating with said plate members to vary the width of said slot in order to accommodate travellers of a variety of widths, lever means having a head portion and a tail portion mounted for pivotable movement within said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with a recess defining a mouth portion adapted to swivably grasp about a traveller ring in order to permit clipping of said traveller onto said traveller ring.

4. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, adjusting means cooperating with said plate members to vary the width of said slot in order to accommodate travellers of different width, lever means having a head portion provided with a holding recess for engaging a traveller and a tail portion, said lever means being mounted for pivotable movement through said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with a guideway defining a mouth portion adapted to swivably grasp about a traveller ring in order to permit clipping of said one traveller onto said traveller ring.

5. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, adjusting means cooperating with said plate members to vary the width of said slot in order to accommodate travellers of different width, lever means having a head portion provided with a holding recess for engaging a traveller and a tail portion, said lever means being mounted for pivotable movement through said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, feed means cooperable with at least one of said plate members for continuously advancing in a predetermined position the foremost traveller of a stack of travellers into said slot, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with

a guideway defining a mouth portion adapted to swivably grasp about a traveller ring in order to permit clipping of said one traveller onto said traveller ring.

6. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, adjusting means cooperating with said plate members to vary the width of said slot in order to accommodate travellers of different width, lever means having a head portion provided with a holding recess for engaging a traveller and a tail portion, said head portion including a pressing nose arranged adjacent said holding recess for pushing said traveller onto a traveller ring, the contour of the walls of said holding recess substantially corresponding to the contour of said traveller, said lever means being mounted for pivotable movement through said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with a guideway defining a mouth portion adapted to swivably clamp about a traveller ring in order to permit clipping of said one traveller onto said traveller ring.

7. In a device for individually separating stacked travellers and for applying the separated travellers onto a traveller ring of spinning machines and the like; the combination of a housing, a pair of plate members carried by said housing and having free end portions spaced from one another to define a slot adapted to clampingly engage at least one traveller, adjusting means cooperating with said plate members to vary the width of said slot in order to accommodate travellers of different width, lever means having a head portion provided with a holding recess for engaging a traveller and a tail portion, said head portion including a pressing nose arranged adjacent one end of said holding recess for pushing said traveller onto a traveller ring, the contour of the walls of said holding recess substantially corresponding to the contour of said traveller, said lever means being mounted for pivotable movement through said slot, actuating means cooperable with said tail portion to cause pivoting movement of said lever means to advance said head portion through said slot for engagement with a traveller, said plate members serving to guide said traveller during movement through said slot, each of said plate members being provided with a guideway defining a mouth portion adapted to swivably clamp about a traveller ring in order to permit clipping of said one traveller onto said traveller ring, said guideway including a hook-shaped portion adapted to engage a bottom surface to said traveller ring.

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