

No. 777,017.

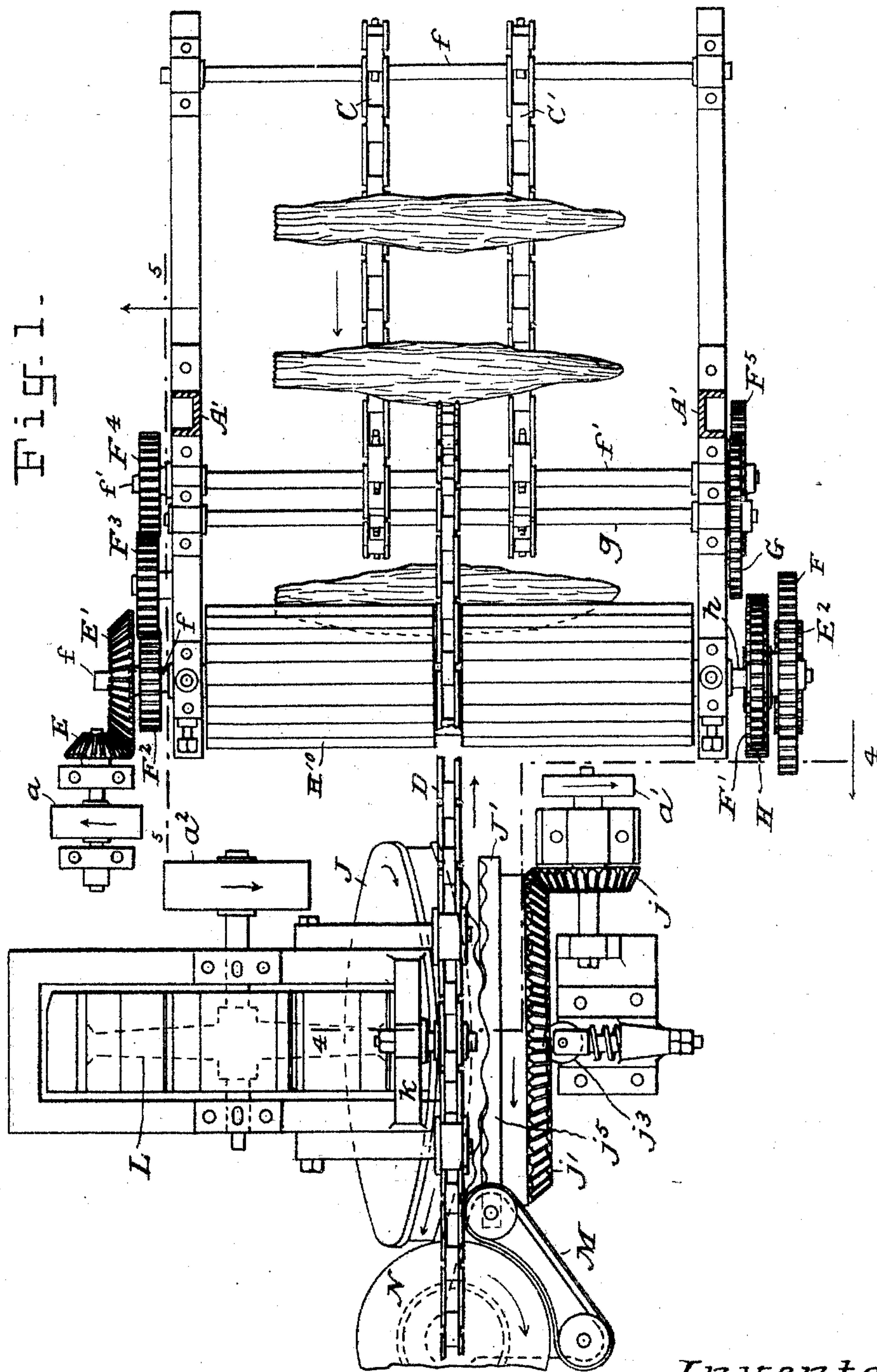
PATENTED DEC. 6, 1904.

J. GARCIA.
FIBER CLEANING MACHINE.

APPLICATION FILED JUNE 18, 1903.

NO MODEL.

