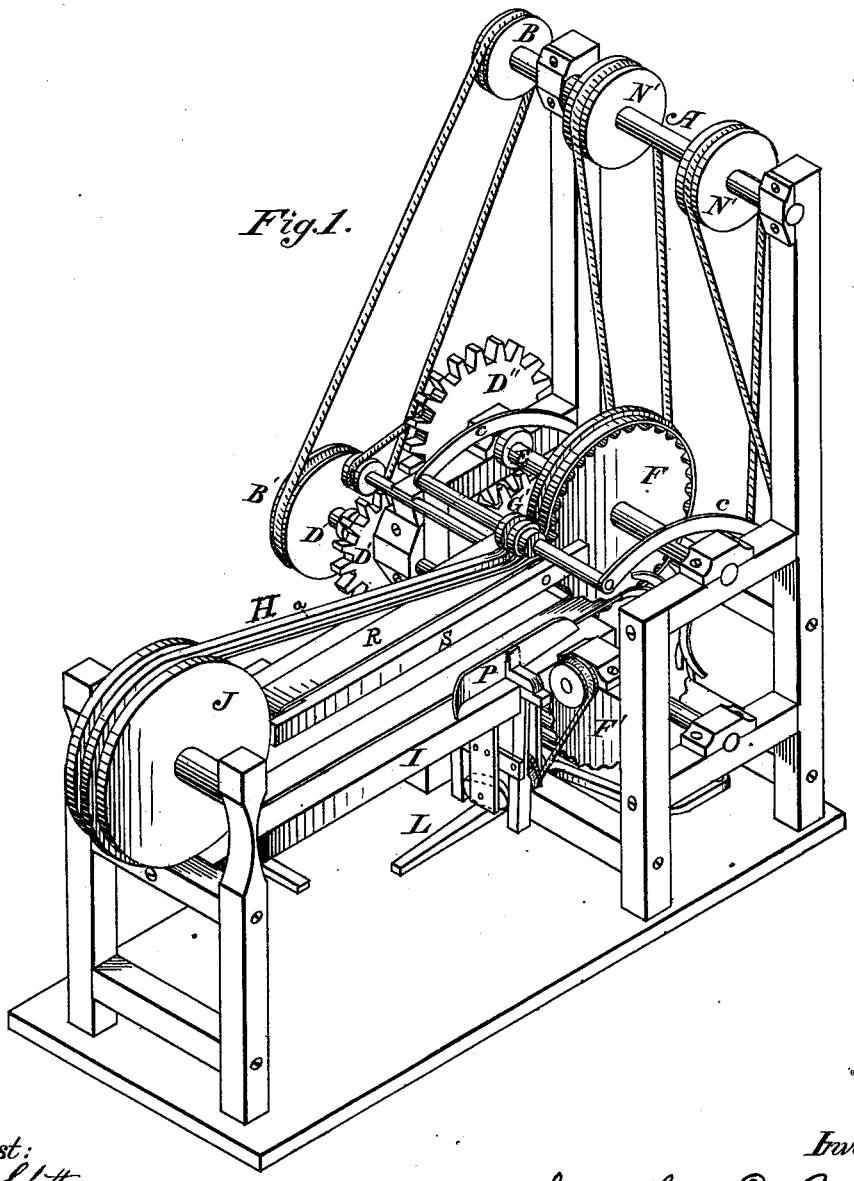
2 Sheets—Sheet 1.

J. D. BAKER.

BRUSH-MACHINE.

No. 190,999. Patented May 22, 1877.

Fig. 1.



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2 Sheets—Sheet 2.

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Fig. 2.

