No. 711,334. Patented Oct. 14, 1902.

J. O. MORRIS.

TOBACCO STEMMER.

(Application filed Jan. 29, 1902.)

(No Model.) 3 Sheets—Sheet 1.

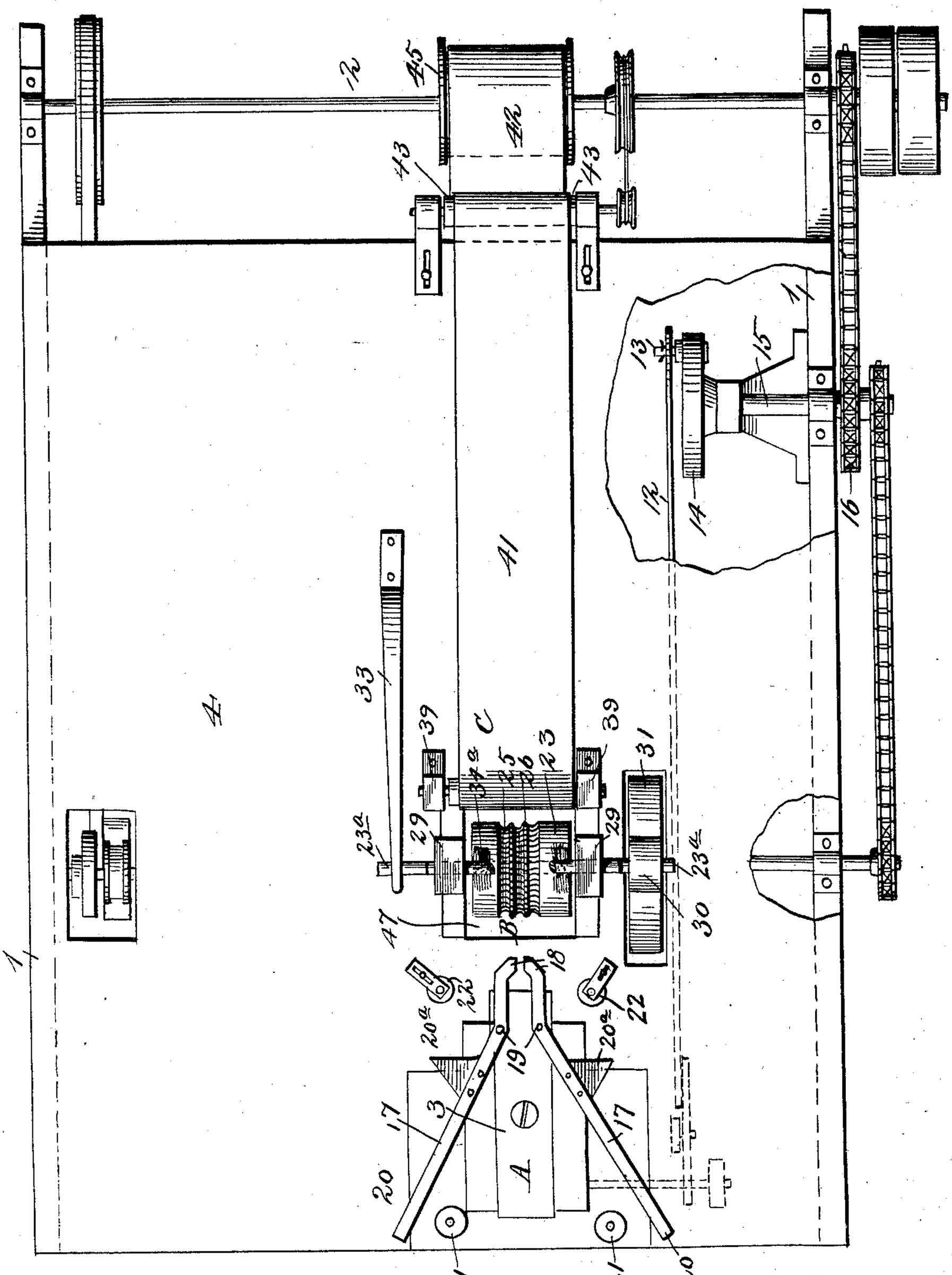

Fig. 1.

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Frank G. Radelfinger.

Inventor:
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(No Model.) 3 Sheets—Sheet 2.

