W. DECKER.

CARD CLOTHING.

APPLICATION FILED FEB. 27, 1913.

1,095,978.

Patented May 5, 1914.

2 SHEETS—SHEET 1.

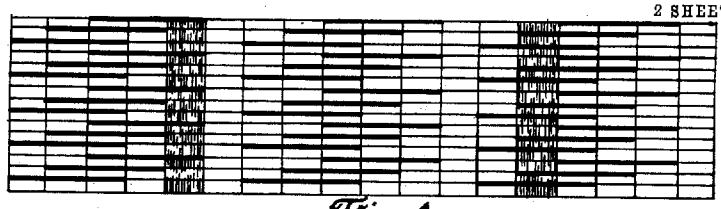


Fig. 1.



Fig. 2.

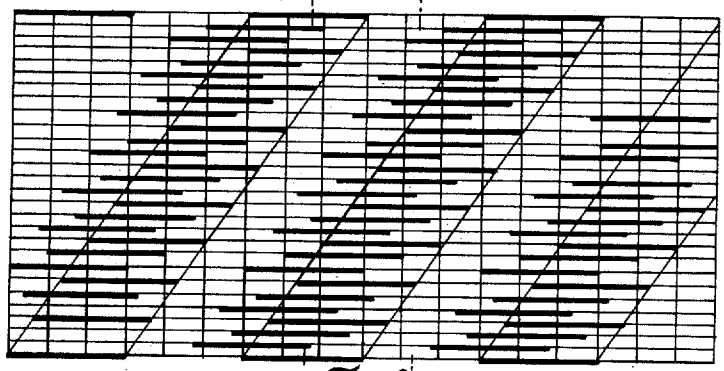


Fig. 3.

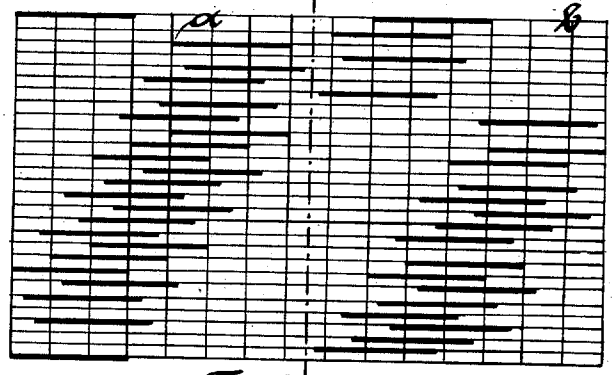
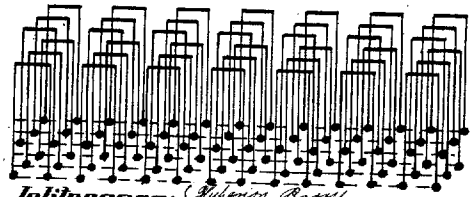


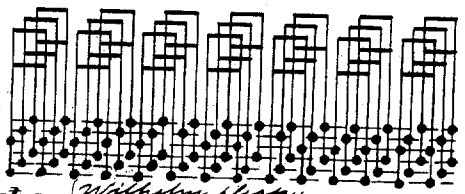
Fig. 4.

Fig. 9.



Witnesses: Sylvanus Barry. F. George Barnes

Fig. 10.



Inventor: Wilhelm Decker by his attorneys Brown & Durand

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2 SHEETS—SHEET 2.

Fig. 5.

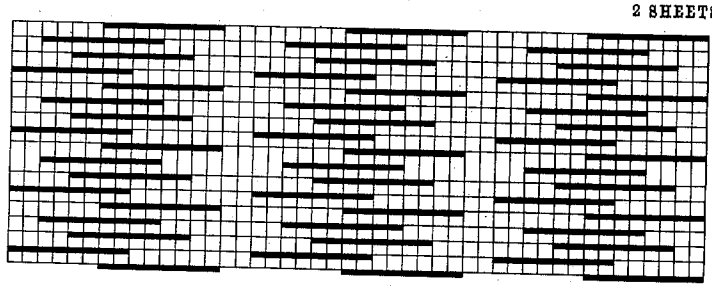


Fig. 6.

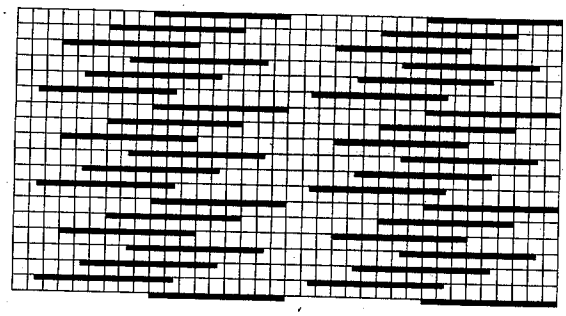


Fig. 7.

