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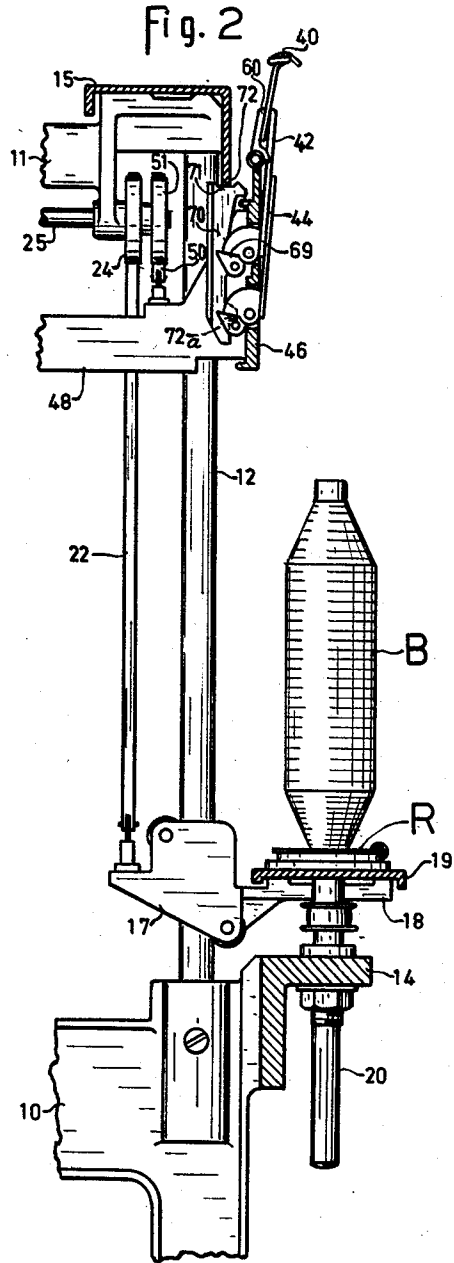
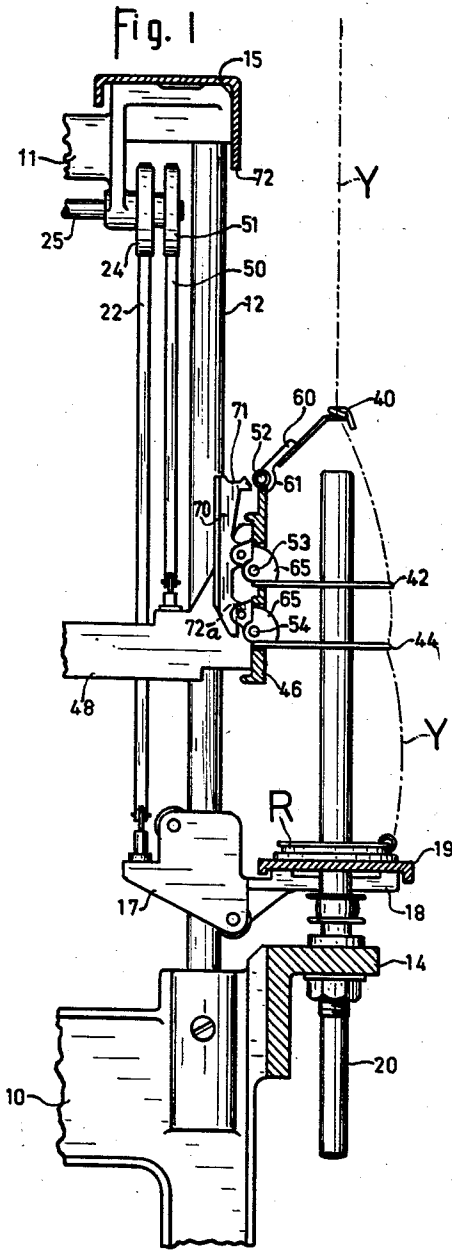
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2,867,074