5 SHEETS—SHEET 1.



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J. M. Earle

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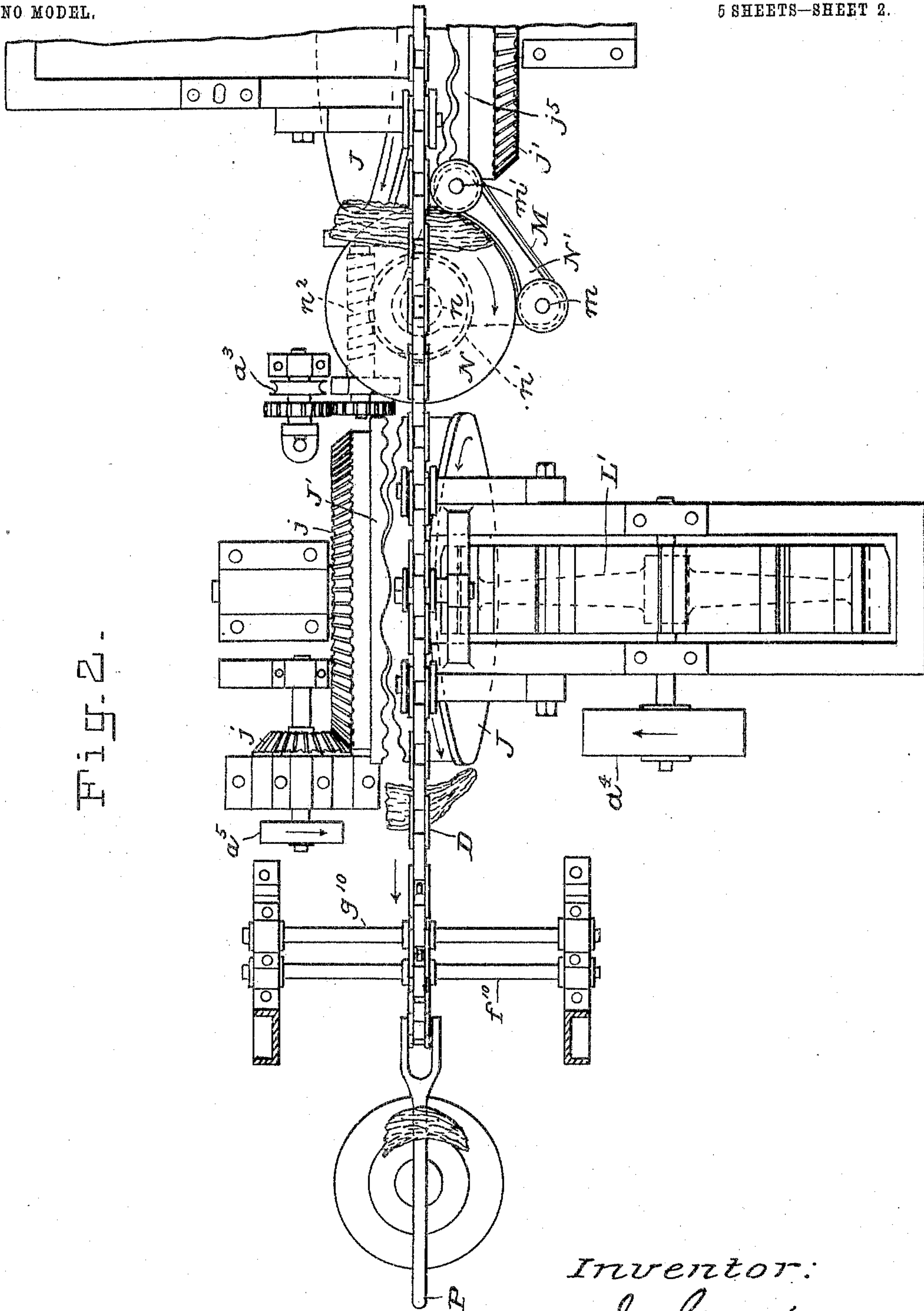


Fig. 2.

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5 SHEETS—SHEET 3.

Fig. 3.

