

W. SULLIVAN.
CARDING MACHINE.
APPLICATION FILED APR. 3, 1909.

976,756.

Patented Nov. 22, 1910.

Fig. 1.

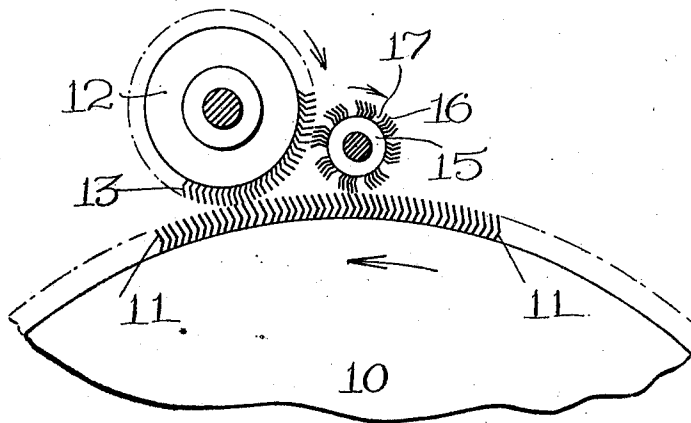
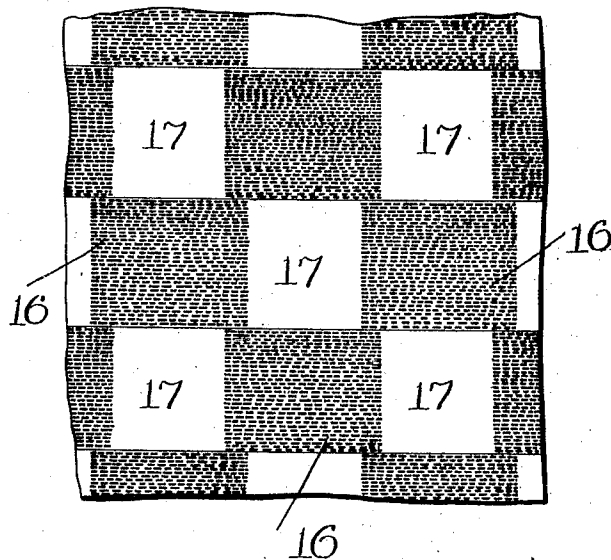


Fig. 2.



Witnesses:

C. F. Messou
C. D. Hartnett

Inventor:
W. Sullivan
By Attorneys:

Southgate Southgate

UNITED STATES PATENT OFFICE.

WILLIAM SULLIVAN, OF LEICESTER, MASSACHUSETTS.

CARDING-MACHINE.

976,756.

Specification of Letters Patent.

Patented Nov. 22, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM SULLIVAN, a citizen of the United States, residing at Leicester, in the county of Worcester and State of Massachusetts, have invented a new and useful Carding-Machine, of which the following is a specification.

This invention relates to carding machines or cards, for wool, cotton and other fibrous material. As at present constructed, carding machines in ordinary use are provided with a main cylinder, one or more workers, and a stripper for each worker. The office of the stripper is merely to remove the stock from the worker and bring it into position where it can be taken up by the rapidly moving main cylinder. The only combing operation takes place between the worker and the main cylinder. It has been found in practice that the shives, burs, husks, etc. are carried through the carding machine and have to be taken out of the cloth by hand. With some kinds of stock this is a very serious handicap, particularly in making white goods, and it is often impossible to take out the shives so that they will not be noticeable in the completed goods.

The principal objects of this invention are to provide a construction which, without adding anything to the complication of the carding machine, will result in removing a very large proportion of the shives, etc. and will at the same time provide an additional combing operation, namely at a point between the stripper and main cylinder so that simply by the use of a main cylinder, worker, and stripper with an inexpensive modification in the latter, a very efficient cleaning operation can be secured which is not now obtained and two combing operations performed where only one is performed now. These advantages are secured according to the present invention by means which does not change the cost of the card itself but which makes the card clothing a little less expensive than under the old practice.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing in which—

Figure 1 shows a portion of the end of a carding machine in diagrammatic form illustrating one embodiment of this invention, and Fig. 2 is a plan of a portion of the stripper on an enlarged scale.

In this drawing, the main cylinder 10 rotates in the direction of the arrow thereon and is provided with card clothing having teeth 11 projecting as usual, forwardly with respect to the direction of rotation of the main cylinder. Rotating at a much lower speed and in the opposite direction to the rotation of the main cylinder is a worker 12 having card clothing provided with teeth 13 projecting backwardly with respect to the direction of rotation of the worker as usual.