DOFFING APPARATUS FOR TEXTILE MACHINE

Filed Aug. 13, 1957

2 Sheets-Sheet 1



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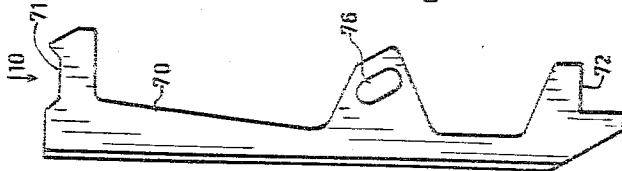
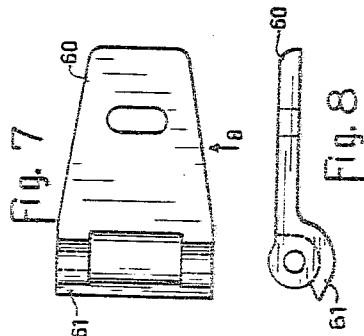
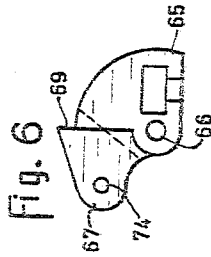
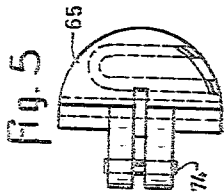
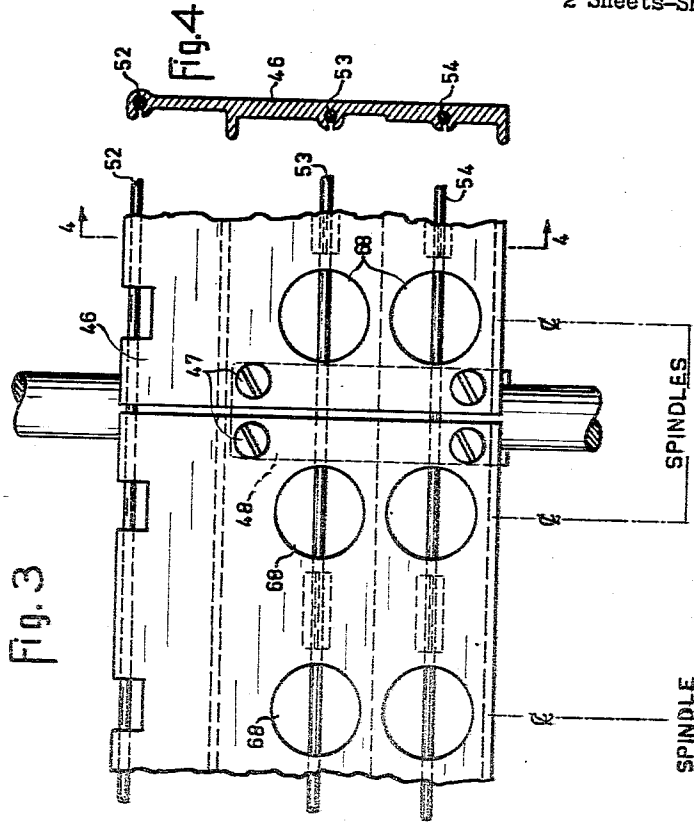
R. B. NEWTON

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DOFFING APPARATUS FOR TEXTILE MACHINE

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2 Sheets-Sheet 2



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2,867,074

DOFFING APPARATUS FOR TEXTILE MACHINE

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7 Claims. (Cl. 57—52)

This invention relates to textile machines such as spinning and twisting frames, and relates particularly to the yarn-guiding and anti-balloon devices used on such machines.

It is customary to provide an axially-located yarn guide above the spindle, and to provide one or two vertically disposed anti-balloon rings surrounding the bobbin adjacent its middle portion. These devices must be displaced to permit doffing of full bobbins and thereafter supplying empty bobbins for the spindles.

It is the general object of this invention to provide means by which two anti-balloon rings and an associated yarn guide may be removed from the locus of the full bobbins by manual movement of a single operating member.

To the attainment of this object, I have provided separately swinging supports for the two anti-balloon rings and for the yarn guide, and I have provided a single operating member by which the two rings and the yarn guide may be raised and swung rearward by a single manual movement.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a side elevation of one spindle, together with two anti-balloon rings, a yarn guide, and operating mechanism therefor, and with certain parts shown in section;

Fig. 2 is a view similar to Fig. 1 but with the rings and yarn guide in raised and rearwardly displaced position;

Fig. 3 is a partial front elevation of a plate or panel on which the anti-balloon rings and yarn guide are mounted;

Fig. 4 is a sectional end elevation of the panel;

Fig. 5 is a plan view of one of the ring supports;

Fig. 6 is a side elevation thereof;

Fig. 7 is a plan view of a yarn guide support;

Fig. 8 is a side elevation thereof;

Fig. 9 is a side elevation of an operating member; and

Fig. 10 is a plan view, looking in the direction of the arrow 10 in Fig. 9.

Referring to the drawings, I have shown parts of a spinning frame comprising lower frame members or sampsons 10, and upper frame members or top girts 11 which are supported at the upper ends of fixed columns or posts 12. A spindle rail 14 is mounted on the sampsons 10, and a roller beam 15 is mounted on the top girts 11. The usual drawing rolls (not shown) are mounted on the roller beam 15.

