

(No Model.)

3 Sheets—Sheet 1.

T. VILLAMOR.

MACHINE FOR CLEANING VEGETABLE FIBER.

No. 362,683.

Patented May 10, 1887.

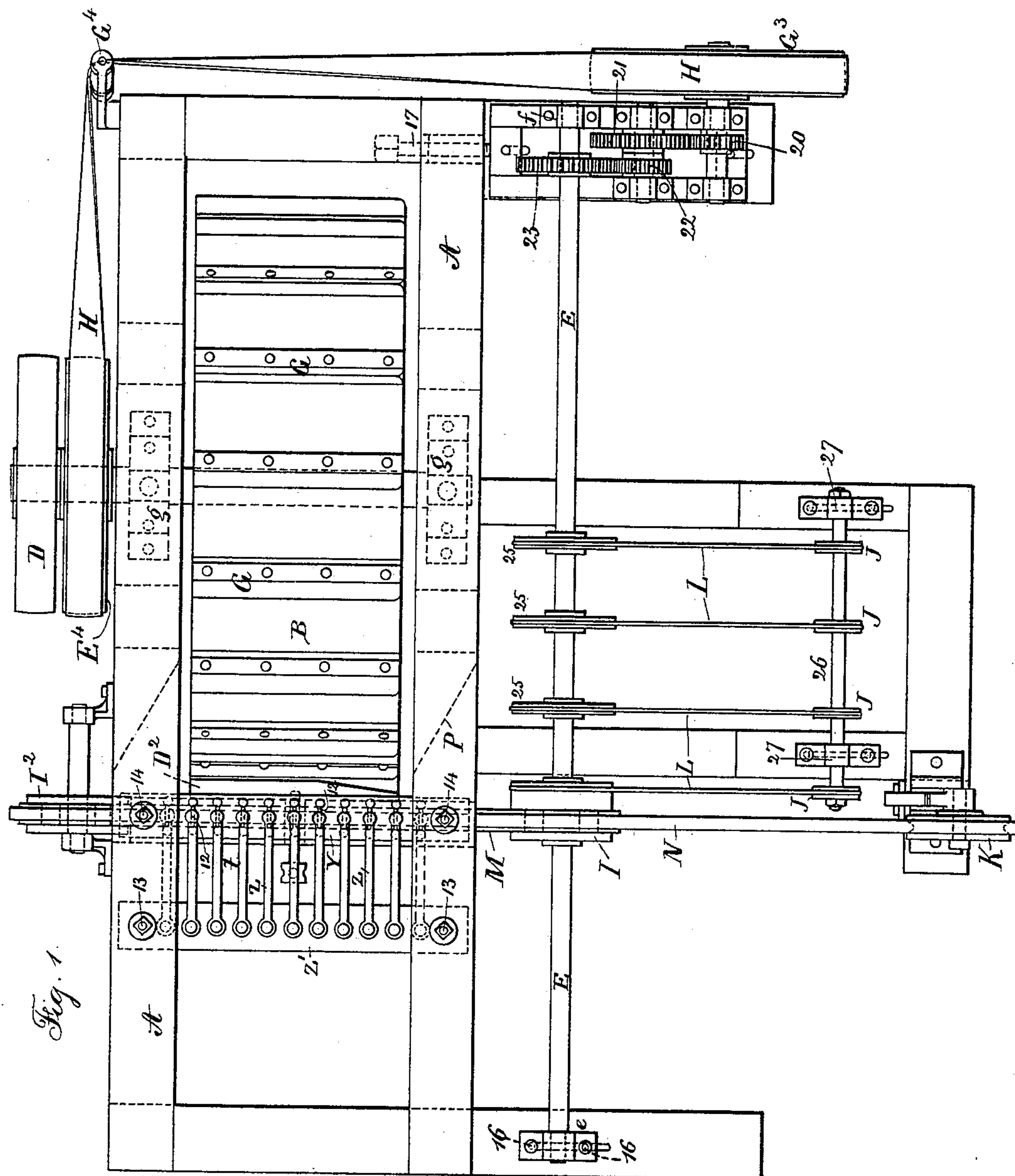


Fig. 1.

