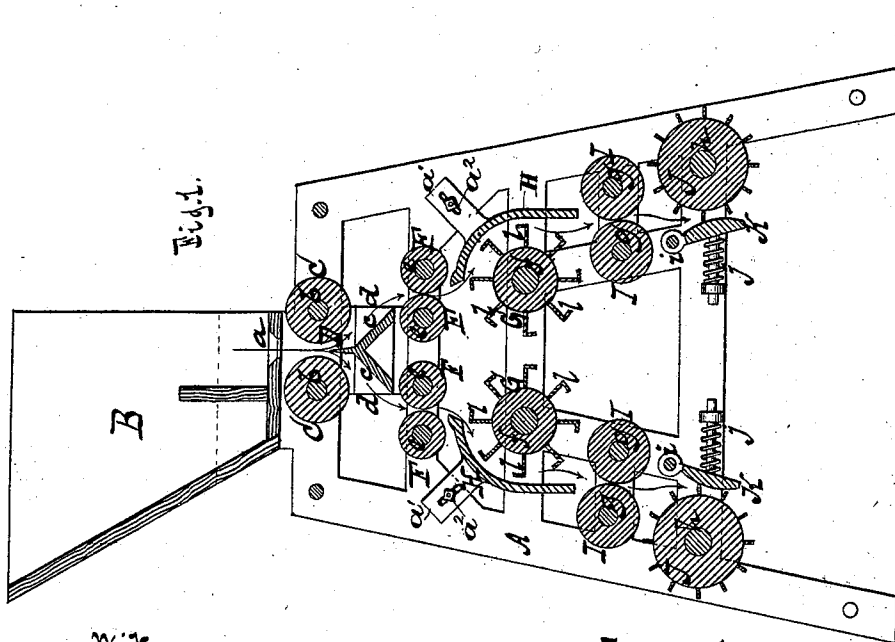
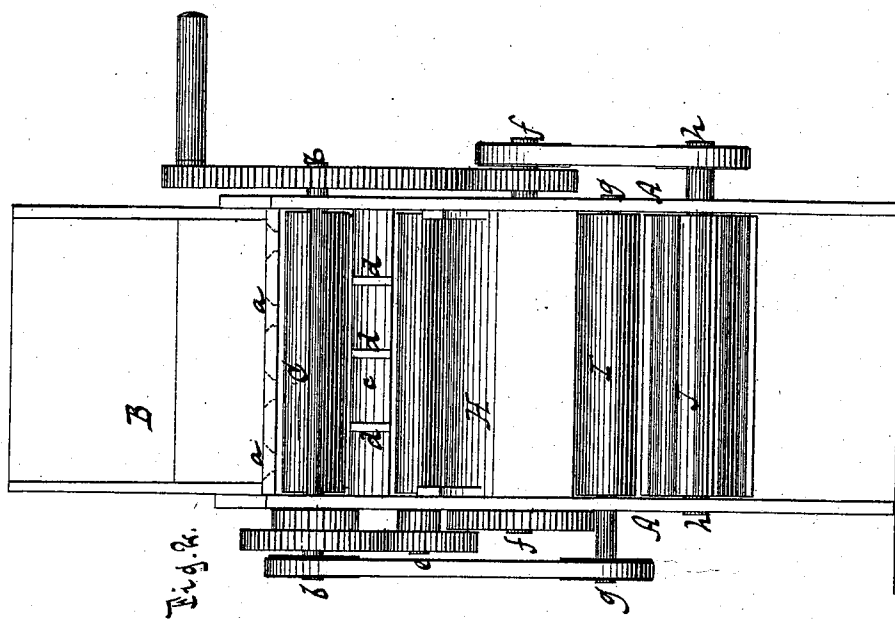


A. ANGELL.
Machine for Disintegrating Ramie, &c.
No. 227,469. Patented May 11, 1880.



Witnesses
Otto Stufeland
William Miller

Inventor
Albert Angell
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his attorneys.

UNITED STATES PATENT OFFICE.

ALBERT ANGELL, OF EAST ORANGE, NEW JERSEY.

MACHINE FOR DISINTEGRATING RAMIE, &c.

SPECIFICATION forming part of Letters Patent No. 227,469, dated May 11, 1880.

Application filed September 24, 1879.

To all whom it may concern:

Be it known that I, ALBERT ANGELL, of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Machines for Disintegrating Ramie and other Fibrous Stalks, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical central section of a machine embodying my invention. Fig. 2 is a front elevation thereof.

Similar letters indicate corresponding parts.

This invention relates to that class of machines for which Letters Patent for the United States were granted to me September 16, 1879, No. 219,668; and the primary object of the present invention is to disintegrate both halves of the split stalks without turning either of them.

It consists in certain combinations, set forth in the claims, of the following instrumentalities, viz: feed-rollers, guide-channels for keeping the stalks straight as they are presented to the feed-rollers, a splitting-knife, two sets of crushing-rollers, diverging guides for directing the two halves of the split stalks away from the splitting-knife, these guides being furnished with partitions to form channels for separating the half-stalks from each other; two revolving beaters for removing the pith from the half-stalks, two movable shells for regulating the space between the beaters and shells for the pithless fiber to pass out, two revolving scrapers for divesting the fiber of skin or bark, pressure-rollers to retard the fiber, thereby insuring the action of the scrapers, and cushions co-operating with the scrapers, as hereinafter more fully described.

