

(No Model.)

2 Sheets—Sheet 1.

J. N. MAINGOT.  
RAMIE DECORTICATING MACHINE.

No. 553,034.

Patented Jan. 14, 1896.



Fig. 1.

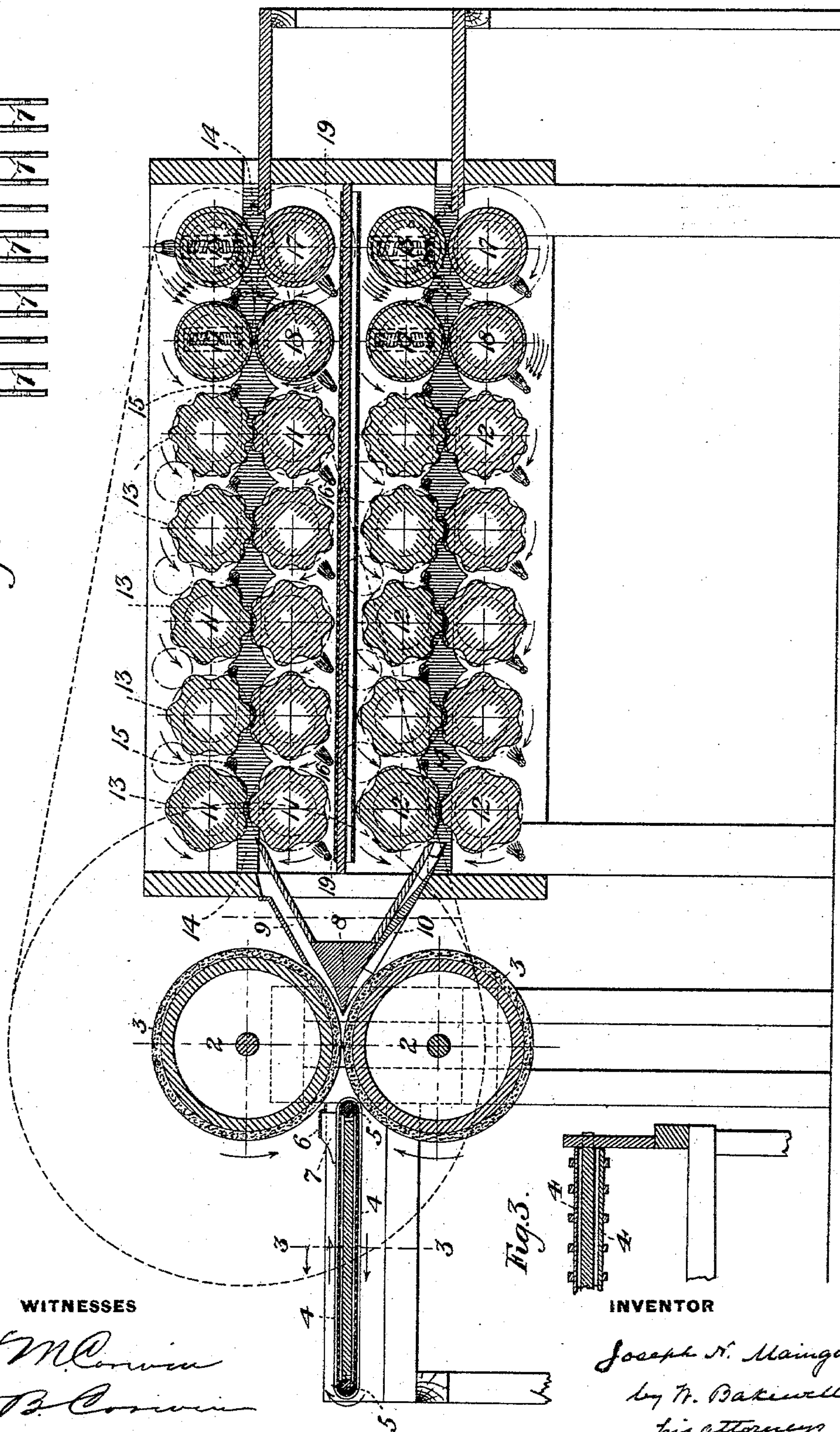
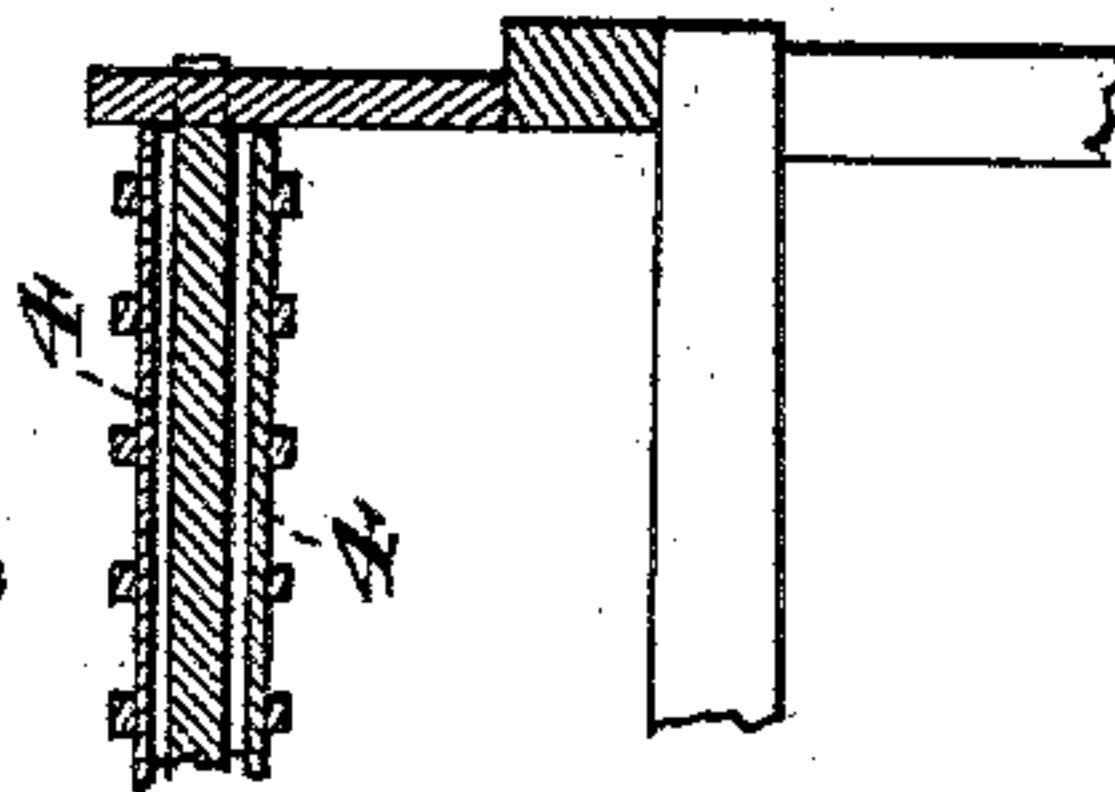


