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C. G. SARGENT.

FIBER CLEANING MACHINE.

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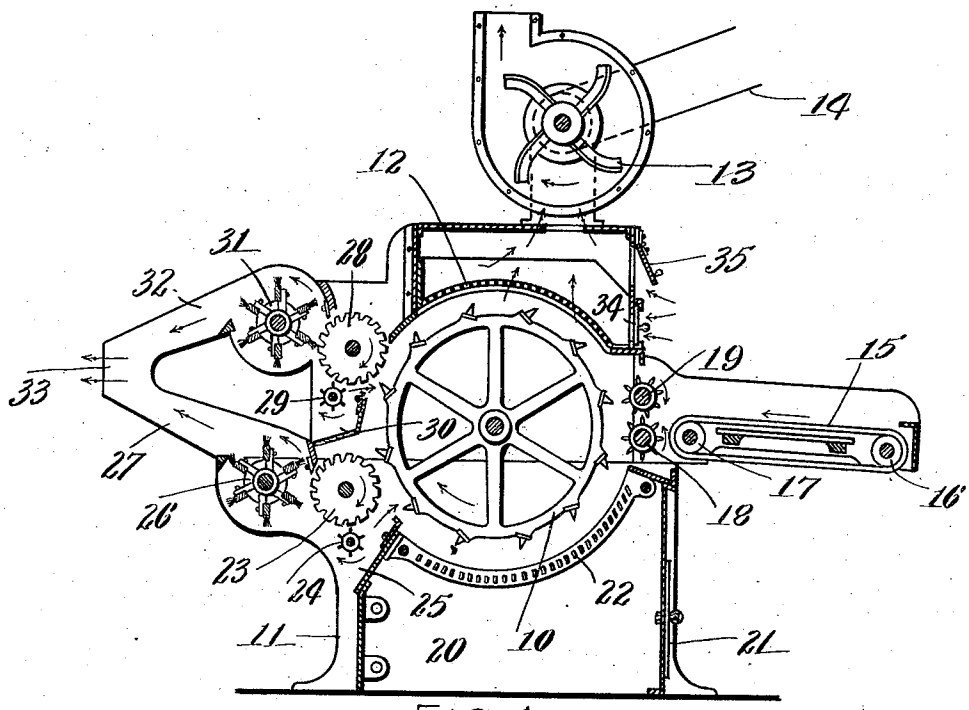

FIG. 1.

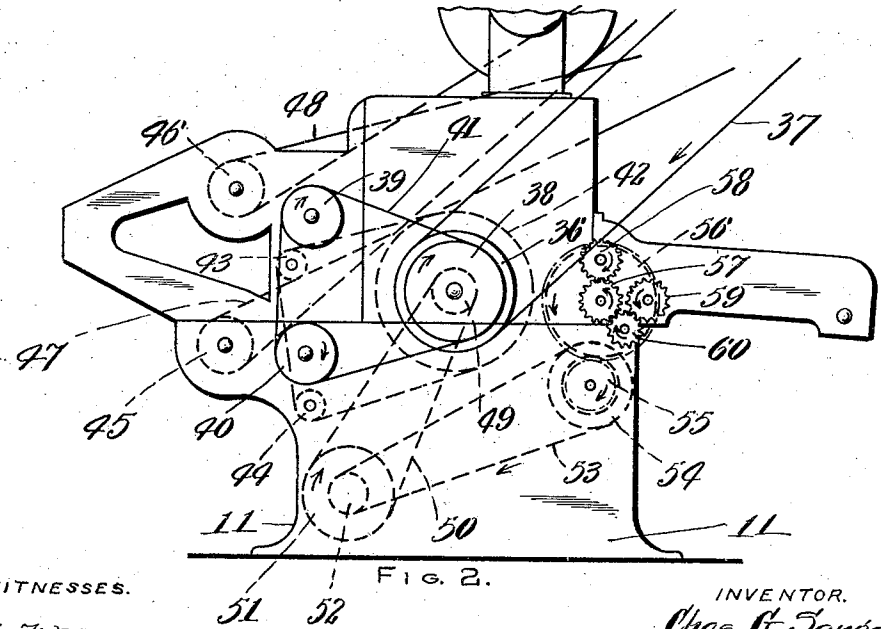

FIG. 2.

WITNESSES.

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FIBER-CLEANING MACHINE.

No. 868,944. Specification of Letters Patent. Patented Oct. 22, 1907.

Application filed December 20, 1906. Serial No. 348,686.

To all whom it may concern:

Be it known that I, CHARLES G. SARGENT, a citizen of the United States, residing at Graniteville, in the town of Westford, county of Middlesex, and State of Massachusetts, have invented a new and useful Fiber-Cleaning Machine, of which the following is a specification.

