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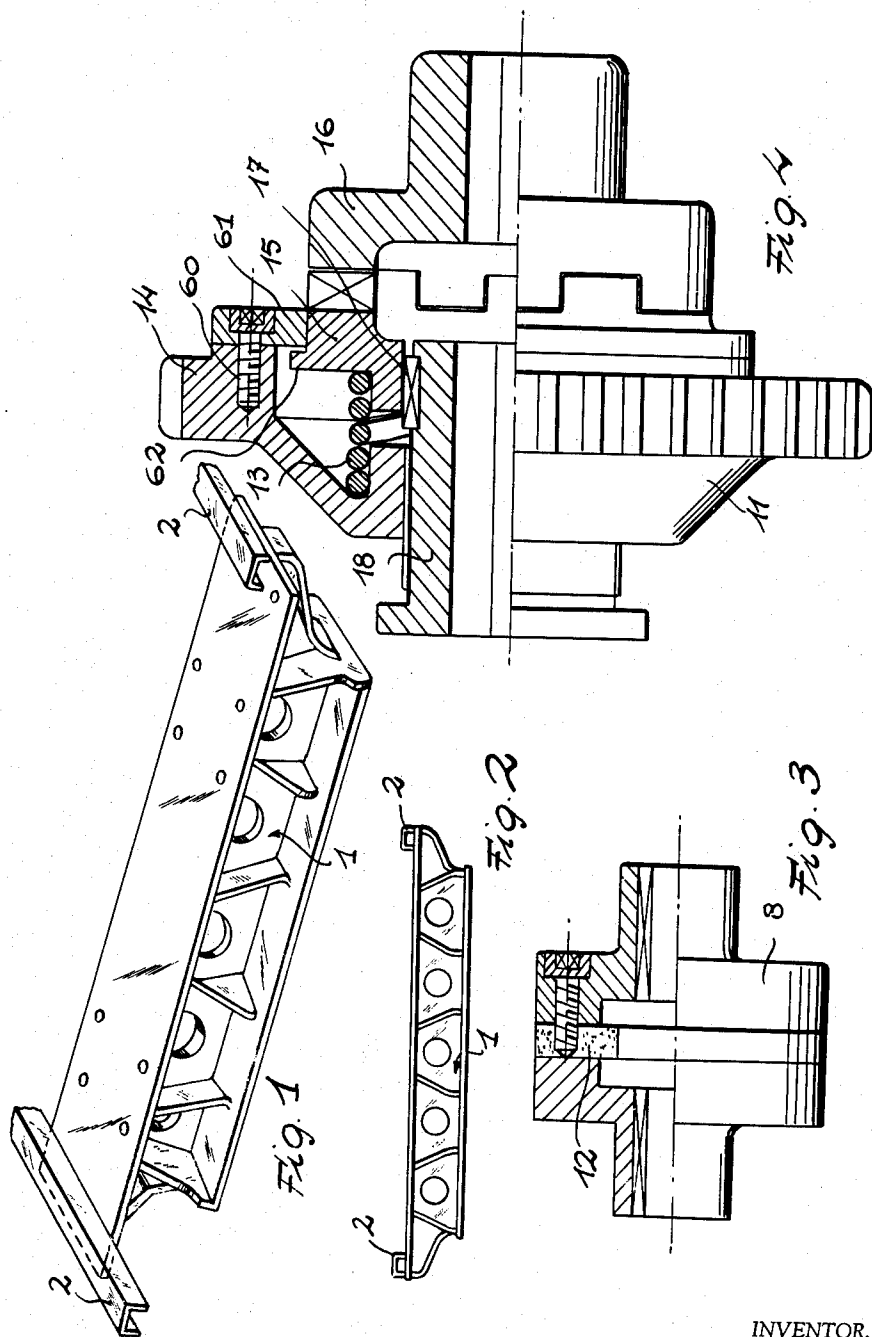
E. BETTONI ET AL

3,071,820

APPARATUS FOR CARD-DRAWING AND DOUBLING TEXTILE FIBERS

Filed Dec. 8, 1959

3 Sheets-Sheet 1



INVENTOR.

