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L. SCHORSCH

PROCESS FOR THE PRODUCTION OF ROVING FROM COTTON AND SIMILAR FIBROUS MATERIAL

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Fig. 1

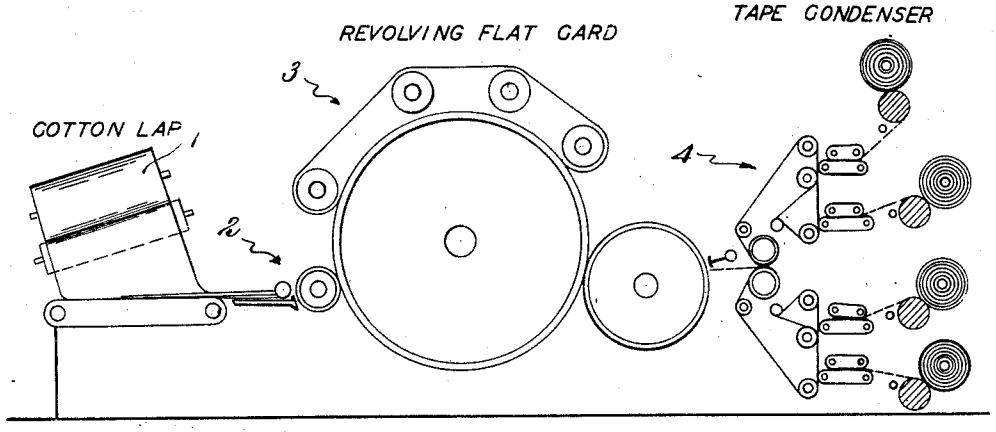
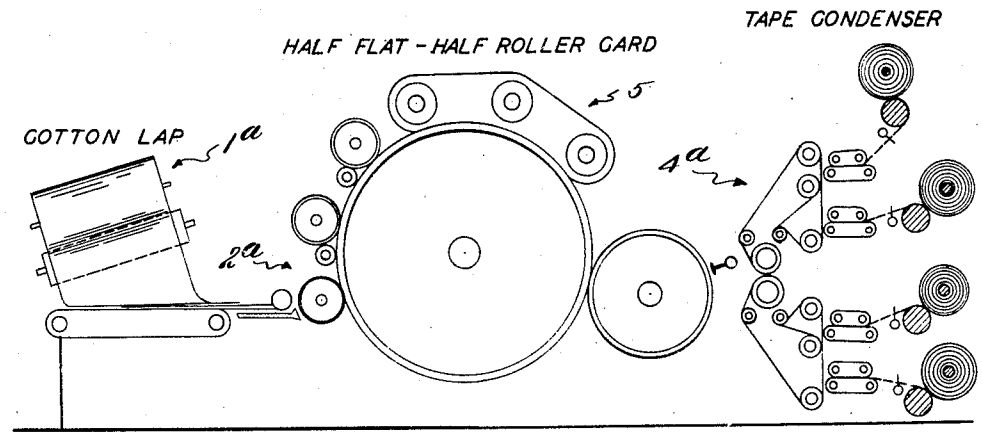


Fig. 2



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PROCESS FOR THE PRODUCTION OF ROVING FROM COTTON AND SIMILAR FIBROUS MATERIAL.

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In the manufacture of textile yarn one of the first steps is to produce a sliver which is subsequently spun upon suitable spinning machinery to form the finished yarn. Various systems of spinning the sliver are employed, varying in accordance with the kind of fiber, for example cotton or wool, and the fineness of the yarn desired, the machinery employed being varied accordingly.

In one common system of spinning fine numbers of cotton yarns the fiber is first carded upon revolving flat cards. The sliver thus produced is then drawn in a drawing frame and after this first drawing the sliver is subsequently further drawn in passing through a series of roving and spinning frames.

For manufacturing coarse numbers of cotton and woolen yarns the fibers are frequently carded on a series of roller cards (usually three) and the fiber is then delivered directly to a tape condenser which forms it into roving, the independent drawing step being omitted. This roving is then delivered directly to spinning mules or ring frames where it receives but slight drawing and is spun directly into yarn but it is not possible by this latter system to obtain fine counts of yarn for the reason that there is but little draw introduced during the process and the roller cards do not lay the fibers nearly so parallel as the flat cards.