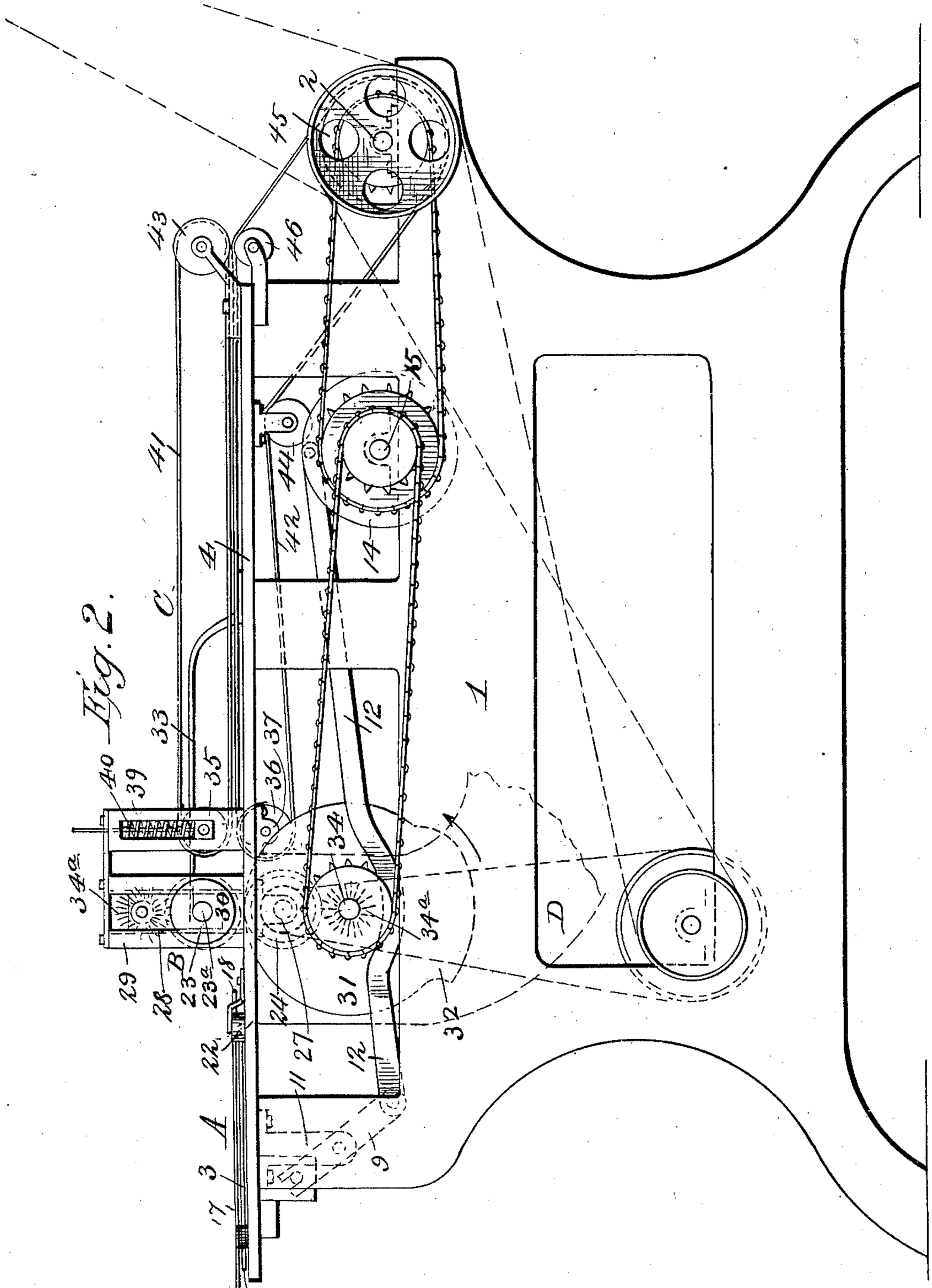

Fig. 2.

