

(No Model.)

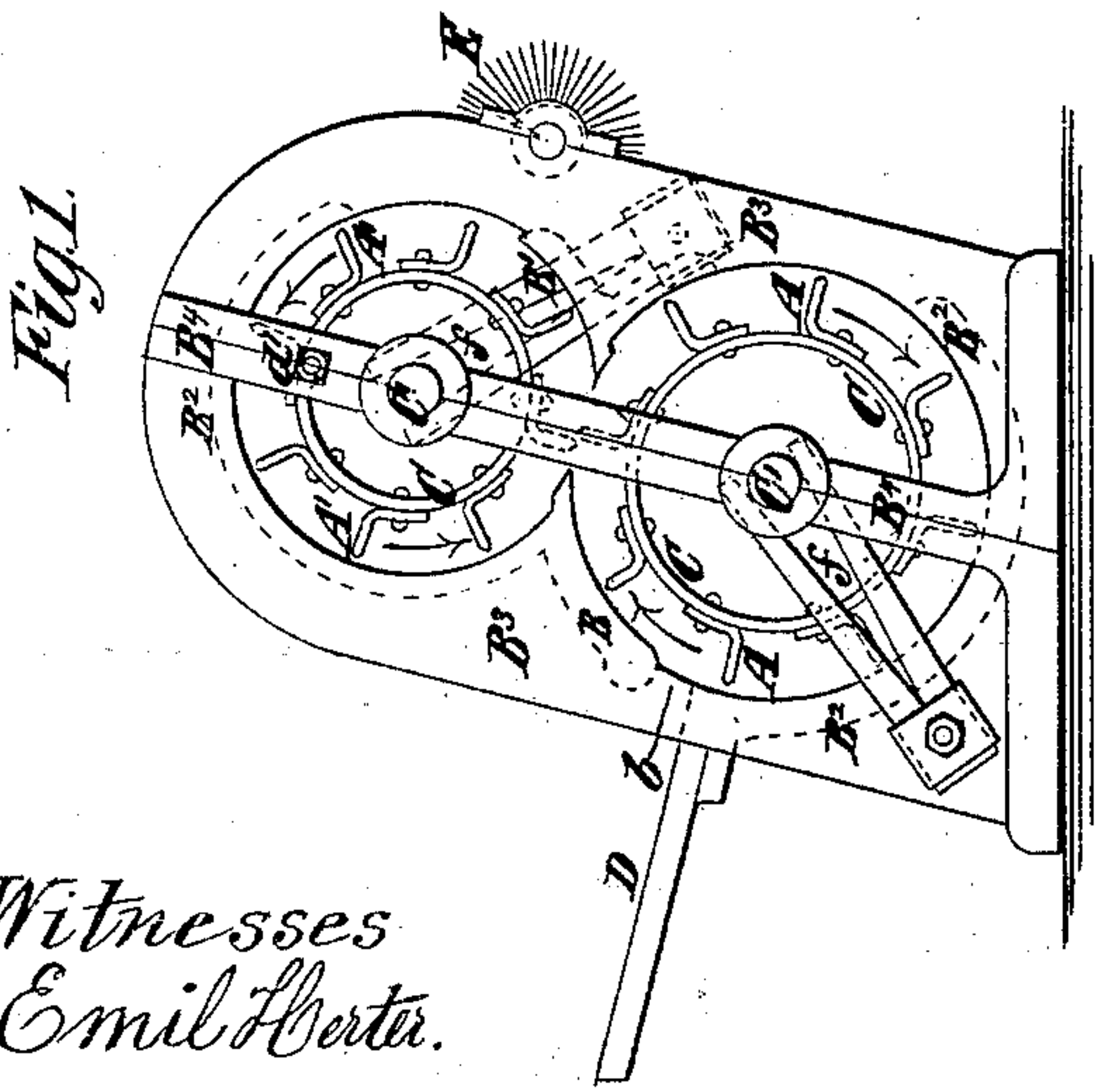
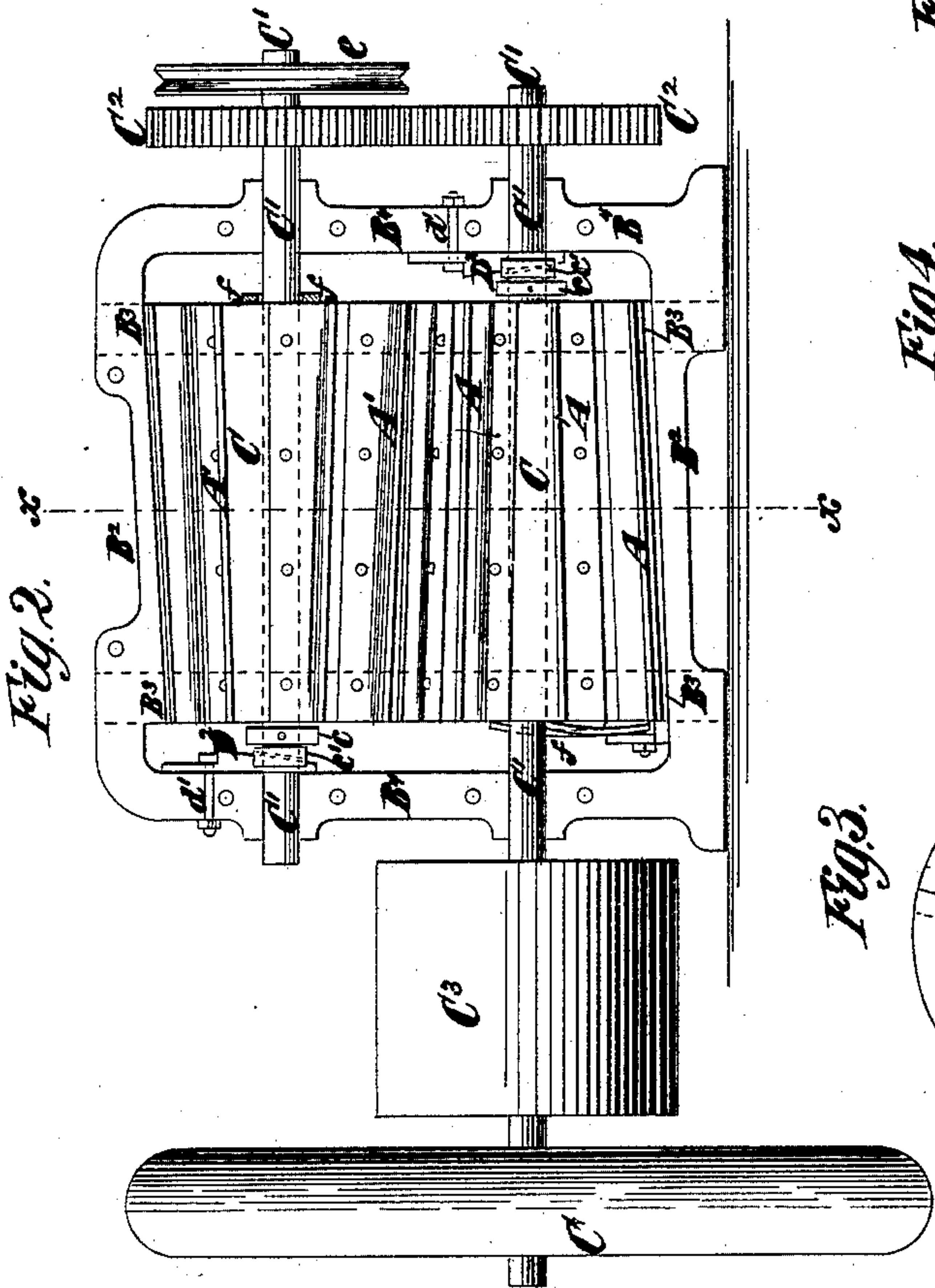
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MACHINE FOR OBTAINING FIBERS FROM LEAVES, &c.