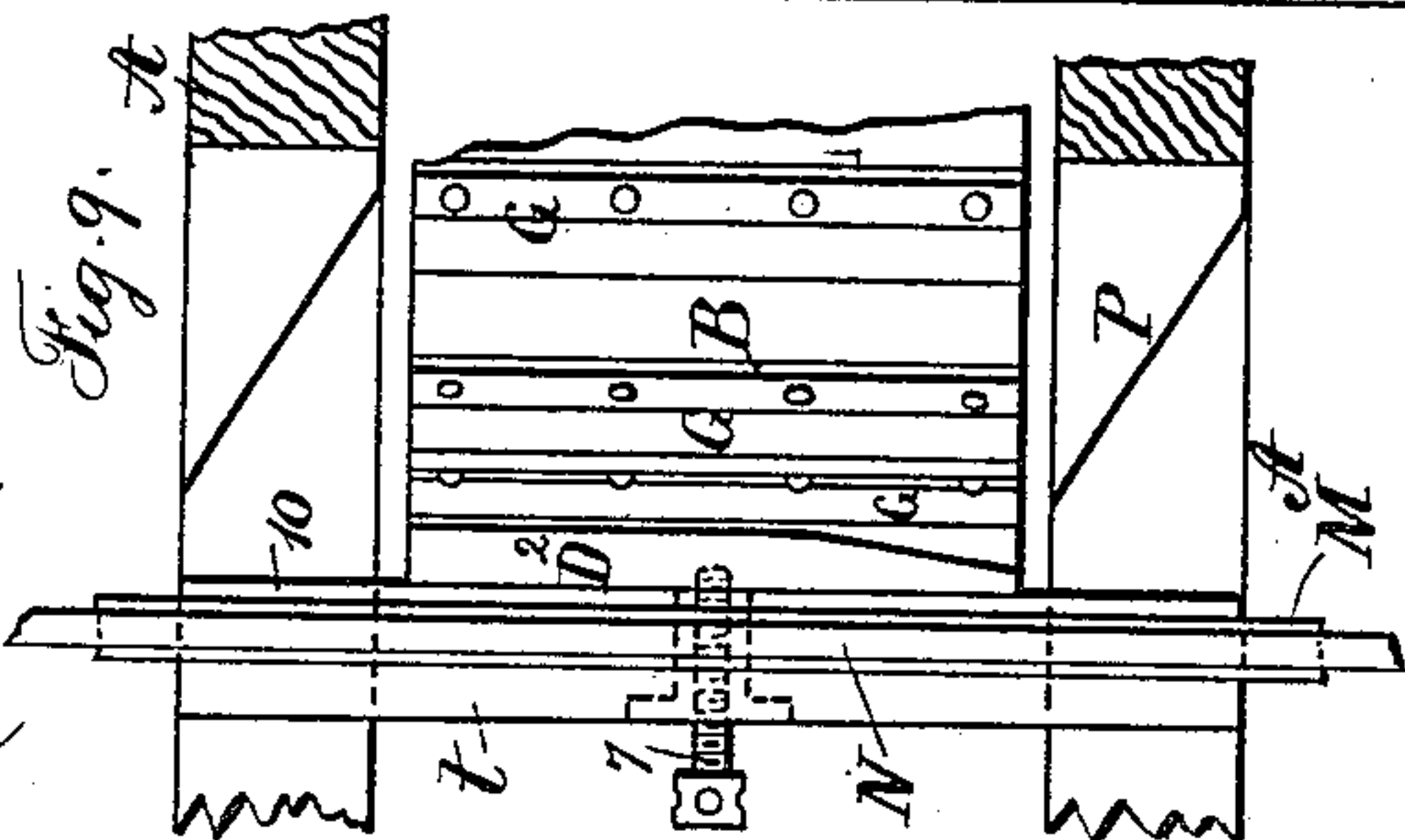


Fig. 9.

Witnesses:
J. Staib
Harold Ferrell

Inventor
Timoteo Villamor
per Samuel W. Ferrell atty.

(No Model.)

