

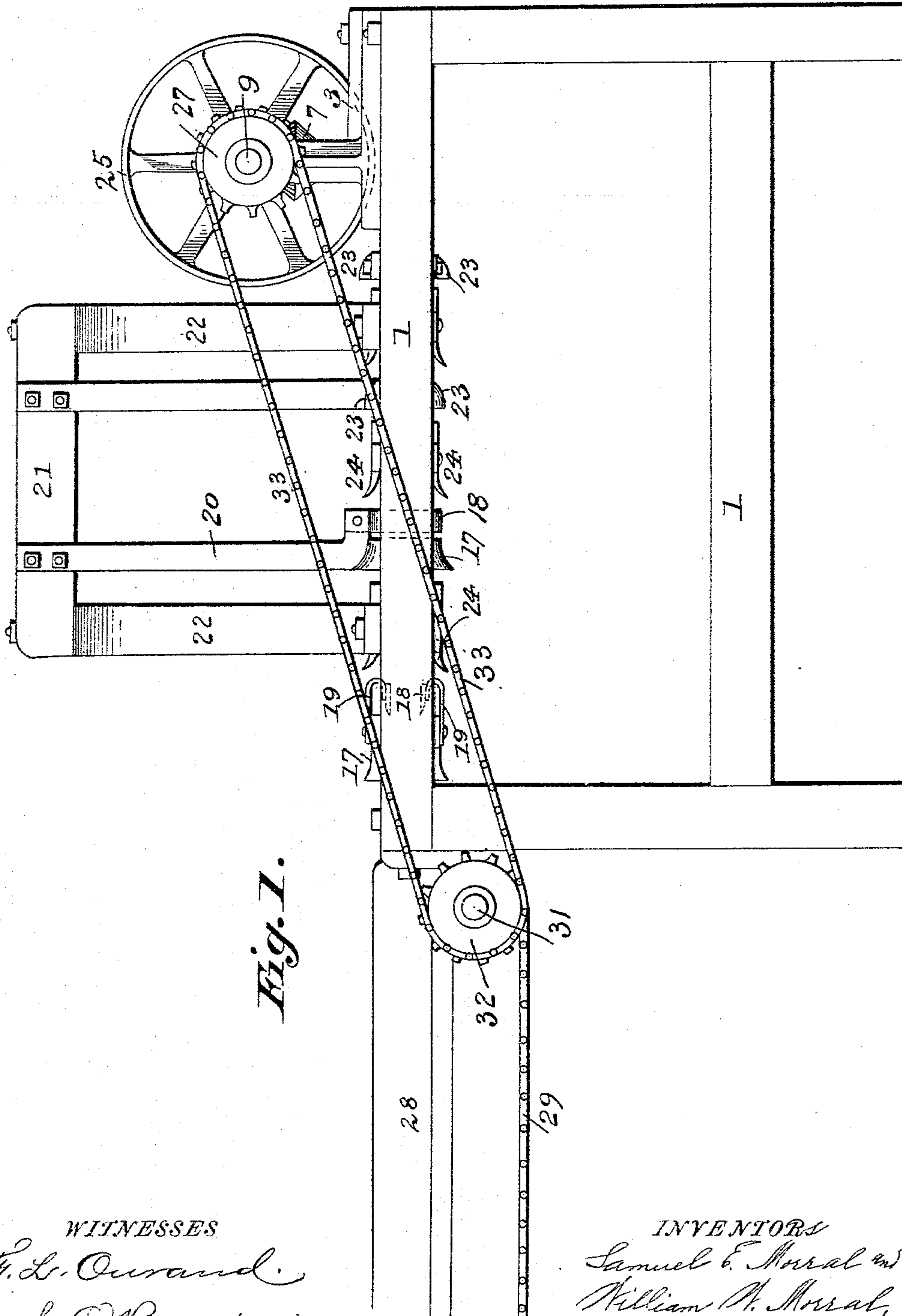
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S. E. & W. W. MORRAL.
MACHINE FOR CUTTING GREEN CORN.

No. 533,723.

Patented Feb. 5, 1895.



WITNESSES
F. L. Ourand,
L. O. Bond,

INVENTORS
Samuel E. Morral and
William W. Morral,
by Finch & Finch, Attorneys.