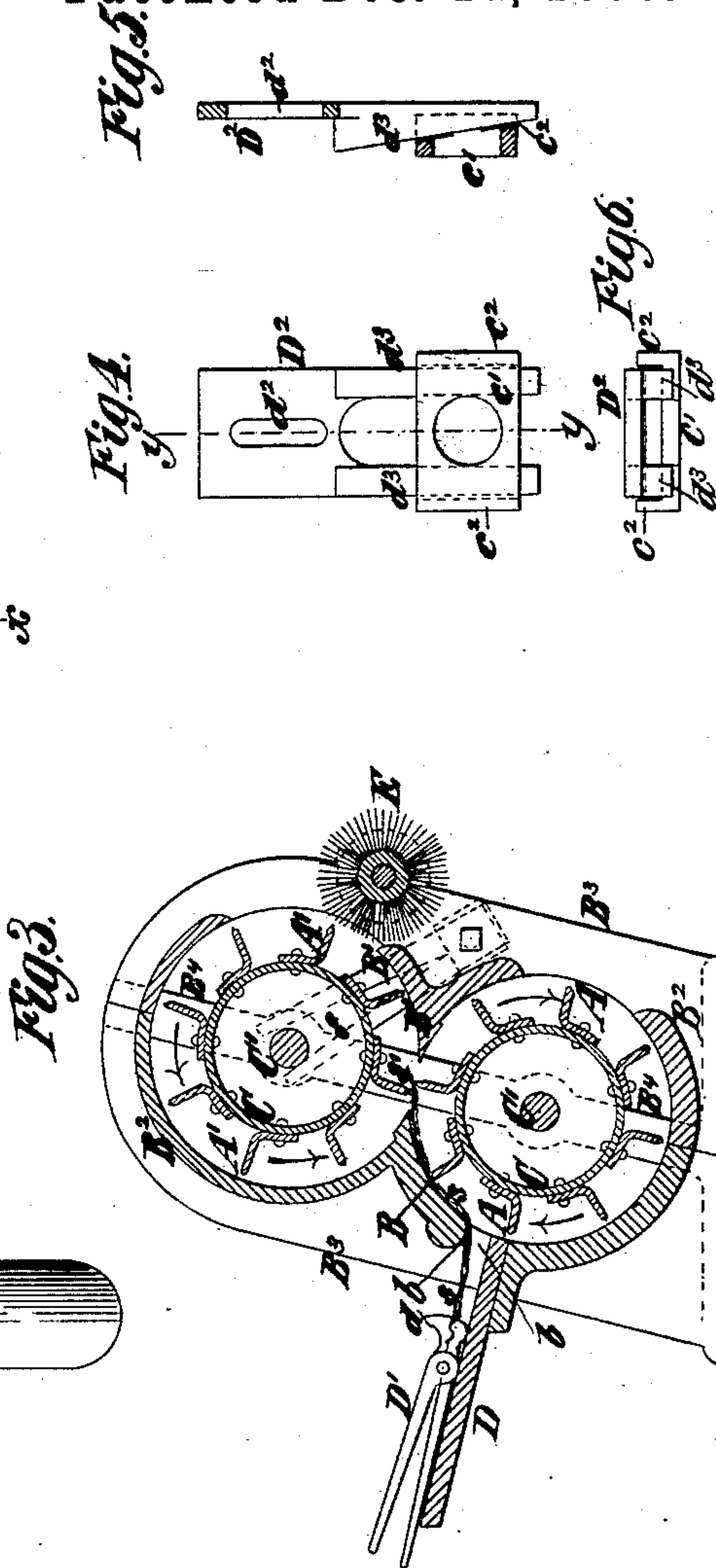
No. 354,244.

Patented Dec. 14, 1886.



Witnesses
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UNITED STATES PATENT OFFICE.

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MACHINE FOR OBTAINING FIBERS FROM LEAVES, &c.

SPECIFICATION forming part of Letters Patent No. 354,244, dated December 14, 1886.