Fig. 3.



WITNESSES

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INVENTOR

*Joseph N. Maingot*  
*by W. B. Baker & Sons*  
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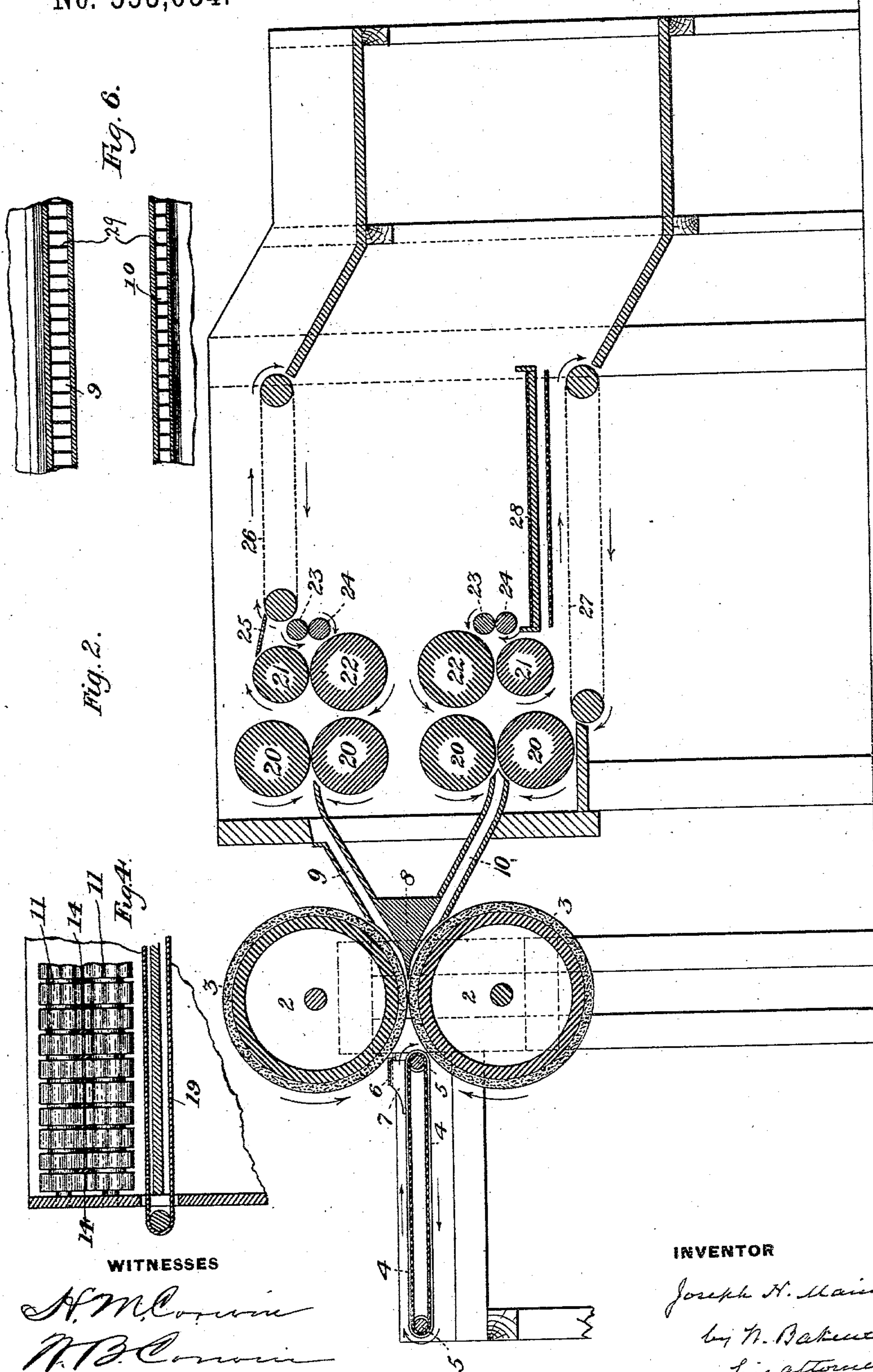
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INVENTOR  
*Joseph H. Maingot*  
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# UNITED STATES PATENT OFFICE.

JOSEPH N. MAINGOT, OF SAN FERNANDO, TRINIDAD, ASSIGNOR TO EDWARD CARRIGAN, OF WARWICK, RHODE ISLAND.