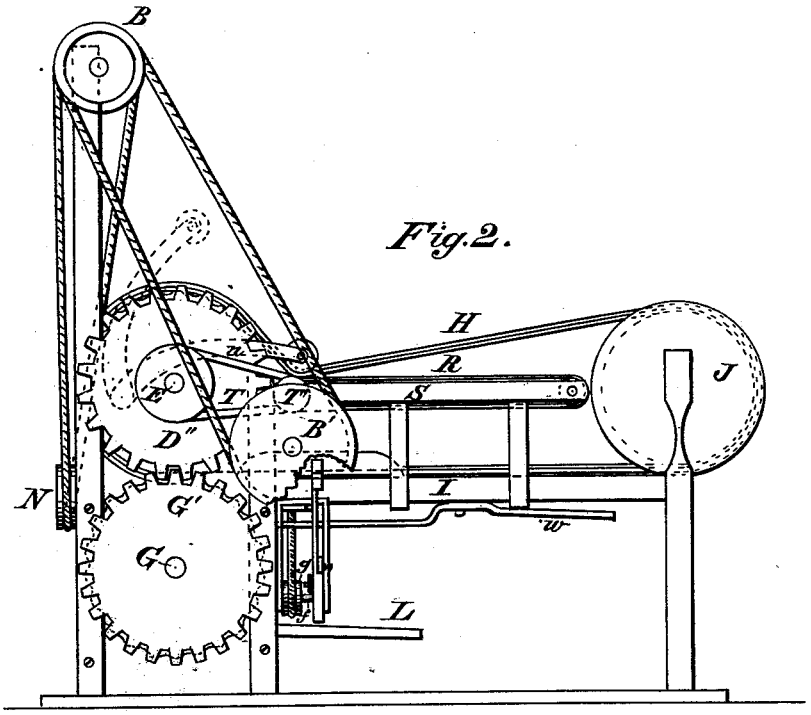
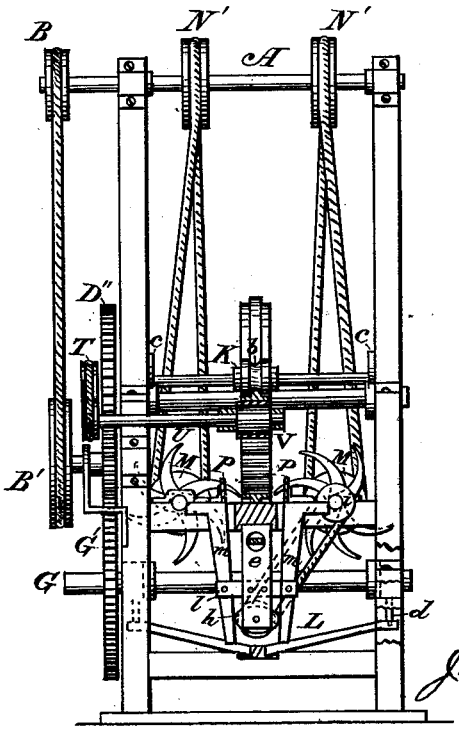


Fig. 3.



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UNITED STATES PATENT OFFICE.

JONATHAN D. BAKER, OF BURLINGTON, VERMONT.

IMPROVEMENT IN BRUSH-MACHINES.

Specification forming part of Letters Patent No. **190,999**, dated May 22, 1877; application filed February 23, 1877.

To all whom it may concern:

Be it known that I, JONATHAN D. BAKER, of Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Machines for Dressing Tampico and Bristles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of machines used for dressing tampico, bristles, and analogous materials, in which the material to be operated upon is carried forward upon a feeding-belt or endless apron, and firmly held, while being dressed, by a revolving drum or feed-wheel, between which and a corresponding drum placed beneath it the material is held while the dressing is performed by rotating combs or scutchers, which act upon both ends of the substance being dressed simultaneously, or which act upon the substance by means of the movable butters, hereinafter mentioned and described, in such manner as to dress the substance or stock from the center; and the invention consists, first, in the employment of feeding-wheels provided with corresponding corrugated peripheries for the purpose of holding the material to be dressed firmly while under the action of the scutchers; secondly, in the employment of a bifurcated lever and certain accompanying devices for the purpose of applying the necessary pressure to the feed-wheels requisite to hold the material firmly in position; thirdly, in the employment, in connection with the feeding-wheels, of a longitudinally-ribbed feed-belt; fourthly, in the employment, in connection with a longitudinally-ribbed feed-belt and feed-wheels, of an endless delivering-belt for the purpose of carrying away the dressed material; fifthly, in the employment, in connection with a longitudinally-ribbed feeding-belt, of a tension-pulley so placed as to preserve an equable strain upon the belt at all times; sixthly, in the employment, in connection with the longitudinally-ribbed feeding-belt and corrugated feed-wheel, of a peripherally-grooved and swinging tightening-pulley, for the purpose of retaining the belt in close contact with the feed-wheel; seventhly, in the construction and method of operating the rotating scutchers; eighthly, in the employment of two horizontally-vibrating butters or regulating devices, and in the means employed for operating them; also, in the combination and arrangement of different parts of the machine, as will be hereinafter fully set forth, and then specifically pointed out in the claims.