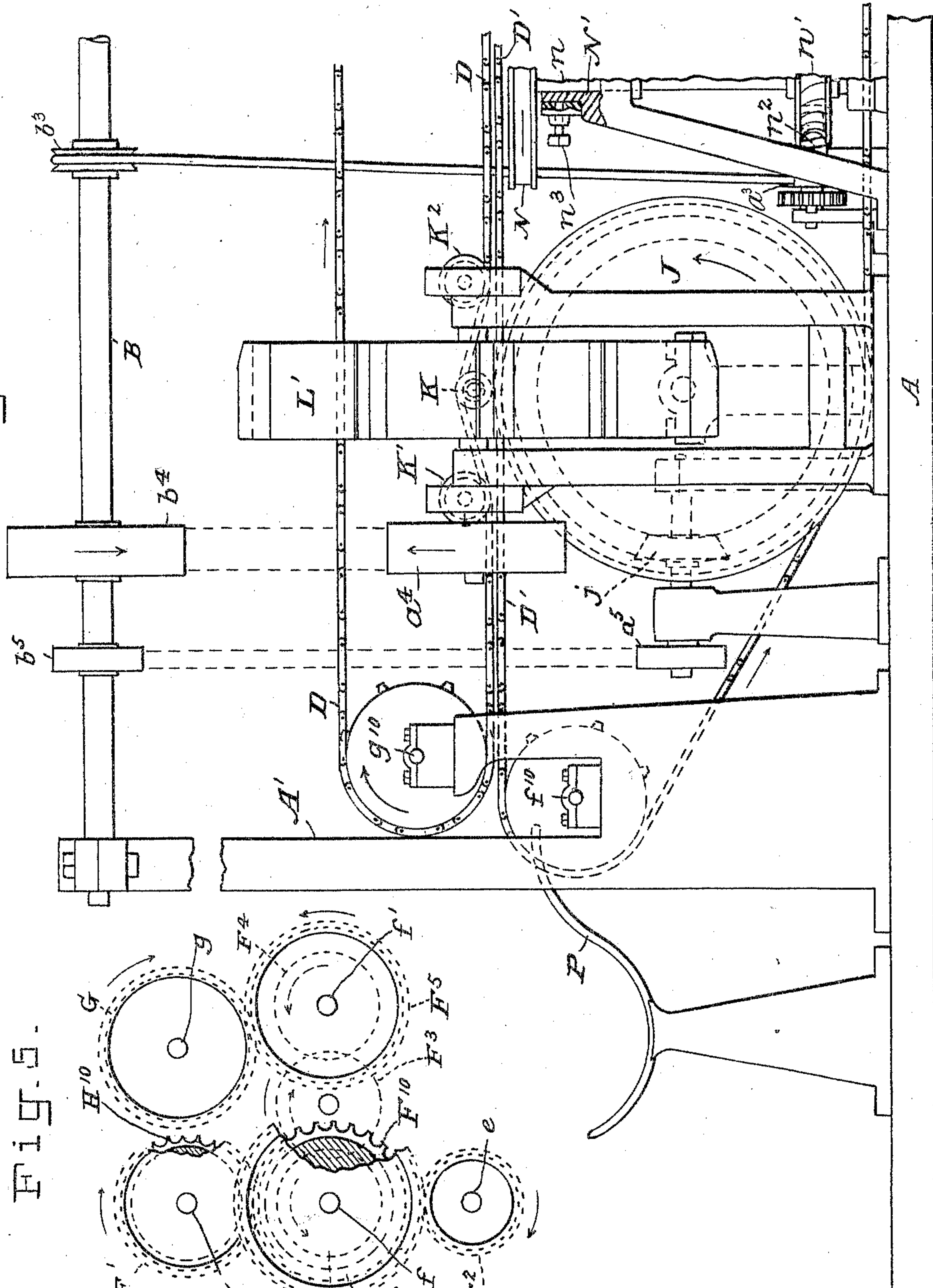