## RAMIE-DECORTICATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,034, dated January 14, 1896.

Application filed April 2, 1892. Serial No. 427,519. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH N. MAINGOT, of San Fernando, Trinidad, have invented a new and useful Improvement in Ramie-Decortivating Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section through my improved machine. Fig. 2 is a similar view of a modified form of the same. Fig. 3 is a detail cross-sectional view through a portion of the endless feeder. Fig. 4 is a front elevation, partly in section, of the crushing-rollers. Fig. 5 is a detail elevation of the plate and partitions above the endless carrier, and Fig. 6 is a vertical cross-section of the guiding-channels and their partitions.

My invention relates to the decortication of fibers for use in textile fabrics, and more especially to that of ramie fiber, in preparing which great difficulty has been experienced in feeding the ramie-stalks and removing the bark and woody center or core between which lie the desired fibers.

It consists, first, in an improved feeding device for feeding the stalks of ramie to the disintegrating-rollers, and, second, in the construction and arrangement of the said rollers and their connections, as well as in the various combinations, as hereinafter more fully described, and set forth in the claims.

In the drawings, in which similar numerals indicate corresponding parts, 2 2 represent a pair of feed-rolls, consisting of bodies of wood or other suitable material mounted in stationary bearings and covered with a layer of yielding material 3, preferably india-rubber. In front of these rolls is an endless belt or chain 4, supported upon and moved by the rollers 5 5. The surface of this belt is provided with a series of longitudinal depressions or grooves throughout its length of sufficient size to receive the ramie-stalks which are laid thereon and fall into the grooves, being pushed laterally over its surface by an operator standing beside it. Above the inner end of this belt is supported a plate 6, from which depend partitions 7, which terminate just above the belt and between its grooves

and serve to positively separate the stalks and guide them between the feeding-rolls 2 2. These rolls exert an equal pressure upon both sides of the stalk, and hence center it and cause it to strike the horizontal cutting or slitting knife 8 upon a diameter, and hence divide it into two equal parts. This knife 8 is triangular in cross-section and directs the stalks into channels 9 and 10. These channels lead the one set, 9, upwardly to the upper series of rolls 11 and the other set downwardly to the series 12, and they are provided with separating-partitions 29, which keep the stalks apart and direct them to the channels of the rollers. As the stalk is divided in a horizontal plane the woody portion of the upper half is upon the under side, and in order to bring the woody part of the other half upon the same side I shape the channels 10 in the form of a spiral, this half of the stalk thus being partially rotated to bring its woody part underneath.

The rollers are provided with longitudinal ribs or teeth 13 which mesh with each other and serve to separate the pellicule from the bark and break up the woody portion and remove the same from the fibrous bark lying therebetween. They are also provided with a series of encircling grooves which lie between the channels leading from the knife, and contain the longitudinal strips 14, which extend the length of the series. These strips are supported vertically in the frame of the machine and form separated channels, which constitute continuations of the channels 9 and 10 and keep the stalks separated while passing through the rollers.

A series of stationary brushes 15 are supported upon cross-rods carried on extensions of the strips between the rollers, and serve to brush off the gummy substances which may adhere to the upper rollers and which would otherwise clog up the same and stop their action. A similar series 16 is supported beneath the lower series of each set and brush off the lower rollers in a similar way.

Five of the disintegrating-rollers are shown, and beyond the same are carried two sets of rubbing-rolls, each set consisting of a roll 17 rotating at about the same speed as the dis-



integrating-rollers, and a second roll 18 rotating at about four times the speed and serving to rub off the adhering particles of refuse matter which have been broken up by the preceding series of rollers, the rapidly-rotating rubbing-roller 18 of the first set being beneath and of the second set above, so that the particles on both sides are removed. These sets of rubbing-rollers, which in the claims I term "roller-brushes," are supported in spring-pressed bearings, and the two faster rotating rolls may be belted together, if desired. A light rubbing touch is thus imparted to the fibers, which is extremely efficient in removing the refuse, the rollers being covered with plush or some similar material.