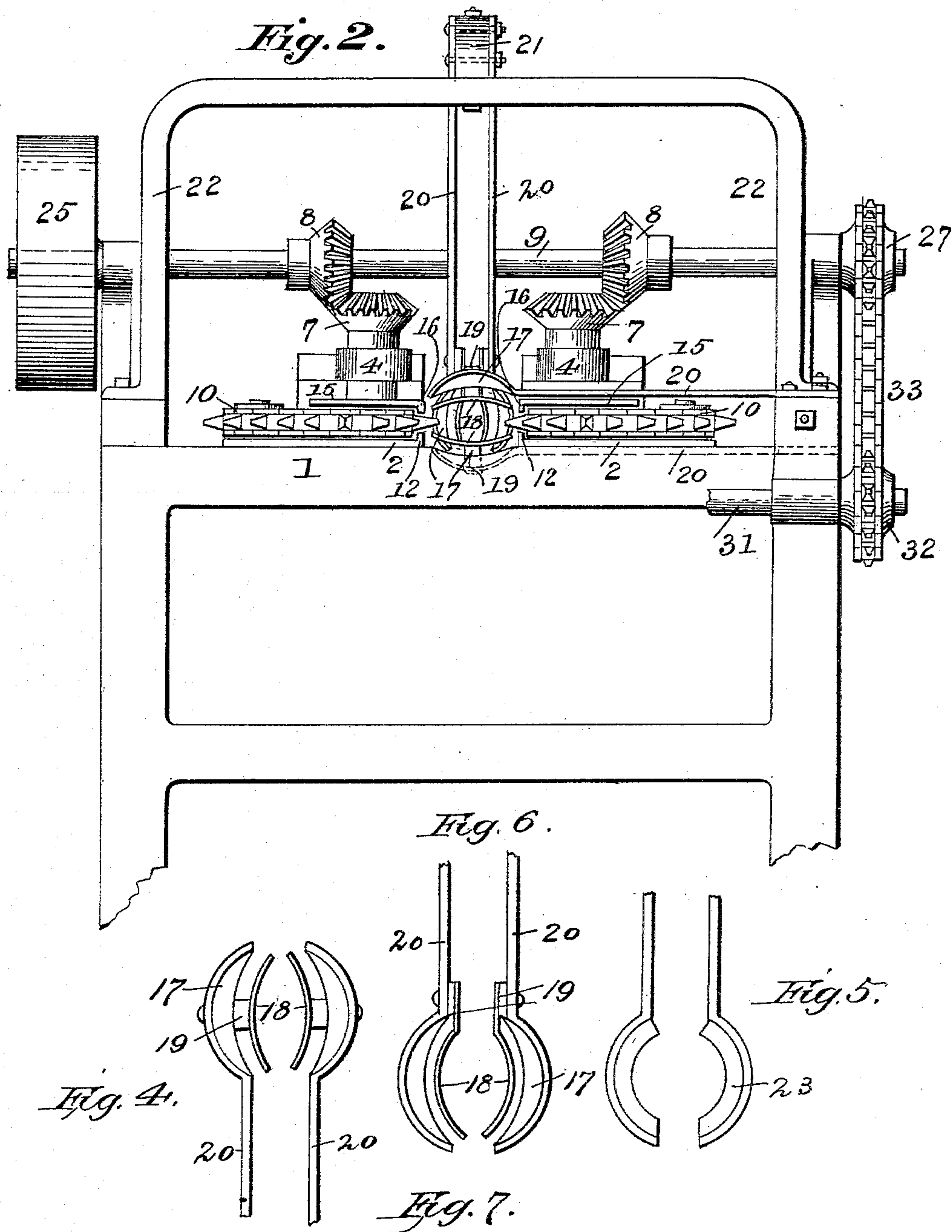
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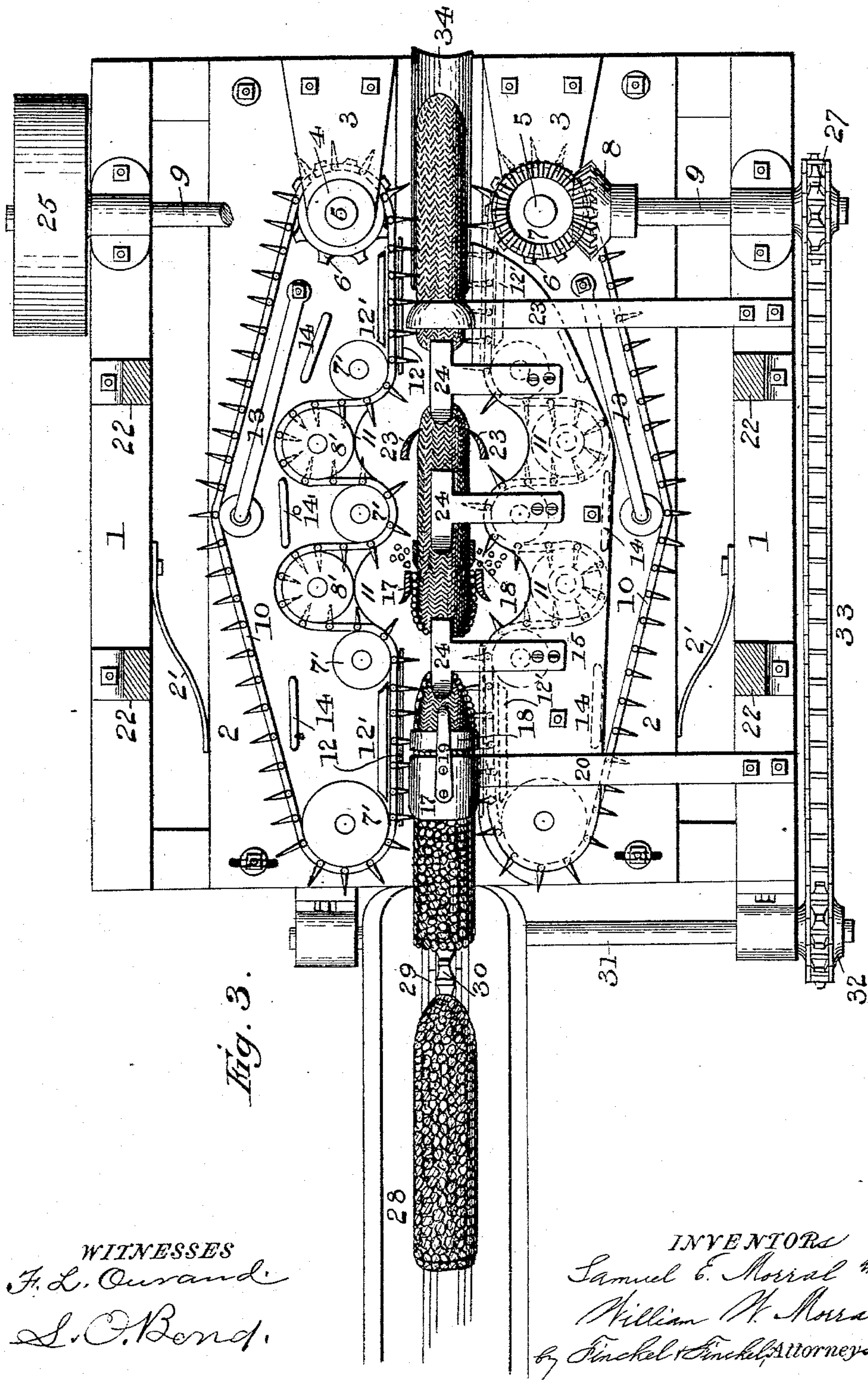
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UNITED STATES PATENT OFFICE.