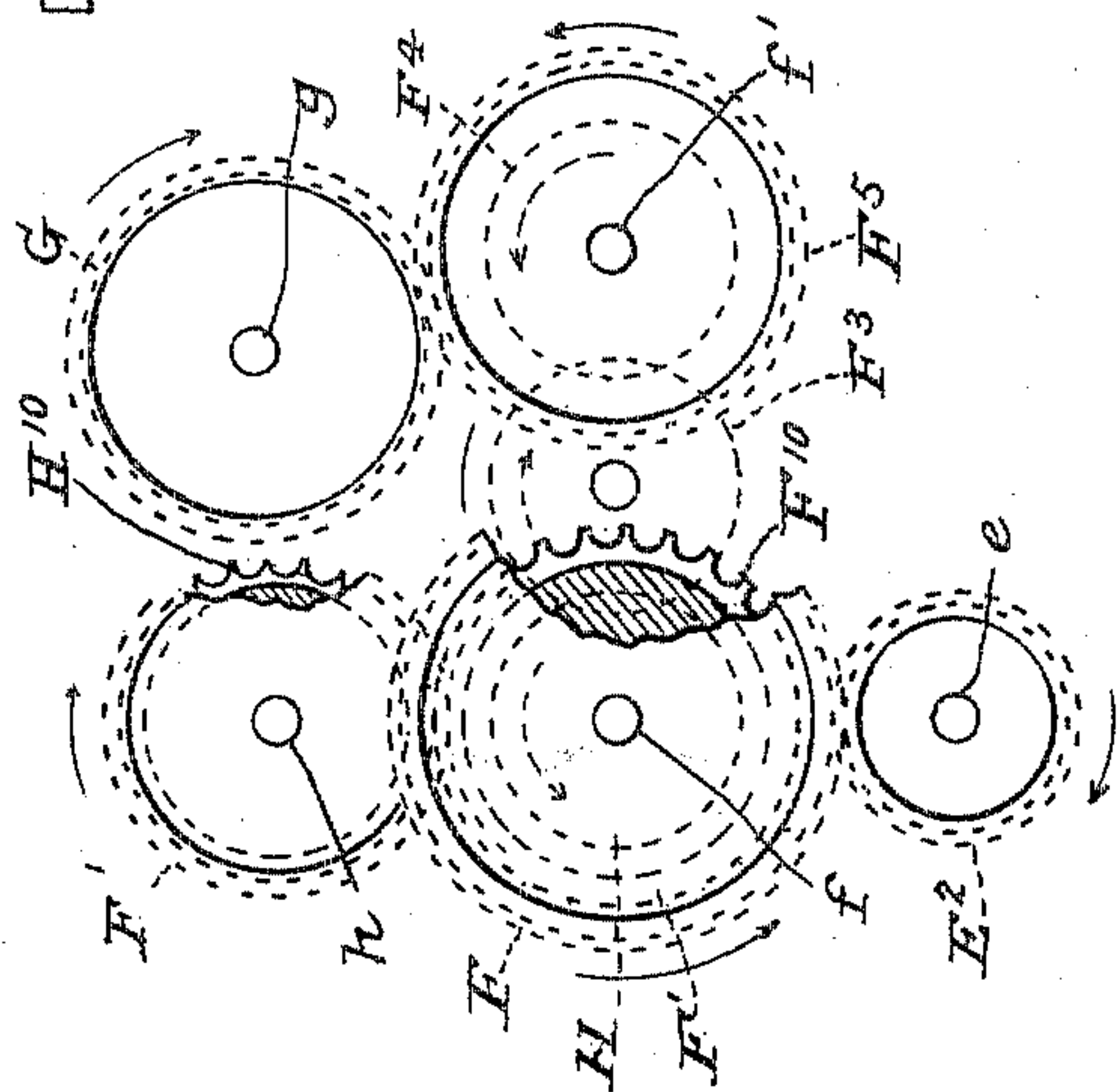


