

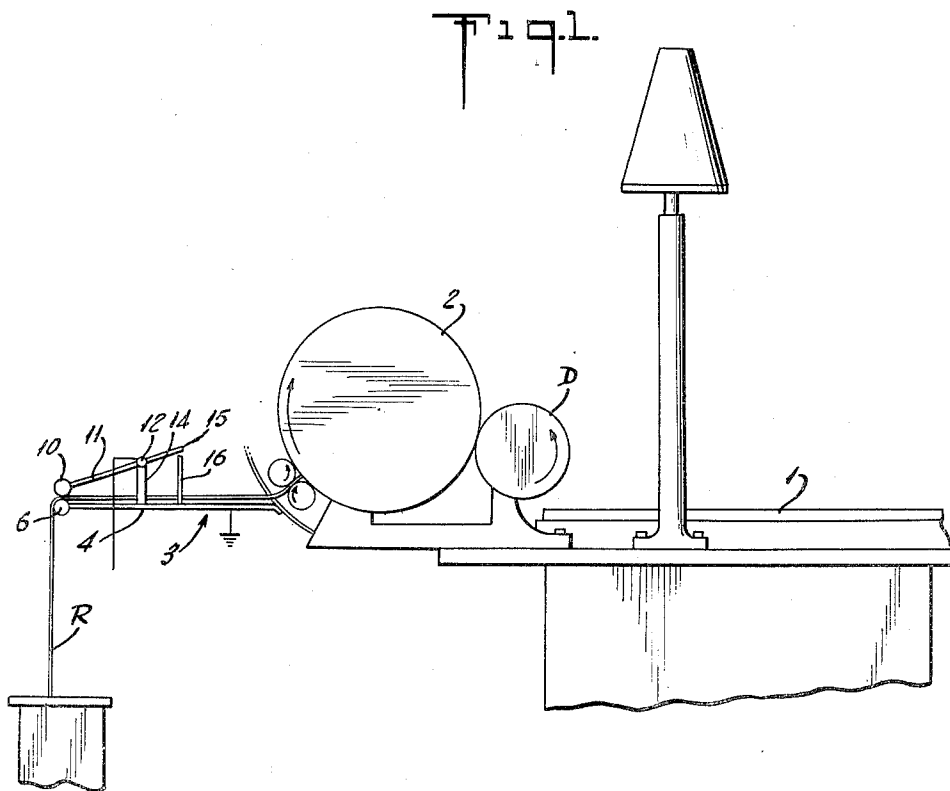
Nov. 23, 1954

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COMBINED KNITTING MACHINE, FIBER BLENDER
AND FEEDER, AND STOP-MOTION DEVICE

