Oct. 29, 1963 SEIJI KONDO ETAL 3,108,618

BUNCH REMOVER

Filed Feb. 21, 1961

Fig. 1

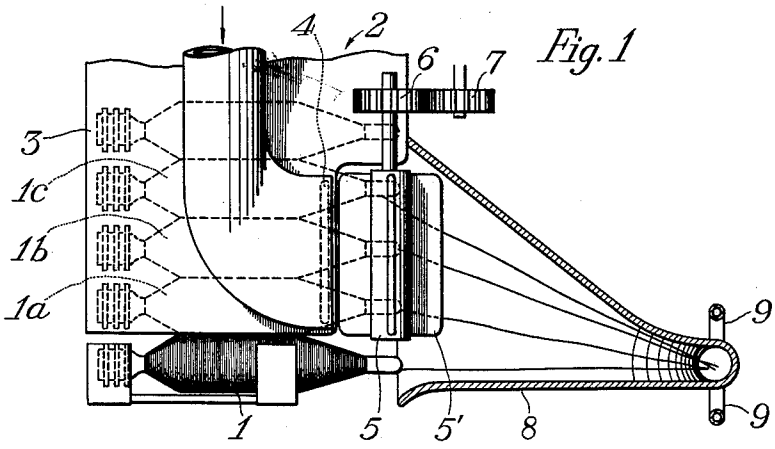


Fig. 2

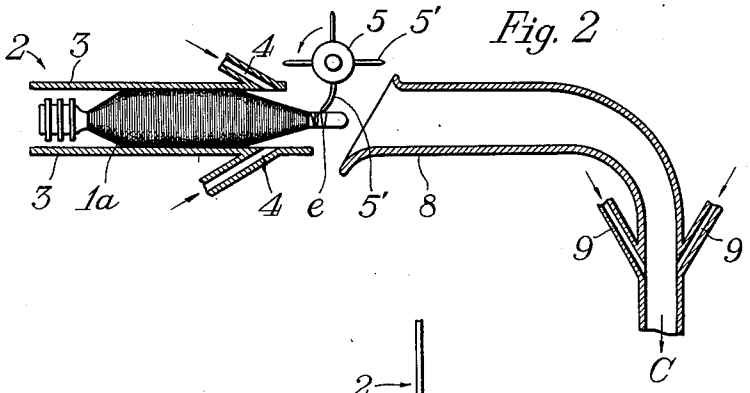
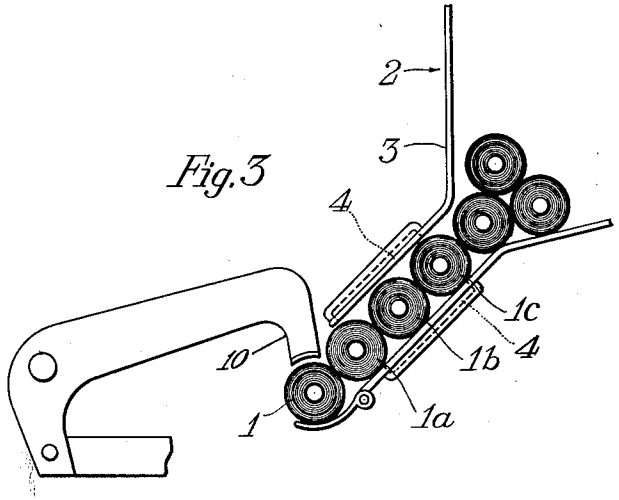


Fig. 3



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3,108,618

BUNCH REMOVER

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2 Claims. (Cl. 139—257)

This invention relates to an apparatus for loosening and leading out the yarn ends of the cops for use in a weaving loom, particularly in a cop-change automatic loom.

An object of the present invention is to provide an apparatus for automatically loosening and leading out the yarn ends of a plurality of cops simultaneously, dispensing with any manual handling of the yarn ends of the cops.

Another object is to provide a simple, practical and reliable arrangement for accomplishing the foregoing.