Figure 1 of the drawings presents a perspective view of the machine, and shows the relative positions of the several devices of which it is composed. Fig. 2 is a side view, a part of one wheel being broken away, so as to illustrate the arrangement of the devices by which the butters or regulating devices are operated; and Fig. 3 shows one end of the machine, exhibiting the arrangement with relation to the feed-wheels of the rotating scutchers and the regulating devices.

The frame of the machine is composed of three pairs of vertical posts, united transversely by suitable cross-girts, and longitudinally by girts and by the feeding-table of the machine. Two of these posts at one end of the machine are higher than the others, and carry the driving-shaft A, from which, by means of a belt running upon the pulleys B and B′, motion is communicated to the counter-shaft D, carrying the spur-gear D′. The rotation of this shaft and gear imparts motion, through the gear D″, to the shaft E, which revolves in fixed journal-boxes upon the side girts of the frame, and carries the revolving feed-wheel F. The periphery of this feed-wheel is corrugated or fluted, so as to give it a firm hold upon the material passing between it and a correspondingly-corrugated wheel, F′, placed beneath it upon the shaft G, which is rotated by the gear-wheel G′, the latter engaging with the gear-wheel D″ upon the shaft E.

As the spur-wheels G′ and D′ have an equal number of teeth, it is evident that the movement of the two feed-wheels F and F′ will be synchronous, thus causing the corrugations upon their peripheries to fit into each other continuously.

An endless feeding-belt, H, passes around the feeding-wheel F and the tension-supporting-wheel J, its lower part moving along the feeding-table I, controlled laterally by a lon-

gitudinal guiding-groove in the upper surface of the table, formed for the reception of a guiding-rib, *a*, upon one side of the feeding-belt.

A tightening-pulley, K, provided with a peripheral groove, *b*, which receives the guiding-rib *a* of the belt, is journaled in the extremities of the pivoted arms *c c*, and serves to keep the belt in close contact with, and nearly encircling, the feed-wheel F, thus insuring sufficient frictional surface between the wheel and belt to prevent slipping of the latter when heavily loaded.

In order to compensate for any unusual accumulation of stock upon the feed-belt, and between the wheels F and F′, the end posts of the frame, which support the shaft of the wheel J, may be reduced in thickness in their upper part, so as to form a spring; or the journals of the shaft may run in boxes attached to the posts by springs; and the journal-boxes of the shaft G may be carried upon pins *d*, attached to the arms of a bifurcated lever, L, the pins passing upward through orifices in the girts, and bearing against the bottom of the boxes in which the shaft-journals rest, so that pressure or weight applied to the free end of the lever will tend to raise the wheel F′, thus causing it to grasp the material or stock more firmly; and by changing the amount of this pressure or weight, the degree of pressure, and consequently the gripe of the feed-wheels upon the stock passing through the machine, can be regulated, so that no more need be applied than is just sufficient to hold the stock while under the action of the scutchers M M.

