

No. 762,326.

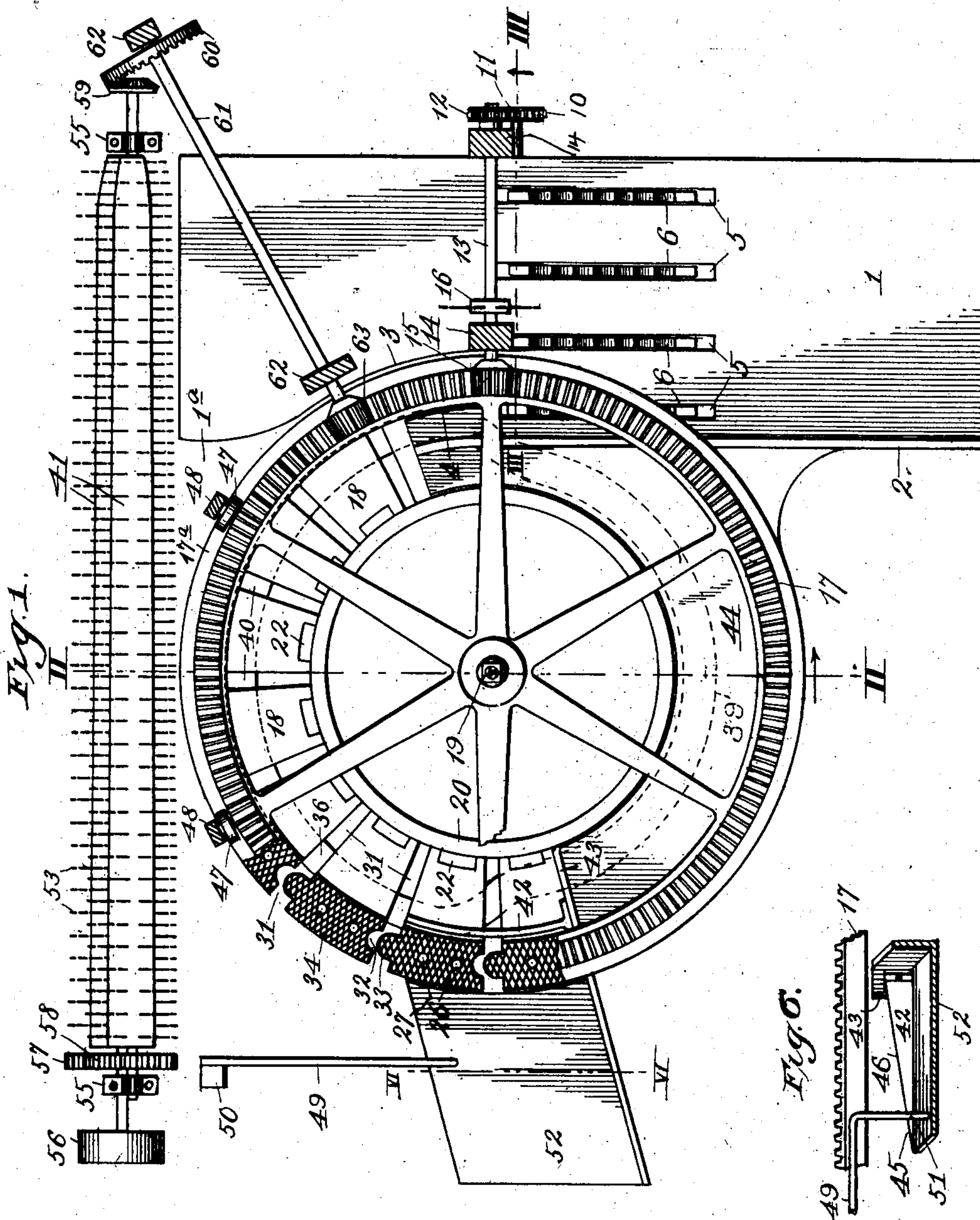
PATENTED JUNE 14, 1904.

