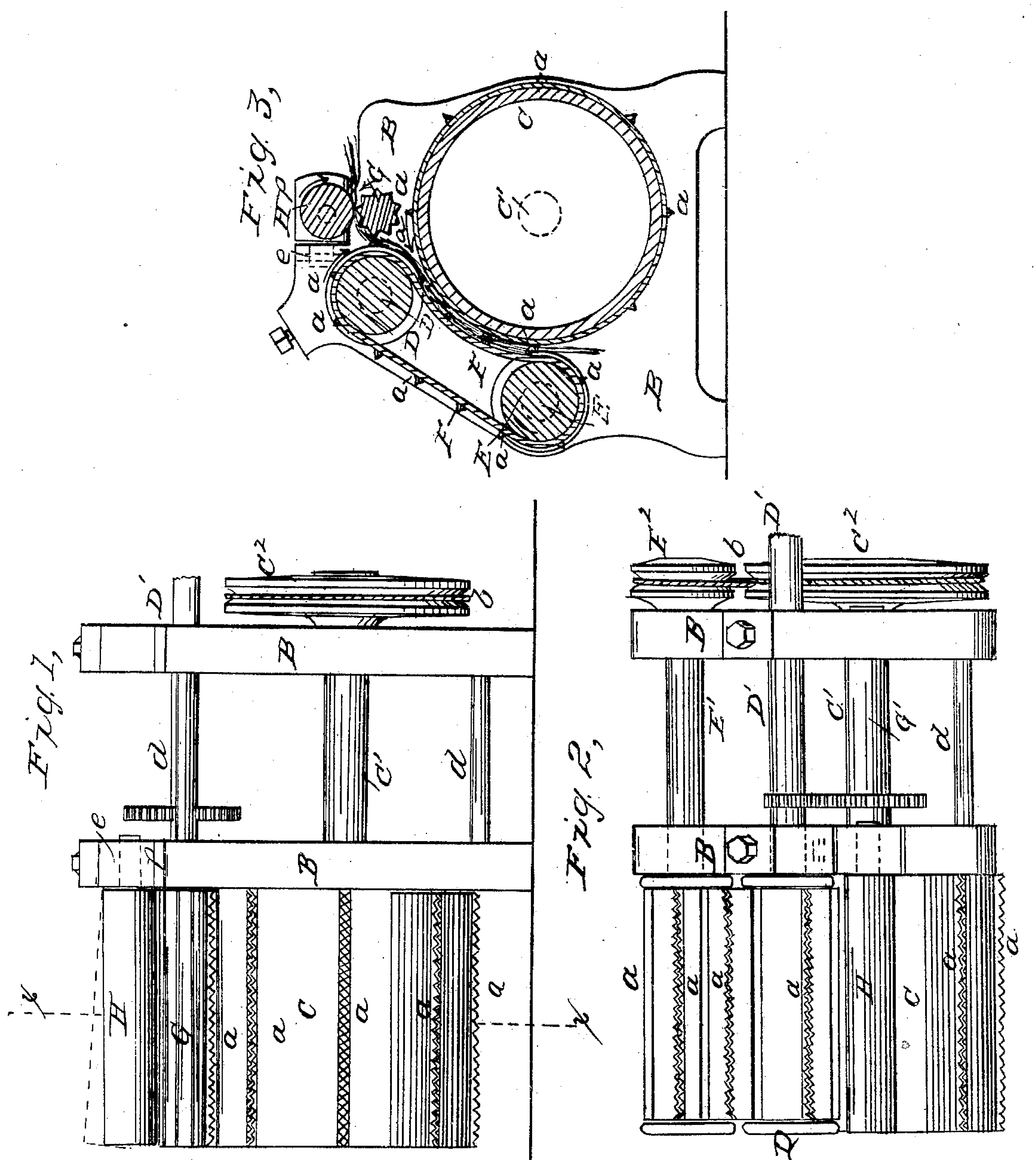
J. A. DE BRAME.

Machine for Separating Fibers from Plants.

No. 37,081. Patented Dec. 2, 1862.



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UNITED STATES PATENT OFFICE.

J. A. DE BRAME, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINERY FOR SEPARATING FIBERS FROM PLANTS.

Specification forming part of Letters Patent No. **37,081**, dated December 2, 1862.

To all whom it may concern:

Be it known that I, J. A. DE BRAME, of the city, county, and State of New York, have invented a new and improved machine for dressing the leaves of the agave and other plants to separate and obtain the fibers thereof; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of the machine. Fig. 2 is a plan of the same. Fig. 3 is a vertical section of the same in the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to the employment, in combination with each other and with suitable feeding-rollers, of a series of combs or combs and scrapers attached to the periphery of a cylinder, and a similar series attached to an endless belt, for the purpose of removing the woody or pulpy portions of the leaves from the fiber.