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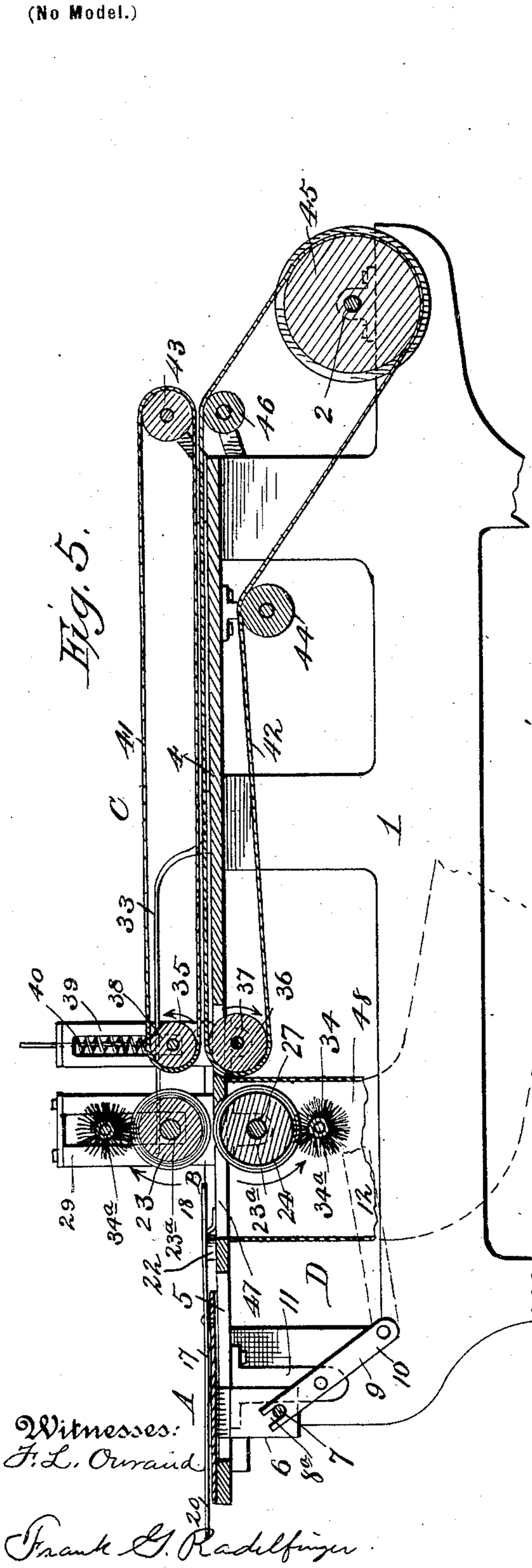

Fig. 5.

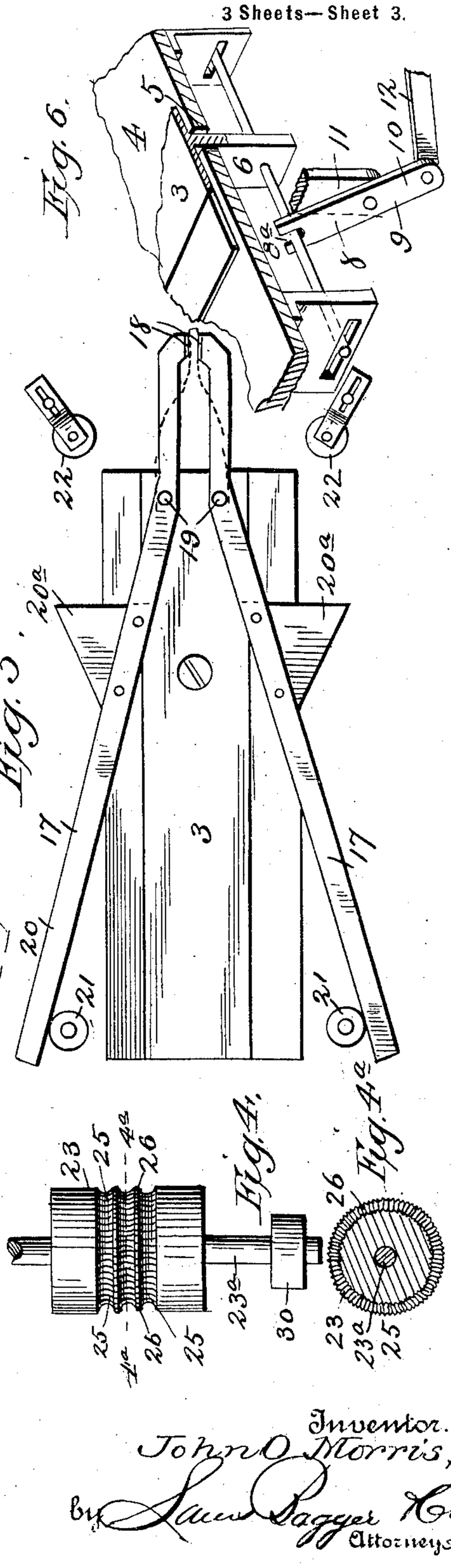

Fig. 6.

Fig. 3.

Fig. 4.

Fig. 4a.

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UNITED STATES PATENT OFFICE.

JOHN ODEN MORRIS, OF RICHMOND, VIRGINIA, ASSIGNOR OF THREE-FIFTHS TO MORRIS MOORE, OF DANVILLE, VIRGINIA.

TOBACCO-STEMMER.