S. C. LEHMAN.
BROOM CORN COMBING MACHINE.

APPLICATION FILED OCT. 15, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:

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Inventor:

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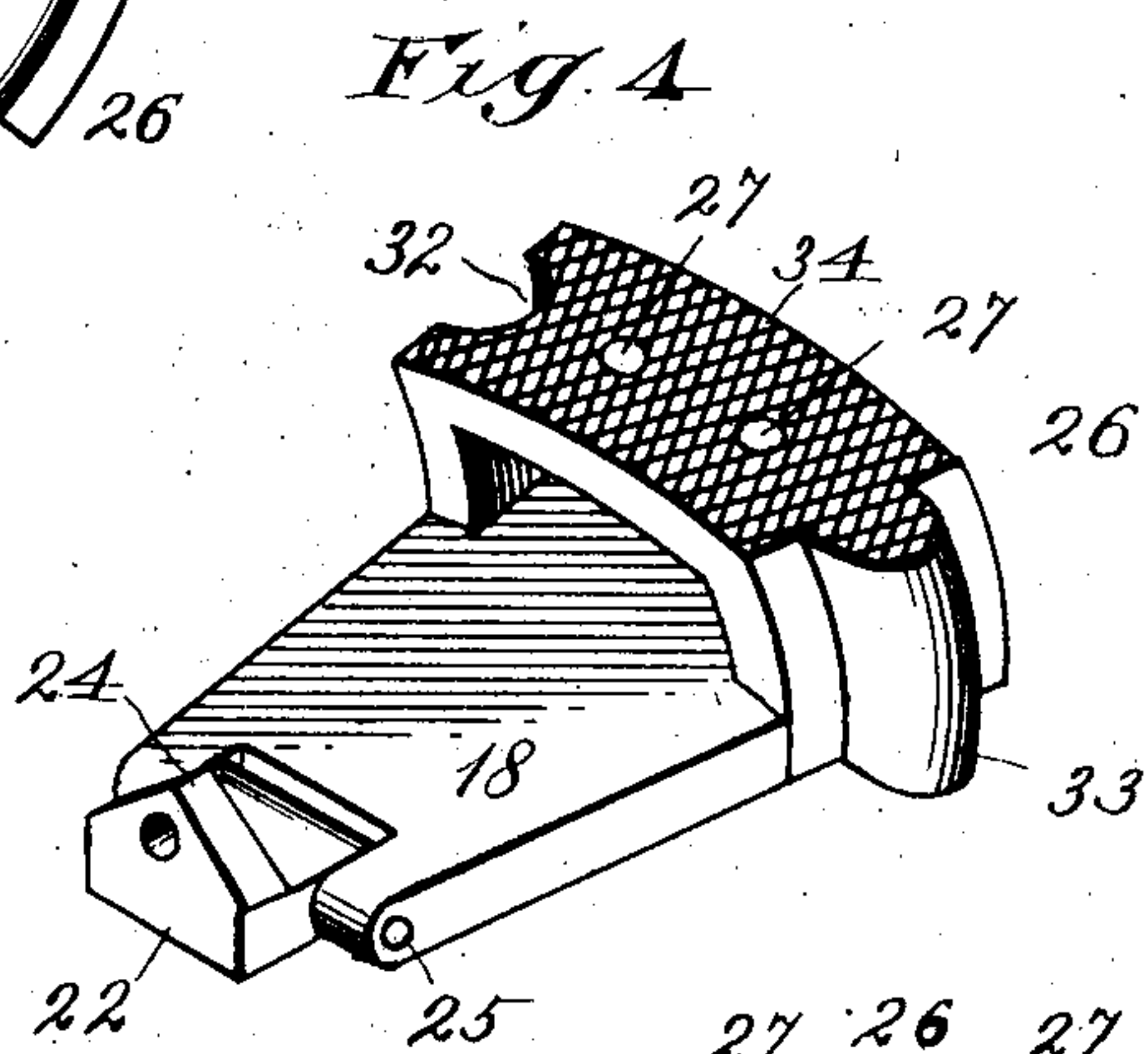
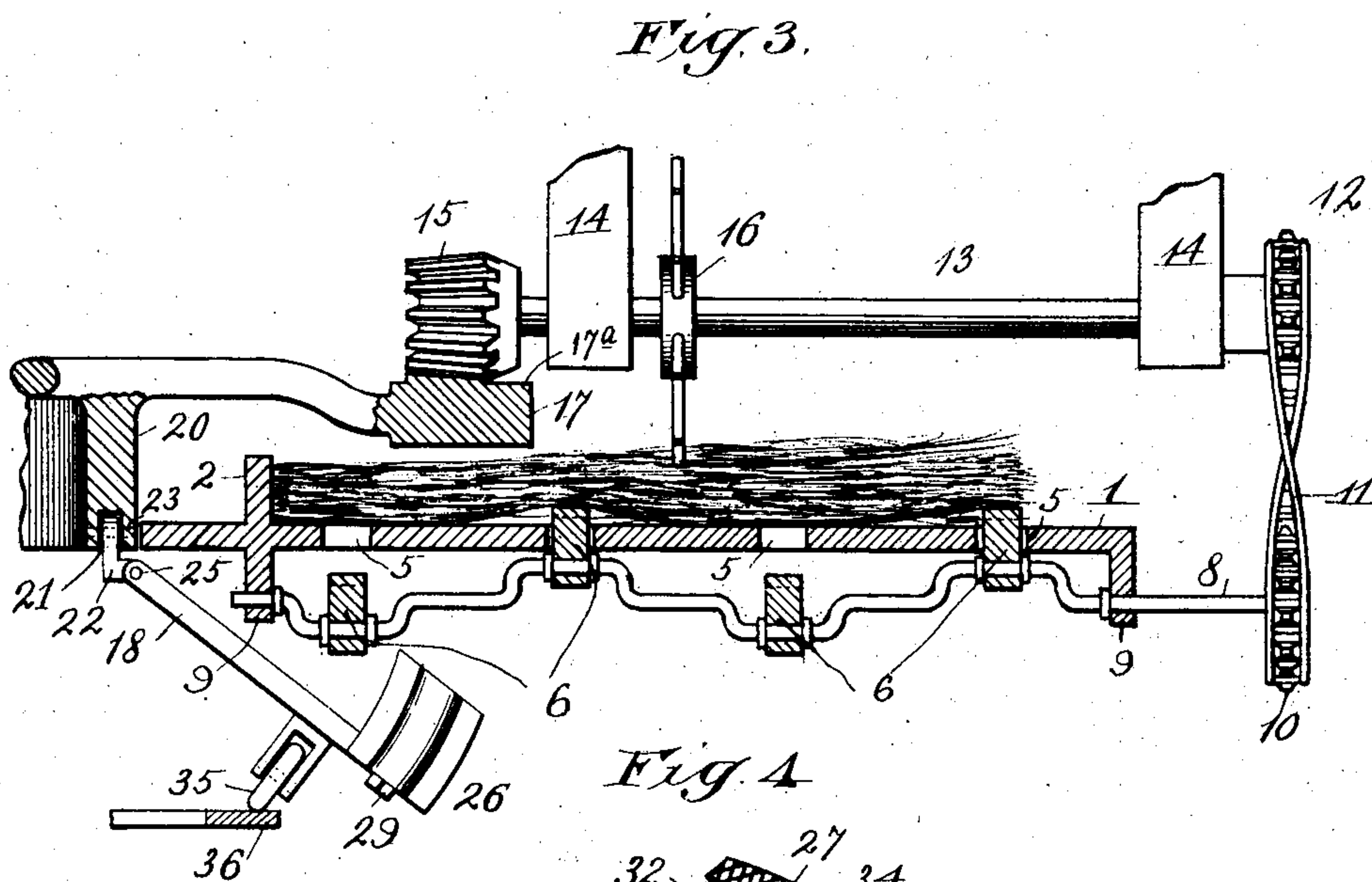
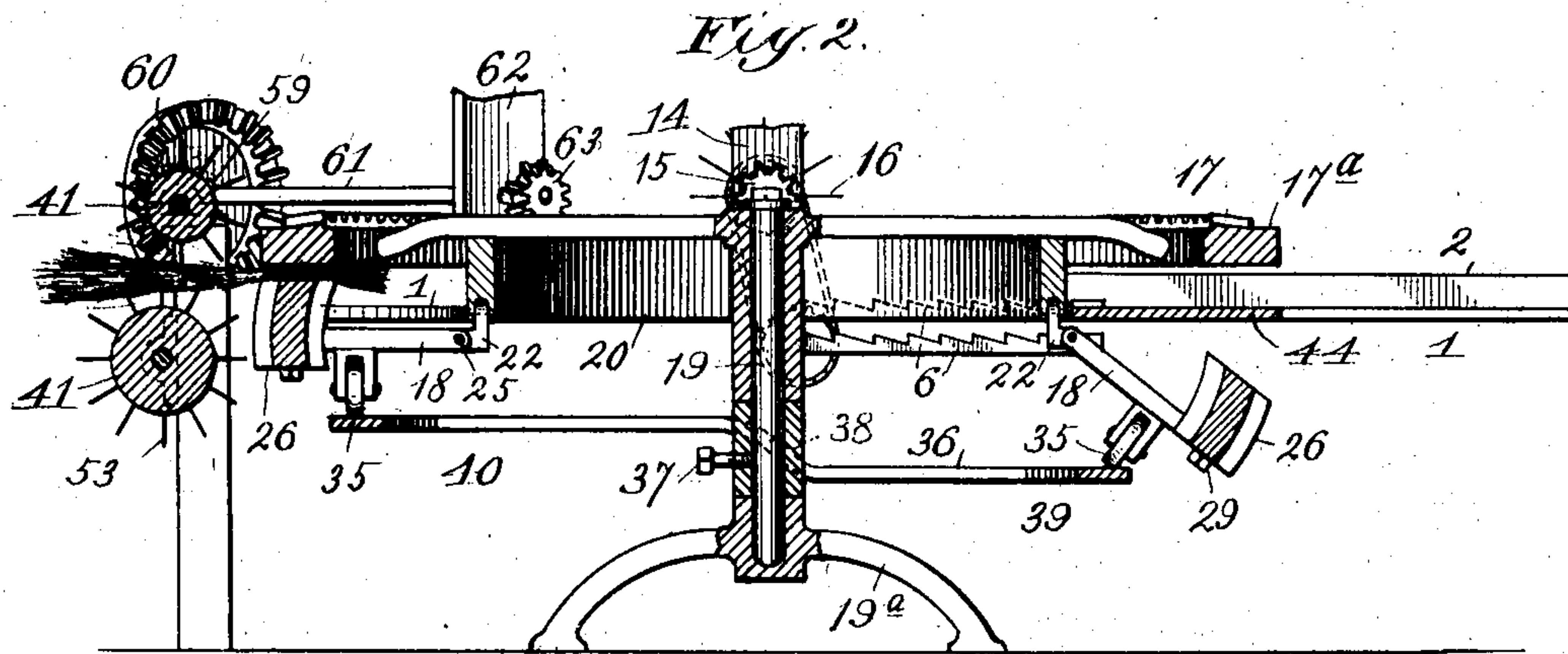
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