2,694,907

Filed Dec. 15, 1952

2 Sheets-Sheet 1



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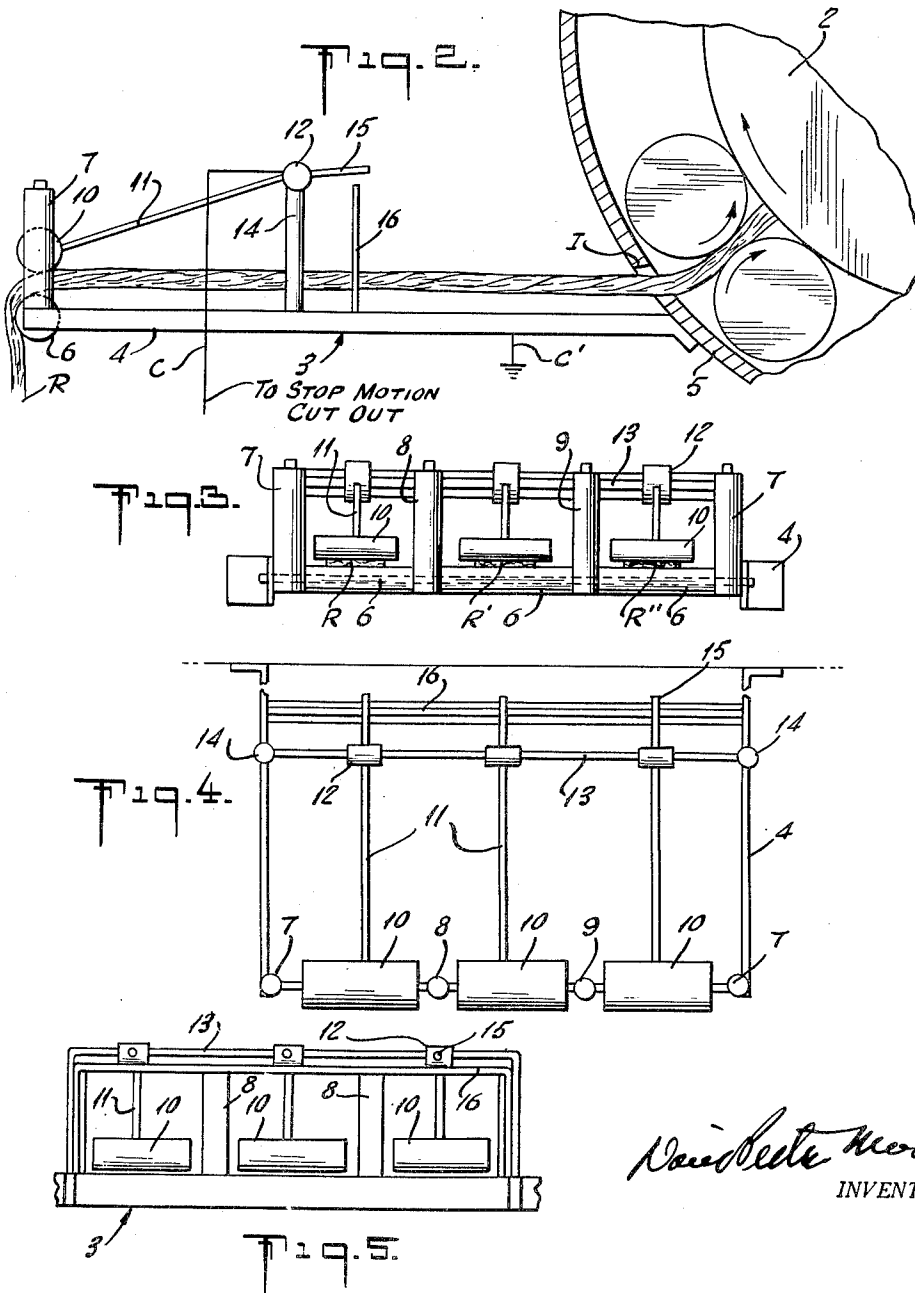
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COMBINED KNITTING MACHINE, FIBER BLENDER AND FEEDER, AND STOP-MOTION DEVICE

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7 Claims. (Cl. 66—9)

The present invention relates to improvements in combined knitting machines, fiber feeders and stop-motion devices, and methods of making knitted pile fabrics, one object of the invention being a device of this type whereby fibers of different characteristics and lengths each formed into a separate roving are simultaneously fed into and blended by a fiber feeder, of a modified card type, so that the blended fibers are wiped into the needles of a rotary cylinder knitting machine while the cylinder is in motion to produce an imitation fur or a blended fiber fabric, the former being set forth with its method manufacture in application filed January 25, 1952, Ser. No. 268,331, wherein different length of fibers form the inner and outer barriers or the inner, intermediate and outer barriers of a fur to be imitated or simulated.

Still another object of the present invention is the provision of a method or process whereby several distinct types or characteristics of rovings or slivers made of staple fibers are blended, fed prior to and with a base yarn to the open hooks of knitting needles of a rotary cylinder knitting machine to make a fabric composed of such yarn and the staple fibers.

Another object of the present invention in addition to the above object is to provide in this roving device a stop-motion that should the roving, in either instance give out, or become too thin, the stop motion will be actuated to stop the complete knitting operation.