Application filed March 26, 1886. Serial No. 196,632. (No model.)

To all whom it may concern:

Be it known that I, GELSTON SANFORD, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Machines for Ob-
5 taining Fibers from Leaves and Plants, of which the following is a specification.

My invention is more particularly intended for treating the leaves of the "agave" and analogous fiber-bearing plants, in order to free
10 them from all the gummy feculacious matter with which they are grown.

An important object of my invention is to provide a very simple, small, and inexpensive
15 machine which may be successfully employed in treating or acting upon the leaves singly, and which will effectively clean both sides of the leaf at a single operation.

The essential elements of my machine are
20 two series of scraping-blades, which are secured upon cylinders or to other supports, having a rotary or revolving motion in the same vertical plane about their axes, and two op-
25 positely-arranged concaves or beds, one above the blades of one series and the other below the blades of the other series, and in connection with which the scraping-blades act first to clean one side of the leaf and then the other
30 side thereof. I make the scraping-blades with a taper profile from one end to the other of the cylinders, and the cylinders are arranged in reverse positions, the larger end of each cylinder, or that end at which the scraping-blades
35 have the greatest projection, being opposite the smaller end of the other cylinder, or that end at which the scraping-blades have the least projection. In order to compensate for wear, and also to vary the distance between the edges of the scraping-blades and the concaves
40 in connection with which they operate, I apply springs to the larger ends of the cylinders for forcing them endwise, and I also employ wedges or other adjustable stops at the smaller
45 ends of the cylinders in order to limit the distance to which they may be moved by the springs. To secure simplicity and cheapness of construction, I make the casing or frame of the machine in two parts, which are constructed with the concaves or concaved beds,
50 and which also have parallel flanges or yokes

at the ends, between which are formed the bearings for the journals of the two cylinders.

The invention consists in novel combinations of parts, which are hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is
55 an end elevation of a machine embodying my invention. Fig. 2 is an elevation of the machine with one part or half of the casing or frame removed. Fig. 3 is a transverse vertical
60 section upon the dotted line *xx*, Fig. 2. Fig. 4 represents the wedge or adjustable stop for limiting the endwise movement of the cylinder upon a larger scale. Fig. 5 is a sectional view
65 of this stop upon the plane of the dotted line *yy*, Fig. 4; and Fig. 6 is a top view of the stop.

Similar letters of reference designate corresponding parts in all the figures.

The essential elements of my machine are
70 two series of scraping-blades, *A A'*, and two concaves or concaved beds, *B B'*, in connection with which these scraping-blades operate. The two series of scraping-blades *A A'* are mounted upon and carried by movable supports which
75 have a revolution or rotation about their axes or centers, and which, as here shown, consist of hollow cylinders *C*, secured upon and rotated with shafts *C'*, and geared together by spur-wheels *C''*, applied to these shafts. The
80 shaft *C'* of one of the cylinders in this example of the invention (the lower one) is provided with a driving-pulley, *C'''*, to receive a belt, and also with a fly-wheel, *C''''*, and by these means the two cylinders *C* are rotated in re-
85 verse directions, so that the scraping-blades *A A'*, as they are moved adjacent to each other, are carried in the same direction. These scraping-blades *A A'* may consist of L-shaped pieces of brass or other metal riveted or other-
90 wise secured to the cylinders *C C'*.

The casing or frame of the machine com-
prises portions *B''*, which extend parallel with the cylinders, in addition to the concaves *B B'*, and which are curved so as to approximate
95 to the circular line of travel of the scraping-blades. The casing or frame also has end standards, *B'''*, and parallel flanges or yokes *B''''*, which project outward beyond the end stand-
ards, *B'''*, and between which are formed the bearings for the shaft-journals *C'* of the two
100

cylinders. The casing or frame of the machine may be in this way made in a very inexpensive manner from two castings, and by removing one part or half of the casing or frame ready access is afforded to the cylinders and scraping-blades.

