

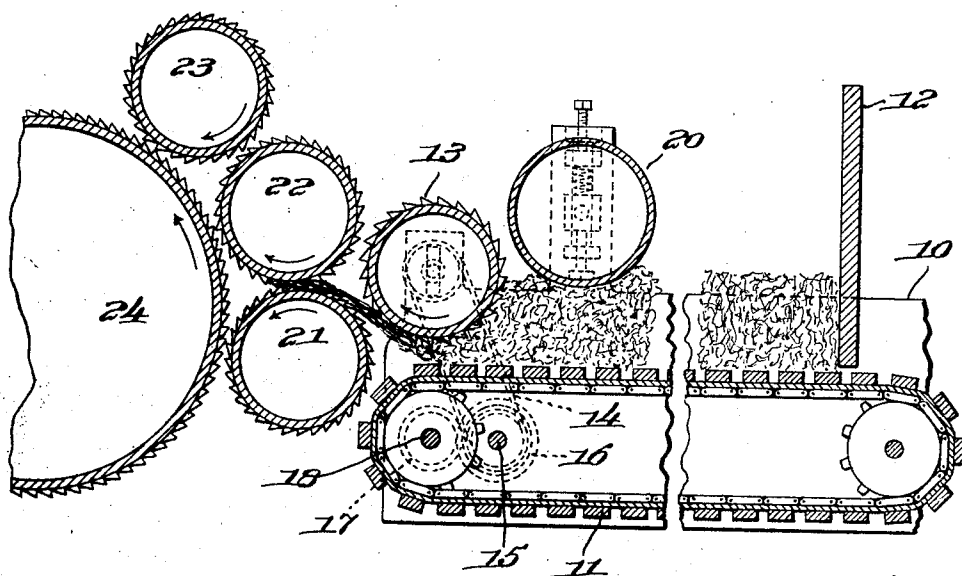
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E. V. BATES

MACHINE FOR FEEDING FIBROUS MATERIAL

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UNITED STATES PATENT OFFICE.

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MACHINE FOR FEEDING FIBROUS MATERIAL.

Application filed December 15, 1924. Serial No. 755,883.

To all whom it may concern:

Be it known that I, EDDO V. BATES, a citizen of the United States of America, and a resident of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Feeding Fibrous Material, of which the following is a specification.

10 This invention relates to means to feed fibrous material and pertains more particularly to feeding mechanism for garnetts, carding machines, and the like.

15 It is an object of this invention to prevent thin spots, which very commonly occur in carded or garnetted material and which is one of the reasons that the material is oftentimes subjected to two or more rough cardings before being presented to a finish card.

20 It is also an object of the invention to utilize the feed rolls of the machine to be fed, in connection with other mechanism, to loosen and straighten out snarled and tangled material as an initial rough carding operation preparatory to presenting it to the somewhat less rugged carding or garnetting cylinders and rolls.

25 In the past, and particularly in garnetts, the material has been delivered to the usual feed rolls by an apron forming part of an automatic weighing and feeding machine such as the well known Bates or Bramwell feeds, the material being dropped from the weighing device onto the apron, and thereafter forced toward the feed rolls by a push board.

30 In this instance the amount of material that could be forced toward the feed rolls was necessarily limited, and consequently a compact mass could not be kept in front of the rolls to be gradually drawn upon by them because of the tendency of the material to be forced over the rolls, at least a large percentage of it, and be delivered to the carding rolls and cylinders prematurely and in addition to that received from between the rolls, which action of course caused the formation of thick spots and prevented good results.

35 Because of the fact that the material could not be presented to the feed rolls in a compact mass of approximately even density, at least adjacent the feed rolls, thin places occurred, as at times more material would pass through the feed rolls,

and be delivered for carding, than at other times, which action was due to the varying density of the material and to its unequal distribution across the face of the rolls. 60

It is an object of the present invention to eliminate these faults by providing means against which the material may be forced quite compactly if desired, and which exercises considerable control over the material to be fed, and which greatly aids in unsnarling tangles and straightening out the fibres preparatory to leaving the feed rolls for the carding operations. 65

The invention consists in certain novel 70 features which will be fully understood from a description of the drawing and the claims hereinafter given.

Of the drawing:

75 The drawing herewith represents in diagram a vertical longitudinal section through a portion of a material or stock feeding machine, showing the invention as applied thereto, and the breast or stock receiving end of a garnett, but it will be understood 80 that the invention is not to be limited to the precise construction and arrangement shown as changes might be made therein without departing from its spirit and scope.

85 It will also be understood that while the invention is shown in connection with a garnett, it is also applicable to carding machines or other machines to which fibrous material is fed.

90 The weighing and feeding machine, a portion of which is shown at 10, is or may be any of the usual or suitable stock feeding machines, and is provided with the stock feeding apron 11 and push board 12, each of which receives its respective movement 95 from a source not deemed necessary to show herein.