This invention relates to fiber cleaning machines, and particularly to that style of machine which is used for removing burs and other impurities from wool, which style of machine is commonly termed a "bur picker." This style of machine consists of a revolving main or picking cylinder to which the stock is fed so that it will be combed out thereon to allow the heavier impurities to drop therefrom. The stock is taken from the picking cylinder by a bur-cylinder, usually rotating in opposition to the picking cylinder, and engaging the stock after it passes onto the bur cylinder is a guard which usually is made in the form of a rapidly rotating cylinder having bars or floats, which cylinder is set just to scrape the surface of the stock, and thereby to separate and throw out any burs or other impurities. An air draft is arranged so that as this action takes place any fibers of stock which may be knocked off from the bur cylinder by the guard are sucked back onto the body of the stock in the machine, this current of air being adjusted so as not to be strong enough to suck back onto the main body of the stock the burs or other impurities which are separated by the guard. The treated stock is then taken from the bur cylinder by a brush.

Attempts have been made to improve the quality and increase the quantity of work done on these machines by arranging the machines to have two bur cylinders to take the stock from the picking cylinder so as to treat the stock at the two points where it thus leaves the main cylinder. These prior machines, however, have been disadvantageous in operation, because by their constructions the burs or impurities removed by one guard have necessarily been thrown back into the stock and have not been removed therefrom as they should be.

The object of this invention is to construct a machine so that the quality and quantity of work can be improved and increased, and so that all the burs and other impurities removed therefrom at a plurality of points shall be separated from the stock in a practical and simple way.

The invention will be understood by referring to the accompanying drawing, in which

Figure 1 is a sectional elevation illustrating a machine constructed to embody my improvement, and Fig. 2 is a diagrammatic view illustrating the arrangement of driving belts and gearing.

Referring to the drawing and in detail, 10 designates the picking cylinder, consisting of a large drum having teeth or spurs on its periphery. This drum is journaled in a casing or frame 11. A screen 12 is arranged in the casing above the picking cylinder 10. A suction fan 13 is arranged on top of the casing, and is rotated by a belt 14. This fan is arranged to suck out and carry off all light impurities, dust, etc. liberated from the stock as it is being cleaned, and also to perform the function of keeping the stock from escaping with the burs.

The stock is fed to the picking cylinder by means of an apron 15 mounted on rollers 16 and 17 which direct the stock to feed rolls 18 and 19, which are provided with spur teeth to take the stock from the apron and pass the same to the picking cylinder 10. The feed rolls 18 and 19 are sometimes fluted instead of toothed.

The bottom of the casing or frame is made in the form of a box 20 having a door 21, and a rack or series of bars 22 is arranged under the picking cylinder, whereby as the stock is combed out and taken onto the picking cylinder 10, all heavy dirt, etc. will drop down through the rack or screen.

Coöperating with the picking cylinder is a bur cylinder 23 which I will hereafter speak of as the lower bur cylinder. This cylinder is arranged to take part of the stock from the picking cylinder. This bur cylinder is rotated in opposition to the picking cylinder for this purpose.

A guard 24 preferably made in the form of a rapidly rotating cylinder having floats is arranged to beat or strike on the stock taken from the picking cylinder by the lower bur cylinder 23. The casing is cut away where the cylinder 23 and guard 24 are arranged, and a space 25 is left below the guard 24, which space constitutes a bur-escape. A rotating brush 26 is arranged to take the stock from the lower bur cylinder 23 and pass the same into a chute or stock-escape 27. An upper bur-cylinder 28 is also arranged to take stock from the picking cylinder 10. A guard 29 is arranged in connection therewith, and the casing is so arranged that a bur-escape 30 is provided under the cylinder 28 and guard 29, this bur escape being in the form of a trough in which the burs and impurities removed by the guard 29 are thus deposited outside of the machine, and from which trough the burs and impurities may be removed by the attendant or otherwise as desired. This bur escape 30 thus comes between the two bur cylinders 23 and 28.

Coöperating with the upper bur cylinder 28 is a rotary brush 31 which takes the stock from the cylinder 28 and transfers the same into a stock escape 32. The two stock-escapes 27 and 32 may be united, if desired, in a common outlet 33, through which the treated stock is blown or delivered.

The casing is provided at its front with the usual draft regulator or register 34 and door 35. By adjusting the register and door the degree of suction exerted by the suction fan 13 at the back of the machine can be adjusted.

