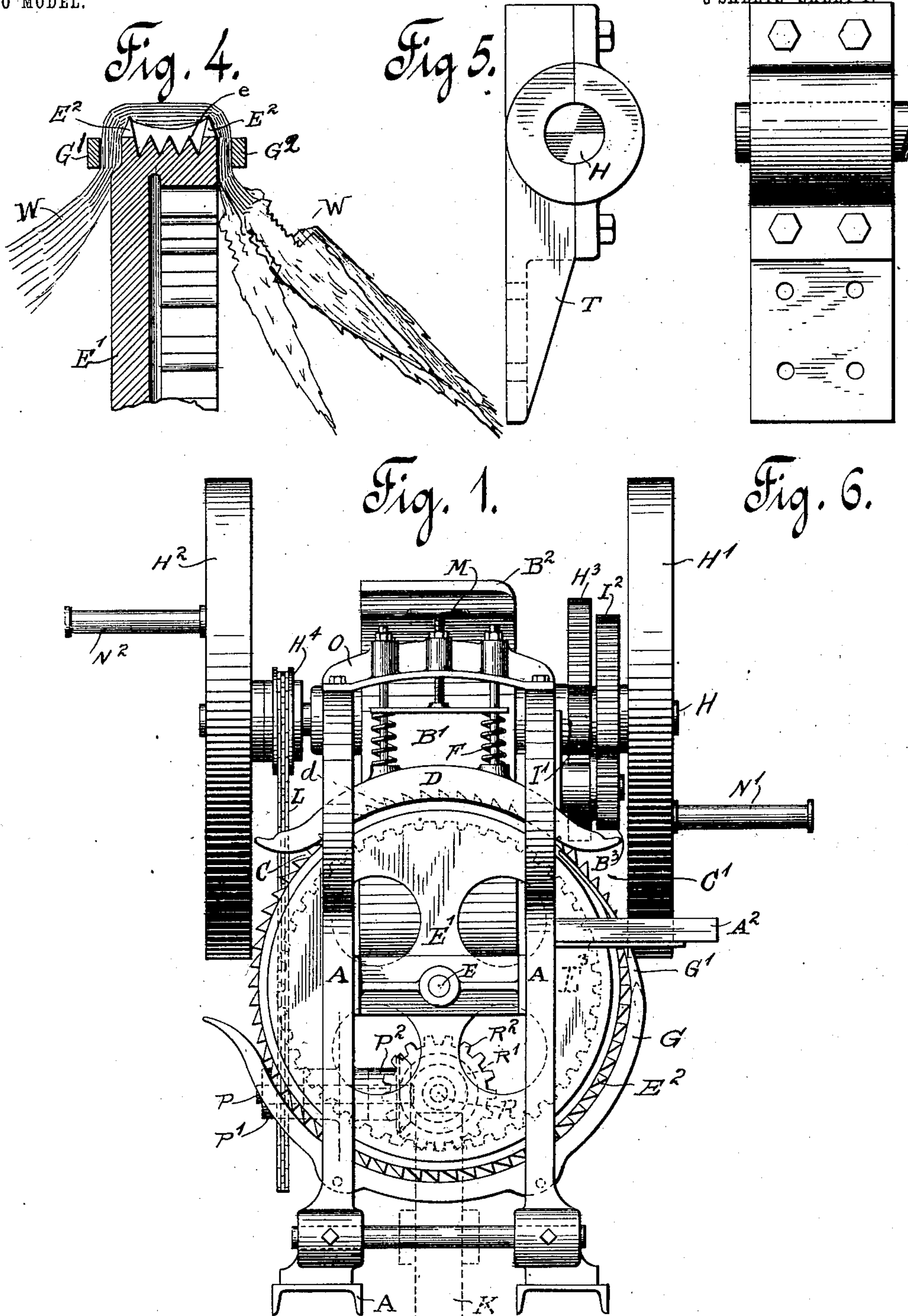


M. PRIETO.
MACHINE FOR CLEANING FIBERS.

APPLICATION FILED JULY 27, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
F. N. Roelrich
M. F. Boyle.

Inventor
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No. 753,628.