It consists in so arranging the bearings of the shaft of the said cylinder, those of the shafts of the drums which carry the endless band, and those of the feed-rollers as to leave the machine open on one side to facilitate the removal of the fibers; and it further consists in so applying the upper feed-roller as to allow the end next the open side of the machine to be raised for the purpose of permitting the uncombed ends of the leaves to be taken out of the machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

B B are two standards, which are stayed by stretchers *d d*, to constitute the framing of the machine.

C is the main cylinder, having attached to it a series of longitudinal bars, *a a*, which may be all provided with comb-teeth, or half provided with comb-teeth and half with straight edges, to constitute scrapers, the toothed bars and the straight-edged bars, when both are used, alternating with each other. This cylinder is firmly secured to a shaft, C′, which is arranged to work in bearings in the standards B B, the cylinder being outside of both standards, so as to leave one end uncovered or exposed without the encumbrance of framing, as shown at the left hand of Figs. 1 and 2.

D E are drums for carrying the endless belt F, on the exterior of which there is arranged a series of bars, *a a*, of similar character to those indicated by the same letters on the cylinder C. These drums are secured outside of the standards B B, to shafts D′ and E′, which are arranged in bearings in the said standards parallel with the shaft C′ of the cylinder C, one end of each of the said drums being, like the corresponding ends of the cylinder C, left uncovered. The said drums are so arranged that the belt F will press upon the cylinder C, or upon the combs or scrapers *a a*, provided thereon when nothing intervenes between it and the said cylinder; and the drum-shaft E is furnished with a pulley, E^2, around which and a pulley, C^2, on the cylinder-shaft there runs a band, *b*, to communicate motion from one to the other, to cause the bars *a a* on the drum and those on the cylinder to move at about the same velocity. The drum-shaft D′ is the driving-shaft, and the drum E and its shaft E′ derive motion from the drum D through the belt F.

G H are the feed-rollers. The lower one, G, of the said rollers is of iron and fluted, and is secured to a shaft, G′, which is arranged parallel with the cylinder and drum shafts in bearings in the standards B B in such position that the said roller is just above the cylinder and just out of contact with its bars *a a*, one end of the said roller being uncovered like the corresponding ends of the cylinder and the drums D E. The shaft G′ is intended to be geared with the driving-shaft D′, so that the roller G may derive a positive motion therefrom, the velocity of its periphery being very much slower than that of the periphery of the drum and surface of the belt F. The upper roller, H, may be covered with india-rubber or other soft material. It is arranged to bear upon the lower one, G, and in order to enable its outer end—that is to say the end corresponding with the uncovered ends of the cylinder C and drums D E, to be raised up, as shown in the dotted outline in Fig. 1, the box *p*, which receives the journal at its other end, is fitted to the near standard B with a pivot, *e*, (shown dotted in Figs. 1 and 2,) said pivot being at right angles to the axis of the rollers. This roller H may be loaded by any convenient

means to make it produce the necessary pressure to feed the leaves into the machine, and may have applied to it a lever or other suitable device for raising its outer end. The upper drum, D, of the endless belt F is arranged just behind the feed-rollers, and the lower one, E, some distance lower down behind the cylinder C..

In the operation of the machine an attendant stands in front of the machine to feed in the leaves one or more at a time, as may be necessary. The leaves are introduced lengthwise between the feed-rollers, and by them delivered slowly between the cylinder C and belt F, and being subjected to the more rapid action of the combs *a a*, or combs and scrapers, have the the woody or pulpy portions of the leaves thereby broken up and removed, leaving their fibers intact. The operation will be much expedited by a jet or jets of water introduced upon the leaves at the point of the entrance between the cylinder and the belt F, to wash away all the matter combed from the fibers. When a leaf has nearly all run in through the feed-rollers, the attendant seizes its remaining end, raises the upper feed-roller, as shown in Fig. 1 in red outline, by the means provided for the purpose, and, without stopping or reversing the machine, draws out the said end through the outer end of the opening between the rollers at the left-hand side of the machine, after which, by the continued movement of the cylinders and belt, the portions of the fibers which remained between them at the time of opening the rollers are enabled to pass out at the open side of the machine.

In the above operation the belt F yields to the varying thickness of the leaf, and so prevents the machine from choking, but at the same time, by its tendency to hug the cylinder, it so confines the leaf as to insure its being subject to the operation of the bars *a a*.

In order to keep the machine open at one side for the removal of the ends of the leaves, it is not necessary to dispense entirely with outside bearings on that side of the machine, for instance, the cylinder D might have a bearing in a short standard, and the roller H a bearing in a suitable frame without closing the spaces at the ends of the feed-rolls or at the ends of the endless belt F and the cylinder.

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

1. So arranging the bearings of the cylinder, those of the drums which carry the endless belt, and those of the feed-rollers as to leave the machine open on one side, substantially as and for the purpose herein set forth.

2. So applying the upper feed-roller as to enable its outer end to be raised to increase the opening between the two feed-rollers at the open side of the machine without raising the bearing of said roller at the opposite side, substantially as and for the purpose herein specified.

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