In the drawings, the letter A designates the machine-frame, and B a hopper, in the bottom of which are guide-channels *a*, through which the stalks to be disintegrated are introduced to the machine, each separate from the other. These channels *a* are arranged in a rectilinear plane and run parallel to feed-rollers C, which are mounted on shafts *b*, beneath the hopper, and situated on opposite sides of the channels *a*, a space being left between them, as shown.

By the guide-channels *a* the stalks are kept straight as they are presented to the feed-rollers

C, and it may be here stated that such channels can be formed in other ways than in the bottom of the hopper.

Between and below the feed-rollers C is a splitting-knife, D, which is formed at the apex of a ridge, the sides *cc* of which constitute diverging guides and act respectively on one-half of the split stalk. Each of the guides *cc* is provided with partitions *d*, whereby it is divided into as many spaces or channels as there are holes *a* in the bottom of the hopper B.

On opposite sides of and below the diverging guides *cc* are crushing-rollers F, one set to each guide, which are mounted on shafts *e*. I do not, however, confine myself to the use of these crushing-rollers, as the stalk may be fed directly from the feed-rollers and knife to the beaters. My object in adding crushing-rollers is to break up or flatten out each half-stalk before it reaches the beaters G, situated below these rollers.

The beaters G are partly inclosed by shells H, secured to the machine-frame by means of slotted extensions *a'* and set-screws *a''*, which admit of their being moved to or from the beaters, as the thickness of the fiber may require.

Below the two beaters G are presser-rollers I, one set to each beater, which are mounted on shafts *g*, and below the presser-rollers are scrapers J, mounted on shafts *h*. Opposite to the scrapers J are elastic cushions K, one to each scraper, consisting of one or more blocks of wood arranged side by side until the desired width is obtained. The upper ends of these blocks are hung on pivots *i*, and their lower ends connect with a pin and spring, *j*, which gives the elasticity or pressure necessary for the scrapers to remove the bark from the fiber without cutting or injuring the fiber.

Both the beaters G and the scrapers J are constructed with radial blades. The several rollers, beaters, and scrapers are geared together to revolve in the directions respectively indicated by arrows in Fig. 1. As the stalks leave the hopper B they are caught by the feed-rollers C C, and thereby forced upon the splitting-knife D, whereby they are divided into two halves, one of which passes off on one side and the other on the other side of the

knife. The half-stalks, passing off from the splitting-knife D, are deflected by the converging guides *c c*, and are caught by the crushing-rollers F, or, if these rollers are omitted, by the beaters G; and as they pass over the guides the respective half-stalks are separated or isolated from each other by the channels formed by the partitions *d*. The crushing-rollers F flatten out the half-stalks and pass them to the beaters G, by which the pith is removed therefrom, the action of these beaters being as follows: The flattened half-stalks or unflattened half-stalks, as the case may be, are caught by one of the blades of the beaters and drawn under the shells H, when they are beaten by successive blades until the pith is knocked off. The pithless fiber, leaving the beaters G and shell H, is caught by the presser-rollers I, and thereby conducted to the scrapers J. These scrapers J revolve with greater superficial speed than the presser-rollers I, and hence the fiber is retarded, as it were, by the presser-rollers, so that the blades of the scrapers act upon the fiber with a tendency to divest it of skin or bark.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for disintegrating ramie and other fibrous stalks, the combination, with feed-rollers and with a splitting-knife, of guide-channels above the feed-rollers for keeping the whole stalks straight as they are presented to the feed-rollers, substantially as described.

2. In a machine for disintegrating ramie and other fibrous stalks, the combination, with feed-rollers, a splitting-knife, and two beaters, of diverging guides for directing the two halves of the split stalks to the beaters, all adapted to operate substantially as described.

3. In a machine for disintegrating ramie and other fibrous stalks, the combination, with the feed-rolls and an interposed splitting-knife, of downwardly-extending and diverging guides provided with partitions to divide the same into channels for receiving the two halves of the split stock, and two sets of crushing-rolls, arranged respectively beneath the discharge ends of said diverging guides, substantially as and for the purpose described.

4. In a machine for disintegrating ramie and other fibrous stalks, the combination of feed-rolls, an interposed splitting-knife, downwardly-extending and diverging guides having spaced channels, two sets of crushing-rollers, arranged respectively immediately below the discharge ends of the diverging guides, and two revolving beaters, one arranged below each set of crushing-rollers, and acting on the crushed stalks as discharged by the latter, substantially as described.

5. In a machine for disintegrating ramie and other fibrous plants, the combination of feed-rolls, an interposed splitting-knife, two sets of crushing-rolls beneath the splitting-knife, two rotating beaters, two sets of pressing-rolls below the beaters for retarding the fiber, and two rotating cylinders provided with scrapers for divesting the fiber of skin or bark as discharged through the pressing-rolls, substantially as described.

6. In a machine for disintegrating ramie and other fibrous stalks, the combination, with feed-rollers, a splitting-knife, and two sets of crushing-rollers, two beaters, two scrapers, and two sets of presser-rollers and diverging guides, of elastic cushions for regulating the pressure of the fiber against the scrapers, substantially as and for the purpose described.

7. The combination, in a machine for disintegrating ramie and other fibrous stalks, with feed-rollers, a splitting-knife, and two sets of crushing-rollers, two beaters, two scrapers, two sets of presser-rollers, diverging guides, and elastic cushions for regulating the pressure of the fiber against the scrapers, of shells, one to each beater, for the purpose of enabling the beaters to force the pith off against the inside of the circular shells, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 19th day of September, 1879.

ALBERT ANGELL. [L. S.]

Witnesses:

W. HAUFF,
CHAS. WAHLERS.