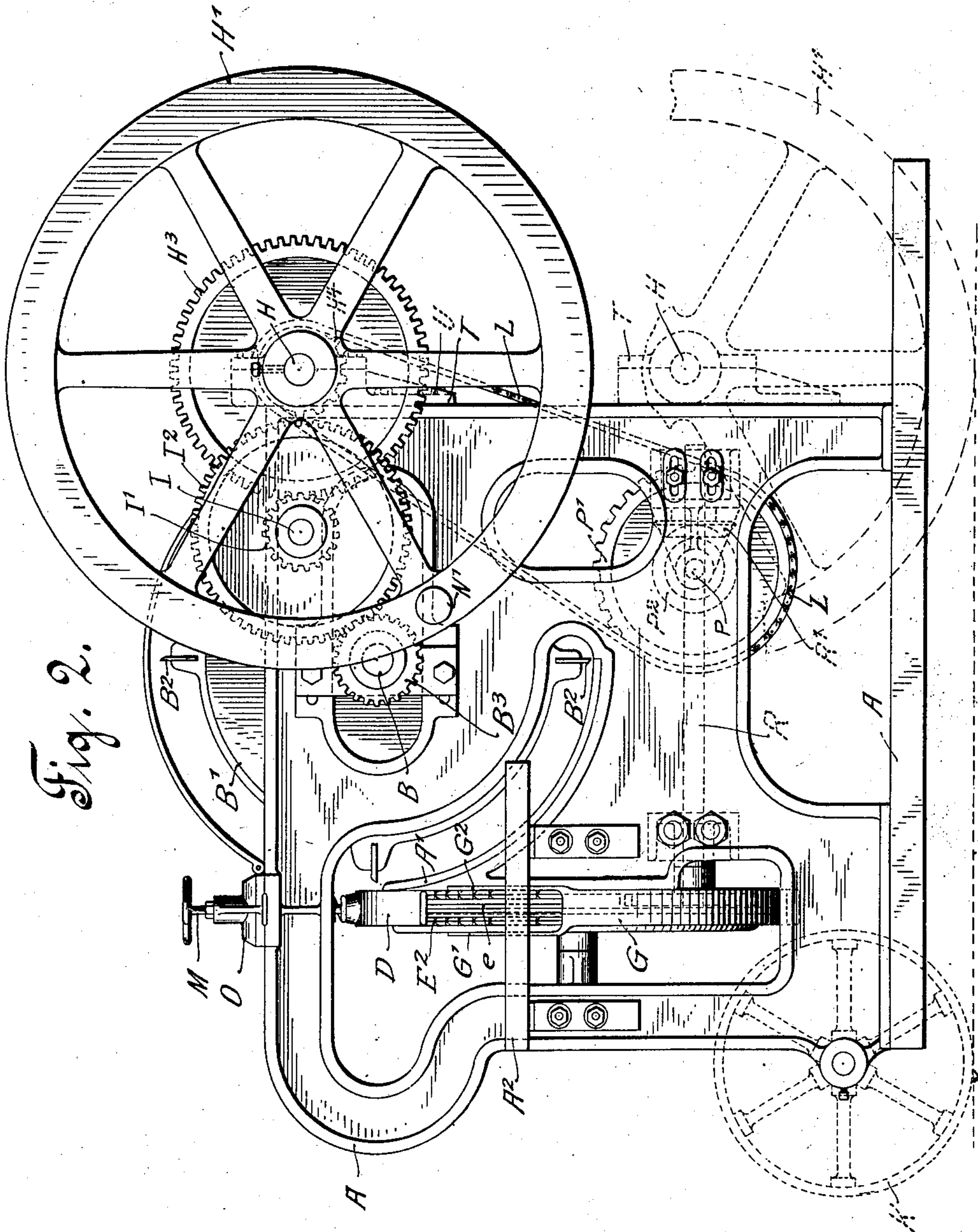
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3 SHEETS—SHEET 2.