SAMUEL E. MORRAL AND WILLIAM W. MORRAL, OF MORRAL, OHIO.

MACHINE FOR CUTTING GREEN CORN.

SPECIFICATION forming part of Letters Patent No. 533,723, dated February 5, 1895.

Application filed September 6, 1894. Serial No. 522,283. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL E. MORRAL and WILLIAM W. MORRAL, citizens of the United States, residing at Morral, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Green-Corn-Cutting Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relating to machines for cutting the kernels of green corn from the cob has for its object to simplify and cheapen the construction of such machines and at the same time render their operation more effective.

The features of novelty are described in the following specification and claims.

In the accompanying drawings—Figure 1 is a side elevation of a machine embodying our improvements. Fig. 2 is a front elevation of the same, with the feed trough removed. Fig. 3 is a plan view, parts being removed for better illustration and also indicating the operation of the machine. Fig. 4 is a detail view of a combined guide and cutter. Fig. 5 is a detail view of a scraper. Fig. 6 is a detail view of another form of combined guide and cutter. Fig. 7 is an edge view of a grooved pulley employed in the machine.

Like characters of reference in the different figures designate corresponding parts.

1 designates the main frame in the upper part of which are arranged horizontally in the same plane two plates 2. These plates are pivotally secured at their rear ends to the frame by any suitable means, while their front ends are acted on by springs 2' also secured to the frame so that the space between their adjacent edges may be automatically increased or diminished to adapt the machine to ears of different size. At the rear ends of the frame are arranged two brackets 3 bearing journal boxes 4, and in these boxes are vertical shafts 5. Sprocket wheels 6 are keyed on the lower ends of these shafts 5, while miter gears 7 are keyed to their upper ends. These miter gears mesh with similar gears 8 keyed on a power driven shaft 9, journaled horizontally and transversely across the rear end of the frame.