Fig. 5.



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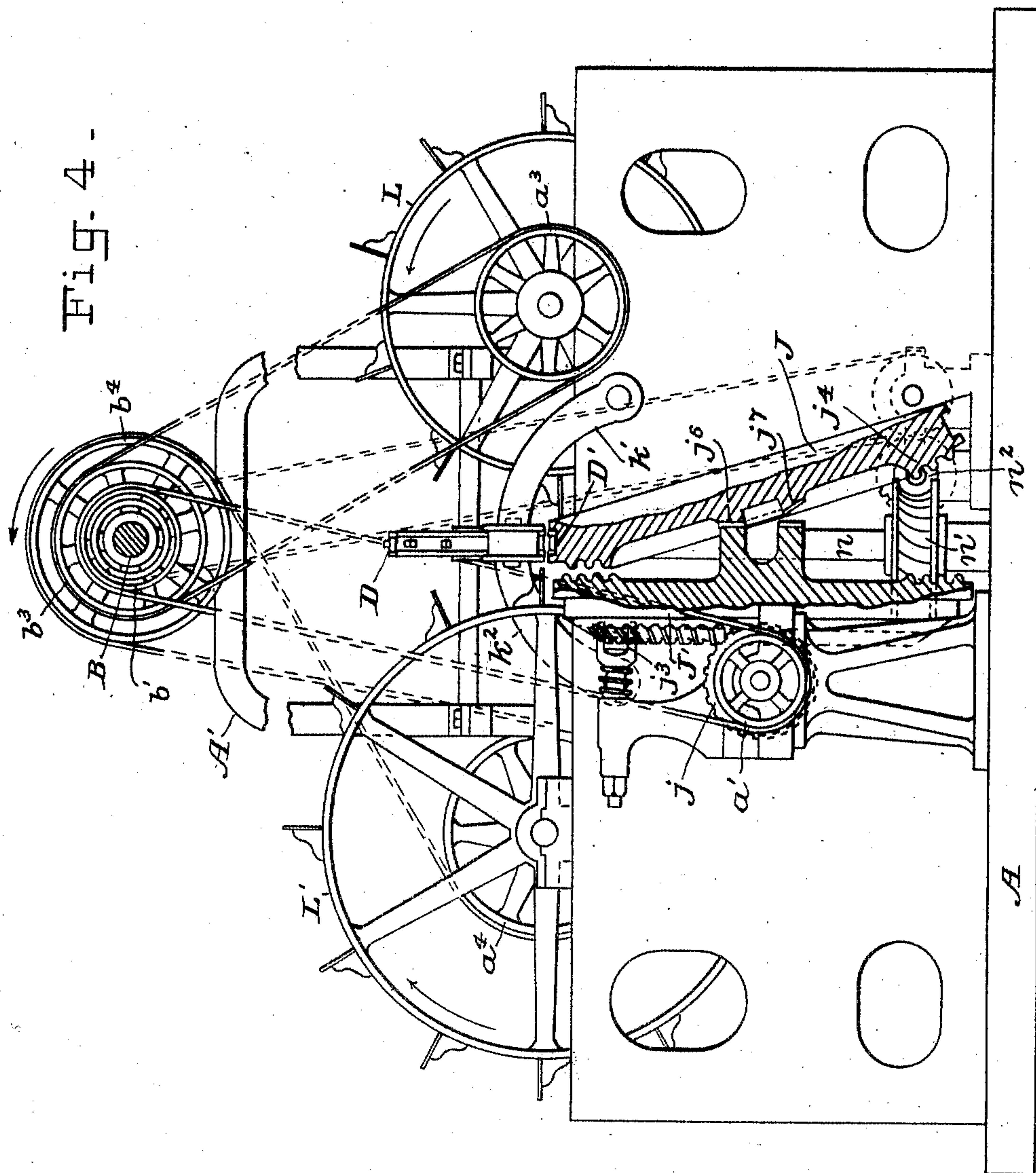
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5 SHEETS—SHEET 4.