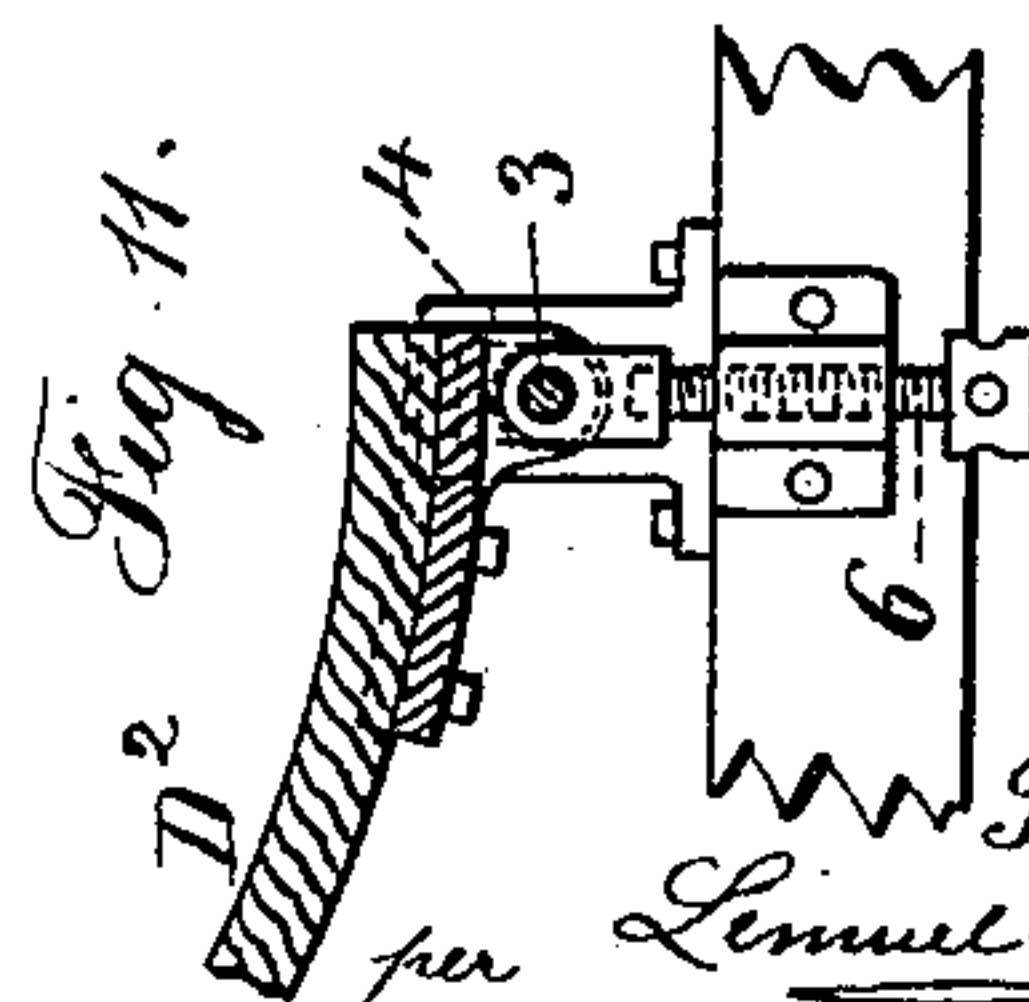
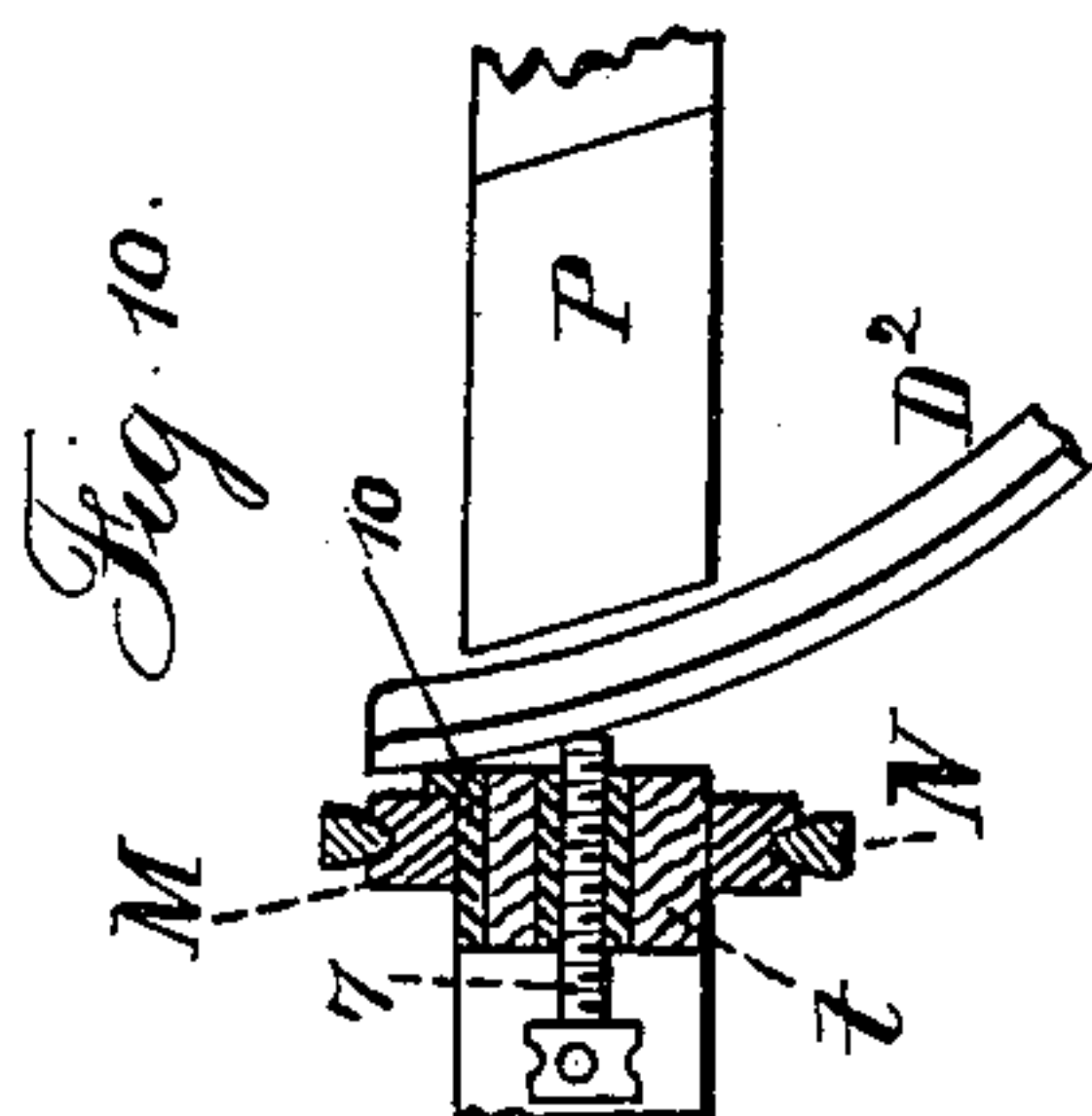
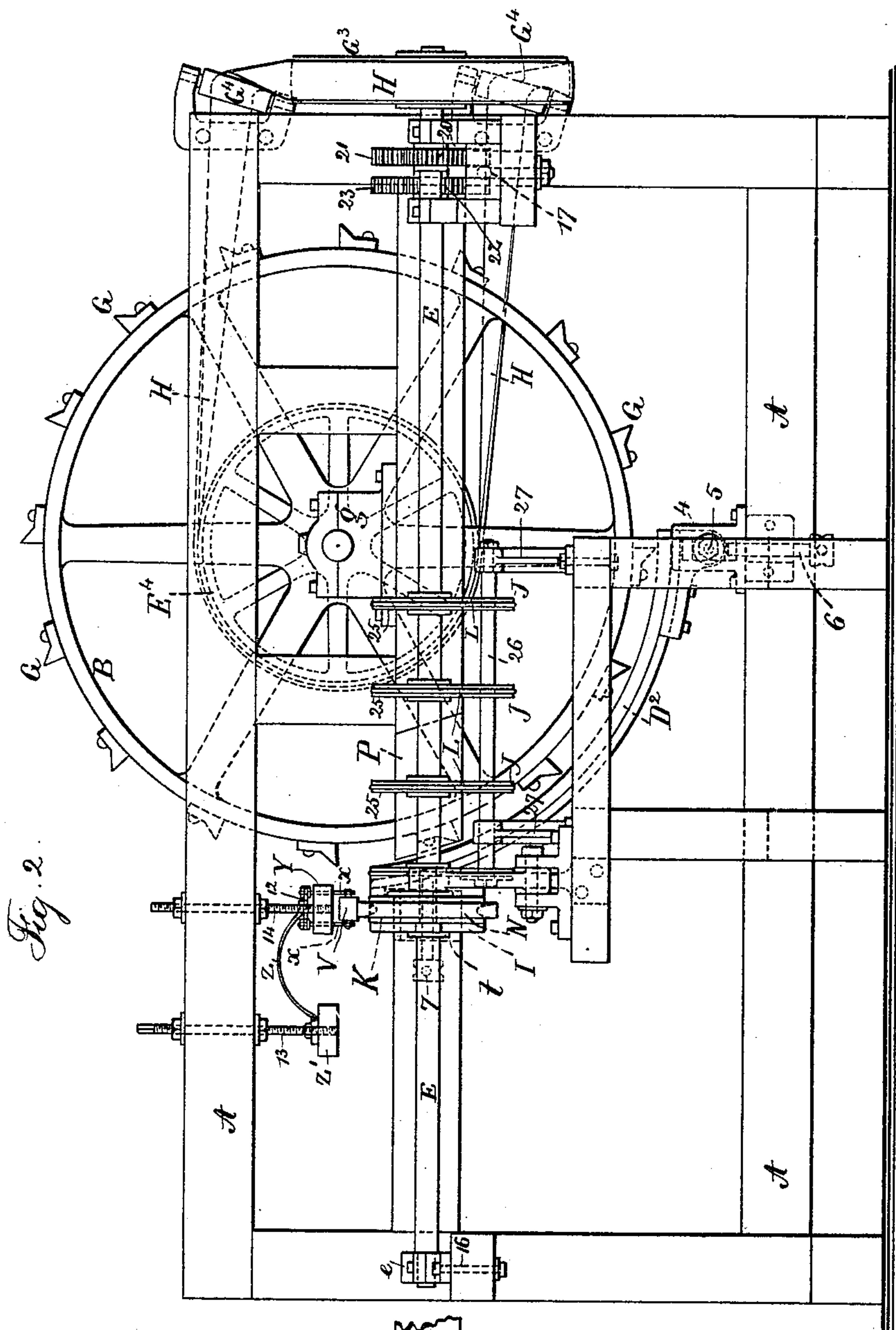
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(No Model.)

