G. SCHAEFER.

CLEANER FOR GARNETTING MACHINES.

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1,311,293.

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Fig. 2.

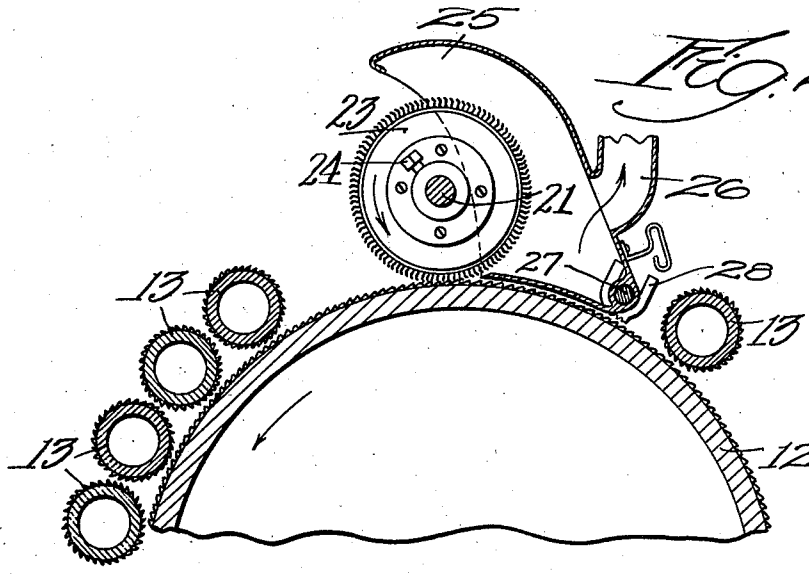


Fig. 1.

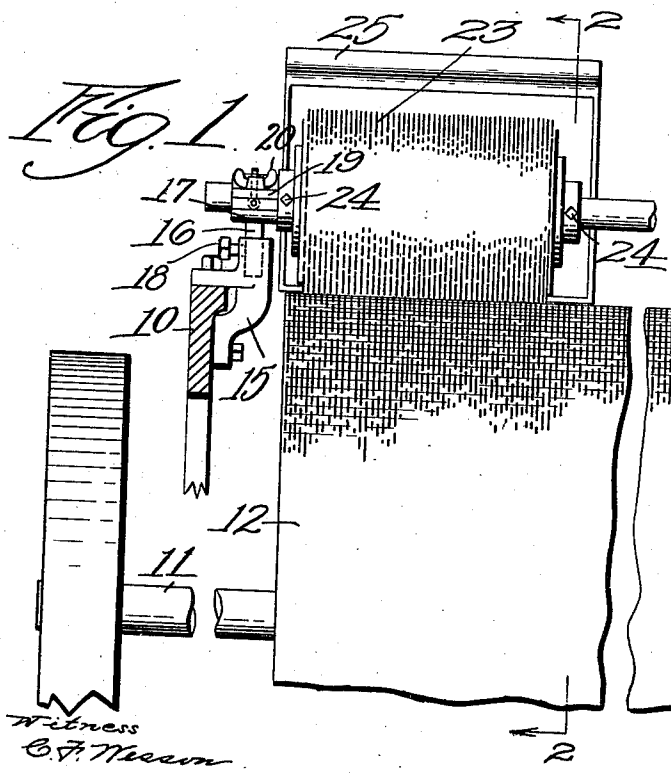
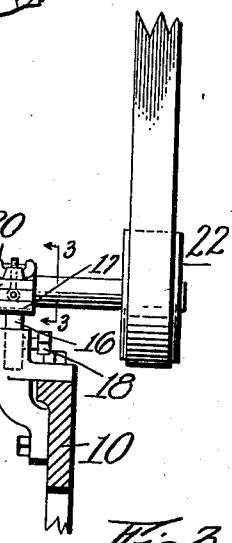
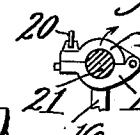


Fig. 3.





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CLEANER FOR GARNETTING-MACHINES.