SPECIFICATION forming part of Letters Patent No. 711,334, dated October 14, 1902.

Application filed January 29, 1902. Serial No. 91,752. (No model.)

To all whom it may concern:

Be it known that I, JOHN ODEN MORRIS, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Tobacco-Stemmers, of which the following is a specification.

My invention relates to tobacco-stemmers; and the object of the same is to construct a machine by means of which the stem can be removed from the leaf without doing material injury to the same.

The simple and novel construction used by me in carrying out my invention is fully described in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a plan view of my machine. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the feed table or carriage. Fig. 4 is a detail of one of the stemming or stripping rollers. Fig. 4ª is a detail section of one of the same. Fig. 5 is a longitudinal section of the machine. Fig. 6 is a detail fragment of the feeding mechanism.

Like numerals of reference designate like parts in the different views of the drawings.

My machine comprises a feeding-carriage A for delivering the tobacco-leaves to a stripping mechanism B, which severs the leaf from the stem while the stem is pulled along by a pulling mechanism C and transported away. The leaf is carried away by a pneumatic mechanism D. These groups of mechanism will each be taken up and described in the order named.

The mechanism of my machine is supported on two parallel side frames 1, within which is journaled a main shaft 2, which is driven from some source of power not shown.

The feeding-carriage A has a table 3, upon which the leaves to be stemmed are placed in turn. The table 3 is designed to be reciprocated and is placed on a smooth bed-plate 4. The bed-plate is slotted at 5 to accommodate a downwardly-extending arm 6, carried by the table 3. A cross-pin 7 is mounted in the arm 6, which pin is engaged by the upper arm 8 of a lever 9, having a slot 8ª therein which embraces the pin 7. The lever 9 has a downwardly-extending arm 10 and is fulcrumed in a hanger 11 depending from the bed-plate 4. Connected to the arm 10 is a pitman 12, which is oppositely connected to a crank-pin 13, carried by a disk 14, keyed on a shaft 15, journaled in one of the frames 1, and carrying a sprocket 16, connected to be driven by the shaft 2. By this arrangement the table 3 is reciprocated at each revolution of the shaft 15.

To grasp the leaves by the stem, a pair of grippers 17 are mounted on the table 3 and have jaws 18, pivoted at 19 and constructed to firmly grip a stem. Formed integral with the jaws 18 are arms 20, located to engage rollers 21, mounted on the bed 4 to close the jaws 18. The arms 20 also carry lugs 20ª, which are located to engage adjustable rollers 22, mounted on the bed 4 to operate the arms 20 and open the jaws 18 to release a stem. It should be noted that at each reciprocation of the table 3 the jaws will be operated. They will be closed at the backward movement to grip a stem and opened at the forward movement to release the stem and prepare to receive another stem.

The stripping mechanism B is located just beyond the table 3. There are two stripping-rollers—an upper roller 23 and a lower roller 24. Each of the rollers is about an inch in length, and its surface is cut transversely by three grooves 25, (see Fig. 4,) separated by two ridges 26. The ridges are rounded off to an edge, and their surfaces are milled, as are also the surfaces of the bottoms of the grooves, to adapt them to firmly hold a leaf engaged by them. The rollers 23 and 24 are placed so that one of the grooves will come in alinement with the line of travel of the reciprocating jaws 18. The lower roller 24 is journaled in rigid boxes 27, mounted on the bed 4; but the upper roller is mounted in sliding boxes 28, mounted in vertical guides 29, mounted on the bed 4. The spindles 23ª of the roller 23 extend beyond the boxes 28, and one carries a roller 30, which is located to be engaged by a cam-wheel 31, having a projection 32 thereon, which subtends on an arc of about sixty degrees. A spring 33 bears on the spindle 23ª and holds the roller 30 in contact with the cam-wheel 31 during the whole revolution thereof. The cam-wheel 31 is car-

ried by a shaft 34 and revolves counter-clockwise, as viewed in Fig. 2. By means of this arrangement stripping-rollers 23 and 24 are driven in the direction designated by the arrows to force the leaf back and strip it from the stem. The projection 32 on cam 31 intermittently raises the upper roll 23 to permit the jaws 18 to pass between the two rollers and insert the stem of a new leaf between them. Brushes 34ª, mounted adjacent to the rolls 23 and 24, serve to clean them. The operation of the jaws 18 also carries the stem of the leaf far enough forward to be caught by the pulling mechanism C, which will now be described.