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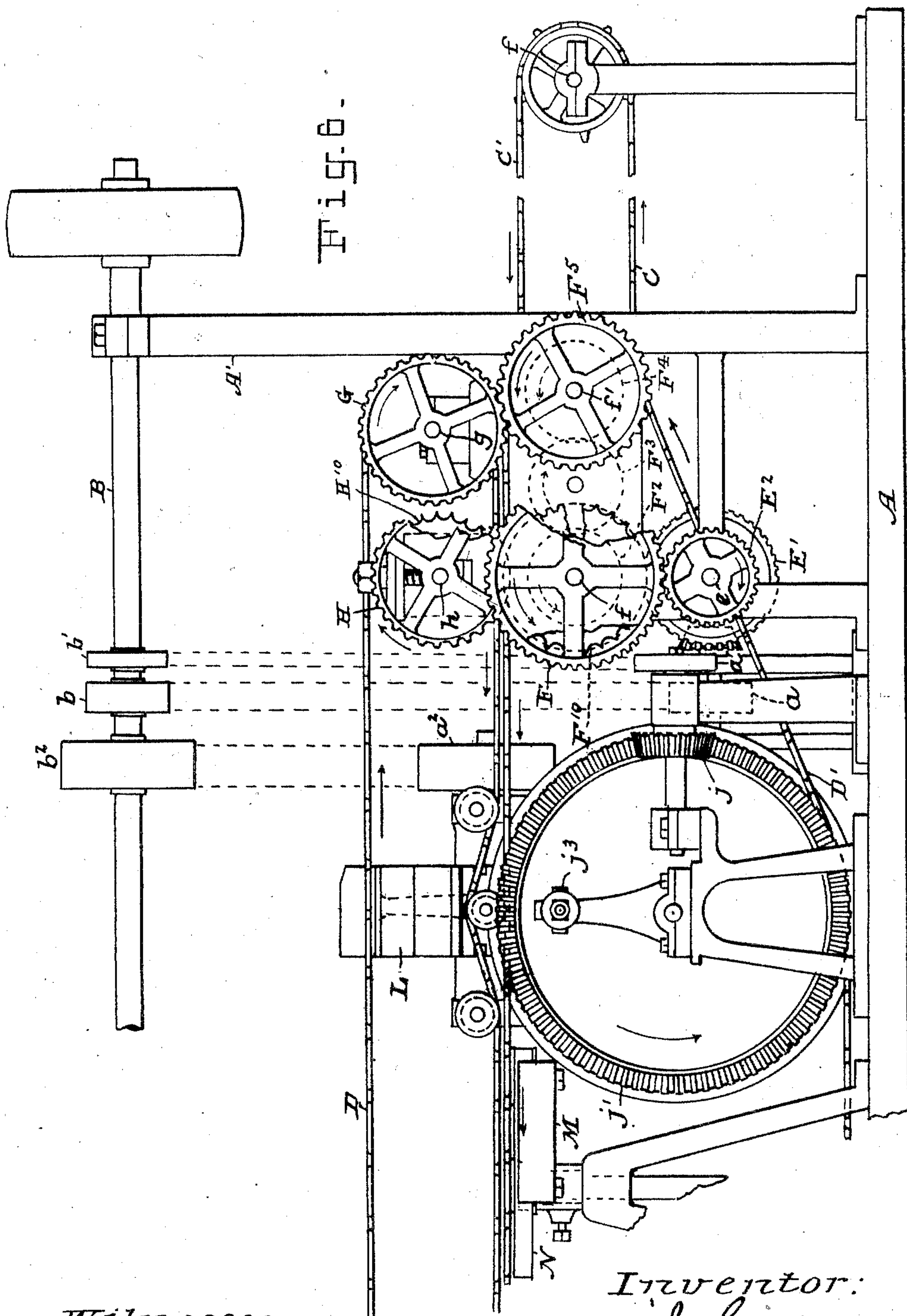
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

JOSEPH GARCIA, OF BROOKLYN, NEW YORK.

FIBER-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 777,017, dated December 6, 1904.

Application filed June 18, 1903. Serial No. 162,084. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GARCIA, a citizen of the United States of America, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Fiber-Cleaning Machine, of which the following is a specification.

My invention relates to an apparatus for separating the filamentous substance from the long-leaf agaves, and in particular henequen, sacqui, or sisal hemp, and other similar long fiber-producing plants; and it has as its object the provision of an apparatus of the kind set forth comparatively simple in construction, inexpensive to manufacture, and which operates smoothly and efficiently in practical use.

To attain the desired end, this my invention consists in novel devices and combinations of devices hereinafter described.

In order to enable my invention to be fully understood, I will proceed to explain the same by reference to the drawings which accompany and form a part of this specification, in which—

Figure 1 represents a plan view of the front and Fig. 2 a plan view of the rear end of a fiber-cleaning machine constructed according to my invention. Fig. 3 is a side elevation of the rear portion of the said machine. Fig. 4 is a transverse view of the same, showing my cleaning-wheels and taken on the line 4 4 of Fig. 1. Fig. 5 is a view in detail of my driving-gear, taken on the line 5 5 of Fig. 1; and Fig. 6 is a view in elevation of the front end of my machine.

Like letters of reference indicate like parts in all the views.

I have found it desirable to make an apparatus by the use of which the following operations may be combined in and automatically performed by a single machine—namely, first, the plants are crushed so that the stalks and leaves shall be of a practically uniform thickness in order to secure economy of power in operating the machine; second, the plants are propelled through the machine and supported loosely by suitable carriers or conveyers running through the entire apparatus in a straight line; third, one end of the plants is caught by a positively-acting holding or grip-

ping device, while one side (preferably nearly one-half in length) of the plants is decorticated or cleaned, the upper part of my carrier being meanwhile elevated in order to obviate any danger of the same ever coming in contact with or being drawn against the rotary cleaning scrapers or knives; fourth, the plants are moved transversely across the carriers a short distance by a shifting mechanism; fifth, the cleaned or extracted fibers are caught by another positively-acting gripping device, while the remaining part of the plants (being ordinarily a little more than one-half in length) is cleaned by the scraping-wheel, the carrier being elevated or moved away from the grip, as before, and, finally, the cleaned fibers are discharged upon a suitable holding device, and I have therefore constructed, according to my invention, an apparatus of the class described embodying the preferred construction of parts and their mutual relationship, combination, arrangement, and organization in a composite body or structure, as hereinafter described.