The teeth of the disintegrating-rollers grow successively smaller near the end of the series, and when the fibers leave them all parts of the woody core and bark have been impinged upon thereby. The refuse particles from the upper series drop upon an endless belt 19, which moves beneath the same and at right angles thereto and removes the same sidewise, while from the lower series they drop upon the ground. The fibers pass from the sets of rubbing-rolls to suitable tables or receptacles, and are thence removed to the boiling and bleaching vats.

The machine of Fig. 2 is much more simple and is designed to flatten the half-sections of the stalks and remove the major portion of the woody core and bark. The feeding devices are the same as is the machine of Fig. 1; but from the channels 9 and 10 the sections of stalk pass to plain flattening-rolls 20, and thence to rubbing-rolls 21 and 22, which are covered with some rough material like sand-paper and whose adjacent surfaces rotate in opposite directions and remove a major portion of the refuse matter. Small feeding-rollers 23 and 24 are placed beyond the rubbing-rolls and serve to pull the ends of the stalks through said rolls. The upper roller, 21, of the upper set carries the bark and pellicule around its periphery to the scraper 25, which removes the same, it being received upon a belt 26 or other suitable conveyer. Of the lower set the smaller roller, 21, is underneath and the fiber is received upon the endless belt 27, while the woody matter or bare stalks of both pairs of rolls are received upon the screen 28.

The operation of the machine is obvious from the above description. The stalks being laid upon the endless belt are pushed over its surface and fall into the grooves therein. Thence they pass between the partitions of the plate 6 to the feeding-rolls, and then being divided by the knife pass through the separated channels to the disintegrating-rolls. These rolls break up and separate the bark and woody center from the ramie fiber, and the stalk-sections being kept separate by the

vertical strips they reach the rubbing-rolls, by which the upper and under surfaces of the fibers are rubbed with a light touch which thoroughly removes all adhering particles.

In the machine of Fig. 2 the stalks, being fed in and split in a similar manner, are flattened by the first sets of rollers and then thoroughly rubbed to remove the crushed refuse portions. This machine is not as efficient as the former, but is much cheaper and is designed for use upon farms where ramie is raised.

The advantages of my invention are obvious. A large number of stalks may be simultaneously fed to the machine by automatic mechanism, when before hand-feeding of one stalk, or at most a few, at a time was necessary. The feed-rollers having stationary bearings and a yielding surface center the stalk which is thoroughly cleaned and stripped of its adhering bark and woody matter by the following sets of rollers.

Many variations may be made in the form and arrangements of the device without departing from my invention, since

What I claim is—

1. In a feeding-machine, the combination with the longitudinally grooved endless feeder, of the plate above the same having the separating partitions; substantially as described.
2. In a feeding-machine, the combination with the longitudinally grooved endless feeder, of the plate above the same having the separating partitions, and the feeding-rolls having yielding surfaces; substantially as described.
3. In a fiber-machine, the combination with the feeding-rollers, the splitting-knife and the breaking-rollers, of separating partitions extending from the feed-rollers through the breaking rollers and keeping the stalks apart from each other, both at the point of crushing and in their passage from one set of rollers to another; substantially as described.
4. The combination with the feeding-rollers and splitting knife, of the separated channels leading therefrom, one set of said channels having a spiral turn therein, whereby the half stalks are turned half a revolution; substantially as described.
5. The combination with the breaking-rollers having annular grooves, of vertical strips located in said grooves, and serving as separating partitions; substantially as described.
6. The combination with the toothed breaking rollers having annular grooves, of vertical strips located in said grooves, and stationary brushes bearing upon the breaking rollers; substantially as and for the purposes described.
7. The combination with the breaking-rollers, of the two sets of rollers, the upper of one set and the lower of the other set being roller brushes rotated at a much higher rate



of speed than their corresponding rollers; substantially as described.

5 8. In a fiber-machine, the combination with the splitting knife and breaking rollers, of a series of covered separated channels arranged side by side and extending from the knife to the said rollers; substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of March, A. D. 1892.

JOSEPH N. MAINGOT.

Witnesses:

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H. M. CORWIN.