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Jan. 8, 1963

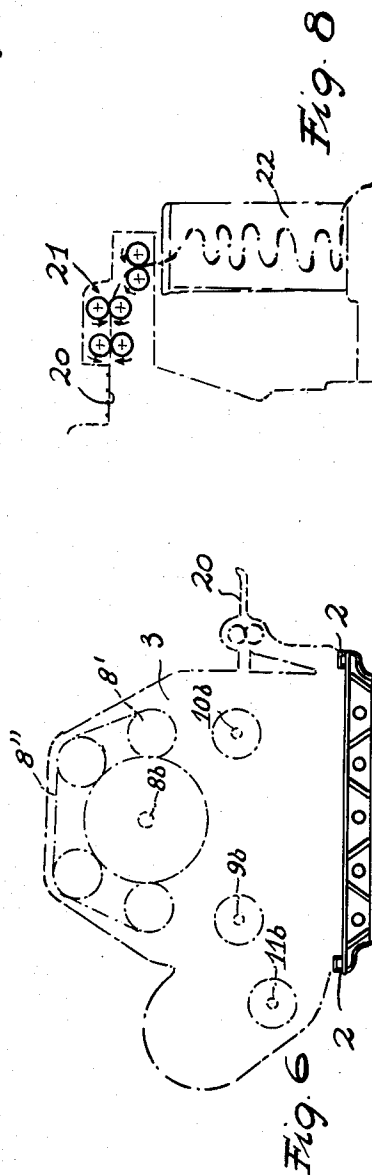
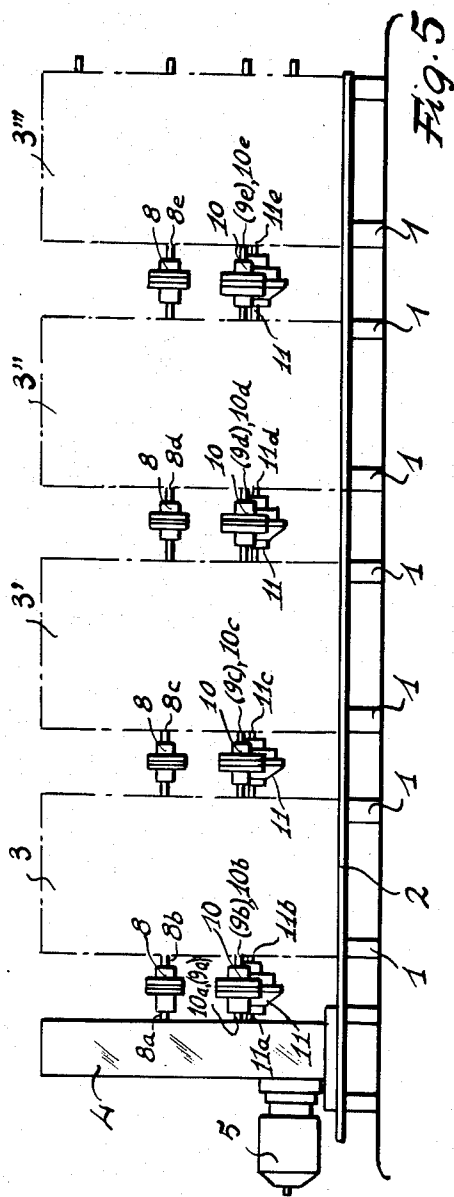
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APPARATUS FOR CARDING DRAWING AND DOUBLING TEXTILE FIBERS