It will be noticed that an air inlet is provided through

each bur escape 25 and 30, and by the adjustment above mentioned, the flow of air through the same is adjusted. As the air flows in through the bur escapes, it necessarily passes through the two layers of stock or fiber passing from the picking cylinder to the bur cylinders, and thus sucks back any stock fibers knocked off from the bur cylinders by the guards, and at the same time, adjustment is made so that the burs or impurities which have a heavier specific gravity than the fibers will drop out through the bur-escapes.

By providing bur-escapes to direct the burs and impurities removed by the plurality of guards outside of the machine, the quality of the work is improved, because the fibers are thoroughly opened out and dusted, and there is no possibility of any of the burs or imperfections being removed being thrown back into the machine, and the quantity of the work is increased because much more stock can be fed to the machine than where a single bur cylinder is used, as each bur cylinder will take its share of stock.

The invention can be carried out by employing more than two bur cylinders, and by providing a separate bur-escape in connection with each one thereof.

One convenient way for driving the parts is shown in Fig. 2. A pulley 36 is arranged on the shaft of the picking cylinder 10 and is driven by belt 37. A pulley 38 is arranged on the shaft of the picking cylinder, and pulleys 39 and 40 are arranged on the shafts of the bur cylinders, and a belt 41 is trained around the three pulleys 38, 39 and 40 to rotate the bur cylinders. Another pulley 42 is arranged on the shaft of the picking cylinder 10, preferably at the opposite side of the machine, and pulleys 43 and 44 are arranged on the shafts of the guard cylinders, whereby the guard cylinders will be rotated.

The rotary brushes 26 and 31 are provided with pulleys 45 and 46 which are driven by cross belts 47 and 48. A small pulley 49 is arranged on the shaft of the picking cylinder, and by belt 50 drives a pulley 51 arranged on a stud, and which pulley 51 has a pulley 52 turning therewith, which, by means of belt 53 drives a pulley 54 on a stud. By means of gears 55 and 56 the lower feed roll 18 is rotated, and the two feed rolls are geared together by gears 57 and 58. The front roller 17 of the apron is provided with a gear 59 which meshes with an intermediate 60, which latter meshes with the gear 57 on the lower feed roll 18, whereby the apron is turned at the proper speed.

It is within the scope of the invention to use one large rotating brush to co-act with both bur cylinders 23 and 28 without interfering with the guards 24 and 29 and the two bur escapes 25 and 30, but the preferred arrangement is to use two rotary brushes as shown.

Other arrangements of gearing and belts may be provided for driving the apparatus.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a fiber cleaning machine, the combination of a picking cylinder, a plurality of bur cylinders each independently taking stock from the picking cylinder, a guard for each bur cylinder, each bur cylinder and guard being arranged to throw the burs clear of the stock, and means for receiving the burs after the same have been thrown from the stock by the guards and preventing the same from passing back into the stock.

2. In a fiber cleaning machine, the combination of a picking cylinder, a plurality of bur cylinders each independently taking stock from the picking cylinder, a guard for each bur cylinder, and an independent and separate bur escape arranged in connection with each bur cylinder and guard.

3. In a fiber cleaning machine, the combination of a picking cylinder, a plurality of bur cylinders each independently taking stock from the picking cylinder, a guard for each bur cylinder, an independent and separate brush for each bur cylinder, and a bur escape arranged in connection with each bur cylinder and guard.

4. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders, each independently taking stock from the picking cylinder, a guard for each bur cylinder, and two bur escapes, one arranged between the two bur cylinders, and the other outside of the two bur cylinders.

5. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders, each independently taking stock from the picking cylinder, a guard for each bur cylinder, an independent and separate brush for each bur cylinder, and a bur escape provided for each of the two bur cylinders and guards.

6. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders arranged one above the other, each independently taking stock from the picking cylinder, a guard for each bur cylinder, and a bur escape between the two bur cylinders and one below the bur cylinders.

7. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders, each independently taking stock from the picking cylinder, a guard for each bur cylinder, and a bur escape for each bur cylinder, each escape being arranged to direct the burs outside of the machine.

8. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders, each independently taking stock from the picking cylinder, a guard for each bur cylinder, a fiber outlet for each bur cylinder, and a bur escape for each bur cylinder, each escape arranged to direct the burs outside of the machine.

9. In a fiber cleaning machine, the combination of a picking cylinder, two bur cylinders, each independently taking stock from the picking cylinder, a guard for each bur cylinder, an independent and separate brush for each bur cylinder, a suction fan, and an air inlet arranged in connection with each bur cylinder and guard, and forming a bur escape to direct the burs removed by each guard outside of the machine.

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

CHARLES G. SARGENT.

Witnesses:
OSBORN H. CILLEY,
E. A. NORMINGTON.