Adjustably mounted above the apron 11 and at the discharge end thereof is a toothed roll 13 arranged to be driven in the direction of the arrow thereon by a belt or sprocket chain 14 from the shaft 15 on which is a gear 16 meshing with a smaller gear 17 on the shaft 18. 100

105 From the foregoing it will be understood that in most instances it is advantageous to drive the roll 13 at a slower speed than that of the apron 11, but this may be regulated to suit the occasion by changing the sizes of the gears to attain the speed required. 110

A hold down roll 20 is arranged for, and

may or may not be used at the discretion of the operator or the requirements of the stock being worked.

The roll 20 is preferably mounted adjustably in a part of the machine 10 and so mounted as to yield upward for a limited distance from its lowest adjusted position; but may be arranged to be unyieldingly mounted if desired.

In practice the devices just described will be positioned close to the machine to which stock is to be fed, which in the present instance is the breast or stock receiving end of a garnett, which is provided with the feed rolls 21 and 22, the clearer roll 23 and the lick in 24.

These rolls are or may be driven in usual manner and speed and adjusted for operation as required, the feed rolls 21 and 22 being arranged to receive stock from the apron 11.

From the foregoing it will be readily understood that a greater and more compact quantity of stock may be continually presented to the roll 13, which means that thin or bare spots cannot occur, and the stock cannot be fed to the rolls 21 and 22 any faster than the retarding roll 13 permits, nor can the stock override the roll 22 because of the roll 13, nor can the stock override the roll 13 under ordinary conditions because of its direction of rotation and particularly when the hold down roll 20 is used.

The roll 13 also serves as another and valuable addition to the invention in that its teeth and its speed are so arranged as to function as a drag or retarder for the stock being pulled through the rolls 21 and 22, and by such action causes an initial rough carding of the stock, which is commonly very much matted and tangled, at a point in the process of carding where the parts are rugged and well able to stand the strain.

This initial carding of the matted and tangled material has proven to be of great benefit both to the subsequent carding operations and to the machine effecting them.

By the use of the above described devices it will be readily seen that it is possible to put more stock onto the apron 11 and force it more compactly toward the delivery end without fear of its being delivered to the carding rolls and cylinders before passing through the usual feed rolls than has been possible in the past.

An object of the invention is to prevent thin places in the carded or garnetted material, whether these places occur at intervals transversely of the material or in spots throughout the work.

It has been found that when the stock varies in bulk transversely of the apron 11, as oftentimes happens, and is allowed to be

taken by the feed rolls in that condition, thick and thin spots occur which are objectionable, and re-carding must take place at least once to correct the fault.

It has also been found that by the use of the present invention the stock may be pressed against the roll 13 with sufficient force to cause it to equalize in density transversely as well as longitudinally of the apron, thus ensuring a uniformity of stock to be fed to the rolls 21 and 22.

It will be understood, however, that it is not the intention to exert great pressure on the stock, and that the stock is not injured, nor the feeding process impaired; in fact, a more even feed is attained than heretofore and to such extent that less carding is required to produce finely carded material than has been required in the past.

The hold down roll 20 prevents the stock from overriding the roll 13 and may be arranged to exert downward pressure when occasion warrants.

Having described the invention I claim:

1. A machine for feeding fibrous material comprising a stock conveyor arranged to carry stock toward the machine to be fed; feed rolls arranged to receive stock from said conveyor; means coacting with said conveyor to advance stock towards said feed rolls, said means being arranged to retard the passage of stock between said feed rolls whereby matted and tangled stock is straightened prior to leaving said feed rolls; stock hold down means arranged in advance of said conveyor coacting means, and means to force stock carried by said conveyor towards said first means and said hold down means.

2. In a machine for feeding fibrous material comprising a stock conveyor apron, a toothed roll arranged to coact with said apron to advance stock towards the machine to be fed; a stock hold down roll arranged in advance of said toothed roll; in combination with toothed feed rolls arranged to receive stock from said apron and said toothed roll; and means to drive said toothed roll at a speed less than said feed rolls.

3. In a machine of the class described comprising an endless conveyor belt arranged to carry stock towards the machine to be fed; a toothed roll arranged above said belt at the discharge end thereof; means to drive said toothed roll; a revolvable hold down device arranged in advance of said toothed roll; in combination with means to accelerate the movement of stock along said conveyor and under said hold down roll.

4. In a machine of the class described, comprising an endless conveyor belt arranged to carry stock towards the machine to be fed; a toothed roll adjustably ar-

ranged above said belt adjacent the discharge end thereof; means to drive said toothed roll; a stock hold down roll arranged above said belt and in advance of said toothed roll, said hold down roll being adjustably and yieldingly mounted; in combination with means to accelerate the movement of stock along said belt whereby it is forced against said toothed roll and automatically caused to equalize its density 10 along the face of said toothed roll.

Signed by me at Lowell, Mass., this 11th day of December, 1924.

EDDO V. BATES.