D designates a feed-table which extends, preferably, on an incline to a mouth or throat, *b*, formed in the casing or frame, and through this mouth or throat the leaves are entered to subject them to the action of the scraping-blades, the rear end of the leaf being securely held by a pair of tongs, *D'*, having a projection, *d*, which by striking the lower end of the concave *B* prevents the tongs from being drawn into the machine by the leaves. The gripping portions or jaws of these tongs may be corrugated or grooved, as shown, so as to firmly grasp a leaf, and they should be of considerable breadth or length in a direction transverse to the plane of the handles by which they are operated.

I have represented, by arrows in Fig. 3, the direction of rotation of the two cylinders carrying the two series of scraping-blades *A A'*, and from that figure it will be seen that the scraping-blades *A* of the lower cylinder first act upon one side of the leaf *s*, while it is supported by the opposite concave *B*, the lower surface of which is curved to approximate to the circular path of the scraping-blades. By this action of the scraping-blades the leaf is drawn forward into the machine as fast as is permitted by the attendant who holds the tongs *D'*, and as the leaf passes on it passes over the opposite concave *B'*, the surface of which is presented upward, and its other side is operated on by the series of scraping-blades *A'*, which are upon the upper cylinder.

The leaf may be reversed in position in order to clean effectively its two end portions, and I have represented a brush, *E*, by which the scraping-blades may be kept free from gummy or other vegetable matter, and which may be driven by a belt from a pulley, *e*, on the shaft *C'* of the upper cylinder. A similar brush, *E*, might be employed for the scraping-blades of each cylinder.

As here represented, the scraping-blades of each series present a taper profile from one end to the other of the cylinder; or, in other words, their outer edges describe the frustum of a cone as they are rotated or revolved about their centers. The cylinders are arranged in reverse positions, as shown in Fig. 2, the larger end of each cylinder being opposite the smaller end of the other cylinder, and consequently it will be understood that by moving the cylinders endwise the space between the edges of the scraping-blades and the surface of the concaves *B B'* will be varied as may be desired. In order to so move the cylinders I have represented springs *f*, which are forked or bifurcated, and which bear against the larger ends of the cylinders, as shown. These springs exert a constant pressure against the larger ends of the cylinders in order to move

the cylinders endwise, and such endwise movement is limited by an adjustable stop applied at the smaller end of each cylinder. This stop is best illustrated in Figs. 4, 5, and 6, but is also shown as applied to the two cylinders in Fig. 2.

Upon the shaft *C'* of each cylinder is a collar, *c*, which bears against a loose plate or washer, *c'*, through which the shaft *C'* passes loosely.

D² designates a wedge which is secured to the frame or casing by a bolt, *d'*, passing through a slot, *d²*, into the wedge or plate, and at its opposite end this wedge or plate *D²* is bifurcated or forked so as to fit over the shaft *C'*. The wedge or plate *D²* has upon it raised ribs or bearers *d³*, the faces of which are inclined, as shown best in Fig. 5, and which bear against correspondingly-inclined surfaces on the plate or washer *c'*. This plate or washer *c'* also has at opposite sides flanges *c²*, which embrace the sides of the plate or wedge *D²*, and thereby prevent the plate or washer *c'* from turning by frictional contact with the fixed collar *c* on the cylinder-shaft *C'*.

By loosening the bolt *d'* the wedge or plate *D²* may be adjusted lengthwise and in a direction transverse to the shaft *C'*, in order to correspondingly adjust the position of the plate or washer *c'* and fix the limit to which the cylinder may be moved endwise by the spring *f*.

The two cylinders are so secured upon their shafts *C'*, and the shafts are so geared together that the scraping-blades *A* of the lower cylinder will move very slightly in advance of the scraping-blades *A'* of the upper cylinder, and consequently as these blades come into close proximity, as shown in Fig. 3, the blade of the lower cylinder, *A*, will be slightly in advance of the blade *A'* of the upper cylinder, and the blades will have a tendency to tip up the end of the leaf, as shown at *s'*, in order that said leaf will pass above the concave *B'*, and will not drop down and pass below the portion of the casing *B²*, which is made integral with the concave *B'*. It will be seen from the foregoing description that the machine is very simple in its construction, and a small machine, which can be furnished at a low price, will be very effective in cleaning and obtaining fibers from the leaves of various kinds of fiber-bearing plants.