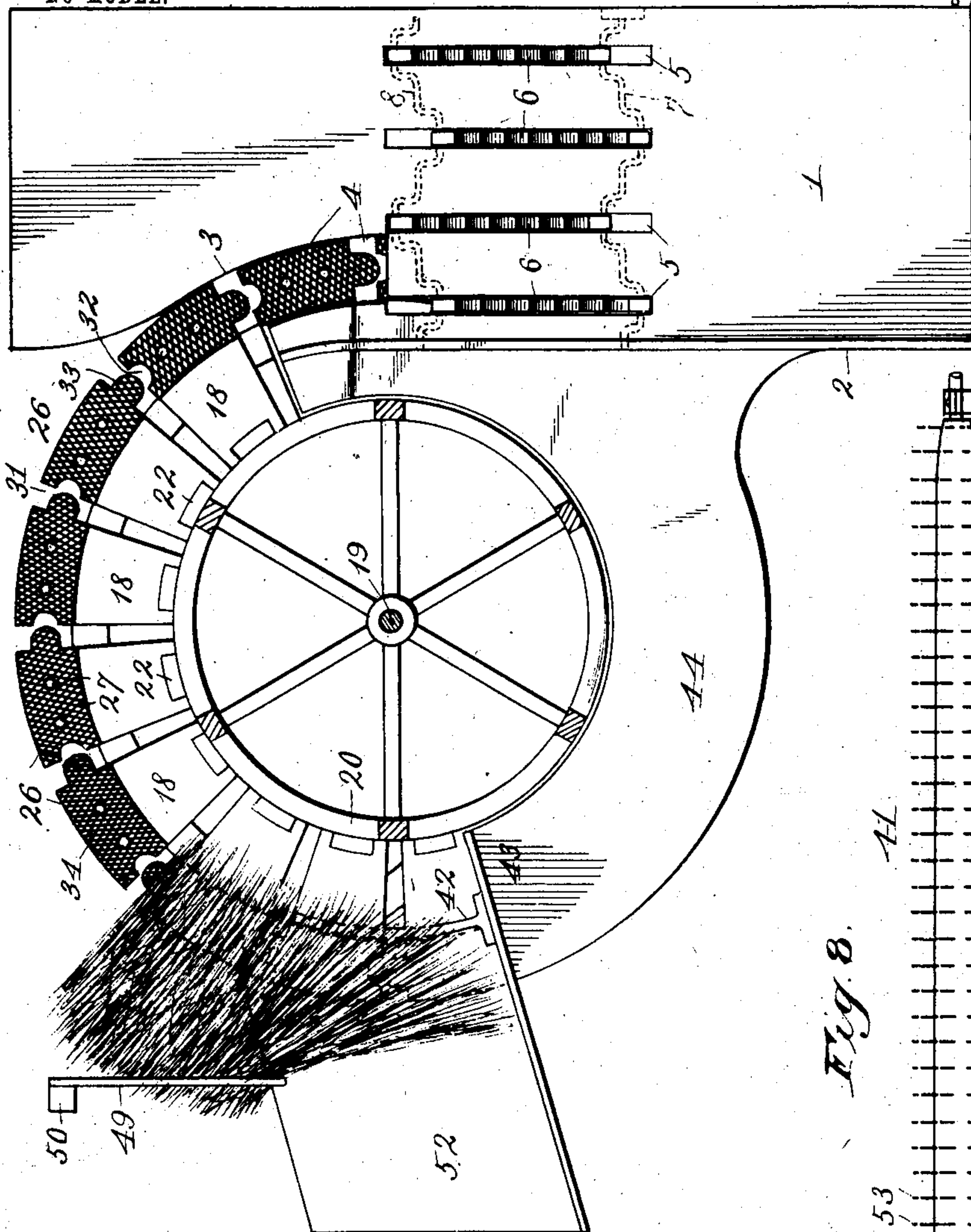


Fig. 7.