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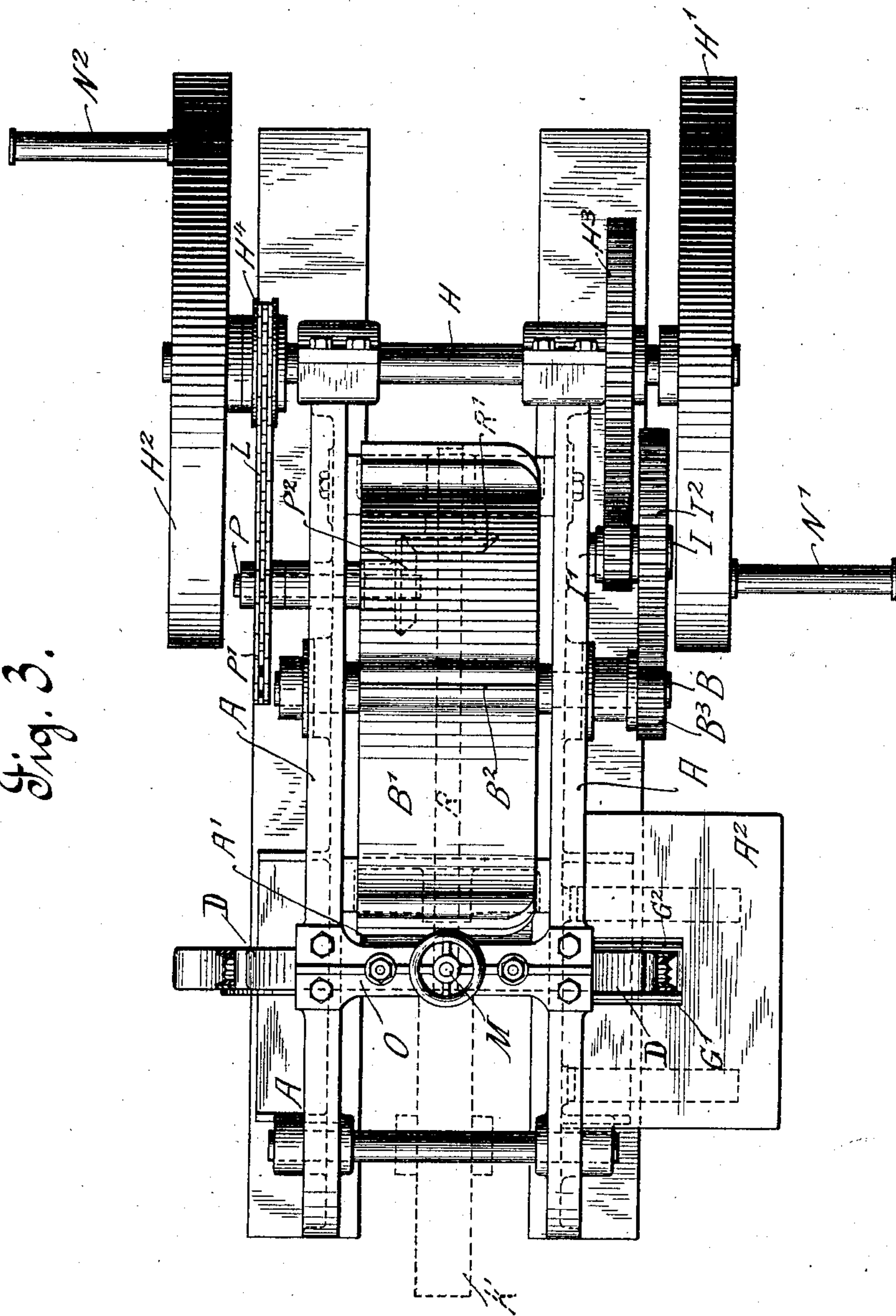
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3 SHEETS—SHEET 3.

Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

MANUEL PRIETO, OF MEXICO, MEXICO.

MACHINE FOR CLEANING FIBER.

SPECIFICATION forming part of Letters Patent No. 753,628, dated March 1, 1904.

Application filed July 27, 1903. Serial No. 167,117. (No model.)

To all whom it may concern:

Be it known that I, MANUEL PRIETO, a citizen of the Republic of Mexico, residing in the city of Mexico, Mexico, have invented a certain new and useful Improvement in Machines for Cleaning Fiber, of which the following is a specification.

The invention is intended more particularly for treating plants of the class known as "Agave sisalienses," indigenous in the tropical parts of America, and I will describe it as thus applied. These plants yield a long and strong fiber embedded in other vegetable material, which it is the object of my invention to remove. Previous machines devised by myself and by others have been used with more or less success in effecting this work, but the present invention is adapted for serving successfully on a smaller scale.

The machine may be operated by moderate power. I will describe it as turned by the strength of men applied through cranks. The leaves are passed through twice in the same direction, each leaf being turned by extraneous means. I will describe it as being performed by the hands of the attendant between the two passages. The machine treats one end, usually the butt-end, of the leaf first, holding the leaf by the smaller end, and after the thickest end has been cleaned by one passage through the machine an attendant reverses its position and introduces it into a different portion of the wheel, by which it is carried idly back to the place of starting, where it is automatically introduced a second time and is carried through the same path as at first, but in the reversed position, so that the other end is also cleaned. On emerging the second time the attendant removes the material in the form of a strick of completely-cleaned fiber. Thus the invention involves important improvements in the feeding mechanism, the return mechanism, and the provisions for automatically reintroducing after the return.