1,311,293. Specification of Letters Patent. Patented July 29, 1919.

Application filed May 25, 1918. Serial No. 236,559.

To all whom it may concern:

Be it known that I, GUSTAV SCHAEFER, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Cleaner for Garnetting-Machines, of which the following is a specification.

This invention relates to a garnetting machine used in the preparation of wool and the like. These garnetting machines are provided with cylinders and also with rolls working on said cylinders which have teeth made up by a series of rings of steel provided with notches therein and set out of registration with each other and slightly spaced so as to set the teeth slightly apart and permit them to engage and clean the wool. It is well known in practice that these spaces fill up with oil and dirt and other solid matters with a small percentage of fiber therein, but the fiber is so embedded in the other materials that it is hardly to be distinguished therefrom. After they get filled up to a certain extent they have to be cleaned. The machine has to be stopped, and the cleaning is done by hand. This is a time consuming operation and seriously interferes with the use of these machines, reducing their production materially.

The principal object of this invention is to provide a quick and efficient way of cleaning the cylinders particularly but also the rolls in a way that will be more efficient. This I accomplish in a very simple way as will appear.

Referring to the drawings,

Figure 1 is an elevation of the main cylinder of a garnetting machine with a preferred embodiment of this invention applied thereto, the frame being shown in section;

Fig. 2 is a sectional view of the same on the line 2—2 of Fig. 1, and

Fig. 3 is a sectional view of the shaft on the line 3—3 of Fig. 1 showing its support in elevation.

This invention is shown as applied to a garnetting machine only a small portion of which appears. This machine has a frame 10 of the usual type which supports a shaft 11 carrying a main cylinder 12 which is made up of a series of notched rings slightly spaced apart to provide spaced teeth for the purpose specified.

In the ordinary operation a series of rolls 13 made up in the same way are located over the top of the cylinder, several of them being removed as indicated in Fig. 2. The cylinder and rolls are all positively driven as is well understood for the purpose of treating the wool.

According to this invention the frame 10 is provided with brackets 15 on opposite sides directly over the shaft 11 and these brackets are provided with sockets into which project uprights 16 constituting means for supporting bearings 17. These bearings can be adjusted up and down and fixed in adjusted positions by screws as 18 or the like. Each of these bearings is provided with a pivoted cap 19 adapted to be fastened down by thumb screws 20. These bearings are for the purpose of supporting a temporary shaft 21 which extends across the machine. It is provided with a pulley 22 and is driven by belt from another pulley on the machine not shown, so that although it is driven from the power which drives the cylinder 12 and the rolls 13 it can be driven at a higher surface speed. The open topped half bearings are used so that the heavy brush and shaft can be conveyed over them and dropped in from above. This is done by the usual trolley arrangement usually employed for manipulating the rolls and not shown.

On this shaft is placed a cylindrical brush 23 which is made up of an ordinary cylinder preferably having a surface formed by winding a strip of card clothing thereon. It is rotated in such a direction that the teeth of the card clothing at the point of contact with the cylinder 12 move in a direction opposite to that of the rotation of the cylinder, and it is set so that the teeth of the card clothing enter the spaces between the teeth of the cylinder 12 so as to dig out the hardened oil and solid matter therein, the cylinder 12 of course running backwardly at the time.

The shaft 21 is rotated at comparatively high speed. I have shown the cylinder 23 as extending only part way along the length of the main cylinder but it could be full length. However, I have shown it of short length. By loosening the set screws 24 it can be moved along to a new position and fixed to the shaft again for another operation. I have provided a dust pan 25 substantially surrounding the brush and having

an outlet 26 which can be connected with an exhaust fan not shown for the purpose of taking away the material loosened from the cylinder. It is not necessary to remove the dirt by power however if it is made as shown for it will receive and hold a large quantity. It consists of a curved casing almost surrounding the brush, two ends, and a bottom fitting the curvature of the cylinder and reaching back from the point of contact between the cylinder and brush to provide a large space for the dust. It can be held by hand but I have shown a holding rod 27 extending across the machine and resting in the bearings 28 from which a worker roll 13 is removed.