In accordance with the present invention I employ a system combining steps from the two systems just referred to and in practising this new process prefer to employ machinery such as is used in each of said processes. By this combined process I am able to produce a fine roving whose fibers are generally parallel and which can be subjected to a relatively high draw in spinning. These results I obtain by carding the fiber upon a single revolving flat card and delivering the product of this one carding operation directly to a tape condenser. The single flat card thus employed takes the place of two or three roller cards employed in the coarse yarn process and lays the fibers much more nearly parallel than results from the use of a plurality of roller cards. The roving delivered by the tape condenser can now be finely spun although perhaps not to the highest numbers, but nevertheless can be made into yarns sufficiently fine for many purposes, while the process is much simpler than the usual process of making fine numbers and the machinery employed is less expensive and occupies less floor space than the machinery employed in either of the prior processes.

In the accompanying drawings

Fig. 1 is a diagrammatic side elevation illustrating the combination of a revolving flat card with a tape condenser; and

Fig. 2 is a diagrammatic side elevation illustrating the combination of a half-flat half-roller card with a tape condenser.

In Fig. 1 the numeral 1 designates a lap roll resulting from the operation of a picker, lapper or other machine preliminary to the carding operation, it being understood that this lap constitutes a convenient but not essential mode of presenting the fiber to the card.

The fiber from the lap 1 (or other source of supply if such be substituted for the lap) is delivered to the feeding means 2, which feeds it to the revolving flat card 3 of usual construction, such as is commonly used in the fine cotton spinning system. This card 3 lays the cotton fiber very nearly parallel and delivers the fiber in the form of a fleece to a tape condenser 4 of the kind commonly used in the coarse cotton or woolen system. This tape condenser divides the fleece into a plurality of rovings, which are of so uniform character that they may be delivered directly to a spinning mule or ring frame and spun into yarn of a satisfactory character.

In Fig. 2 I have illustrated a preferred arrangement in which the lap roll 1^a, the card feeder 2^a, and the tape condenser 4^a may be similar to the parts 1, 2 and 4 above described, but in this instance the card 5 is a half-flat half-roller or union card, which I find unites the high productive capacity of the roller card with the accuracy and dependability of the flat card, and yields a clean uniform fleece whose fibers are nearly parallel and well adapted for division by the tape condenser into a plurality of rovings of suitable character for spinning.

While I have specifically referred to "cotton" as the fiber employed, I wish it to be understood that my present process and apparatus is equally applicable to fiber of a character similar to cotton, for example cottonized flax, hemp and china-grass waste.

While I may use a revolving flat card for

carding the fiber, I prefer to employ a combination or union card which is provided with both half-flat cards and rollers. This type of card unites in itself the higher productive capacity of the roller card with the advantages of the flat card inasmuch as it not only yields a cleaner fleece but also lays the fibers in very nearly parallel relation.

I claim:

1. That improved process for the preparation of fine roving from cotton and similar fibrous materials which comprises as steps, carding the fiber by passing it through a carding machine having flat cards, such as is used in the fine cotton spinning system, and delivering the carded fiber to a tape condenser, such as is used in the carded yarn spinning system, to be formed by said condenser into roving.

2. That improved process for the preparation of fine roving from cotton and similar fibrous materials which comprises as steps, carding the fiber by passing it through a carding machine provided with both flat cards and rolls, such as is used in the fine cotton spinning system, and delivering the fleece from the carding machine directly to a tape condenser, such as is used in the carded yarn spinning system, to be divided by the latter into a plurality of rovings.

3. Apparatus for use in preparing fine roving from cotton and similar fibrous material comprising in combination a single revolving flat card and a tape condenser so arranged that the fibrous fleece from the card is delivered directly to the tape condenser and is divided by the latter into a plurality of rovings.

In testimony, that I claim the foregoing as my invention, have signed my name this 7th day of July, 1925.

ING. LUDWIG SCHORSCH.