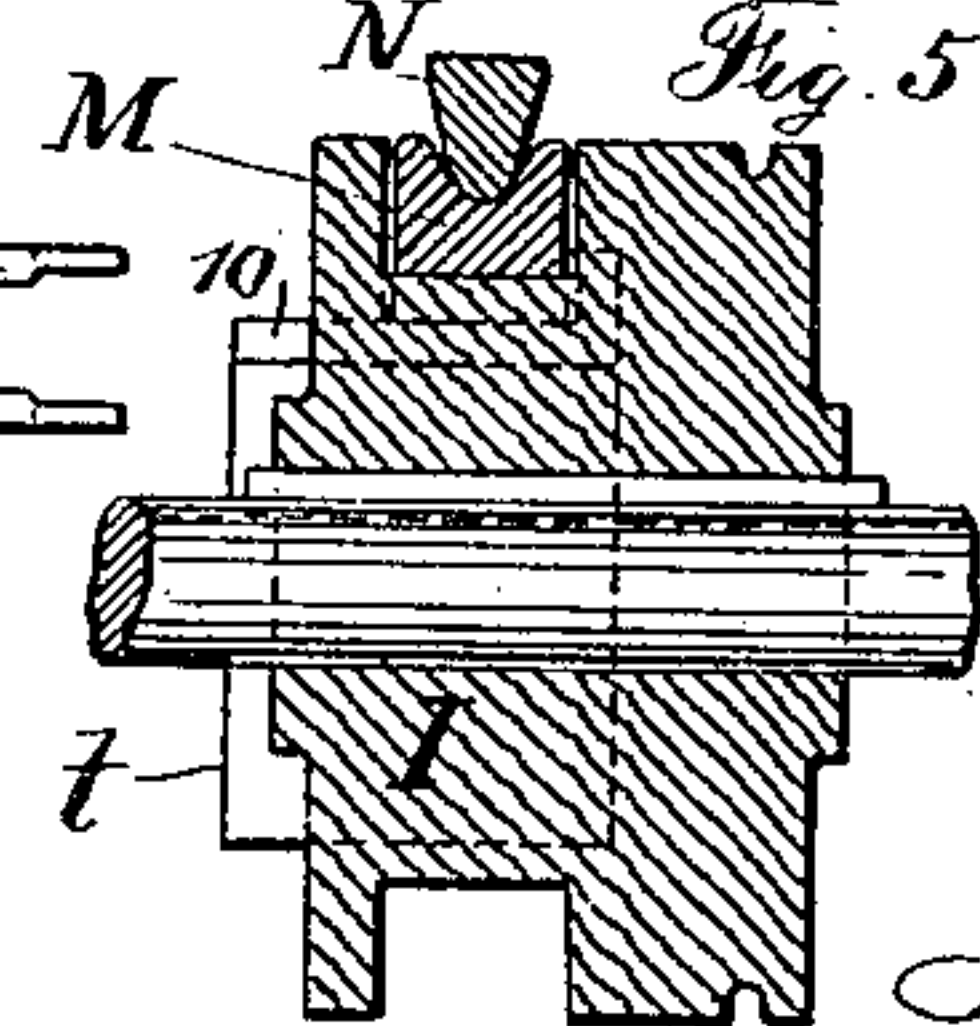
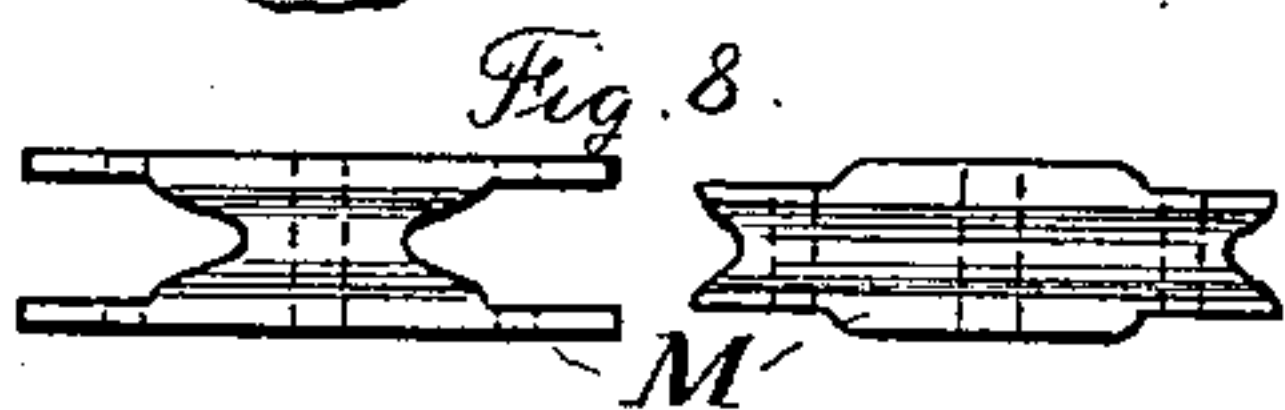
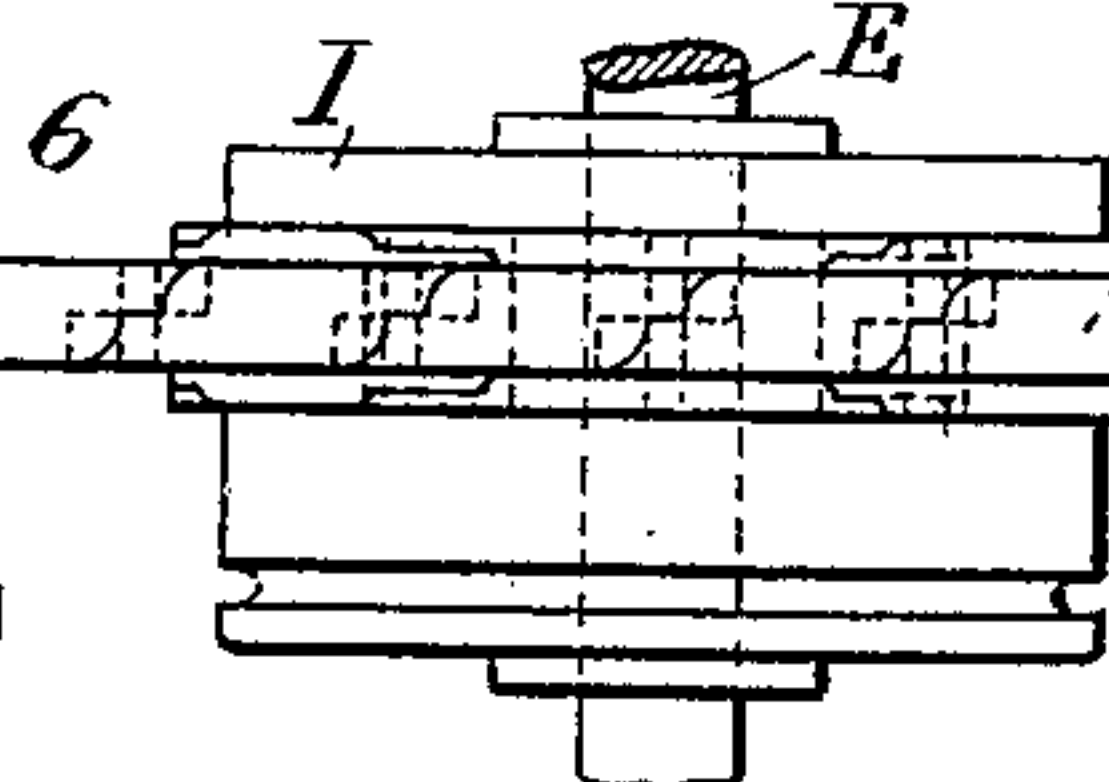