Referring particularly to the drawings, C C' denote endless feed belts or chains supported in any suitable manner, as by sprocket-wheels located on the shafts f' f'' , which feed-belts serve to convey the leaves to be cleaned between the preferably duplex endless conveyor or carrier belts or chains D D', which run entirely through my machine and are supported at the front portion of my apparatus by sprockets located on the shafts g f' and at the rear end of the same by sprockets located on the shafts g'' f'' , the lower portion of the belt D' being depressed, as shown in Fig. 3. These belts are driven by means of the bevel-gear E, actuated by the pulley a , which gear E meshes with the bevel-gear E', located on the shaft e . At the opposite extremity of the shaft e is placed a gear E'', which meshes with a gear F, carried by the shaft f at one end, and at the other extremity of the shaft f is located a gear F', which turns the gear F' of the shaft f' through the intermediate gear F'. Above the shafts f and f' are placed shafts h and g , which carry, respectively, gears H and G, meshing with the gears F' and F'', located on the shafts f and f' . The shafts f and h also carry corrugated

crushing-rollers F^{10} and H^{10} , provided with central peripheral grooves in order to afford a passage therebetween for the carrier belts or chains $D D'$. After the leaves are crushed to a practically even thickness the same are carried farther into the machine until they become engaged with my positively-acting gripping device, consisting of a practically vertical disk J' , movable forward and backward on the line of its axis and provided with radially-disposed corrugations j^5 and concentric circumferential corrugations j^4 , and a similar disk J , preferably located at an angle to the former one and rotating upon a fixed axis, the two disks being provided with series of teeth j^6 and j^7 , which intermesh. The disk J' is provided with a bevel-gear j' , which intermeshes with the bevel-gear j , actuated by the pulley a' . The axis j^2 of the disk J' is movable forward and backward in its bearing and is held in its normal outward position by the spring-roller j^3 , thus allowing a slight yielding of the parts to take place in case an unusually thick plant is caught by the grip. At the time one end of the plants is caught by my gripping device the part of the carrier chain or belt D opposite the said gripping mechanism is held in an elevated position, as shown in Figs. 3 and 4, (so as not to touch the said leaves and to avoid any danger of the said belt being injured by coming in contact with the knives of my cleaning-wheel,) by the pulley K , supported by the cross-arm k , and the pulleys K' and K^2 , held by the arms k' and k^2 .

My cleaning or scraping device consists of a wheel L , actuated by a pulley a^2 and suitably supported and carrying knives and scrapers, such as are ordinarily used in this class of fiber-cleaning machines. After the plants are released by the gripping device they are carried along by the belt D' , and the ends of the same are caught between the edge of the shifting-table N and the endless belt M and are thus moved a distance transversely across the face of the belt D' in order that only the cleaned fibers shall be caught by my secondary gripping device $J J'$, which is a duplicate of the one hereinbefore described and which is actuated by means of the pulley a^5 . The untreated portions of the leaves will now be cleaned by my secondary scraping apparatus L' , which is actuated by the pulley a^4 and is similar to that one already described except that my cleaning-wheel is preferably larger in diameter. The horizontal shifting-table N is mounted on a vertical spindle n , provided with a worm-wheel n' , meshing with a worm n^2 , actuated by a pulley a^3 . A sleeve N' , mounted on the frame supporting the spindle, has an extension in the form of a segment carrying rollers m and m' , carrying the endless friction-belt M .

After the entire plant has been cleaned as described it is carried still farther along and

finally deposited upon suitable holding means, as the hook P . The various portions of my machine are supported by a horizontal base or bed plate A , which is provided with preferably vertical posts A' , which support the line-shaft B , which may be driven by any suitable source of power. Upon the shaft B is located a series of pulleys b^3 , b^4 , and b^5 , which serve to impart motion to the pulleys a^3 , a^4 , and a^5 through intermediate belting, as shown, and the pulleys a , a' , and a^2 are similarly driven by pulleys b , b' , and b^2 , located on the said line-shaft B . Obviously all the various movable parts of my machine may be driven by one set of gearing operated by the line-shaft B , and the same may also be assembled in more condensed form; but I prefer to show the same for clearness of illustration as being driven directly by belts connected with the said belt B .