In order that the invention may be fully understood, attention is invited to the accompanying drawings, in which:

Figure 1 is a side view of a fiber feeder, the roving guide and stop motion, and a knitting machine.

Figure 2 is a front view of the roving guide and stop-motion per se.

Figure 3 is a top view thereof.

Figures 4 and 5 are detail views thereof.

Referring to the drawings, the numeral 1 designates a rotary cylinder knitting machine, 2 the fiber feeder, and 3 the roving guide and stop-motion device.

The fiber feeder is attached to the bed-plate of the knitting machine so that the fibers blended in the feeder are wiped into the needles while in transit, to form the pile surface of the fabric made by the machine.

The roving guide and stop-motion device consists of a frame 4, which is attached to the roving guide 5, of the fiber feeder, so that rovings R, R' and R'', each can be fed over their respective tubular metal members 6, which are supported for rotation or fixed as may be desired. The end posts 7, and the two intermediate posts 8 and 9, divide the guide or member 6 into three guides or roving directing portions, so that when the roving is passed over either the member 6, which is preferably in three sections, one to each roving directing portion, the same will pass under and out of contact with member 6 and hold the short metal—preferably aluminum—tube 10. Each tube 10 is carried in the free end of a pivoted arm 11, journaled at 12 upon the spanning rod 13, which is supported by the two insulated posts 14, supported in turn by the frame. Each arm 11 is further provided with a small finger 15, which should the roving be too thick, will be moved downwardly, due to the elevation of the tube 10 and its arm 11, and will then contact a bar 16, supported by the frame 4, and thus close a circuit, a portion of which is shown at C—C', to actuate a normal stop-motion device normally used with knitting machines. In other words this stop-motion device operates in conjunction with the yarn stop-motion.

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Each pivoted arm 11 and its tube 10, constitute a roving elevator, that is the roving elevates the tube and its arm, and thus acts as an insulator between the tube and its member or guide 6.

Also when the roving gives out or becomes so thin that the tube 10 falls and contacts its cooperating member 6, an electrical circuit is closed and the knitting machine is halted, as when a yarn breaks or gives out.

Normally when this type of fiber feeder is used, the roving to be fed by it to the needles of the knitting machine, is composed of the "blend" desired, but with this arrangement, the rovings of each type of fibers that is generally of different lengths to be blended, are made one to each roving, so that two or three in this instance, can be fed into the fiber feeder, and blended by the feeder and delivered by its doffer brush D to the needles of the knitting machine, the needles having their hooks open, so that the yarn can be delivered in to the hooks just after the blended fibers are wiped in to the hooks of the needles and just prior to the action of the knitting cam.

From the foregoing it will be noted that there is here combined with the knitting machine and fiber feeder, two or three rovings in such a manner as to permit the blending of the fibers in the fiber feeder to be knitted in to the fabric, while such rovings are guided separately to the fiber feeder, and through a roving stop-motion electrically controlled device.

It will also be noted that this combination of elements provide a very desirable mechanism which when embodied with a knitting machine of the rotary cylinder type and its yarn stop-motion converts such knitting machine and stop-motion in to a pile fabric knitting machine and a roving stop-motion and a fibers blender.

This machine in its entirety, dispenses with the usual fiber blender, necessitating only the cotton or worsted card which forms the respective fiber rovings, each with its desired length and proportion, so that when two or three rovings are delivered to the present fiber feeder, these fibers of all rovings will be combed apart or comminuted and disposed on the main drum of the fiber feeder so that then the doffer brush removes the fibers from the main drum, they will be blended and therefrom wiped into the open hooks of the needles to form a blended pile element to each needle, and which fibers may constitute an imitation fur, a fleece pile fabric, a two faced pile fabric, two faced knapped fabric or a decated "Melton" like cloth.

