

(No Model.)

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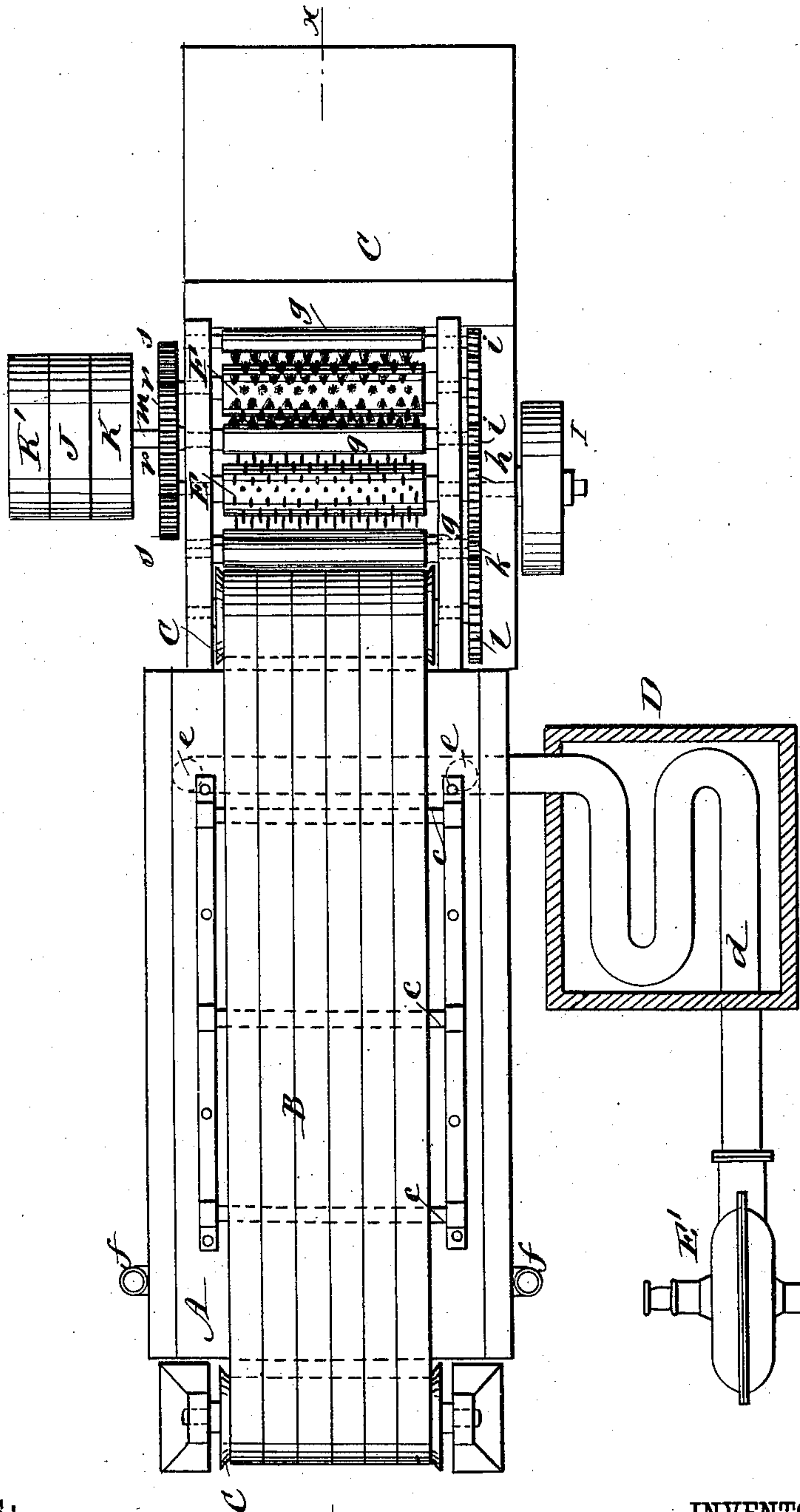
C. C. KAUFFMAN.