It is manifest that various omissions of some particulars could be made without materially affecting the essential features of my invention or the operation of the remaining parts, and I do not, therefore, wish to be limited to the specific structural details of the organization herein set forth. Obviously the elements of the structure described may be located at an angle to the plane in which they are shown. I accordingly use the words "horizontal," "vertical," and the like in a relative sense.

It will be observed that the chains or belts $D D'$ of my duplex conveyer do not touch each other, and therefore cannot serve in any sense as a means to grip the plants, but, on the contrary, simply act as a carrier or conveyer. In the operation of my machine the plants are first crushed to a practically uniform thickness, thus rendering the other operations of the machine steadier and requiring less power to clean the plants. The leaves are then carried to my gripping device, which catches and firmly holds one end of the plants while the other end is cleaned, after which the leaves are shifted or moved transversely a little way across the carrier, whereupon the cleaned fibers are caught and firmly held by the secondary gripping device, and the end of the leaves which has not been treated is cleaned by my secondary cleaning-wheel, after which the fibers are carried along still farther and then discharged upon a hook or other suitable holding device.

As it is evident that many changes in the construction, form, proportion, and relative arrangement of parts might be resorted to without departing from the spirit and scope of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described, but that such changes and equivalents may be substituted therefor, and that

What I claim as my invention is—

1. In a fiber-cleaning machine, the combi-

nation with conveying means consisting of an endless belt, the upper and lower portions of which lie parallel and approximately in the vertical plane of the central longitudinal axis of the machine, the said belt running entirely through the same, of rolls to crush the green leaves, a gripping device to hold one end of the latter, and cleaning means to treat the other end of the said leaves.

2. In a fiber-cleaning machine the combination with conveying means consisting of an endless belt lying approximately in the vertical plane of the longitudinal axis of the machine and running entirely through the same, of rolls to crush the green leaves, a gripping device to hold one end of the latter and cleaning means to treat the other end of the same and also means to move the leaves transversely across the said conveyer, without raising them therefrom while being moved, and another gripping device to grasp the cleaned end of the leaves and means to clean the untreated end of the latter.

3. In a fiber-cleaning machine, the combination with conveying means consisting of an endless belt, the upper and lower portions of which lie parallel and approximately in the vertical plane of the central longitudinal axis of the machine, the said belt running entirely through the same, of crushing-rolls located at the front end of the conveyer and formed with corrugated faces and also having central peripheral grooves to allow the conveyer to pass therethrough when running between the said rolls.

4. In a fiber-cleaning machine the combination with a duplex conveyer of a gripping device to hold one end of the leaves and cleaning means to treat the other end of the same and means located adjacent to the gripping device to raise and hold the upper conveyer at a distance from the lower one.

5. In a fiber-cleaning machine the combination with conveying means of an independent gripping device to grasp one end of the leaves while still supported by the conveyer and cleaning means to treat the other end of the leaves and means to shift the latter transversely across the conveyer without raising the leaves therefrom.

6. In a fiber-cleaning machine the combination with a conveyer of a gripping device consisting of two disks each formed with radially-disposed and concentric circumferential corrugations.

7. In a fiber-cleaning machine the combination with a conveyer of a gripping device consisting of two disks each formed with radially-disposed and concentric circumferential corrugations, one of the said disks being placed at an angle to the other.

8. In a fiber-cleaning machine the combination with a conveyer of a gripping device consisting of two disks one of the same being relatively yielding as regards the other.

9. In a fiber-cleaning machine the combination with a conveyer to support the leaves, of means to move the latter transversely across the conveyer without raising the leaves from the said conveyer and consisting of a horizontally-located rotatable table and an adjacent belt to engage with a portion of the periphery or edge of said table and of two cleaning devices one located on each side of the said conveyer.

In testimony of the foregoing specification I do hereby sign the same, in the city of New York, in the county and State of New York, this 11th day of June, A. D. 1903.

JOSEPH GARCIA.

Witnesses:

ROB. SCHWARZ,

J. ODELL FOWLER, Jr.