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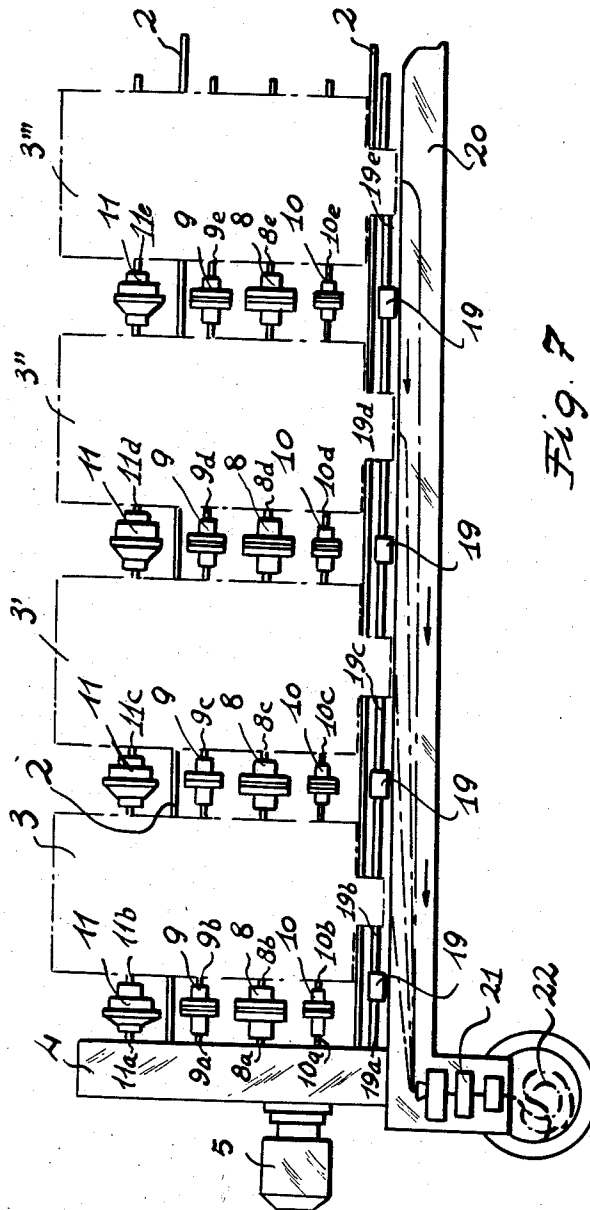


Fig. 7

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APPARATUS FOR CARD-DRAWING AND DOUBLING TEXTILE FIBERS

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2 Claims. (Cl. 19—98)

The present invention relates to an apparatus for card-drawing and doubling of textile fibers.

The main object of the present invention is to provide a card-drawing apparatus in which provision is made for using a plurality of cards arranged in series, whereby the following advantages are obtained:

(A) A significant reduction of labor costs;

(B) An appreciable saving in the consumption of power;

(C) A substantial reduction of the unitary cost of each card, the power transmission and control devices usually required for each card being eliminated; and

(D) A saving in charges for maintenance, spare parts and accessories.

The apparatus according to the present invention is characterised by the fact that it includes a plurality of cards arranged in series and aligned with each other, each card being provided with a plurality of shafts; a single transmission unit; and a plurality of couplings connecting the shafts of the cards with the output shafts of the transmission unit.

The invention will now be described by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a perspective representation of a supporting base part of a card-drawing apparatus in accordance with the invention,

FIG. 2 is a front elevation of the base part represented in FIG. 1,

FIGS. 3 and 4 represent respectively elevations of two of the couplings used in the apparatus of the present invention, the upper half of each figure being in section,

FIG. 5 is a schematic front elevation of the card-drawing apparatus of the present invention,

FIG. 6 is a schematic side view of the apparatus shown in FIG. 5,

FIG. 7 is a schematic plan view of the apparatus illustrated in FIG. 5, and

FIG. 8 is a schematic view of the drawing frame coupled to the apparatus shown in FIGS. 5, 6 and 7.

The card-drawing apparatus according to the invention shown in FIGS. 5 to 8 comprises a supporting frame constituted of a plurality of supporting base parts 1 (FIGS. 1 and 2), secured by means of bolts or the like to longitudinal structural beams 2, so as to form a stiff structure upon which the frames of the cards 3, 3', 3'', 3''' are supported mutually in alignment. A casing 4 accommodates control, transmission and shifting devices for the cards of known form, the said devices being actuated by a single electric motor 5. The ends of the transmission shafts 8a, 9a, 10a, 11a projecting from the casing 4 are connected by means of the couplings 8, 9, 10, and 11, respectively, to the corresponding shafts 8b, 9b, 10b, and 11b. Shafts 8b, 9b, 10b and 11b are

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axially aligned with corresponding shafts 8c, 9c, 10c, 11c of card 3', with shafts 8d, 9d, 10d, 11d of card 3'', and with shafts 8e, 9e, 10e, 11e of card 3'''. A set of couplings 8, 9, 10, 11 is provided between cards 3' and 3'', and another set of couplings 8, 9, 10, 11 is provided between cards 3'' and 3''' for connecting corresponding aligned shafts.