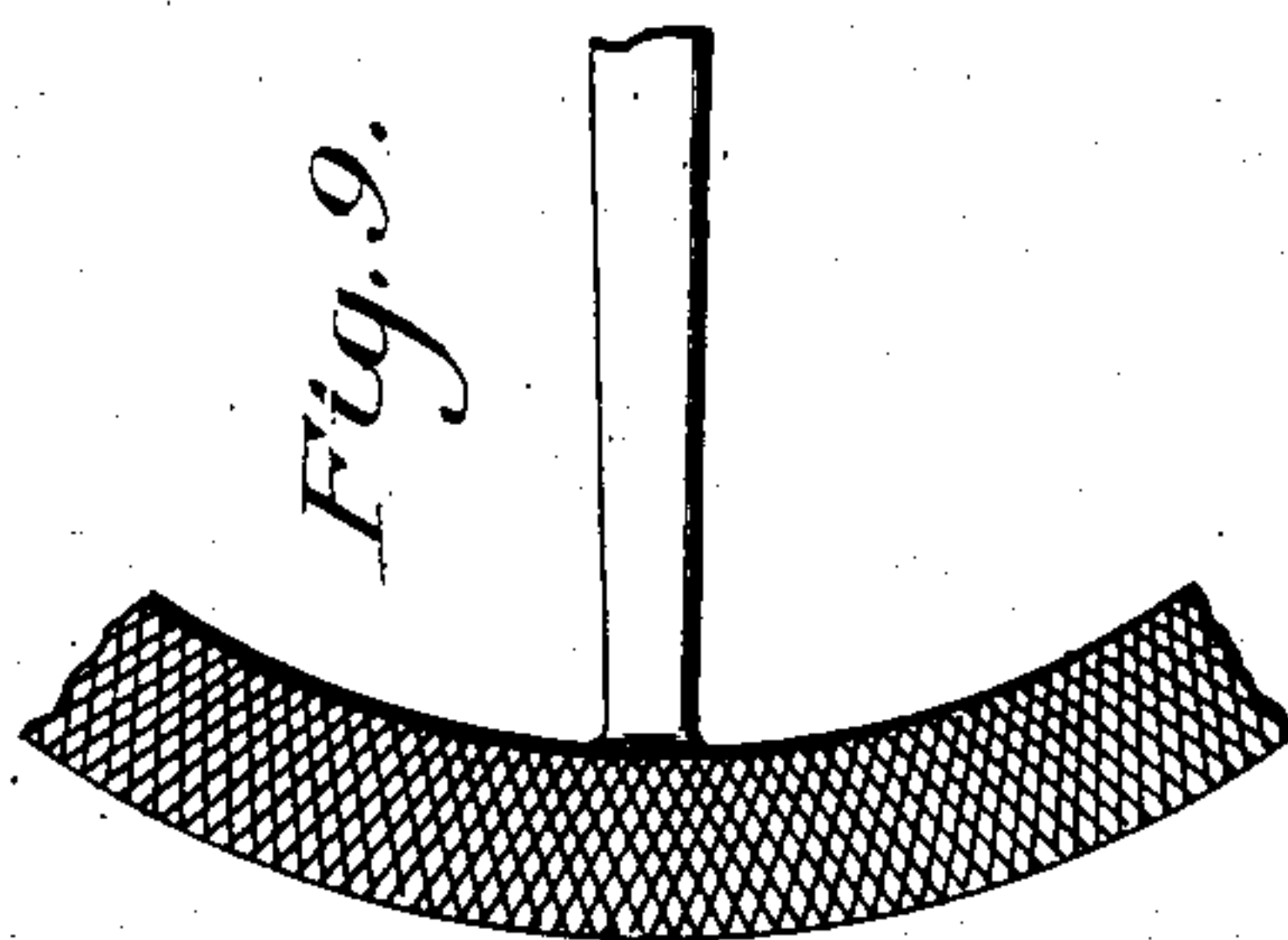


Fig. 9.