APPARATUS FOR DRYING AND CLEANING RAMIE AND OTHER FIBERS

No. 362,386.

Patented May 3, 1887.

Fig. 1



WITNESSES:

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C. Sedgwick

INVENTOR:

C. C. Kauffman

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(No Model.)

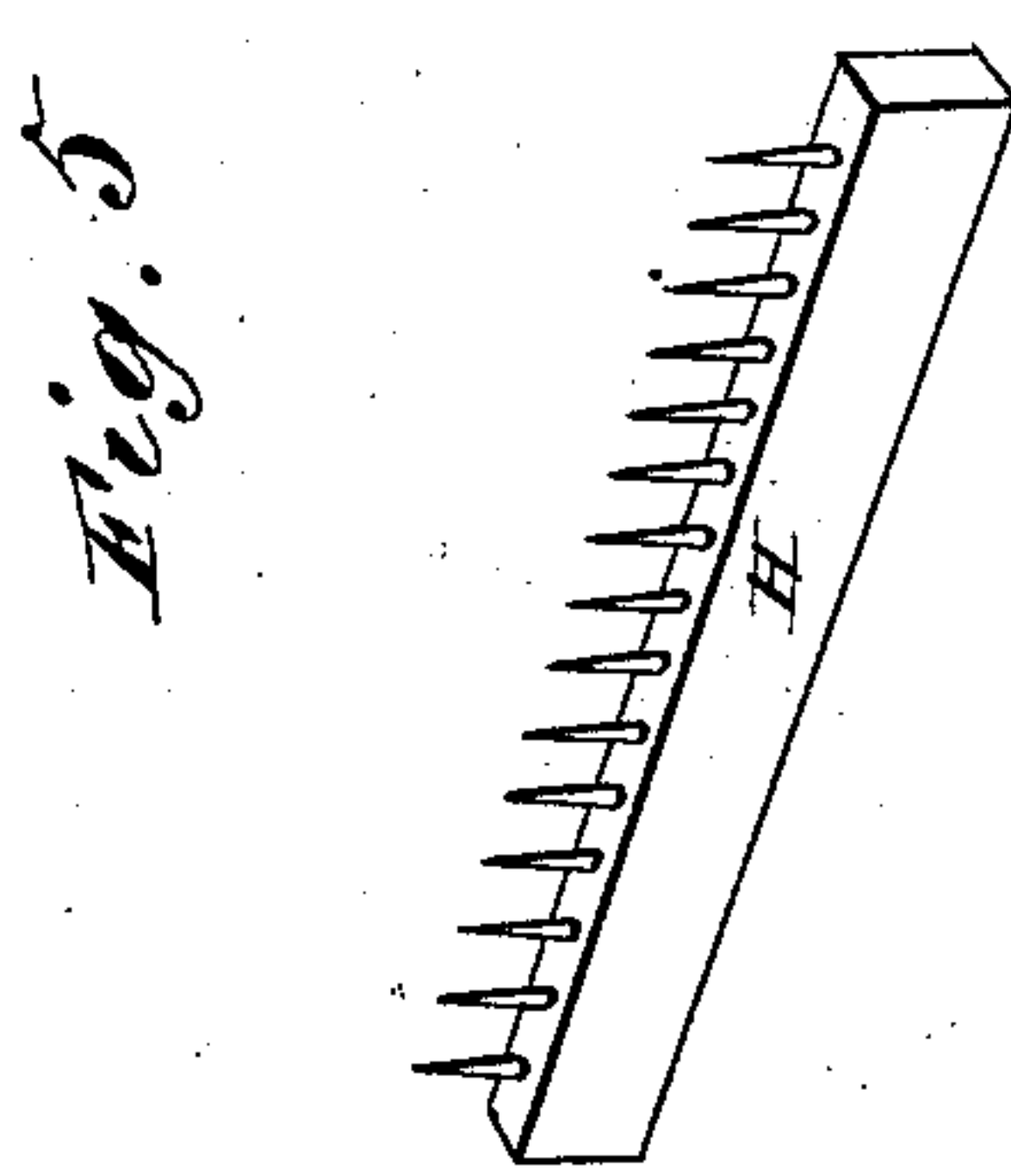
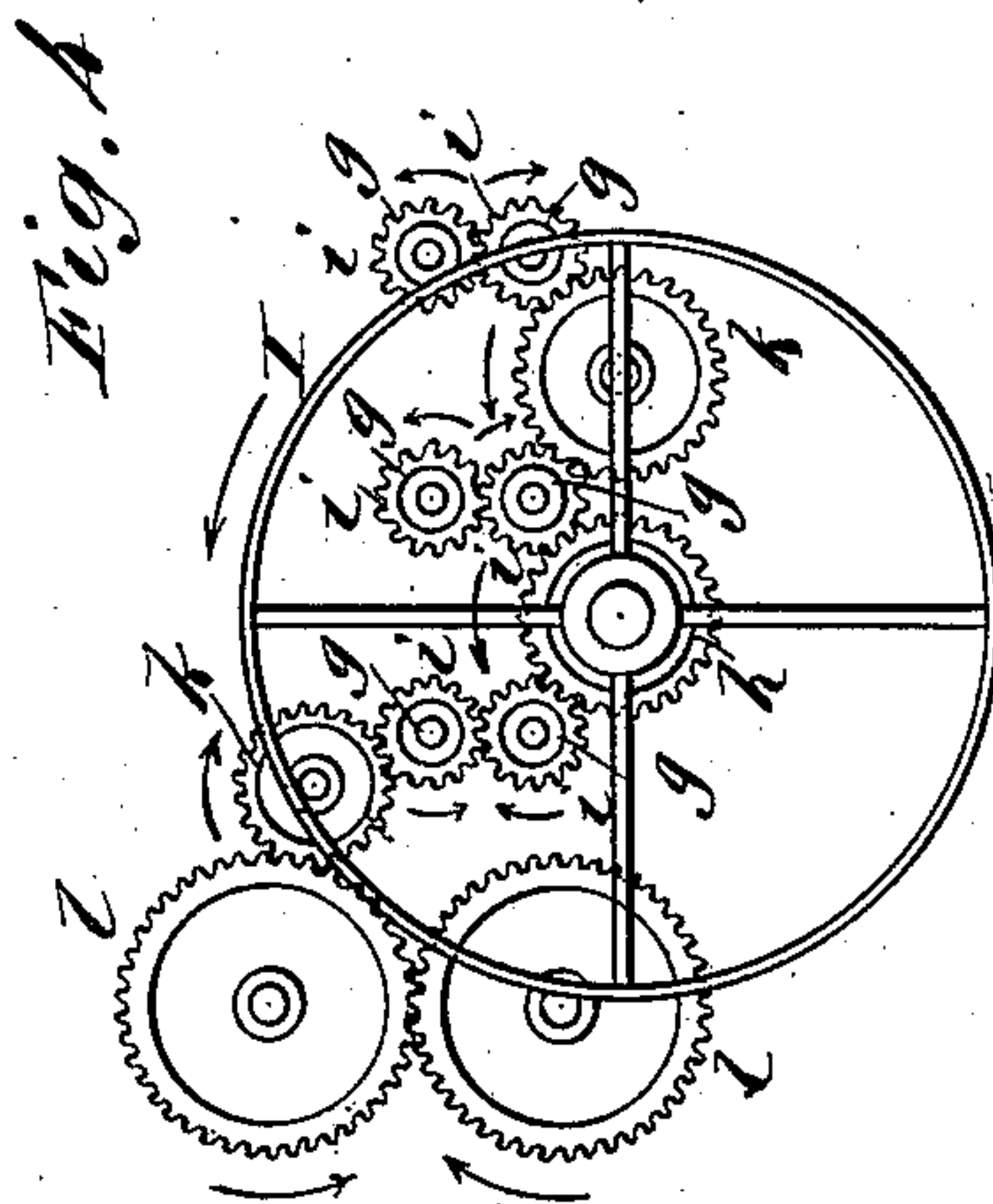
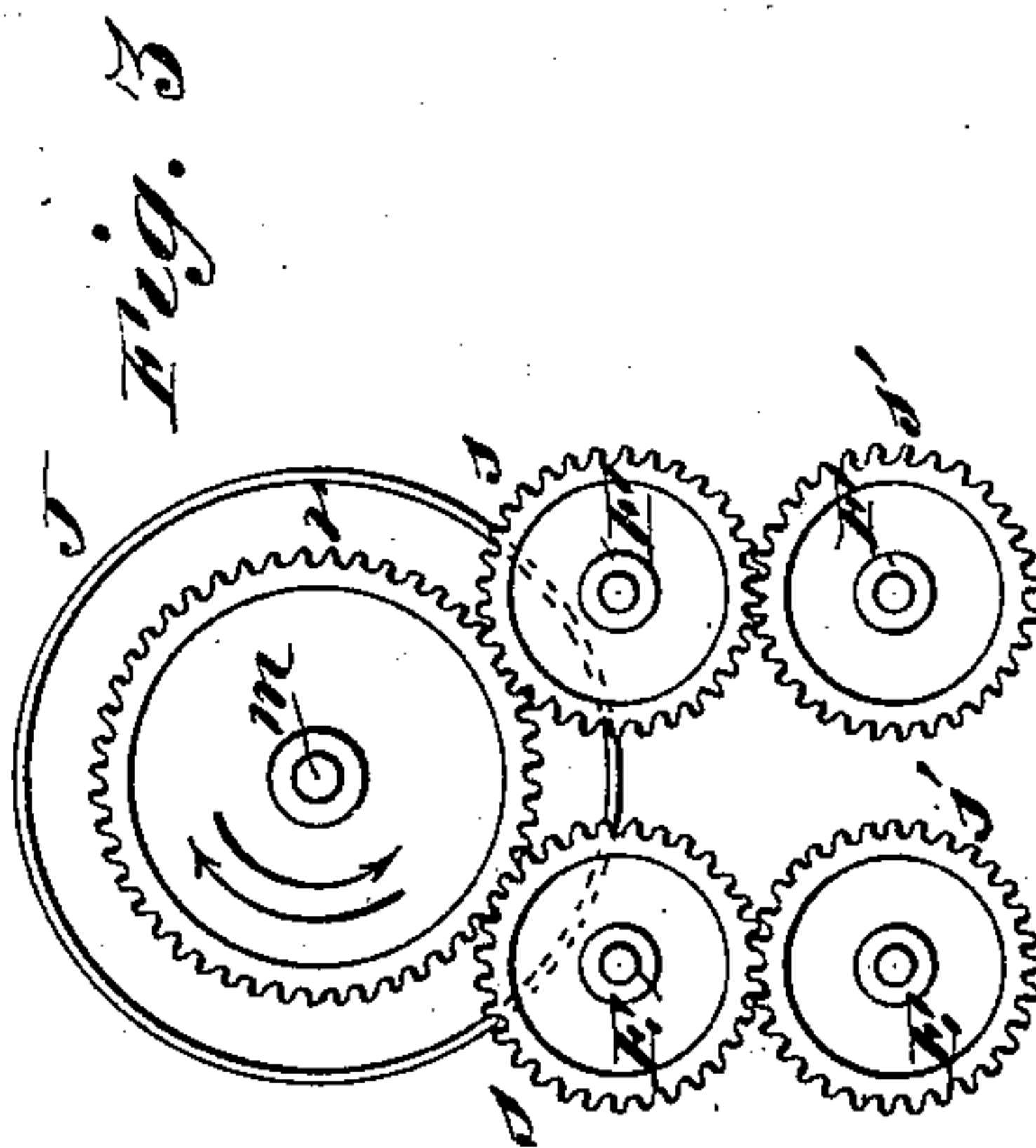
