Jan. 7, 1964 J. SCHICK 3,116,487

DEVICES FOR APPLYING STAPLES TO BELTS, CONVEYOR BANDS AND THE LIKE

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Fig. 1.

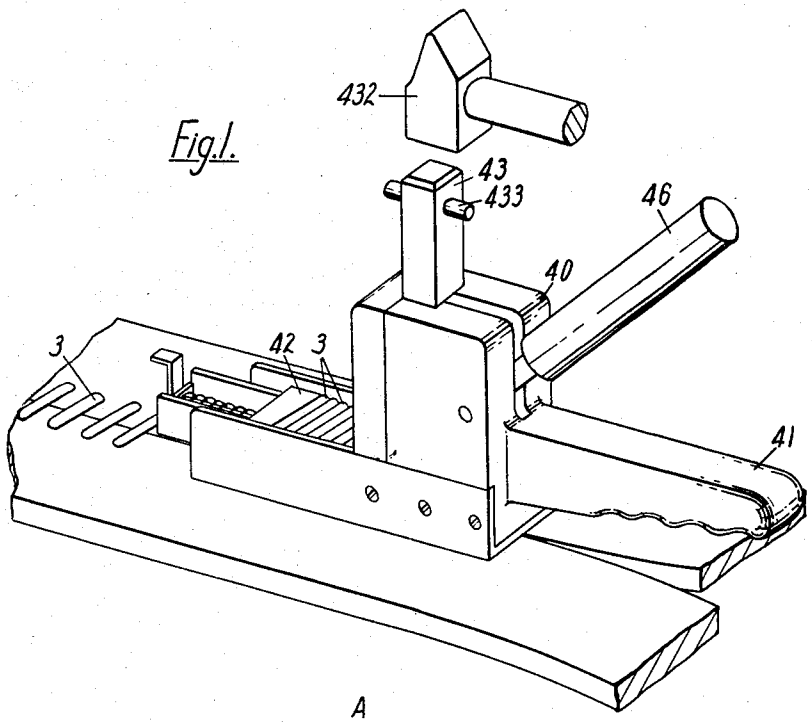
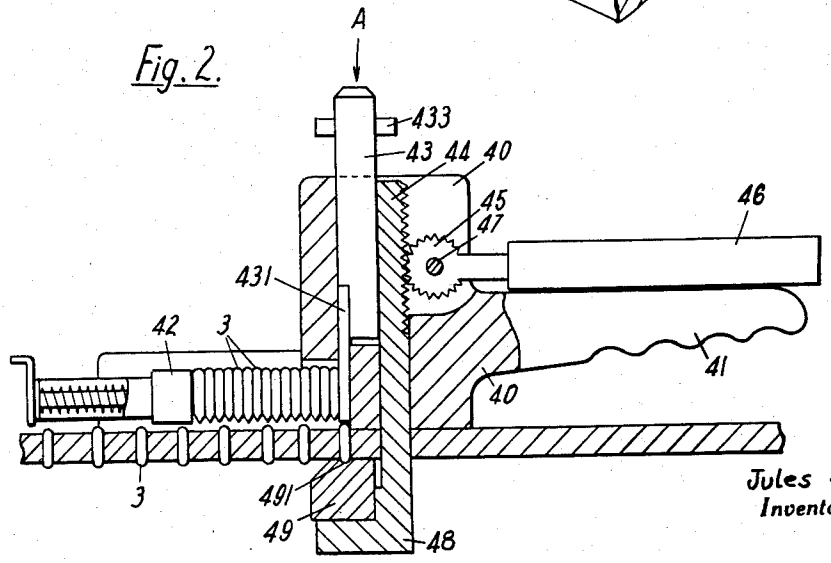


Fig. 2.



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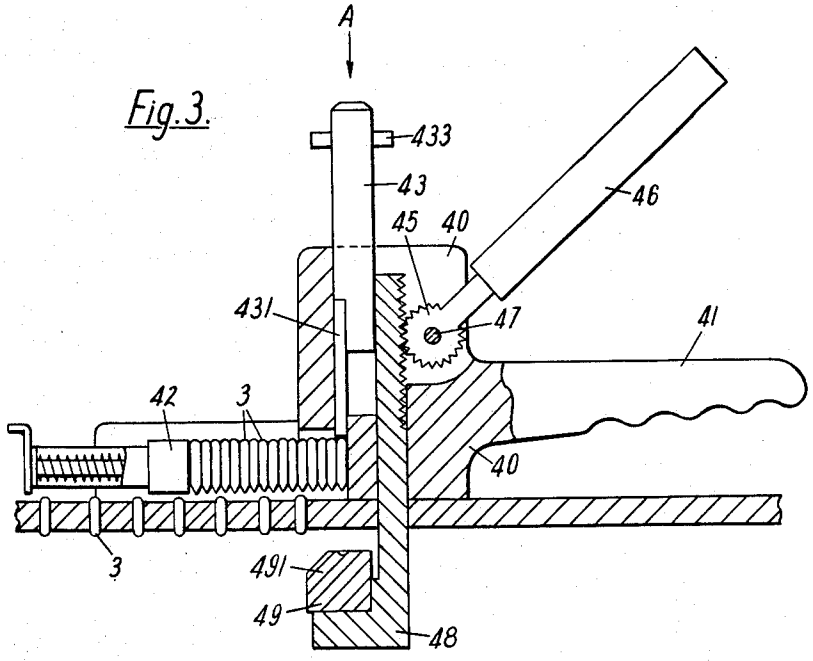
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Fig. 3.



