H. M. SCHWARTZ.

BRUSH MAKING MACHINE.

APPLICATION FILED MAR. 5, 1908.

928,549. Patented July 20, 1909.

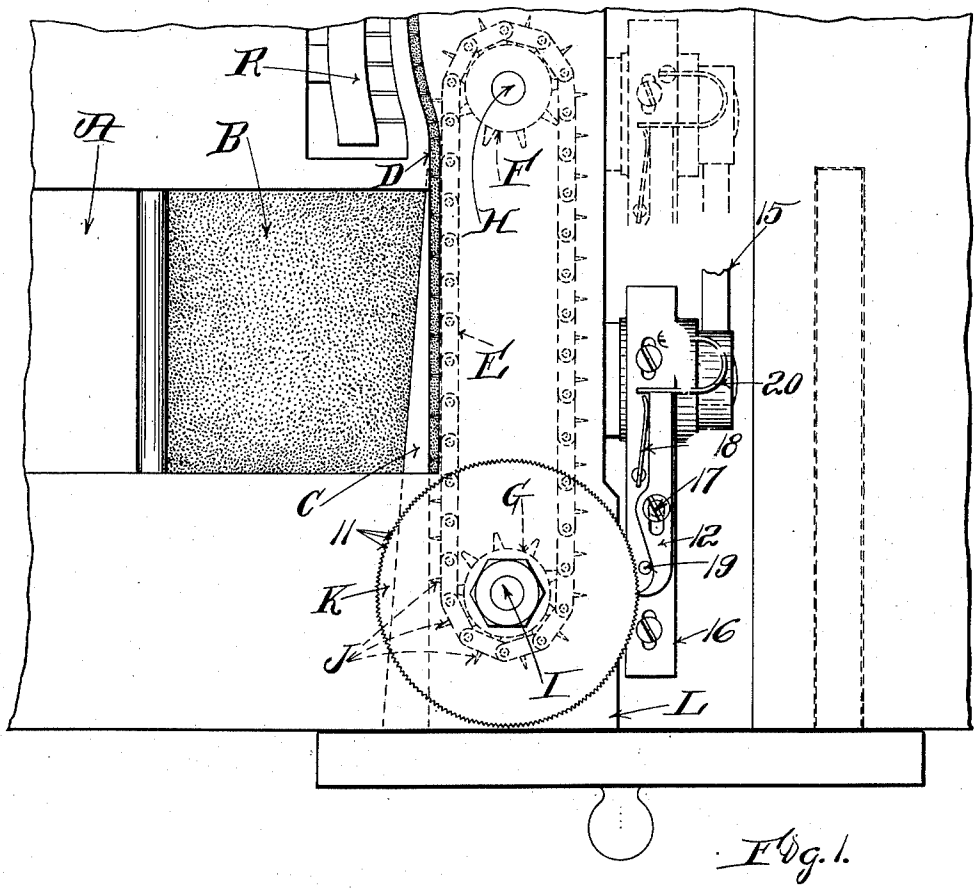


Fig. 1.

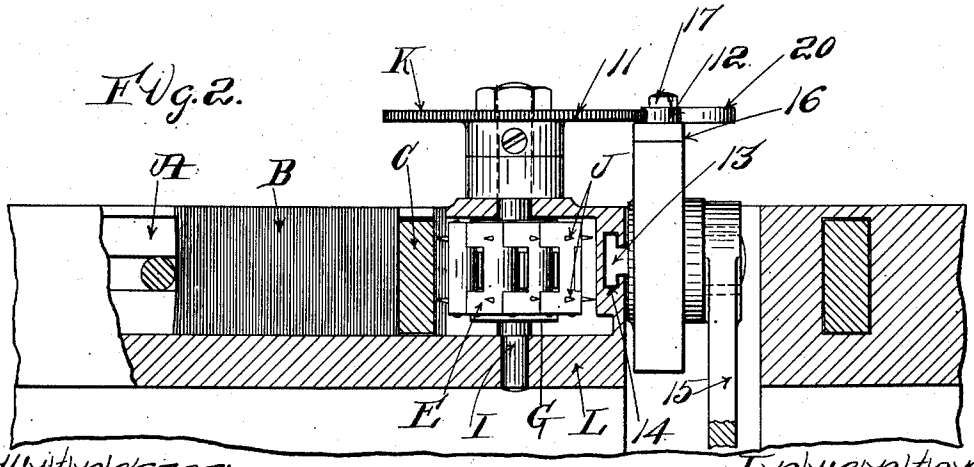


Fig. 2.

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UNITED STATES PATENT OFFICE.

HERMAN M. SCHWARTZ, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR TO THE FLORENCE MANUFACTURING COMPANY, OF NORTHAMPTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

BRUSH-MAKING MACHINE.

No. 928,549. Specification of Letters Patent. Patented July 20, 1909.

Application filed March 5, 1908. Serial No. 419,306.

To all whom it may concern:

Be it known that I, HERMAN M. SCHWARTZ, a citizen of the United States, residing at Northampton, county of Hampshire, State of Massachusetts, have invented a certain new and useful Improvement in Brush-Making Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

In brush making machines of the well known Gane type, by means of which knots of bristles are set in brush blocks by means of anchors or staples, the bristles are separated from a solid mass by means of a slice bar, and a continuous stream is fed forward through a channel to the tuft forming mechanism. In these machines as actually constructed the movement of the bristles in the channel is accomplished by means of a rake and a chain provided with needles or spikes which engage the stream of bristles in the bristle feeding channel. In machines of this type, it is necessary that the knots or tufts each contain the same amount of bristles and this uniformity in the size of the tufts is largely dependent upon the evenness and smoothness with which the stream of bristles is fed forward from the mass of bristles to the device or devices which separate the stream of bristles into the knots or tufts. Heretofore in machines of this kind as actually constructed in which the rake and chain are both employed this movement of the stream of bristles has been accomplished by causing the so-called rake to move, but the bristle feeding chain has not itself been driven.