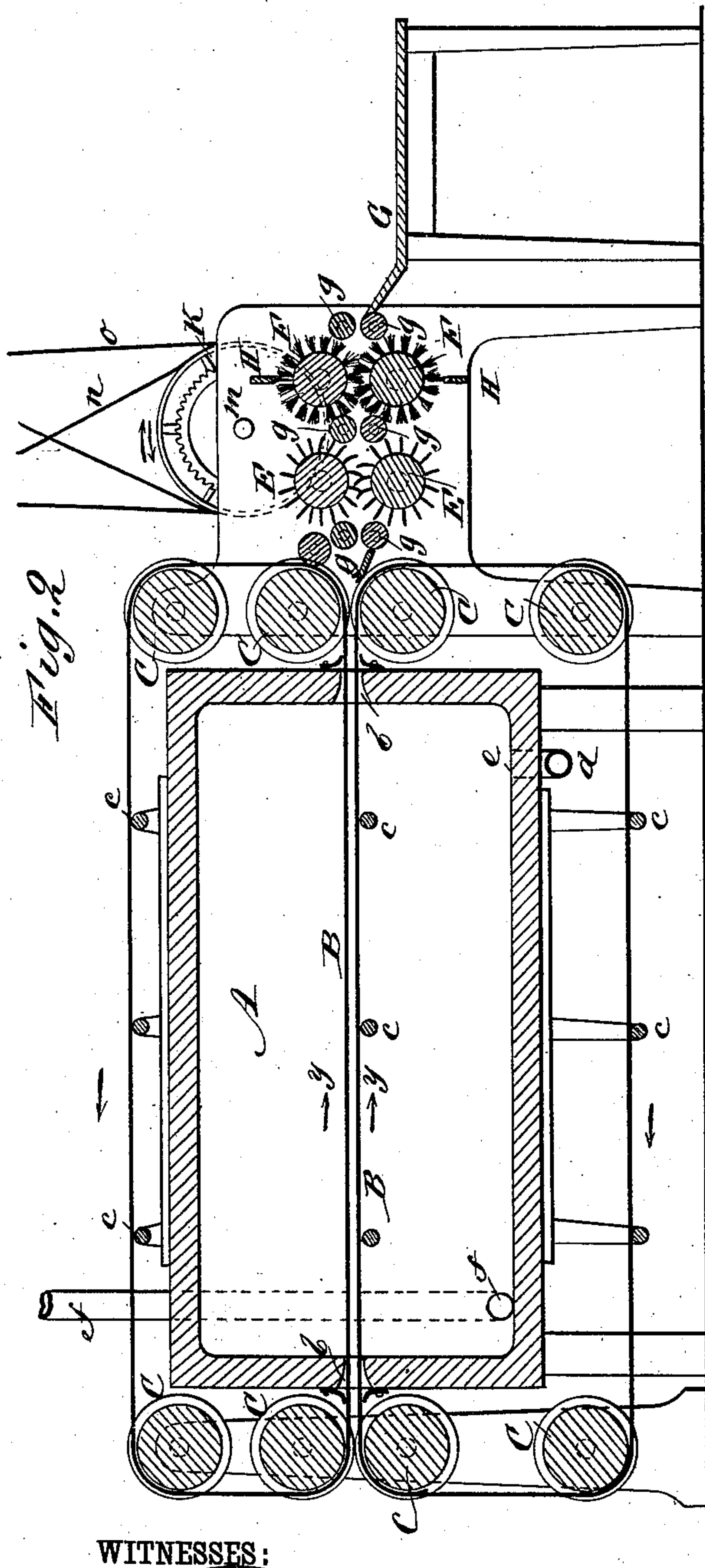
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UNITED STATES PATENT OFFICE.