Slides 17 are mounted on the posts 12 and are provided with brackets 18 on which ring rails 19 are mounted. Each rail 19 supports a plurality of rings R. A corresponding plurality of spindles 20 are secured in the spindle rail 14 and support bobbins B (Fig. 2).

The slides 17 are moved up and down by chains or cables 22 which pass over upper guide pulleys 24 on a cross shaft 25, and which are operatively connected to a usual builder mechanism (not shown) by which the ring

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rails are raised and lowered to define the bobbin contours.

The yarns Y are led to the rings R through yarn guides 40, and the ballooning of the yarn is preferably controlled for each spindle by upper and lower anti-balloon rings 42 and 44.

The parts 40, 42 and 44 are mounted on plates or panels 46 (Figs. 3 and 4), which panels are secured by screws 47 to vertically slidable cross members 48 which are connected to chains or cables 50 which pass over loose pulleys 51 to the afore-mentioned builder mechanism. The vertical movements of the cross members 48 are simultaneous with the vertical movements of the ring rails 14 but are of less extent.

With the exception of the panels 46, all parts thus far described are or may be of usual commercial design and in themselves form no part of the present invention, which relates particularly to improved means for removably mounting the yarn guide 40 and the anti-balloon rings 42 and 44. These three parts are pivoted on three cross wires 52, 53 and 54 (Fig. 4) which are clamped to the top edge or rear face of the panel 46.

Each yarn guide 40 has a holder 60 to which it is clamped, and each holder is pivoted on the top wire 52. A lower lip or extension 61 on the holder 60 engages the front face of the panel 46 and acts as a stop to define the lowered and operative position of the yarn guide 40 (see Fig. 1).

Each anti-balloon ring 42 or 44 is clamped to a holder 65 which is pivoted at 66 on one of the wires 53 or 54. An extension 67 on each holder extends rearward through an opening 68 in the panel 46 and presents a shoulder 69 which abuts the rear face of the panel 46 and defines the lowered and operative position of the associated ring 42 or 44.

A trip lever 70 (Figs. 9 and 10) has an arm 71 at its top end which engages the lower front edge 72 of the roller beam 15 as it is moved upward. This stops the trip lever but the panel 46 may be moved further upward by the cross member 48 and chains 50.

The lower end of each trip lever 70 has a notch or shoulder 72a which rests on a cross-pin 74 (Figs. 5 and 6) in the extension 67 of the holder 65. Continued upward relative movement of the panel causes the lower anti-balloon rings 44 to be swung upward to the doffing position shown in Fig. 2.

The upper anti-balloon ring 42 has a pin-and-slot connection 74—76 (Figs. 5 and 9) to the trip lever 70 and is similarly swung upward. As the upper ring 42 is swung upward, the ring engages the under side of the yarn guide 40 and holder 60 and moves them to the position shown in Fig. 2.

The parts 40, 42 and 44 are thus removed or displaced substantially simultaneously from operative position by a single and final upward movement of the cross member 48, and these parts will be simultaneously restored to operative position when the member 48 is again lowered. These opposed movements of the cross member 48 are commonly manually effected.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, a pair of vertically-spaced anti-balloon rings for each spindle, a separate pivotal support for each ring and for said yarn guide, means to raise said rings and yarn guide above the spindle, and means to swing said rings and yarn guide away from the axis of said spindle.

2. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, a pair of vertically-spaced anti-balloon rings for each spindle, a

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separate pivotal support for each ring and for said yarn guide, means to raise said rings and yarn guide above the spindle, and means to swing said rings and yarn guide away from the axis of said spindle as the upward movement is completed.

3. The combination in a textile machine as set forth in claim 2, in which the swinging means is directly effective to swing both the lower and upper rings upward from operative position, and in which the upper ring, when swung upward, engages and lifts the yarn guide.

4. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, a pair of vertically-spaced anti-balloon rings for each spindle, and coacting means to raise the rings and yarn guide and to swing the rings and yarn guide rearward of said spindle to facilitate doffing.

5. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, a pair of vertically-spaced anti-balloon rings for each spindle, and coacting means to raise the rings and yarn guide and to swing the rings and yarn guide rearward of said

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spindle to facilitate doffing and the swinging action taking place as the raising action is being completed.

6. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, a pair of vertically-spaced anti-balloon rings for each spindle, and means to raise and displace the lower and upper rings to thereby raise and displace the yarn guide to facilitate doffing.

7. In a textile machine having bobbin-supporting spindles, in combination, a yarn guide for each spindle, an anti-balloon member for each spindle, means to raise and rearwardly displace said anti-balloon member and thereby raise and displace said yarn guide to facilitate doffing.

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