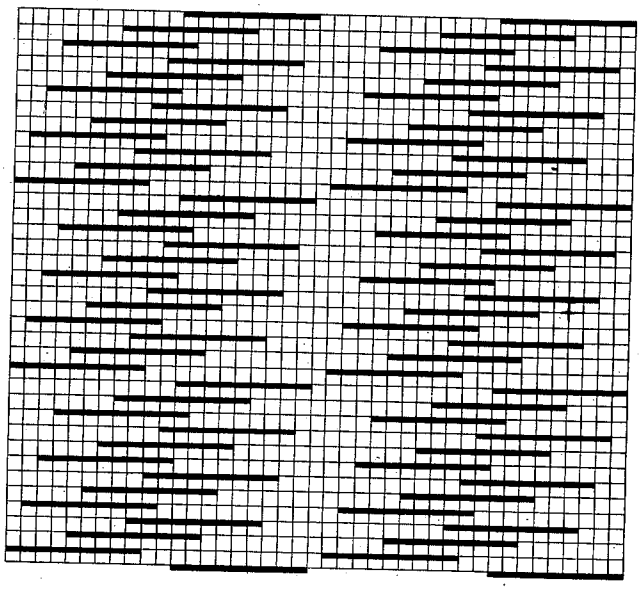
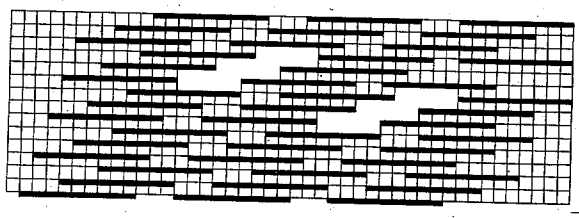


Fig. 8.



Witnesses:-
Hyperion Barry.
F. George Barry

Inventor:-
Wilhelm Klicker
by his attorneys
Brown & Ward

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILHELM DECKER, OF MITTWEIDA, GERMANY, ASSIGNOR TO GEORG von STRUVE, OF MITTWEIDA, GERMANY.

CARD-CLOTHING.

1,095,978. Specification of Letters Patent. Patented May 5, 1914.

Application filed February 27, 1913. Serial No. 751,093.

To all whom it may concern:

Be it known that I, WILHELM DECKER, managing director, a subject of the King of Saxony, and resident of Mittweida, Kingdom of Saxony, German Empire, have invented a new and useful Improvement in Card-Clothing, of which the following is a specification.

As usually employed, card clothing of the rib set type and of the twill set type, examples of which are shown respectively in Figure 1 and Fig. 2 of the accompanying drawings, have the disadvantage that open passages or ways are left between the teeth which detrimentally affect the action, firstly, because the fibers are not carded or combed by the open passages unoccupied by teeth, and secondly, because a considerable amount of fibrous material can become deposited and retained in said open passages or ways. It has been proposed to obviate these disadvantages in the case of twill set card clothing, by forming each grade or pitch of the twill setting of two or more rows of teeth which are staggered relatively to each other in the direction of the crowns or backs of the teeth so that a staggered twill setting is produced (see Fig. 3). This staggered twill set clothing not only obviates the open passages before referred to, but presents no passages at all running in the working direction of the card. Such staggered twill set clothing, however, is only suitable for the card-flats used in cotton spinning, as it cannot be applied on cylinders or rollers such as drums, doffers, or the like, for if staggered twill set clothing as shown in Fig. 3 is applied to cylinders or rollers, bare places or intervals will be formed at the longitudinal sides of the fillets or strips, as will be seen from the two adjacent fillets or strips *a b* shown in Fig. 4. There is still another reason why such staggered twill set clothing cannot be used for cylinders and especially for drums, for, as above explained, this card clothing entirely obviates open passages, and in order that the drum clothing shall work properly together with the fancy roller or stripping roller (Volant), it is necessary that the clothing of the drum shall present passages which the teeth of the clothing of the fancy roller or stripping roller may enter.

It is the object of the present invention to provide a card clothing which will present small, fine passages, while nevertheless giving a completely closed or continuous working surface, and which, even when used for cylinders, as for instance drums, allows of obtaining a completely uniform covering or working face over the entire width of the carding engine, so that fibrous material can no longer pass through without being operated upon. Nevertheless there will be extremely small and fine passages or ways in the card clothing, in which the teeth of the clothing of the fancy roller or stripping roller can engage and which can be readily traversed by said teeth. For this purpose according to the present invention a rib set card clothing is so constructed that the consecutive groups of the rib setting, and each consisting of two or more teeth, are staggered relatively to each other in such a way that the individual teeth of each group are staggered in relation to one another and that the consecutive groups are also staggered to each other.