CHRISTIAN C. KAUFFMAN, OF NEW ORLEANS, LOUISIANA.

APPARATUS FOR DRYING AND CLEANING RAMIE AND OTHER FIBERS.

SPECIFICATION forming part of Letters Patent No. 362,386, dated May 3, 1887.

Application filed August 2, 1886. Serial No. 209,832. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN C. KAUFFMAN, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Apparatus for Drying and Cleaning Ramie and other Fibers, of which the following is a full, clear, and exact description.

This invention consists in a special apparatus, including certain novel constructions and combinations of parts, substantially as hereinafter described, and pointed out in the claims, for removing the gum or sap from ramie, hemp, and other fibers, and thereby to prepare the same ready for market and use.

In the apparatus which is the subject of this specification I subject the fiber after decortication to the action of hot air or to a blast of air heated to a proper temperature for the purpose of solidifying the gum or sap, so that the same can readily be afterward removed by mechanical means—as, for instance, by beating whips and brushes—which process of solidifying the gum or sap irrespective of the special means here shown it is intended to make the subject of a separate application for Letters Patent.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a partly sectional plan of an apparatus for drying and cleaning ramie and other fibers embodying my invention. Fig. 2 is a vertical longitudinal section of the same upon the line *xx* in Fig. 1. Fig. 3 is a view, upon a larger scale, of certain mechanism for rotating alternately in reverse directions certain beaters and brushes used in cleaning the fiber; Fig. 4, a like view of certain mechanism used in feeding and delivering or passing the fiber through the apparatus, and Fig. 5 a view in perspective of a comb used in connection with the cleaning brushes.

A is a hot-air drying-chamber of a close or closed construction, but having openings *b* at its opposite ends sufficiently large to admit of two endless flexible aprons or belt-like carriers, B B, arranged one above the other, freely passing through them—that is, their contiguous parallel sides—between which the

fiber to be dried and cleaned is placed, said carriers otherwise running outside of the drying-chamber—as, for instance, over end rollers, C C—and being supported throughout their length by rollers *c c*, arranged inside and outside of said chamber.

D is a furnace or chamber, in which the air to be supplied to the drying-chamber A is heated, preferably, to a temperature over 160° Fahrenheit. This chamber D may be heated either by the direct application of fire or in any other suitable way. The cold air to be heated is forced by a pump or blower, E', through a pipe, *d*, which, after circulating through the chamber D, has connected with it branches *e*, that deliver the heated air to the interior of the chamber A at or near its one end, while pipes *f*, at or near the opposite end of said chamber A, provide for the escape of the expelled air and moisture.

The carriers B B have a continuous motion in the same direction, as indicated by the arrows *y* in Fig. 2, to keep up a continuous supply of fiber from the drying-chamber A to the cleaning devices, as also have certain feed and delivery rollers, *g*, which conduct the fiber after its delivery from the drying-chamber to and between rotary whippers or beaters E E and brushes F F, and from thence onto a receiving-table, G, in the rear. These whippers or beaters or beating whips and brushes constitute the cleaning devices which remove the gum or sap from the fiber after it has been solidified by the passage of the fiber through the drying-chamber.

While the feed of the fiber is a continuous one—that is, always in the same direction—the direction in motion of the cleaning devices is being repeatedly changed—that is, the beaters E and brushes F are made to rotate alternately in reverse directions, whereby a more thorough cleaning is obtained.