Shafts 8b to 8e drive the main cylinders of the cards, shafts 9b to 9e drive the licker-ins, shafts 10b to 10e drive the doffers, and shafts 11b to 11e drive the feed rollers. Rollers 8' drive the revolving flats 8'' of the respective cards.

As shown in FIG. 3, each coupling 8 is of the flange type and elastic, being provided with a rubber disk 12 of a known type and conformation. The couplings 9 and 10 are of the same type as coupling 8 but of a slightly reduced size since they serve for transmitting motion from the devices in the casing 4 respectively to the licker-ins and doffers of the apparatus. As shown in FIG. 4, the couplings 11 are provided with elastic shock absorbing action due to the presence of a spring 13 interposed between the crown plate 14 and the coupling plate 15 which can be coupled to a third plate 16; the latter plate 16 being rigidly connected to a driven card shaft. The plate 15 is free to slide axially against the action of the spring 13 owing to the presence of keys 17 provided on a sleeve 18 which is rotatable with the driving shaft.

The crown plate 14 can be screwed along a threaded portion of the sleeve 18 and fixed by means of screws 60 to a disk 61 which cooperates with a shoulder 62 of the toothed plate 15. The provision in the coupling of a claw clutch which is manually disengageable by rotating and crown plate 14, permits one of the aligned cards to be easily disconnected. Coupling sleeves 19 connect the shafts 19b, 19c, 19d, 19e of the respective calenders of the cards and can be put in an operative position of engagement, or in an inoperative position of disengagement with the control shaft 19a by appropriate positioning thereof on its associated shaft.

As best seen in FIGS. 6, 7 and 8, the apparatus includes a table 20 for the sliding of the slivers (shown in broken lines), coming out of the calenders of each card. The table 20 serves to guide the slivers to a train of drawing cylinders and calender roll 21 connected with a coiler head which delivers the sliver to a sliver can 22. The train of drawing cylinders 21 is also driven from control devices in the casing 4.

It will be appreciated that the invention is not limited to the detailed embodiment described above, and includes all variants that are accessible to experts skilled in the art without involving any inventive contribution.

We claim:

1. An apparatus for card-drawing and doubling textile fibers, comprising a plurality of cards having frames located in a row and mutually aligned, said plurality of cards including two end cards and at least one intermediate card; supporting means supporting said frames of said cards; a set of operating shafts mounted on said frame of each card, said sets of operating shafts being respectively supported by said frames in positions in which each shaft of each set of shafts is coaxially aligned with the corresponding shafts of the other sets of shafts; a first set of detachable coupling means for mutually connect-

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ing the coaxially aligned shafts of each pair of adjacent cards of said row of cards; a single transmission unit having a plurality of output shafts, each output shaft being coaxially aligned with a different shaft of said set of shafts of one of said end cards; and a second set of detachable coupling means for respectively connecting said outlet shafts with said coaxially aligned shafts of said one end card whereby each shaft of said cards acts simultaneously as input and output shaft to transmit power between power between said cards.

2. A carding machine comprising at least two cards having frames; a set of operating shafts mounted on each of said frames; supporting means supporting said frames in a position in which said two sets of shafts are mutually aligned; a first set of couplings for mutually connecting said coaxially aligned shafts of said two cards; a drive means having a plurality of output shafts; and a second

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set of coupling means for respectively connecting said output shafts of said drive means with said coaxially aligned shafts of one card whereby power is transmitted from said output shafts to said shafts of said one card, and from said shafts of said one card to said shafts of the other card.

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