I adapt a pair of wheels to serve the double function of receiving the power when the machine is being operated, and after an easily effected change of position, facilitating the movement when it is to be transported from one place to another.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is an end view; Fig. 2, a side view, and Fig. 3 a plan view. The remaining figures show certain portions on a larger scale. Fig. 4 is a section taken radially through a portion of the feed-wheel. Fig. 5 is a side view, and Fig. 6 a face view, of one of the movable bearings for the large wheels, which serve in one position as bearing-wheels.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is a framing, preferably made in whole or in part of cast-iron.

B is a shaft carrying an ordinary beating-drum B', equipped with beaters or scrapers B², detachably secured. These beaters run close to a curved casing A', which forms a portion of the framework. These parts are adapted to serve relatively to each other in the ordinary manner long approved in previous fiber-cleaning machines. The leaves W are successively held and carried along a path in contact with the beating-drum twice in the same direction. In the first passage one end, preferably the butt-end, is beaten and reduced to a condition of clean fiber. The second time the holding means grasps the partially-treated leaf by the fiber thus previously cleaned and presents to the action of the beaters the smaller end of the leaf, which is in its turn thoroughly cleaned, so that nothing remains but fiber throughout the whole length. I employ as the carrying and holding means for this feeding movement a narrow wheel E', carried on a shaft E. The periphery of this wheel is grooved circumferentially at its mid-width, so as to form ribs e, and is provided at the edge with strong teeth E², which advantageously project beyond the ribs e. It is revolved slowly in a plane at right angles to the beating-drum B' and close to it. The leaves are strongly compressed between this feed-wheel and a block D, which I will term the "presser." I provide for strongly supporting both the wheel, which is the moving agent, and the

block, which has no motion, (except as it yields slightly by rocking and by bodily movements up and down to accommodate inequalities in the thickness of the masses being carried through,) so that the strong pull imparted by the revolving cleaner can be effectually resisted. The leaves, which may previously lie on a small table A^2 , are successively fed in by an attendant who introduces them one by one into the space between the presser D and the wheel E' , so that the leaf is by the gradual revolving of the wheel crushed and strongly held. There are longitudinal grooves in the hollow under surface of the presser D, which correspond to the grooves e on the wheel E' . The grooved surface of the presser is made as smooth as possible, so that it will offer but little friction to the movement of the leaves in the circumferential direction. While thus carried through the machine the first time, something more than half the leaf being allowed to project into the path of the beaters B^2 is reduced to the condition of cleaned fiber. The leaf thus treated is delivered at the point C and is received by a vigilant attendant, who reverses it in position, and (preferably waiting until two or more have been thus received and reversed) he introduces these partially-cleaned leaves to be carried back to C' , the place of beginning, by the motion of the lower portion of the wheel E' . G is a hollowed piece applied against the under portion of the wheel E' . It is analogous to the presser D, but need not be nearly as strong. It is well to associate several leaves at this stage of the operation, because the fibers alone are too slender and wiry to allow the fibers of one leaf to be properly held. The judgment of the attendant must be exercised in this matter. Too many must not be associated in the return motion, and consequently, as we shall soon see, in the second beating, not so much because it is possible for the fibers by which they are held to form too large a mass in the holding means, but because the untreated portions of the leaves, although they are smaller than the butts which had been previously treated, will still offer too large a bunch if many are aggregated. The attendant should separate the ends and spread them to go through the machine the second time.

I provide for automatically transferring the leaves from the weak holding which is furnished by the support G to the strong holding offered by the presser D. This is attained by dividing the support G at the delivery-point C' into two extensions $G' G^2$, which are bent first apart and then inward, as shown clearly in Figs. 1 and 2. By this construction the extensions of the support offer no obstacles to the introduction of fresh leaves, as first provided, by hand. On the approach of the bunch of partially-treated leaves to this

the terminal end of the return movement the cleaned fibers are by the inwardly-inclining extensions $G' G^2$ bent inward each side of the wheel E' . The arrangement retains a sufficient grip to carry the leaves farther upward, and the attendant refraining at this juncture from introducing any fresh leaves the leaves which have just been returned are automatically introduced a second time into the strong grip of the presser D. So great a portion of the length of the leaf must have been treated in the first passage that the cleaned portion of the fiber will extend beyond the wheel a little way into the path of the beaters. In the second passage of the leaves through the machine the beaters have the relatively easy duty of simply cleaning the smaller ends of the leaves. On emerging the second time at the point C the fiber is completely cleaned, and the attendant takes this completed strick of fiber and places it on a pile (not shown) with others previously treated, to be removed at intervals.