Pulleys 7' and 8' are journaled on studs on each of the plates 2, as shown, and around these pulleys and the sprocket wheel 6 extend two endless belts or chains 10 provided with teeth or spurs pointing outward. Recesses 11 are made in the adjacent parallel sides of the plates and the pulleys 8' 8' on each plate around which the belt passes are set back opposite the recesses, so as to provide room for the vertical guides and cutters and scrapers. The pulley 7' and the sprocket wheel 6 are arranged so that a point on their circumferences shall be in practically the same straight line and that line substantially parallel to the inner edge of the plate. Vertical flanges 12 and 12' are provided at the inner adjacent edges of the plates 2 which serve to guide and hold the lower edge of the chain or belt in proper position. The flange 12' extends entirely across the inner side of the belt and also serves as one of the supports for the upper plate 15.

A belt tightener 13 of any suitable construction is provided to hold the belt 10 taut.

Vertical projections 14 are formed on the plates 2 and upon these is supported and secured by means of bolts and nuts a second plate 15. This plate 15 has a downwardly projecting flange 16 which serves as a guide for the upper outer edge of the belt.

In the present instance we have combined a guide 17 and cutter by providing the cutter 18 with a spring shank 19 which we attach to the back of the guide, and the guide itself is provided with a spring shank 20, as shown in Fig. 4. These combined guides and cutters are arranged in pairs for cutting the kernels from opposite sides of the cob. The members of the horizontal pair which cut kernels from the upper and lower sides of the ear have their shanks secured to the side bars of the main frame; while the vertical pair, which cut the kernels from the remaining sides of the ear, have their shanks attached to the horizontal beam 21 arranged on yokes 22 rising from the upper side of the frame. In the rear of the cutters we secure in a way similar to that in which the cutters are secured, two pairs of scrapers 23. These scrapers are shown in detail Fig. 5.

In addition to the combined guides and cutters and the scrapers, we provide guides 24

which are preferably placed between the former and are advantageously secured to the upper and lower sides of the plates 2 and 15, respectively.

5 25 indicates the band or driving wheel which is fast on one end of the shaft 9, and on the opposite end we secure a sprocket wheel 27. At the front end of the frame is secured a feed trough 28 along the bottom of which extends
10 the upper part of an endless feed chain 29 that runs over a sprocket under the front part of the trough and over a sprocket wheel 30 on a shaft 31, journaled in the front part of the main frame 1. The outer end of this shaft is fur-
15 nished with a sprocket wheel 32 which is connected with the sprocket wheel 27 by a chain belt 33. In the rear part of the frame 1 and in line with the space between the adjacent parts of the toothed belt is a discharge
20 spout 34.

The wheels 8' have sufficiently deeply grooved rims, as shown in Fig. 7, to permit the passage of the belt therearound without contact of the points of the teeth with the bot-
25 tom of the grooves.

The operation of our machine is as follows: Motion in the proper direction is imparted to the shaft 9 and consequently to the toothed belts 10 and the chain 29 in the feed trough
30 28. The ears of corn, stripped of their husks and silk, are placed in the trough and carried by the chain 29 into the space between the toothed belts. The teeth of these belts penetrate the ears and force them along through
35 the cutters, which remove from the opposite sides alternately the larger portion of the kernels, and thence to the scrapers, which in a similar manner remove such portions of the kernels as may be still adhering to the cob.
40 After passing the scraper the cobs are carried by the belts to the spout where they are discharged from the machine.

What we claim, and desire to secure by Letters Patent, is—

45 1. In a machine for cutting corn from the

cob, the combination of a series of cutters arranged in line, and an endless belt having teeth adapted to penetrate the ears for feeding the ears through the series of cutters, substantially as set forth. 50

2. In a machine for cutting corn from the cob, the combination of two feeding belts each having teeth adapted to penetrate the ears for feeding the same, and a series of cutters and scrapers arranged between the belts, substan- 55 tially as set forth.

3. In a machine for cutting corn from the cob, the combination of two feeding belts and a series of cutters and scrapers arranged between them, substantially as described. 60

4. An ear feeding device for machines for cutting corn from the cob comprising an endless belt adapted to engage and feed the ears in a straight path, and means for guiding the belt out of the line of said path to afford space 65 for cutters, substantially as set forth.

5. An ear feeding device for machines for cutting corn from the cob comprising an endless belt adapted to engage and feed the ears, pulleys 7' for guiding the belt in a straight 70 path, and a pulley 8' for guiding the belt out of the line of said straight path to afford space for cutters, substantially as described.

6. In an ear feeding device for machines for cutting corn from the cob, the combination of 75 the plate or frame 2, shaft 5 having gear 7 and sprocket wheel 6 thereon, the endless belt 10 passing around said sprocket wheel and adapted to engage and feed the ears, pulleys 7' for guiding the belt in a straight path, and 80 the deflecting pulley 8' for guiding the belt out of the line of said path, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL E. MORRAL.
WILLIAM W. MORRAL.

Witnesses:

FRANK B. ZIEG,
HARRY E. WOODCOCK.