No. 788,077. PATENTED APR. 25, 1905.

A. R. TIFFANY.

TOBACCO LEAF SIZING MACHINE.

APPLICATION FILED JAN. 18, 1905.

4 SHEETS—SHEET 1.

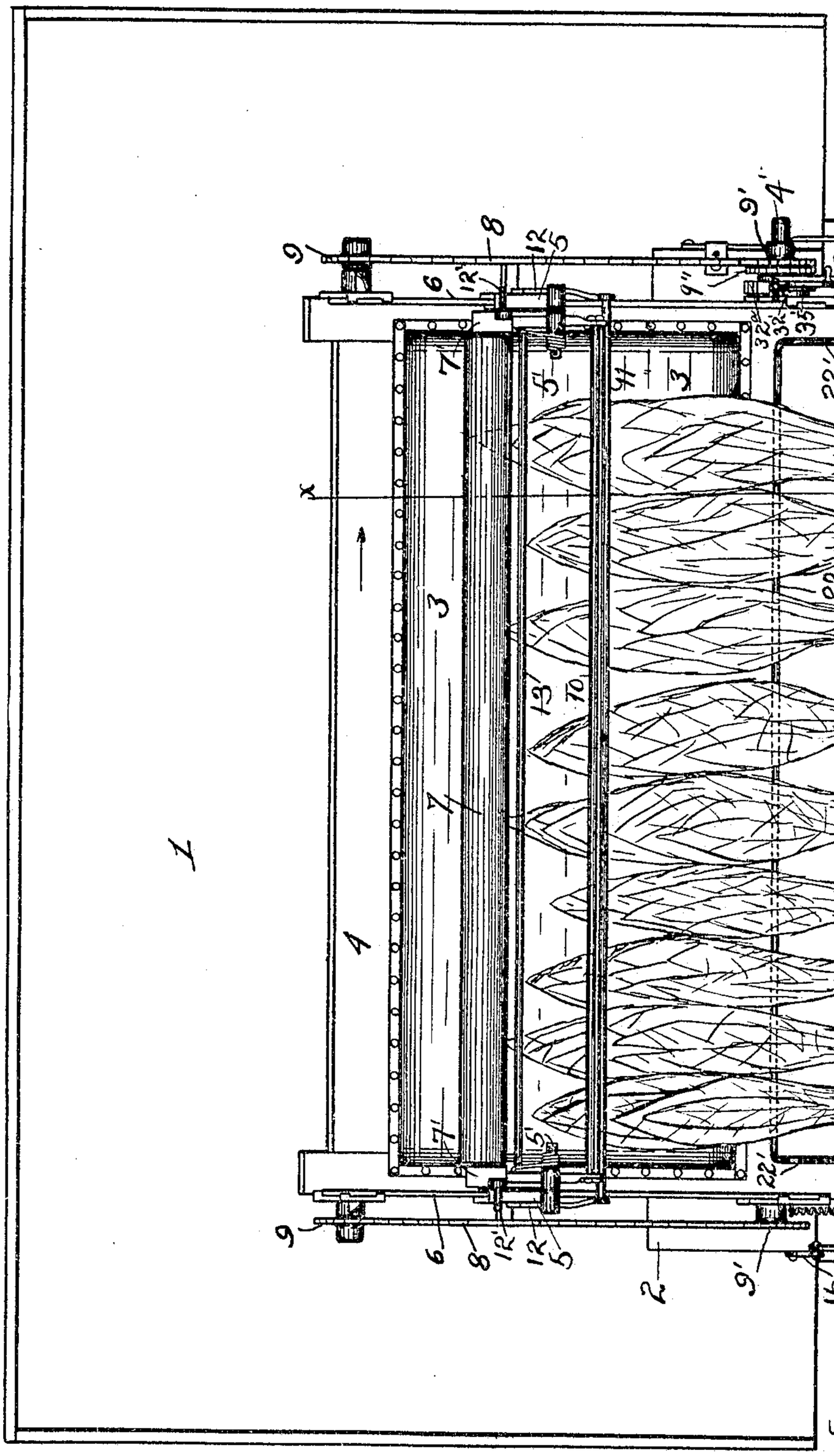

Fig. 1.