So far as I am aware it has generally been the custom in practice heretofore to provide the stripper with card clothing teeth projecting in the same direction as the teeth of the card clothing on the main cylinder where they are substantially in contact, the stripper being rotated in the opposite direction to that of the main cylinder, so that where they come in contact their teeth move in the same direction, and the surface speed of the main cylinder being much greater than that of the stripper the main cylinder easily takes the stock off the stripper. On account of the same construction the stripper easily takes the stock from the worker. Under the former constructions, therefore, there would be no resistance to either of these operations, and consequently no combing operation, the sole function of the stripper being to strip the worker and convey the stock to the main cylinder. According to the present invention the stripper 15 is provided with card clothing teeth 16 projecting in a direction opposite to the direction of the adjacent teeth 11 on the main cylinder. It is preferred not to reverse the direction of rotation of the stripper. In this way it will be seen that the worker takes the stock from the main cylinder in the same way as usual with a combing operation, there being no change in the operation of these parts. Then the stripper which rotates at a higher speed than the worker moves so that its teeth will take the stock from the worker and as the main cylinder rotates faster than the stripper, its teeth will not only take the material from the teeth of the stripper but the latter teeth will resist this action so that there will be a pull on the fibers resulting in a second combing operation between the stripper and main cylinder.

If the stripper were provided with teeth throughout its circumference the result would be that the stock would roll up be-

tween the stripper and worker so that the stripper could not effectively remove the material from the worker. In order to avoid this condition and to assist the cleaning operation, the stripper is provided with card clothing having the teeth thereon in sections separated by spaces 17 which are free from teeth. The card clothing preferably is wound on the stripper spirally in such a way that each section of teeth on one convolution of the card clothing comes in registration with a clear space on the next convolution on each side and vice versa. In this way no two clear spaces are in registration with each other so that there are no large continuous surfaces without teeth. In this way it will be seen that at the front of each one of the sections of teeth on the stripper there will be a solid wall of teeth coming against the stock on the worker which has been passed over by the clear section and that consequently the stock has no chance to roll up in the space between the worker and stripper. It has been found in practice, also, that one of the most important results of this construction is that on account of the way in which the stock is taken up by the stripper from the worker, and also on account of the combing operation performed by the stripper and main cylinder, the stripper itself acts as a cleaning member to remove the shives and the like. Heretofore, with machines in which the stripper works in the old way with a continuous body of teeth on the card clothing, although these teeth fill up with fiber, there is no more dirt and shives in the fiber left thereon than there is in the stock when it reaches the stripper, but under the construction of this invention, the teeth of the stripper are found to be filled with husks, burs and the like and when working on rags, with threads, so that every time the stripper is stripped a large percentage of the foreign matter is removed from the stock. Thus, the stock is cleaned by the card itself, and the combing action substantially doubled, with no increase in cost of construction or operation. The difference between the roving provided from a card supplied with this form of stripper and that produced by the old form is extremely noticeable and the

cloth woven from it is so much cleaner that it has already proved to be a great advantage in this art.

While I have illustrated and described a preferred embodiment of the invention, I am aware that many modifications may be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction shown and described, but

What I do claim is:—

1. A stripper for a carding machine for transferring stock from a worker to the main cylinder, having card clothing helically wound thereon, said card clothing having alternate clear spaces and spaces filled with teeth, each clear space in one convolution registering with a toothed space in the next on both sides, the card clothing having bent teeth with their outer ends extending rearwardly with respect to the rotation of the stripper.

2. As an article of manufacture for transferring stock from a worker to the main cylinder, a carding machine roll having card clothing helically wound thereon, said card clothing having alternate clear spaces and spaces filled with teeth, each clear space in one convolution registering with a toothed space in the next on both sides, said spaces being rectangular the toothed spaces being longer than the clear spaces so as to overlap them at both ends.

3. As an article of manufacture, a carding machine roll having card clothing helically wound thereon, said card clothing having alternate clear spaces and spaces filled with teeth, each clear space in one convolution registering with a toothed space in the next on both sides, said spaces being quadrangular, the teeth thereof projecting rearwardly at their outer ends with respect to the direction of rotation of the roll.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM SULLIVAN.

Witnesses:

EDWARD M. MORGAN,
A. E. FAY.