This mechanism is different from the construction shown and described in Moore Patent No. 1,849,466, in that one fiber feeder with a single roving inlet I, is used, and into which from a plural rovings' guide, two or three rovings are fed to a single comminuting drum of the fiber feeder. In this way, the several rovings, without or with the stop-motion, can be comminuted and blended in the fiber feeder before being delivered by the doffer brush to the open needles of a knitting machine as in the before mentioned patent, where each machine has only one roving fed to it.

What is claimed is:

1. The combination with a knitting machine and a fiber feeder for feeding fibers to the needles of the knitting machine, said fiber feeder having a single roving inlet, of a fiber guide and stop-motion device for directing simultaneously to said inlet of the fiber feeder a plural number of rovings of different fibers to the fiber feeder.

2. The combination as claimed in claim 1, wherein the fiber guide and stop-motion device includes a frame attached to the fiber feeder, a plurality of elevators mounted in the frame each to be held elevated by a roving, and a fixed metal guide to each elevator and over which one roving is drawn while elevating the elevator, the elevator and metal guide constituting a circuit closer when in contact with one another.

3. The combination as claimed in claim 1, wherein the fiber guide and stop-motion device includes a frame attached to the inner end of the fiber feeder, a metal roving guide mounted in the outer end of the frame, posts carried by the frame and dividing the roving guide into a plurality of roving guides, an auxiliary frame carried by the first frame, a plurality of metal arms pivoted thereto, one to each roving guide, a metal tube carried by the free

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end of each arm for movement to and from its metal roving guide and forming therewith when in contact a circuit closer, a metal contact bar carried by the frame, and a plurality of circuit closers associated with the arms, whereby when a roving of abnormal thickness elevates the metal tube carried by any one of the arms a circuit is closed to a stop motion as the arm contacts the bar.

4. A stop motion device, including in combination a carrying frame, a plurality of fixed roving guides mounted in the frame and forming electrical contacts, a plurality of arms pivotally connected to the frame, one to each roving to be pulled through the device, contact members one to each arm carried by the arms, and disposed to be held out of electrical contact with the respective guides by the roving and which when any one of the rovings gives out falls and contacts the guides to close a circuit and cooperating switch members carried respectively by each arm and the frame adapted to be closed when the roving is too thick.

5. The combination with a fiber feeder having a single main comminuting drum and a single roving inlet, of a roving directing means composed of a plurality of independent roving guides, all of which lead the rovings to said single inlet and to the main comminuting drum, whereby a plural number of rovings are simultaneously comminuted and blended, and a doffer brush is provided in the fiber feeder for removing the comminuted and blended fibers from the comminuting drum and wiping such comminuted and blended fibers into the needles of a knitting machine.

6. The combination with a rotary cylinder knitting machine, with a fiber feeder comprising a main comminuting drum and a single fiber inlet, said fibers being

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in roving form, a rovings' guide to direct a plurality of rovings to the inlet and to the main drum, the main drum acting to blend the fibers of the rovings, and a doffer brush to feed the blended fibers to the open hooks of the needles of the knitting machine.

7. A combined knitting machine, and fiber blender and feeder, including in combination a unit for blending and feeding fibers from a plurality of rovings of such fibers and having card members that comminute and blend the fibers of the rovings and having means for receiving the comminuted and blended fibers and for wiping the said fibers into the hooks of the needles of the knitting machine during the knitting operation, and a plurality of roving guides, one to each roving to be acted upon, for directing such rovings simultaneously to the card members of the fiber feeder and blender.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
190,127	Bullough	May 1, 1877
513,259	Buchel	Jan. 23, 1894
655,141	Wetmore	July 31, 1900
706,261	Scott	Aug. 5, 1902
852,474	Tyden	May 7, 1907
1,849,466	Moore	Mar. 15, 1932
1,894,596	Moore	Jan. 17, 1933
1,900,400	Scott	Mar. 7, 1933
2,017,073	Moore	Oct. 15, 1935
2,279,786	Holt	Apr. 14, 1942
2,419,518	Eichinger	Apr. 22, 1947