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DEVICES FOR APPLYING STAPLES TO BELTS, CONVEYOR BANDS AND THE LIKE

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5 Claims. (Cl. 1—333)

The invention relates to a device for applying staples to belts, conveyor bands and the like (hereinafter referred to simply as "belts") and more specifically to a device for inserting staples into belts whereby to repair tears therein.

It has been proposed to repair torn conveyor bands with U-shaped staples. Devices used for effecting such a repair have, however, been slow in use, and thus have required that the conveyor band being repaired is out of operation for a long time, the repair being effected, of course, without removing the conveyor band from a conveyor mechanism. For inserting the staples, a small device has been used by which the staples are struck into the conveyor band so as to bridge a tear therein. In order to achieve that the tips of the staples are bent over in the required direction after the legs of the staples have passed through the conveyor band, it is necessary to use an anvil for deforming the staple legs in the required direction. It is difficult and time-consuming to adjust the anvil in each case so that the tips of the staples appropriately engage the deforming anvil. Also, it is just as difficult and time-consuming to displace the anvil relative to the conveyor band in readiness for the insertion of a next staple after a staple has been inserted. Even when the anvil has deforming grooves which would positively direct the ends of the staples correctly, it is unusual for the staple tips to emerge from the conveyor band in a correct position for entering the grooves.

The present invention consists in a device for applying staples to belts whereby to repair tears therein, as will now be described with reference to the accompanying drawings, which are given by way of example and in which:

FIG. 1 is a perspective view of a device for applying staples to belts;

FIG. 2 is a side view, partly broken away, of the device of FIG. 1, and

FIG. 3 is a view generally similar to that of FIG. 2, but showing the device in a different working position.

The device shown in FIGS. 1, 2 and 3 comprises a head 40 having a fixed arm 41 extending therefrom. The head 40 carries a staple magazine 42 for supplying staples 3 to a staple driver 431 carried by a ram 43 movably guided in the head 40. A connecting member comprising a rack member 44 is also movably guided in the head 40, the rack member 44 being engaged by a toothed segment 45 formed on a lever 46 which is pivotally mounted on the head 40 by a pivot pin 47. The rack member 44 has an offset end 48 carrying a staple clinching anvil 49, which is provided with staple clinching grooves 491 in positional register with the staple driver 431 of the ram 43.

In use the ram 43 with the clinching tool 431 is raised into the position shown in FIG. 3, the lever 46 is turned

upwards relatively to the fixed area 41 so as to lower the rack member 44 and the device is placed on the belt to be repaired, with the offset end 48 of the rack member 44 extending through a tear in the belt. When now the arm 41 and the lever 46 are gripped and squeezed together, the action of the toothed segment 45 on the rack member 44 causes the staple clinching anvil 49 to be pressed against the underside of the belt to be repaired. If now the ram 43 is struck, for example with a hammer 432 (FIG. 1) so as to move the ram 43 in the direction of the arrow A (FIG. 3), the ram 43, in conjunction with the staple clinching anvil 49 causes a staple 3 to be driven by the staple driver 431 through the belt and the legs of the staple to be clinched towards each other (FIG. 2). The ram 43 is subsequently lifted manually by means of a handle 433, and the lever 46 is raised so that the device, again, is in the position of FIG. 3. The device may be moved along slightly after a staple is inserted in the belt, so that a series of staples is applied to the belt whereby to hold together the belt portions bordering the tear.

I claim:

1. A device for facilitating the application of staples to a belt whereby to repair a tear therein, the device comprising a head adapted to be positioned on one side of the belt at a region thereof to be repaired, a ram slidably mounted in said head and adapted to receive hammer blows for driving a staple through said belt, a connecting member slidably mounted in said head, immediately adjacent said ram for movement parallel thereto and adapted to extend below the head and through said tear in said belt, a staple clinching anvil carried by said member at the lower end thereof and facing the lower side of the belt, and means for moving said connecting member in said head for engaging the belt between said head and said anvil while said staple is being driven through the belt.

2. A device as claimed in claim 1, wherein said means for moving comprise a rack on said connecting member, and a manually operated lever having a toothed segment rotatably mounted on said guide member and meshing with said rack.

3. A device as claimed in claim 2, and comprising a fixed arm on said head adjacent said lever for facilitating actuating the same.

4. A device as claimed in claim 1, and comprising a magazine for feeding staples to said ram.

5. A device as claimed in claim 1, and comprising a handle on said ram for manually returning the same.

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