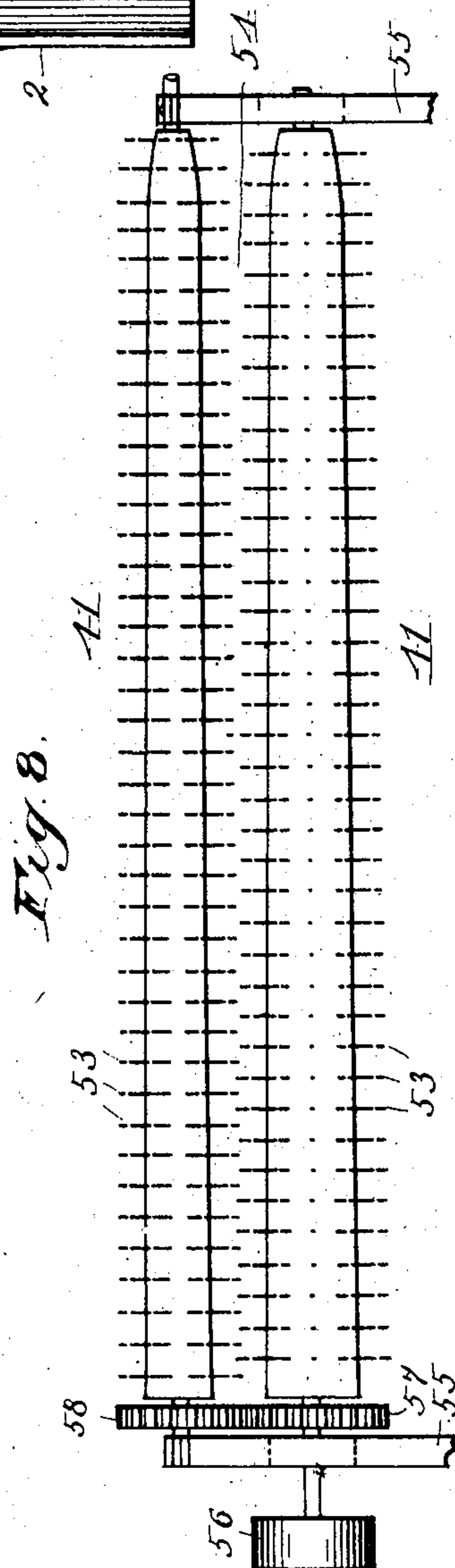


Fig. 8.

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UNITED STATES PATENT OFFICE.

SAMUEL C. LEHMAN, OF GALENA, KANSAS.

BROOM-CORN-COMBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 762,326, dated June 14, 1904.

Application filed October 15, 1903. Serial No. 177,122. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. LEHMAN, a citizen of the United States, residing at Galena, in the county of Cherokee and State of Kansas, have invented certain new and useful Improvements in Broom-Corn-Combing Machines, of which the following is a specification.

My invention relates to improvements in broom-corn-combing machines; and it consists in means for automatically feeding the broom-corn, a rotary gripping mechanism which automatically seizes the broom-corn and carries it from the feeder to a discharge-table, where it automatically releases the broom-corn, a pair of combing-cylinders between which the broom-corn is drawn and stripped of its seed on its way to the discharge-table, and means at the latter for automatically discharging the cleaned broom-corn after it is released by the rotary gripping mechanism.

In order that the invention may be fully understood, reference will now be had to the accompanying drawings, in which—

Figure 1 represents a plan view of the machine. Fig. 2 is a vertical transverse section of the same, taken on line II II of Fig. 1. Fig. 3 is an enlarged transverse section of the feeding mechanism and part of the rotary gripping mechanism, taken on line III III of Fig. 1. Fig. 4 is an enlarged detail perspective view of a lever and its head, forming part of the rotary gripping mechanism. Fig. 5 is a detail front elevation of the same. Fig. 6 is a transverse section of the discharge-table, taken on line VI VI of Fig. 1. Fig. 7 is a plan view of the machine with the upper portion of the feed mechanism, the upper portion of the rotary mechanism, and the combing-cylinders removed. Fig. 8 is a front elevation of the combing-cylinders and their driving mechanism. Fig. 9 is a broken inverted plan view of a large cog-wheel forming part of the invention.