Fig. 5 shows one form of staggered rib setting according to the invention, in which the groups each consist of two teeth. In this construction the second group is staggered relatively to the first, and the third group is staggered relatively to the second, while the third group is situated like the first group and arranged below the same (simple staggering of the groups).

Fig. 6 shows a staggered rib setting according to the invention with groups consisting of three teeth.

Fig. 7 shows a form of the staggered rib setting with groups consisting of three teeth, the second group being staggered in relation to the first, the third group in relation to the second, and the fourth group in relation to the third, while the fifth group comes under the first again (triple staggering of the groups).

It will be understood from the above explanation with the aid of the drawings that any multiple staggering of the groups may be adopted, for instance, quadruple, quintuple, or more; thus for example with quadruple staggering, the sixth group will begin like the first and be situated under it.

The following advantages are obtained by the card clothing with staggered rib setting: A more uniform and finer distribution of the working points over the whole width of a card fillet or band, and consequently over

the entire width of the carding engine can be secured by the staggered arrangement of the consecutive groups of two or more teeth in the rib setting. Even with double staggering of the groups, the working teeth points are doubled over the width of the band or fillet, in consequence of the staggering of the consecutive groups, as will be seen by comparing Figs. 9 and 10. Fig. 10 shows the known rib setting, and it will be seen that in two consecutive groups each two points lie in the same working line with each other, whereas in the card clothing with staggered rib setting, Fig. 9, two tooth points do not lie in the same working line in two consecutive groups. It therefore follows that the number of working tooth points over the width of the fillet or band is doubled. Consequently as compared with the known rib set card clothing a smaller number of teeth per width of band may be employed for the card clothing with staggered rib setting, assuming the distribution of the tooth points to be the same in both cases.

In consequence of the smaller number of teeth in the width of the band, a thicker wire, with flattened points, may be used for the teeth, which can therefore be made stronger. Moreover the width of the teeth may be greater, thus further increasing the stability and firmness of the teeth in the foundation or fabric of the card clothing. Another advantage consists in the fact that such a card clothing, for example as shown in Figs. 5 and 6, when applied on cylinders, drums, or the like, does not present open passages or bare intervals at the adjacent edges of the fillets or bands, and consequently a closed or continuous carding or toothed surface can be obtained over the entire width of the carding engine. Another advantage of the manufacture of a card clothing with staggered rib setting is that owing to the smaller number of teeth which may be employed per width of band, the band needs to be much less perforated, so that it is more durable than the ordinary rib set band or fillet, which has to be perforated with a much larger number of holes. Further, card clothing with staggered rib setting according to the invention has the advantage that very small, fine passages or ways can be obtained as the result of the uniformity of the staggering and placing of the tooth points, which fine passages, as above explained, are essentially necessary for working with a fancy roller (Volant). In consequence of the finer or closer setting of the teeth or working points, the fibrous material operated upon encounters an increased number of working points, and owing to the extremely fine passages, the fibrous material cannot penetrate too deeply between the teeth. In point of fact, owing to the completely closed working surface presented by the teeth, the fibrous material will only penetrate into the upper surface of the card clothing, and not deep down into same, so that the fancy roller (Volant) may be more easily adjusted, while nevertheless securing proper and even better combing of the fibrous material.

Inasmuch as the tooth points of the card clothing with staggered rib setting can be distributed much more closely together over the entire width of the carding engine, the points may be set farther apart one behind another, that is to say in the working direction. The tooth points are therefore less closely set in this direction, so that the fancy roller (Volant) has freer play around the more independent tooth and better lifting of the fibrous material is insured. The tooth in the fabric or foundation is therefore freer or more independent and not so crowded by the close setting, and consequently it can develop a greater elasticity than is the case with card teeth set closely one behind the other. It will thus be seen that such card clothing with staggered rib setting allows of effecting better combing and working of the individual fiber by the points set farther apart in the working direction of the card.

If it is desired to employ the staggered rib-set card clothing for cotton spinning, the groups of two adjacent ribs may be staggered to each other in places, as shown in Fig. 8, in order to form open intervals between these staggered groups for the reception of the coarser impurities.

What I claim is:

Rib-set card clothing consisting in the teeth of each group being staggered in relation to each other, the groups themselves being staggered with relation to each other, and the groups repeating themselves in longitudinal alinement after a certain period.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two witnesses, this fourteenth day of February, 1913.

WILHELM DECKER.

Witnesses:
E. K. Foote,
Emil Geyer.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."