By what I term the "larger" end of the cylinders herein shown I mean that end at which the scraping-blades have greatest projection from the center and describe a circle of larger diameter, while by the "smaller" end of the cylinder I mean that end at which the scraping-blades have least projection from the center and describe a circle of smaller diameter. It is furthermore advantageous to employ the springs *f* in connection with a taper cylinder provided with scraping-blades, because the springs at all times keep the scraping-blades up to their work, and also enable the cylinder to yield endwise to increase the space between the edges of the blades and the concave

in case of thicker leaves or thicker portions of the same leaf passing between the blades and concave.

I am aware of Letters Patent No. 278,668, granted to D. Prieto May 29, 1883, and I do not desire to include in my invention the machine shown in said patent. In that machine the leaves are taken by endless chains with their length transverse to the chains, and the portion of the leaf which depends upon one side of the chains is first scraped by a series of blades upon a cylinder acting in conjunction with a bed or concave which curves below the cylinder and series of blades, after which the portion of the leaf which depends on the other side of the chains is scraped by a series of blades upon a similar cylinder also acting in connection with a bed or concave which curves downward below the blades and cylinder. This machine differs from mine in that the two series of blades on the cylinders are not arranged in the same vertical plane, but are out of line with each other, and it also differs from my machine, because the bed or concave which acts first upon the leaf is not arranged above the blades which act in connection with it.

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

1. The combination, with oppositely-arranged series of scraping-blades and carriers or movable supports, whereby said blades are revolved or moved in the same vertical plane about two axes or centers, of oppositely-arranged concaves, one above the blades of one series, and the other below the blades of the other series, and in connection with which the two series of blades act first to scrape one side and then the other side of the leaf, substantially as herein described.

2. The combination, with two rotary cylinders provided with scraping-blades and rotating in the same vertical plane, and between which the materials are passed, of oppositely-arranged concaves, one above the blades of one cylinder and the other below the blades of the other cylinder, and in connection with which the blades of the cylinders act first to scrape one side and then the other side of the leaf passed between them, substantially as herein described.

3. The combination, with the rotary cylinders

provided with scraping-blades, of oppositely-arranged concaves, in connection with which the blades of the two cylinders act on the opposite sides of the materials passed between them, the blades of the upper cylinder being set slightly behind the blades of the lower cylinder, so as to tip up the front end of the material and cause it to pass above the second concave, substantially as herein described.

4. The combination, with the two cylinders provided with scraping-blades which have a taper profile, the cylinders being reversely arranged, so that the ends of the blades having greatest projection on one cylinder are opposite the ends of the blades having least projection on the other cylinder, of oppositely-arranged concaves, in connection with which said blades operate, and springs acting on the larger ends of the cylinders for moving them lengthwise to compensate for wear, substantially as herein described.

5. The combination, with the oppositely-arranged cylinders provided with scraping-blades having a taper profile lengthwise of the cylinders, the cylinders being set reversely, with the larger end of each opposite the smaller end of the other, of oppositely-arranged concaves, in connection with which the blades on the two cylinders act first to scrape one side and then the other side of materials passed between them, springs applied to the larger ends of the cylinders for forcing them endwise, and wedges or other adjustable stops for limiting the endwise movement of the cylinders produced by the springs, substantially as herein described.

6. The combination, with the oppositely-arranged cylinders provided with scraping-blades, of the two-part casing for the cylinders, constructed with oppositely-arranged concaves, in connection with which the blades act first to scrape one side and then the other side of the materials passed between them, and which are also constructed at opposite ends with parallel flanges or yokes, between which are formed the bearings for the cylinder-shafts, substantially as herein described.

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