In carrying out my invention I employ a suitably-supported feed-table 1, provided at one side with a butt-board 2, which extends from the front end of said feed-table to a point slightly beyond its central portion.

One side of said feed-table is curved, as at 3, and provided with an open slot 4, for a purpose hereinafter described. It is also provided with a plurality of longitudinal slots 5 to admit an equal number of ratchet-bars 6, mounted at their opposite ends upon crank-shafts 7 8, respectively, journaled in bearings 9, secured to the under side of the feed-table. The feeding mechanism just described is driven by a sprocket-wheel 10, rigidly mounted upon the outer end of crank-shaft 8 and connected by a sprocket-chain 11 to a sprocket-wheel 12, rigidly mounted upon the outer end of a shaft 13, journaled in bearings 14 and driven by a pinion 15, rigidly mounted upon its opposite end. Shaft 13 is provided with a rigidly-mounted toothed feed-wheel 16, which assists ratchet-bars 6 in feeding the broom-corn to a rotary feeding mechanism consisting of a large horizontal cog-wheel 17, that meshes with and drives pinion 15, and a plurality of levers 18. Cog-wheel 17 is loosely mounted upon a vertical stationary shaft 19 and has a depending circular rim 20, provided at its under side with an annular groove 21 for the reception of a plurality of L-shaped arms 22, secured therein by pivots 23 and pointed at their upper portion 24, so they may oscillate on said pivots without contacting with the upper surface of the groove when passing up and down the inclined portions of a track hereinafter described. Shaft 19 is rigidly secured at its lower end in a supporting-frame 19^a. Levers 18 are secured at their inner ends to the lower outer ends of arms 22 by pivots 25 and provided at their outer ends with inverted-U-shaped heads 26, yieldingly secured by pins 27, extending through slots 28 in the levers and provided at their under sides with taps 29, against which the levers are normally held by expansion-springs 30, interposed between the adjacent surfaces of the heads and levers, Fig. 5. The levers and heads have intervening spaces 31 to permit free and independent movement of pivots 23 25; but in order to prevent the broom-corn from falling through the spaces between the heads the adjacent ends of the latter are provided with recesses 32 and corresponding lugs 33, the latter in conjunction with the heads forming a contin-

uous support for the broom-corn when said heads are in an elevated position. In order that the heads will hold the broom-corn securely against the under side of cog-wheel 17, their upper surface is roughened, as at 34, and, if necessary, the under side of the cog-wheel may also be roughened, as shown in Fig. 9.

The outer portions of levers 18 are provided with rollers 35, which travel upon an irregularly-shaped track 36, rigidly secured to shaft 19 by a set-screw 37. The upper surface of said track is provided with two inclined portions 38, which connect its lower forward half 39 to its rear elevated portion 40, the radius of the latter being greater than the former in order to accommodate the variable movement of rollers 35 occasioned by the rise and fall of levers 18. For instance, when said levers are passing around over the elevated portion of the track they are held in a horizontal position, and when in this position their rollers 35 of course are further from shaft 19 than when the levers are in the inclined position they occupy when passing over the depressed portion of the track, Fig. 2. Inclined portion 38 at the right-hand side of the track is arranged in such relation to slot 4 that just as the rear edge of each head 26 clears the closed end of said slot the inclined portion will elevate each lever and bring its respective head up through the slot into contact with the broom-corn and press the latter against the under side of cog-wheel 17, so it will be carried around between a pair of combing-cylinders 41 to a cleaning-arm 42, secured at its forward end to the end board 43 on a segmental extension 44 of feed-table 1. As the broom-corn is seized and carried around between the cylinders its head ends are supported until they enter the space between said cylinders by the rear portion of table 1, the inner side of which is curved at 3, as above described, so as not to interfere with the heads or leave too large a triangular space 1^a for the broom-corn to bridge. The cleaning-arm is arranged above levers 18, and its rear end extends a short distance to the rear of the inclined portion on the left-hand side of track 36, where it terminates in a point 45, arranged just high enough to clear the upper surface of the levers, so that the broom-corn carried by the heads of the latter will be deposited upon its inclined upper side 46 as rollers 35 moved downwardly onto the adjacent lower portion of the track and disengage the heads from the broom-corn.

The rear portion of cog-wheel 17 is prevented from tipping upwardly from the upward pressure of heads 26 by a pair of rollers 47, journaled in depending bearings 48 and engaging the upper smooth surface 17^a of the cog-wheel.