There are two pulling-rolls—an upper roll 35 and a lower roll 36. The roll 36 is journaled in rigid boxes 37, while the upper roll 35 is journaled in boxes 38, slidingly mounted in guides 39. Springs 40 serve to hold the rollers 35 and 36 in contact, but yield to permit the passage of stems without crushing them. Conveyer-belts 41 and 42 pass around the pulleys 35 and 36, respectively. The belt 41 is also carried by a drum 43, located at the front of the machine. The belt 42 passes forward and over an idler 44 and then downwardly and over a drum 45, carried by the main driving-shaft 2. A sag-roller 46 is located beneath the belt 42 and serves to hold it up. It will be seen that the stems will be pulled forward by the belts 41 and 42, carried along, and then dropped on the floor by the belt 42 as it goes over the drum 45.

After the leaves have been stripped off of the stems by the rolls 23 and 24 they drop in front of the stripping-rollers 23 and 24 and into an aperture 47, formed in the bed 4, where the pneumatic apparatus D takes them up. The mouth of an indraft air-pipe 48 is located just beneath the aperture 47. The pipe 48 extends to a point at one side of the machine and is connected to the casing of the blower (not shown) containing a fan. The fan is rotated to cause an indraft through the pipe 48 to draw the tobacco-leaves therethrough. An opening in the end of the casing permits the leaves to fall out.

In operation the leaves of tobacco are placed by an attendant stem forward on the table 3 of the feeding mechanism A. On the backward movement of the carriage, caused by the pitman and its connecting mechanism, the grippers 17 will be actuated by striking the rollers 21 to cause the jaws to grasp the stem of the leaf and then carry it forward, pass it between the stripping-rollers, (which have been separated by the action of the projection 32 on the cam 31,) and insert it between the belts 41 and 42 on the rollers 35 and 36. The jaws 18 will then be retracted and the roller 23 will be released by the cam 31 and will drop. The stem will extend between two of the ridges 26, which will engage the leaf on each side of the stem, cut it clear of the stem as the stem is pulled forward by the belts 41 and 42. Before the return movement of the table 3 is half completed the leaf will be stripped clear of the stem and the stem carried away by the belts 41 and 42. The leaf will fall into the pipe 48 and be carried away, as before described. A new leaf will in the meantime be brought forward by the grippers 17 and the operation repeated. The friction between the jaws 18 and the table 3 is relied on to make the jaws 18 retain their grip on the leaf during the movement toward the stripping-roll.

I do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit and scope of my invention.

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

1. In a tobacco-stemmer, the combination of a fixed stripping-roller, a movable stripping-roller, normally in contact with said fixed roller, means for intermittently operating said movable stripping-roller to separate said rollers, pulling-rollers located just beyond said stripping-rollers, and intermittent feeding means constructed to pass between said stripping-rollers when separated to insert the stem of a leaf of tobacco between said stripping-rollers and within reach of said pulling-rollers, substantially as described.

2. In a tobacco-stemming machine, the combination with stripping and pulling mechanism, of a reciprocating carriage, means for reciprocating said carriage, grippers mounted on said carriage, and means for intermittently operating said grippers to engage the stem of a leaf of tobacco to present it to said pulling mechanism, substantially as described.

3. In a tobacco-stemming machine, the combination of a table and means for reciprocating it, of grippers mounted on said table and having pivoted jaws, and means for intermittently operating said jaws to alternately grip and release the stem of a tobacco-leaf, substantially as described.

4. In a tobacco-stemming machine, the combination with stripping means of a slidingly-mounted table bearing an arm carrying a pin, a lever having a slotted arm engaging said pin, a pitman connected to said lever, means for driving said pitman, grippers mounted on said table and means for intermittently operating said grippers, substantially as described.

5. In a tobacco-stemmer, the combination of a fixed stripping-roller, a movable stripping-roller bearing a roller on one spindle, a cam-wheel located to engage said pulley to drive said movable roller and to raise it out of contact with said fixed roller, and means for returning said movable roller to its initial position, substantially as described.

6. In a tobacco-stemmer, the combination with a pair of stripping-rollers normally in contact, means for intermittently operating said stripping-rollers to separate them, pulling-rollers located just beyond said stripping-

rollers, and intermittent feeding means constructed to pass between said stripping-rollers when separated to insert the stem of a leaf of tobacco between said stripping-rolls and within reach of said pulling-rolls, substantially as described.

7. In a tobacco-stemming machine, the combination of a pair of stripping-rollers, said rollers being grooved transversely to form ridges, which ridges are milled, the said ridges on one roller being arranged to come in contact with the ridges on the other and thereby serve as cutters to sever the stem from the leaf, and means for driving said rollers, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN ODEN MORRIS.

Witnesses:

BENNETT S. JONES,

FRANK G. RADELFINGER.