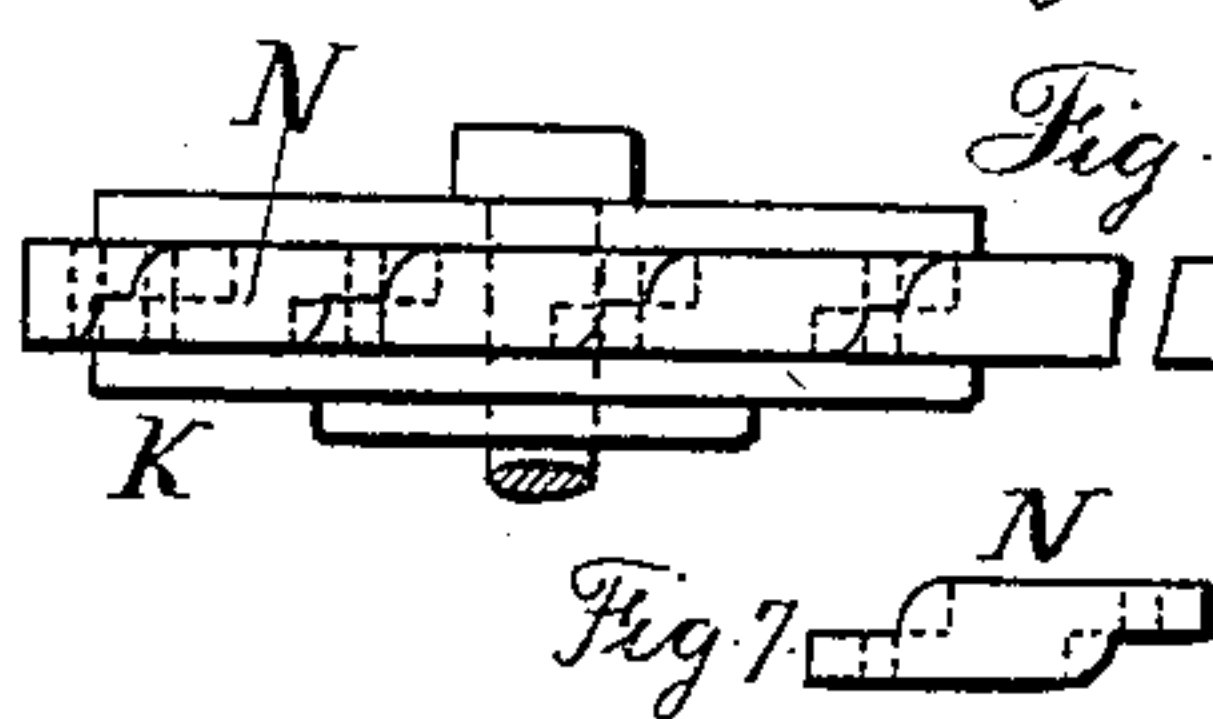
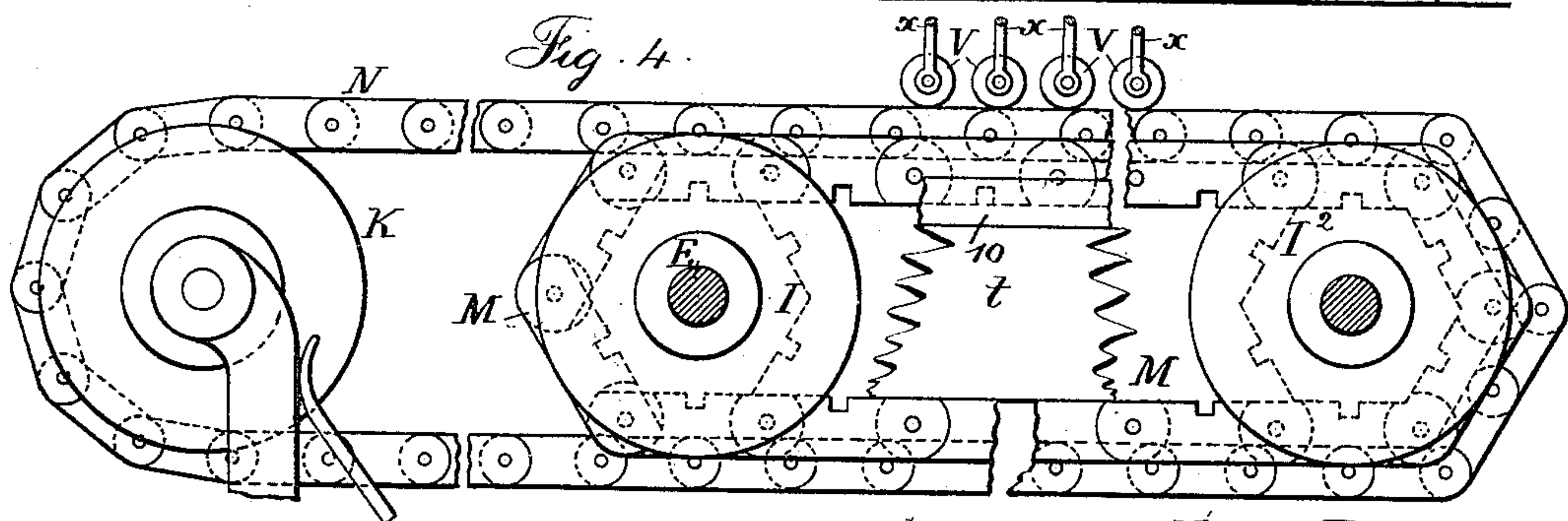
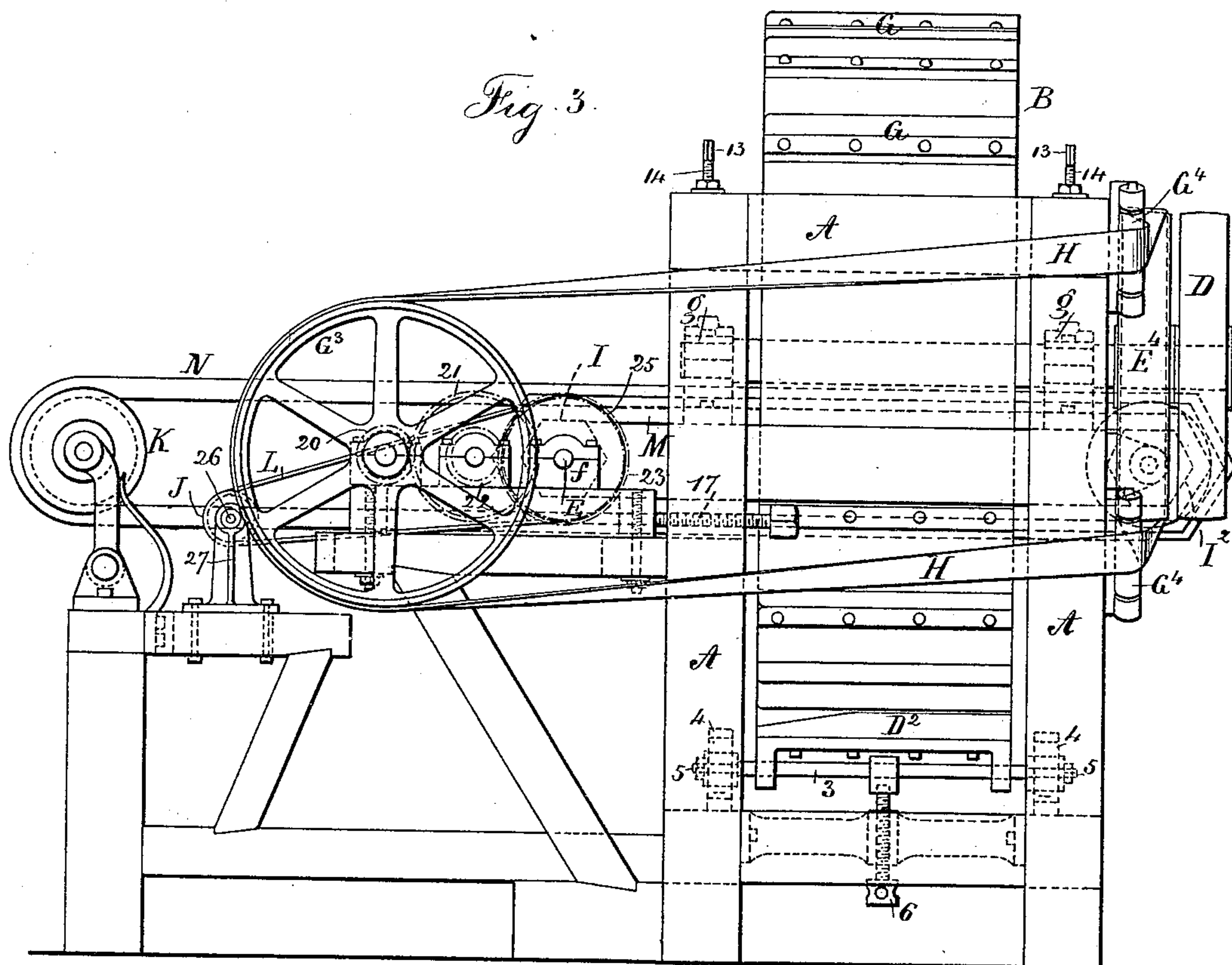
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Witnesses:
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Harold Ferrell