H is a shaft mounted in movable bearings T, which can be shifted vertically to a large extent on the framing A. H' and H^2 are large wheels set thereon. When the bearings T are secured by the screws U in the high positions shown in the strong lines in the figures and the removable crank-handles $N' N^2$ are screwed in or otherwise firmly set, the whole may be turned by the force of men applied to the cranks and by means of a large gear-wheel H^3 , engaging in a smaller gear-wheel I' on a shaft I, the latter is revolved more rapidly. I^2 is a larger gear-wheel on the shaft I, which engages with a smaller gear-wheel B^3 on the shaft B. Through this train the revolutions of the shaft H give a many-fold more rapid rotation to the shaft B, and consequently to the beaters B^2 . Men by working in sets and relieving each other can supply the power and allow some or all the men to serve at intervals in the more intellectual and probably less exhausting work of introducing and reversing the leaves.

When it is desired for any reason to move the machine, it is temporarily blocked up, and the cranks N' and N^2 , being first taken out of the wheels the shaft H with its wheels is lowered out of engagement with the remainder of the train of gears and secured in the lower position shown by dotted lines in Fig. 2. The single wheel K at the other end of the machine, which had been idle while the machine was being used, is now mounted in the bearings shown and the machine may be easily moved to short or long distances by the force of men or animals. A little care will suffice to again block up or otherwise temporarily hold up the frame and on taking out the screws U and having by the directly applied force of the hands or otherwise as simply by a succession of operations by levers and blocking again restored the shaft H to its high position, again engaging the gears H^3 and I' and retightening

the screws U, the frame may be allowed to rest directly on the ground, and the machine may be again used as before.

The slower, and it may be weaker, revolving motion is given to the feed-wheel E from the same shaft H when in its high position by the aid of the pitch-chain L, connecting a sprocket-wheel H⁴ on the shaft H and a larger sprocket-wheel P' on the shaft P. This latter carries a bevel gear-wheel P², engaging a bevel gear-wheel R' on a shaft R, extending longitudinally of the machine, which latter carries a spur gear-wheel R², which engages with internal gear-teeth E³ in the feed-wheel E. One of the pivot-pins in the pitch-chain L may be easily removable to allow the chain to be disconnected when the shaft H with its large smooth wheels is to be lowered, and to be again properly connected when the shaft is again raised to condition the machine again for use.

The support G may be held firmly by bolts to the framing A, (see Fig. 2;) but it is important in view of the stronger pressure to be imparted through the presser D to be able to adjust the force of the latter and also to make it elastic.

F represents springs acting over the presser and forced downward adjustably by the screw M, acting through a sufficiently-stout cap O. The springs maintain the pressure substantially constant through all the slight variations due to irregularities in the masses being fed through.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The proportions may be varied. The whole may be made larger and driven by other means, as the power of one or more horses or by steam or by an explosive-engine. In such case the power may be received through a belt (not shown) running on the smooth surface of the wheel H' or H².

I can combine two or more of the machines, passing the partly-treated leaves back in each and causing them to be again passed over the feed-wheel.

Parts of the invention can be used without the whole.

In case the extensions G' G² of the support G become broken or for any reason fail, so that it is necessary to remove them, the partially-treated leaves may be passed back in

the same manner as described, and by bestowing labor of the attendant to introduce them properly the second time the machine may still be of service until repairs can be effected. The machine may be thus worked permanently in some cases.

I claim as my invention—

1. In a fiber-cleaning machine, a feeder in the form of a wheel E' and means for slowly revolving it, in combination with a correspondingly-hollowed presser D and means for elastically holding it, and with beaters B² and casing A' all arranged to serve substantially as herein specified.

2. In a fiber-cleaning machine, a feeder in the form of a wheel E' and means for slowly revolving it, in combination with a correspondingly-hollowed presser D and means for elastically holding it, and with beaters B² and casing A', and with support G adapted to cooperate with the wheel to carry the partially-treated material onward and present it to be again treated, all substantially as herein specified.

3. In a fiber-cleaning machine, a feeder in the form of a wheel E' and means for slowly revolving it, in combination with a correspondingly-hollowed presser D and means for elastically holding it, and with beaters B² and casing A', and with support G adapted to cooperate with the wheel to carry the partially-treated material back to the place of beginning, the support being provided with extensions G' G² arranged as shown to aid in carrying the material again into the space under the presser, all substantially as herein specified.

4. In a fiber-cleaning machine, a feeder in the form of a wheel E' and means for slowly revolving it, in combination with a correspondingly-hollowed presser D and means for elastically holding it, and with beaters B² and casing A', and with driving-gear and a movable shaft H, wheels H' H² movable bearings T and holding means U, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

MANUEL PRIETO.

Witnesses:

C. LOUIS F. ROBINSON,
M. F. BOYLE.