49 designates a rod secured at its rear end to a post 50 and provided at its forward end

with a depending hook 51, arranged in the path of the head ends of the broom-corn, so that it will engage and retard said ends while the butt-ends are pushed upwardly on the inclined surface of the cleaning-arm, from which latter the broom-corn thus retarded is discharged onto an inclined table 52 by the following broom-corn.

Combing-cylinders 41 are provided with teeth 53 and slightly taper from left to right, so their intervening space 54 will be slightly wider where the broom-corn enters. Said cylinders are journaled in bearings 55, and the shaft of the lower one is provided with a drive-pulley 56 and a cog-wheel 57, which meshes with and drives a cog-wheel 58, rigidly mounted upon the adjacent end of the shaft of the upper cylinder. The opposite end of said shaft is provided with a small bevel-gear 59, which meshes with and drives a large bevel-gear 60, rigidly mounted upon one end of a shaft 61, journaled in bearings 62, and provided at its opposite end with a pinion 63, that meshes with and drives cog-wheel 17.

In operation the broom-corn is properly placed upon the feed-table with its butt-ends against the butt-board 2 and pushed upon the ratchet-bars 6, which, in conjunction with the toothed feed-wheel 16, push it over slot 4 beneath cog-wheel 17. As heads 26 are elevated at this point they force the broom-corn into contact with the under side of cog-wheel 17 and carry it around between the combing-cylinders 41, which thoroughly clean it of seed, &c., in its passage to cleaning-arm 46, where it is released by the descending heads and pushed upon the discharge-table 52 by the following broom-corn.

From the above description it is apparent that I have produced a machine which is automatic in its action, comparatively simple in construction, and thoroughly effective for the purpose intended.

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

1. In a broom-corn comber, an automatic feeder, a rotary gripping mechanism adapted to seize and remove the broom-corn from the feeder, combing-cylinders arranged in the path of the broom-corn, and means for automatically discharging the clean broom-corn after it has been released by the gripping mechanism.

2. In a broom-corn comber, a feeder having a slotted table, ratchet-bars adapted to enter the slots in the table and engage and advance the broom-corn, and a toothed feed-wheel journaled above the ratchet-bars and adapted to coact therewith, in combination with combing-cylinders, and means for conducting the broom-corn from the feeder to said combing-cylinders.

3. In a broom-corn comber, an irregular-shaped track, a wheel, levers adapted to travel

upon the track, universal joints connecting the levers to the wheel so said levers may accommodate themselves to the irregular-shaped track, heads suitably secured to the levers and adapted to hold the broom-corn in contact with the wheel during a part of its revolution, and a comb arranged in the path of the broom-corn.

4. In a broom-corn comber, a rotary gripping mechanism having a wheel, a depending rim secured to said wheel, L-shaped arms pivoted at their upper ends to the rim, levers pivotally secured to the lower portion of the arms, and an irregular-shaped track adapted to elevate and depress the levers; and a comb arranged in the path of the broom-corn.

5. In a broom-corn comber, an automatic feeder, a rotary gripping mechanism adapted to seize and remove the broom-corn from the feeder, and a pair of toothed, tapering combing-cylinders arranged in the path of the broom-corn.

6. In a broom-corn comber, a rotary gripping mechanism adapted to seize the broom-corn and carry the latter a suitable distance, combing-cylinders arranged in the path of the broom-corn, an arm having an inclined upper surface for elevating the butt-ends of the broom-corn after it has been cleaned, and a hook arranged to engage and retard the movement of the head ends of the broom-corn so the

latter will be discharged from the machine when released by the gripping mechanism, substantially as described.

7. In a broom-corn comber, a rotary gripping mechanism adapted to seize and carry the broom-corn a suitable distance, combing-cylinders arranged in the path of the broom-corn, an arm having an inclined upper surface for elevating the butt-ends of the broom-corn after it has been cleaned, a hook arranged to engage and retard the movement of the head ends of the broom-corn, and a discharge-table having one side arranged below the hook and adapted to receive the broom-corn when released by the gripping mechanism.

8. In a broom-corn comber, a rotary gripping mechanism, for seizing and carrying the broom-corn, having a wheel, levers fulcrumed thereto, and heads secured to the levers each of said heads having a recess at one end and a lug at the other end, the lug of one fitting into the recess of the adjacent head; and tapering combing-cylinders arranged in the path of the broom-corn.

In testimony whereof I affix my signature in the presence of two witnesses.

SAMUEL C. LEHMAN.

Witnesses:

A. MACDONALD,

J. S. MOORE.