Inventor:
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per Lemuel W. Ferrell atty

UNITED STATES PATENT OFFICE.

TIMOTEO VILLAMOR, OF MERIDA, YUCATAN, MEXICO.

MACHINE FOR CLEANING VEGETABLE FIBER.

SPECIFICATION forming part of Letters Patent No. 362,683, dated May 10, 1887.

Application filed September 3, 1886. Serial No. 212,587. (No model.)

To all whom it may concern:

Be it known that I, TIMOTEO VILLAMOR, of Merida, Yucatan, Mexico, have invented an Improvement in Machines for Cleaning Vegetable Fiber, of which the following is a specification.

The object of this invention is to remove from vegetable fiber the pulpy portions and the sap, so as to leave the fiber in a proper condition for sale or use.

In my improvement the leaves or stalks are passed in between two chains, which are peculiarly constructed so as to hold the leaves or stalks between them, and at the same time convey the same through the machine and hold the same while being subjected to a scraping operation, and the hanks of fiber are brought back by the chain adjacent to the place where they are entered, so that the attendant can turn the hank end for end, open out the same, and pass it through the machine as often as necessary for thoroughly scraping and cleaning such fiber, and fresh leaves or stalks are added from time to time, and the hanks of fiber removed and thoroughly cleaned.

In the drawings, Figure 1 is a plan of the machine complete. Fig. 2 is a side elevation. Fig. 3 is an end view. Fig. 4 is a detached view in larger size, showing portions of the chains and the pulleys for the same. Fig. 5 is a cross-section of the chain and pulley. Fig. 6 is a plan showing parts of the chains and pulleys. Figs. 7 and 8 show links of the chains separately. Fig. 9 is a sectional plan showing wheel, concave rest, and its upper adjusting-screw and feeding-chains. Fig. 10 is a cross-section through parts at upper end of concave rest, and Fig. 11 is a sectional elevation at lower end of concave rest.

The frame A of the machine is made of the proper size and shape to support the other parts, and it may be of wood or metal. B is a wheel mounted upon a shaft in bearings g, and driven by a pulley, D. Upon this wheel B there are scrapers G at suitable distances apart around the cylindrical periphery of the wheel B, and these scrapers are preferably in the form of triangular bars tapering or rounding at the ends of the scrapers that first come into contact with the leaves or stalks, so as to act gradually upon the same without cutting

or injuring the fiber, and the advancing face of the scraper is in a radial plane, or nearly so.

Below and at one side of the scraping-wheel B is a concave rest, B², upon which the stalks or leaves lie while being scraped. This concave rest D² is preferably supported at its lower end by a cross-bar, 3, the ends of which are in vertical bearings 4, and are provided with clamp-nuts 5, and 6 is an adjusting-screw by which the concave rest can be raised or lowered when the clamp-nuts 5 are loosened, after which the clamp-nuts 5 are tightened to hold the parts in their proper positions.

Near the upper end of the concave rest D² is an adjusting-screw, 7, passing through a nut upon the cross-bar t of the frame of the machine, and acting to vary the distance between the inner surface of the concave rest and the scrapers G.

The surface of the rest D² is farther from the scrapers at the side where the hanks of fiber are introduced than it is at the side from which they pass away, so that such fiber is exposed to increasing pressure as it passes through the machine to thoroughly scrape the same without the risk of injuring the fiber by too hard pressure of the scrapers when said fiber first enters the machine.

It is preferable to make use of a wooden surface upon which the leaves or fibers rest while being scraped; hence I prefer to make the rest D² of wood, as shown, or else of a metal segment lined with wood, and the portion P of the frame is interrupted at the upper end of the concave rest D², so as to form a mouth, through which the material to be scraped can be carried freely and pass in between the concave rest D² and the revolving scrapers G.

To feed in the material, I make use of the endless chains M and N, the chain M passing around the pulley I, which is preferably hexagonal, and also around the pulley I², and the chain N is longer than the chain M, and coincides with such chain M between the pulleys I I², and it also extends to and passes around the pulley K. This pulley K is mounted in a swinging bearing-arm, and a spring fastened to the frame of the machine presses against the bearing-arm to keep the chain N taut.

The endless chains M N are made as represented in larger size in Figs. 4, 5, and 6—that

is to say, the chain M is made of links adapted in length to fit the polygonal pulley I², and the upper surfaces of the links are grooved, so as to form a trough of links adapted to receive the narrower endless chain, N, which chain N is composed of links preferably of rather less length than the length of the chain M, so that two links of the chain N will coincide with one link of the chain M in passing around the polygonal pulley I² as seen in Fig. 4.

Upon the top of the cross-bar *t* is a flanged rail, 10, upon which the chain M slides, and the flange of this rail supports the chain against the lateral pull of the fiber while such fiber is being stripped.