My invention has for its object to provide automatic means of actuating the feed chain in addition to the means employed to actuate the rake. Furthermore the device embodying my invention is so constructed that the feed chain exerts a constant and equal pressure on the bristles in the bristle feeding passage, thereby insuring that the bristle feeding channel at the point where the knot picker operates is always filled with bristles under constant pressure so that an even knot is always formed.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features will be pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a plan view of a device embodying my invention. Fig. 2 is an end elevation thereof, certain parts being broken away for clearness of illustration.

Referring to the drawings,—The reservoir or receptacle for the bristles is indicated at A and the bristles therein at B. The slice-bar, by means of which a portion of the bristles in the receptacle A is separated from the mass of bristles B, is designated C, and furnishes an abutment which forms one side of the initial portion of the bristle passage D down which the stream of bristles is carried toward the knot picker by means of the rake R, in conjunction with an endless spike chain E. The chain E passes around a pair of sprocket wheels F and G mounted on axles H and I respectively. This chain is provided with spikes or needles J, J, there being preferably two needles on each link as will be plainly seen in Fig. 2. The sprocket wheel G is actuated in one direction to drive the said chain E by means of the following mechanism.

On the axle I is located a ratchet wheel K provided with a large number of fine notches 11 in its periphery. This ratchet wheel K is in turn actuated by a pawl 12 which is located on a slide 13 running in a groove 14 in the frame L of the machine. This slide is actuated by a swinging link 15 operated by some moving part of the machine. I have not thought it necessary to show the means by which the said arm 15 is actuated as such arms occur frequently in brush making machines of this kind. Fast to the slide 13 is a block 16 upon which the pawl 12 is supported in a substantially horizontal position. The pawl 12 is provided with a V-shaped end as seen in Fig. 1 and is pivoted at 17 to the said block or plate 16, but the said pivot 17 passes through a slot in the said pawl so that the said pawl 12 is movable for a short distance longitudinally of the said piece 16. A spring 18 holds the point of the pawl against the notched edge of the pawl wheel K and a pin 19 limits the motion of the point of the pawl toward the pawl wheel K. I also provide a U-shaped spring 20 which bears against the back end of the pawl 12 and tends to slide the pawl toward the bottom of the figure shown in Fig. 1. This spring 20 is of sufficient strength so that the pawl 12 will actuate the feed wheel K under ordinary conditions, but will give when the bristle feeding passage is full of bristles and the bristles

therein are packed with a predetermined density. After the knot picker (not shown) has taken a knot of bristles from the front end of the bristle feeding passage, the next half stroke of the machine actuates the spike chain E and feeds the bristles forward. If for any reason the bristles in the passage are already packed with the required density, the spring 20 yields and the ratchet-wheel is not turned by that stroke of the machine. The lever or swinging link 15 is given one oscillation for each tuft that is set. Each oscillation of the link 15 advances the pawl wheel K a predetermined number of notches unless the spring 20 yields but by this means the bristle feeding passage is kept constantly filled with bristles which are packed to the desired density and an even tuft or knot is produced.

I claim as my invention,—

1. In a brush making machine and in combination, a bristle reservoir, abutments forming with an endless chain a bristle feeding channel, a rake, and an endless chain to move the stream of bristles in the channel, and automatic means for driving said endless chain.

2. In a brush making machine and in combination, a bristle reservoir, abutments forming with an endless chain, a bristle feeding channel, a rake and an endless chain to move the stream of bristles in the channel, and independent automatic means for actuating the said rake and endless chain.

3. In a brush making machine and in combination, a bristle reservoir, abutments forming with an endless chain a bristle feeding channel, an endless chain to move the stream of bristles in the channel, pawl and ratchet mechanism for actuating the said chain and a spring engaging the said pawl and yielding when a predetermined density of bristles in the channel has been reached so that the said pawl does not thereafter actuate the said ratchet.

4. In a brush making machine and in combination with a moving part thereof, a bristle reservoir, abutments forming with an endless chain a bristle feeding channel, an endless chain provided with spikes to engage the bristles in the channel, a sprocket wheel for said endless chain, a ratchet wheel on said sprocket wheel, a pawl on the said moving part of the machine and engaging the said ratchet wheel and a yielding member between said moving part and said pawl whereby the said endless chain is moved only when the bristles in the said channel are packed with less than a pre-determined density.

5. In a brush making machine and in combination with a moving part thereof, a bristle reservoir, abutments forming with an endless chain a bristle feeding channel, an endless chain provided with spikes to engage the bristles in the channel, a sprocket wheel for said endless chain, a ratchet wheel on said sprocket wheel, a pawl on said moving part of the machine and a spring between said moving part and said pawl whereby said pawl will compress the said spring and not actuate said endless chain when the bristles in the said channel are packed to more than a predetermined density.

In testimony whereof I affix my signature, in presence of two witnesses.

HERMAN M. SCHWARTZ.

Witnesses:
JOHN H. PARKER,
ALICE H. MORRISON.