In automatic charging devices for cop changing apparatus, it has heretofore been proposed to provide means for applying an air jet toward the tip of a cop and to provide a rotating brush for wiping contact with the yarn end portion of the tip of the cop in order to facilitate the removal of the yarn end. It has been found that in such arrangements the yarn removed is frequently entangled and entrained by the bristles of the rotating brush. To eliminate the above-mentioned drawback a rotary beater is employed according to this invention having flaps made of a flexible material such as leather, rubber and the like is provided instead of the usual rotating brush. The free ends of the beater flaps make wiping contact with the yarn end portions of a plurality of cops received in a cop guide. Thus, the apparatus according to this invention comprises a cop magazine having a discharge guide passage adapted to accomodate a plurality of cops, means for directing an air jet toward the tips of the cops in the guide passage, and a rotary beater having flaps made of flexible material and adapted to make a wiping contact with the yarn end portions of the tips of said plurality of cops in the discharge guide passage.

The accompanying drawings will serve to illustrate specific embodiments of our invention, in order that its utility and functioning will be thoroughly appreciated. In the drawings:

FIGURE 1 is a front view, partly in section, of the apparatus according to this invention;

FIGURE 2 is a horizontal sectional view thereof; and

FIGURE 3 is an end view of the discharge passage of the cop magazine.

Referring to the drawings, the reference numeral **1** designates a plurality of cops contained in a box or magazine **2** having a discharge guide passage formed of side plates **3**. The cops **1** are successively fed downwardly in row by gravity and as guided by the side plates **3** and they are charged into a shuttle by a cop transfer hammer **10** at the lowermost position as shown in FIG. 3. The guiding side plates are provided with flat nozzles **4** which are obliquely arranged and supplied with compressed air from a suitable source. In the vicinity of the top of the cops **1**, there is provided a rotary beater **5** having wings **5'** made of flexible material such as leather, rubber, etc., the free ends of the wings being in wiping contact with the top yarn end portions of the cops as shown. Said beater **5** is driven through transmission gears **6** and **7** from a suitable source of power. **8** is guide means consisting of a trampet which opens toward the top ends of the cops. Near the other end of the trampet, it is provided with obliquely arranged auxiliary nozzles **9** which are connected to a suitable blower (not shown).

Assuming that the rotary beater **5** is rotated in the direction of arrow and that a jet of air is issued from the nozzle **4**, the yarn end portions of the tops of a plurality of cops, for instance three cops **1***a*, **1***b* and **1***c* in the embodiment shown, are acted upon by the beater wings **5'** which successively come into wiping contact with the yarn end portions *e* of the cops, and thereby the yarn ends are loosened and led out toward the mouth of the trampet **8** by the action of the air issuing from the nozzles **4**. Air jet issuing from the auxiliary nozzles **9** assist in drawing the yarn ends into and out of the trampet **8**. The yarn ends issuing from the discharge end of the trampet **8** are led to a desired place C, such as a weft supplying mechanism in an automatic loom.

From the foregoing description, it will be seen that the present invention accomplishes a new and advantageous result in an extremely simple, practical and economical manner.

While a preferred embodiment of our invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

What we claim is:

1. Apparatus for loosening and leading out the free yarn ends of cops for use in a weaving loom comprising, means to accomodate a plurality of cops having a discharge passageway constructed to accomodate a plurality of cops, said cops having tips adjacent to which a free yarn end is disposed, means adjacent said discharge passageway for directing jets of air toward the cop tips in said passageway having the free yarn ends thereon, and a rotatably driven beater to loosen said free yarn ends and having radially extending angularly spaced flexible wiper portions disposed to make wiping contact with the tips of said cops having a free yarn end thereon thereby to loosen said free yarn ends.

2. Apparatus according to claim 1, further comprising tubular means for receiving said free yarn ends comprising auxiliary air jet nozzles for leading out the yarn ends loosened from said cops.

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