Above the cross-bar *t* and over the chains M N there are rollers V, at suitable distances apart. The axes of the rollers are supported by sliding bearings *x*, that pass through the head-block Y, and are provided with cross-pieces 12, upon which the springs Z act, and the other ends of these springs Z are attached to the bar Z', that is adjusted by the screws 13, so as to vary the pressure of the springs in keeping the rollers down upon the chain N, and there are adjusting-screws 14, by which the head-block Y can be supported and raised or lowered.

The pulley I is upon a shaft, E, in suitable bearings, *e f*, at the ends, and these bearings are preferably adjustable by means of the bolts 16 and screw 17, so as to tighten the chain M whenever necessary. This shaft E may be driven in any suitable manner; but I prefer and use a pulley, G³, and intermediate gearing, 20 21 22 23, so as to vary the speed of the shaft E by changing the gears 21 and 22, and this pulley G³ may be driven by a belt, H, from the pulley E⁴ upon the shaft of the wheel B, there being guide-rollers at G⁴ for the belt H to run against.

The shaft 26 is supported in adjustable bearings 27, and upon the shaft are pulleys J for the endless belts L, which belts L pass around drums 25 on the shaft E.

It will now be understood that the attendant lays upon the belts L the stalks or leaves spread out in a proper manner, and these are carried along, and are grasped between the chains M and N, and these chains hold such leaves or stalks and convey them along transversely to the scraping action, so that the scrapers carry the stalks or leaves downwardly and upon the concave rest D², and the pulpy portions and foreign substances are scraped from the fiber, and the material operated upon is carried along until it is drawn out from between the scrapers and the concave rest, and the further movements of the chain bring the partially-clean hank of fiber around the pulley I² and back to the pulley I, and the partially-cleaned hank hangs across the lower part of the endless chain N, and it is grasped by the attendant after it has passed clear of the pulley I, and it is shaken and spread out and

laid upon the belts L, and passed in again between the chains M N to be acted upon a second time, and the hank is turned end for end as often as necessary, so that the hank of fiber is thoroughly scraped, and when in the proper condition is removed from the machine. It is generally preferable to have hanks of fiber, stalks, and leaves interspersed along between the chains, so that they are presented to the scraping action in the proper manner, and as some hanks are finished and removed other bunches of leaves or stalks are introduced to be acted upon, as before described.

There may be suitable partitions or inclosing-panels in connection with the frame of the machine around the revolving drum or wheel of scrapers, so as to prevent the lumps of pulp and other refuse matter being scattered in all directions by the centrifugal action.

I claim as my invention—

1. The combination, with the revolving wheel B and scrapers, of chains for conveying the leaves or stalks, a concave rest, D², for the same while being scraped, the screw 7, for adjusting the upper end of the concave rest, and the screw 6 in bearing, for vertically adjusting the lower end of the said rest, substantially as specified.

2. The combination, with the revolving wheel B and scrapers, of the concave rest D² and means, substantially as specified, for adjusting the ends of the same, the endless chains M N and their pulleys, the chain M being grooved or formed of trough-shaped links, and the chain N fitting in the groove to clamp the stalks or leaves, a rail for the chain M to slide upon, and adjustable rollers for pressing on the chain N, substantially as specified.

3. The combination, with the pulleys I I², their shafts, and mechanism for operating the same, of the endless chains M N, the chain M being grooved or formed of trough-shaped links, and the chain N fitting therein to clamp the stalks or leaves, a flanged rail, 10, for the chain M to slide upon, rollers V, and head-block Y, and the sliding bearings passing through the head-block, the cross-pieces, and springs for pressing the rollers down upon the chain N, substantially as specified.

4. The combination, with the pulleys I I², their shaft, and mechanism for operating the same, of the endless chains M N, the chain M being grooved or formed of trough-shaped links, and the chain N fitting therein to clamp the stalks or leaves, a flanged rail, 10, for the chain M to slide upon, rollers V, and head-block Y, and the sliding bearings passing through the head-block, the cross-pieces and springs for pressing the rollers down upon the chain N, the pulley K, around which the chain N passes, a swinging bearing-arm for said pulley, and a spring pressing against the bearing-arm to keep the chain N taut, substantially as specified.

5. The endless chain M of trough-shaped or grooved links, in combination with the end-

less chain N, adapted to fit in the groove in the chain M and clamp the stalks or leaves, the flanged rail 10, the rollers V, their sliding bearings *x*, and cross-pieces 12, the springs Z, the head-block Y and bar Z', and means for adjusting the said block and bar and increasing the pressure of the springs, substantially as specified.

6. The combination, with the revolving wheel B and scrapers, and the concave rest D², of the screw 7, passing through the cross-bar *t*, for adjusting the upper end of the rest D², the cross-bar 3, vertical bearings 4, clamp-nuts 5, and screw 6, whereby the lower end of the concave rest D² is adjusted vertically, substantially as specified.

7. The combination, with the pulleys I I², their shafts and operating mechanism, and the pulley K, of the endless chain M, formed of grooved or trough-shaped links, and passing around the pulleys I I², the endless chain N, formed of links adapted to fit the groove of the chain M to clamp the stalks or leaves, and passing around the pulleys I² and K, the said chain N revolving with and outside of the chain M, and the pulleys I and K being distant from each other, so as to form an opening

through which the leaves or stalks are introduced between the chains M N, substantially as specified.

8. The combination, with the pulleys I I², their shafts and operating mechanism, and the pulley K, of the endless chain M, formed of grooved or trough-shaped links and passing around the pulleys I I², the endless chain N, formed of links adapted to fit the groove of the chain M to clamp the stalks or leaves and passing around the pulleys I² and K, the said chain N revolving with and outside of the chain M, and the pulleys I and K being distant from each other, so as to form an opening through which the leaves or stalks are introduced between the chains M N, and the drums 25, belts L, pulleys J, and shaft 26, for receiving the stalks or leaves and conveying them along to pass in between said chains, substantially as specified.

Signed by me this 27th day of August, A. D. 1886.

TIMOTEO VILLAMOR.

Witnesses:

* GEO. T. PINCKNEY,
WILLIAM G. MOTT.