Combs H H are used in connection with the brushes to free or relieve them of adhering matter. The beaters E E, which act in advance of the brushes upon the dried fiber, and which are arranged one above the other, are composed of cylinders armed on their peripheries with flexible thongs or thrashers of any suitable kind. The brushes F F are similarly arranged back of the beaters. Two independ-

ent sets of gear are used to drive the feeding and cleaning devices in a positive manner. Thus the feeding devices are driven as follows: I is a driving-pulley made to continuously move in the same direction, and upon the shaft of which is a toothed wheel, *h*, that, by means of pinions *i* upon the feed and delivery rollers *g*, intermediate transmitting-wheels, *k*, and toothed wheels *l* upon a rear roller, C, of each of the carriers B, serves to communicate the necessary motion to the carriers B B and feed and delivery rollers *g* to pass the fiber continuously in the same direction through the apparatus.

The whippers or beaters E E and brushers F F are operated as follows: J is a driving-pulley fast upon a shaft, *m*, and K K' pulleys loose upon said shaft on opposite sides of the fast pulley. These loose pulleys are driven to rotate in reverse direction to one another by means of a cross-belt, *n*, upon the one of them, and a straight belt, *o*, upon the other, from or by an overhead or other drum common to both, so that by shifting first the one of said belts and then the other onto the fast pulley J said fast or driving pulley is made to rotate first in the one direction and then in the other. This is a well-known method or means of obtaining an alternate reverse circular movement. Upon the shaft *m*, thus driven to rotate alternately in reverse directions, is a wheel, *r*, which gears with wheels *s s* upon the one whipper E and one of the brushes F, and these wheels *s s* gear in turn with other wheels, *s' s'*, upon the other whipper and other brush, to make both whippers and both brushes move in concert—that is, the two whippers or beaters and the two brushes to rotate first in one direction and then in the opposite direction to thoroughly clean the dried fiber, and to remove from it the solidified gum and sap as said fiber is passed by the feeding devices continuously moving in one and the same direction between said whippers and brushes or rotary cleaners. The belt-like carriers B B, which support the fiber and carry it along and keep it from being blown about and becoming tangled, may either or both of them be of a reticulated or more or less open construction, to facilitate the passage of the hot air through and among the fiber. To prevent free escape of the hot air from the drying-chamber A, where the carriers B B enter and leave said chamber, rubber or other elastic flaps arranged to press against said carriers above and below may be applied to the openings *b b* in the drying-chamber, as shown in Fig. 2.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for drying and cleaning ramie and other fibers after decortication, the combination of a hot-air drying-chamber adapted to solidify the gum or sap in the fiber, cleaners adapted to mechanically remove such solidified material or materials, and feeding devices adapted to pass the fiber through the drying-chamber and to or through and between the cleaners, substantially as specified.

2. In apparatus for drying and cleaning ramie and other fibers after decortication, the combination of a series of rotary cleaners driven to revolve alternately in reverse directions, a hot-air drying-chamber through which the fiber is passed to said cleaners, and feeding devices adapted to continuously move the fiber in the same direction through the drying-chamber and to and between said alternately reversely-rotating cleaners, essentially as specified.

3. In apparatus for drying and cleaning ramie and other fiber after decortication, the drying-chamber A, of close or closed construction, provided with apertures *b* in its ends, in combination with the endless apron or belt-like carriers B B, adapted to receive the fiber in between them, and operated to travel in like directions through and outside of said drying-chamber, substantially as described.

4. In apparatus for drying and cleaning ramie and other fiber after decortication, the combination, with the drying-chamber A and its endless traveling belt-like carriers B B, adapted to pass the fiber through said chamber, of the furnace or air-heating chamber D, the pump or blower E', and pipes adapted to conduct the air from the blower through the furnace to the drying-chamber, and to establish an outlet from the latter, essentially as described.

5. The combination of the hot-air drying-chamber A, the endless traveling belt-like carriers B B, the feeding and delivery rollers *g*, operated to move in concert with said carriers, as described, and the whippers or beaters E, and brushes F, operated alternately in reverse directions, substantially as specified.

CHRISTIAN C. KAUFFMAN.

Witnesses:

GEO. E. SEARS,
O. ELMER.