These scutchers are formed of two revolving combs, placed one upon each side of the feeding-wheels, and in close proximity thereto. The teeth of these combs are sickle-shaped, and so arranged upon their shafts that each tooth passes nearly through the stock before the next succeeding tooth enters it, thereby enabling them to be run with a minimum amount of power, and effectually preventing the pulling of the stock from between the feeding-wheels, as it is acted upon at both ends by the scutchers simultaneously, or when it is being combed from the center.

Motion is given to these scutchers by quarter-faced belts running from the pulleys N N, secured upon the outer ends of their shafts to the pulleys N′ upon the driving-shaft A.

As the stock is carried forward upon the feed-table I by the feed-belt, its ends are regulated uniformly by the vibrating butters P P, placed upon opposite sides of the table. In order to give motion to these butters pendants or brackets *e* are securely attached to the under side of the feed-table, and carry in suitable journal-boxes the rotating shaft *f*, upon which are firmly secured the pulley *g* and cam *h*. A belt from the pulley *g* runs upon a pulley, *i*, secured to the inner end of one of the scutcher-shafts, thus giving motion to the shaft *f*, with its cam.

Projecting downward from the butters, and pivoted to the cross-bar *l*, are the arms *m*, which pass upon each side of the cam *h*, and by its rotation are caused to vibrate rapidly. After being combed, the stock is carried forward between the periphery of the feed-wheel F and the feeding-belt H, until it passes over the wheel and falls upon the delivery-belt R, by which it is carried from the machine to any desired point. This delivery-belt is supported upon a table or frame, S, and is put in motion by the belt *n*, running upon the pulleys T and T′, the latter pulley being secured upon one end of the shaft U, which sustains the driving-pulley V, through which motion is imparted to the delivery-belt.

The operation of the machine is as follows: The stock to be dressed is placed crosswise upon the inner surface of the feed-belt, which is less in width than the length of the stock. This belt runs over the feed-table, and, of course, carries the stock with it toward the feed-wheels, submitting it in its progress to the action of the vibrating butters, by which the fibers are caused to assume parallel positions throughout their length, as well as bringing their ends into the same line.

When the stock has been carried so far forward as to be held securely between the feed-wheels, with its ends projecting on one or both sides of them, it is subjected to the action of the revolving scutchers, which comb and dress it perfectly. The stock then passes around the upper feed-wheel beneath the feed-belt, and is dropped upon the delivery-belt, by which it is carried to the rear end of delivering-table.

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

1. The feeding-wheels F and F′, with corrugated peripheries, one of them revolving in stationary bearings, while the other is vertically adjustable, substantially as and for the purpose specified.

2. The combination of the vertically-adjustable feed-wheel F′ with a bifurcated adjusting-lever, in the manner and for the purpose described.

3. In a machine for dressing tampico or other similar material, the combination of the feed-wheels, having corrugated peripheries, with a longitudinally-ribbed endless feed-belt, substantially as set forth.

4. The peripherally-corrugated feed-wheels and the longitudinally-ribbed feed-belt, in combination with the delivery-belt R and table S, as and for the purpose specified.

5. The combination, with a peripherally-grooved and vertically-swinging tension-pulley, of a centrally-ribbed feeding-belt, H, as and for the purpose set forth.

6. The feed-wheel F, in combination with the grooved and swinging tension-pulley K and feed-belt H, as and for the purpose described.

7. The horizontally-vibrating butters, pro-

vided with the pivoted pendants *m*, in combination with the cam *h* and its operating mechanism, as specified.

8. The horizontal lever *w*, in combination with the butters and their operating devices, as and for the purpose set forth.

9. In a machine for dressing tampico or other fibrous material, the combination of the following instrumentalities, viz: a feeding-table, a centrally-ribbed feed-belt, the vibrating and movable butters, rotating scutchers, the peripherally-corrugated feed-wheels, the swinging tension-pulley, and a delivery-belt and table for taking away the dressed product of the machine, all the parts being constructed and arranged substantially as set forth.

In testimony whereof I have hereunto affixed my signature this 15th day of February, 1877, in presence of two witnesses.

JONATHAN D. BAKER.

Witnesses:
F. H. SIMONDS,
M. W. HOSMER.