It will be understood, also, that this brush is used to clean the worker rolls 13, but in order to do that the brush is removed from the machine preferably and placed in a support and the workers brought up to it. The cylinder, however, cannot be manipulated in that way because it weighs several tons.

In the operation of the device for the cleaning of the cylinder 12, several of the worker rolls 13 are removed from the top of the cylinder and the shaft 21 with the brush thereon is set into its bearings 17 and the caps 19 fixed in position. The belt is placed on the pulley 22 so as to rotate the brush in the direction indicated by the arrows in Fig. 2. The belt on the pulley of the cylinder 12 can be replaced by a cross belt so as to run the cylinder backward, as indicated by the arrow and at a slow speed, but ordinarily it is just as well to take off the belt altogether and turn this pulley by hand. The cylinder 12 running backward the teeth move in such a direction that, as the teeth of the card clothing on the brush 23 pass forwardly between them at a high speed, they effectively remove the hard oil, grease, soap, and any other matter that may be contained therein.

I have also found in practice that it has another beneficial effect, for if the cylinder teeth are slightly bent as frequently happens, the card clothing will tend to straighten them out as it passes between them in the direction indicated.

On account of the presence of the dust-pan or casing 25, the material which is cleaned from the cylinder is entirely removed from it and cannot be deposited back on it even when a fan blower is not present to take the matter away. In that case the dirt is deposited back in the low part of the pan, as will be readily understood. It is to be observed that this extends back away from the brush and down the side of the cylinder 12 so that when the dirt is once deposited in it there is no danger of its being discharged back on the cylinder.

I have demonstrated the value of this invention in my own shop. There I have a garnetting machine the cylinders of which have to be cleaned frequently. As a usual thing it takes three men two hours to clean one cylinder. It is extremely hard and trying work, and under present conditions it is almost impossible to get help to do this work. The difficulties caused by it are such that the operation of this machine under present conditions is a very serious problem. With my invention, however, I can clean all five cylinders on my garnetting machine in an hour and a half, and instead of using three men for the cleaning operation, I now only have one boy to hold the dust-pan. His presence is not strictly necessary when the dust-pan is held by the rod, as indicated in these drawings. Of course I have a man to turn the cylinder in either case.

It is not merely the saving in wages that is important, but the fact that I am able to keep my help better contented by not requiring them to do this hard and disagreeable work. Another advantage lies in the fact that with hand cleaning methods the dust and dirt is simply taken out of the cylinder and a large part of it deposited back on it in a loose condition. Inasmuch as this stuff is plastic, it is easily caused to stick back on the cylinder and a considerable proportion of the stock run through the machine after it has just been cleaned has to be thrown away. All this is avoided by this invention.

I am aware of the fact that devices that look on paper a good deal like this have been suggested for the purpose of cleaning lint from carding machines. In those cases, however, they were employed merely for the purpose of taking off the lint and as far as I am aware their teeth did not set in clear to the bottom of the teeth of the carding machine but only far enough to remove the lint caught between them and sticking out somewhat from the surface. Therefore these devices that have been suggested are not capable of accomplishing this result and furnish no advance in this art. This device however, can be used on carding cylinders as well as garnetting machines.

Although I have illustrated and described only a single form of the invention I am aware of the fact that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claim. Therefore I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

The combination with a fiber preparing machine having a cylinder provided with teeth for operating on the fibers, of a rotary brush located in position for its teeth to enter the spaces between the teeth of said cylinder to remove solid matter therefrom, a shaft with which said brush rotates mount-

ed adjustably adjacent said cylinder, connections for said brush whereby it may be moved to different positions upon said shaft, a casing substantially surrounding said brush for receiving the dirt picked up thereby, said casing having a curved bottom resting on the cylinder and extending substantially to the point of contact between the cylinder and brush, and means for holding said casing in stationary position to prevent its being moved by the cylinder.

In testimony whereof I have hereunto affixed my signature.

GUSTAV SCHAEFER.

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