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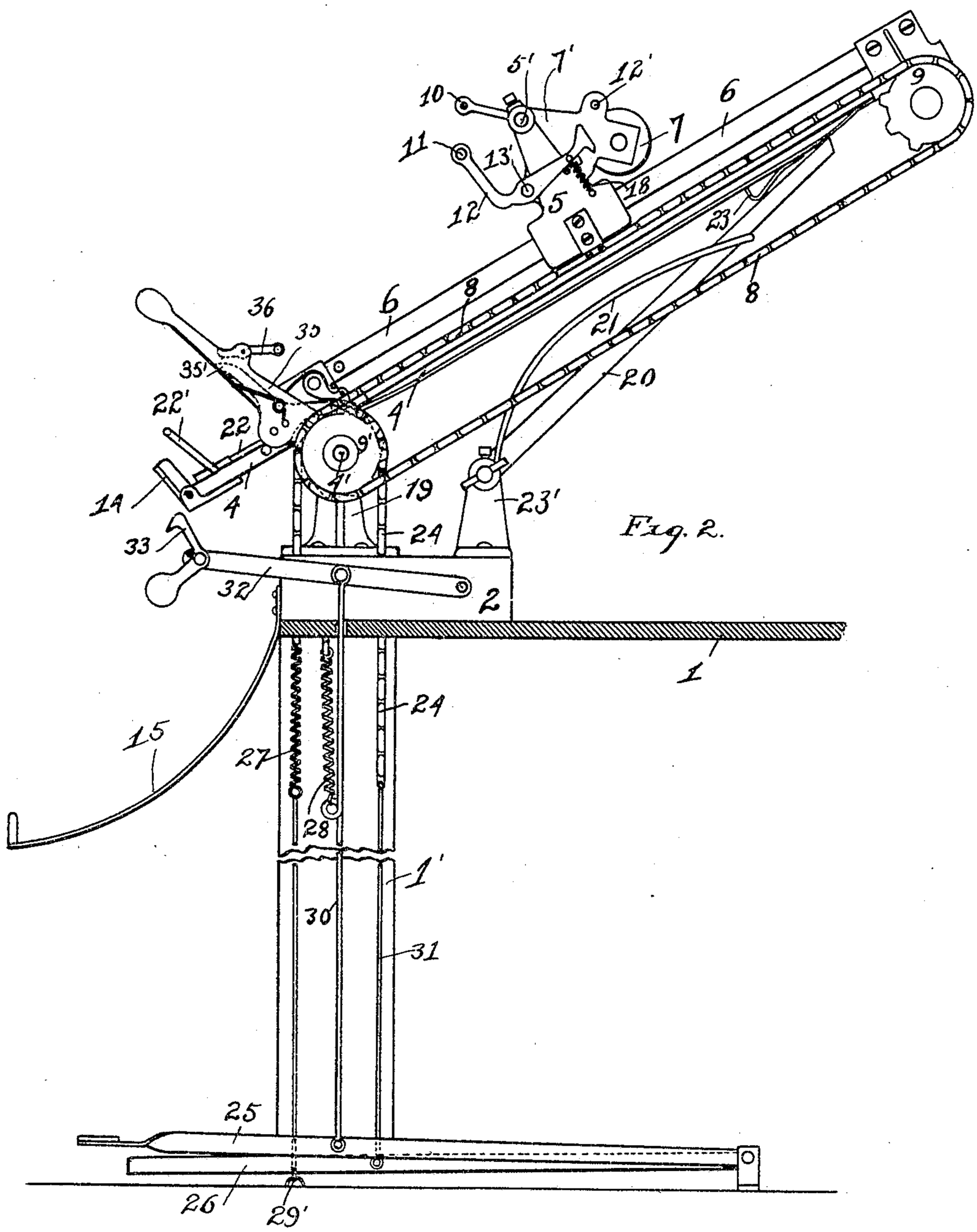

Fig. 2.

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4 SHEETS—SHEET 3.

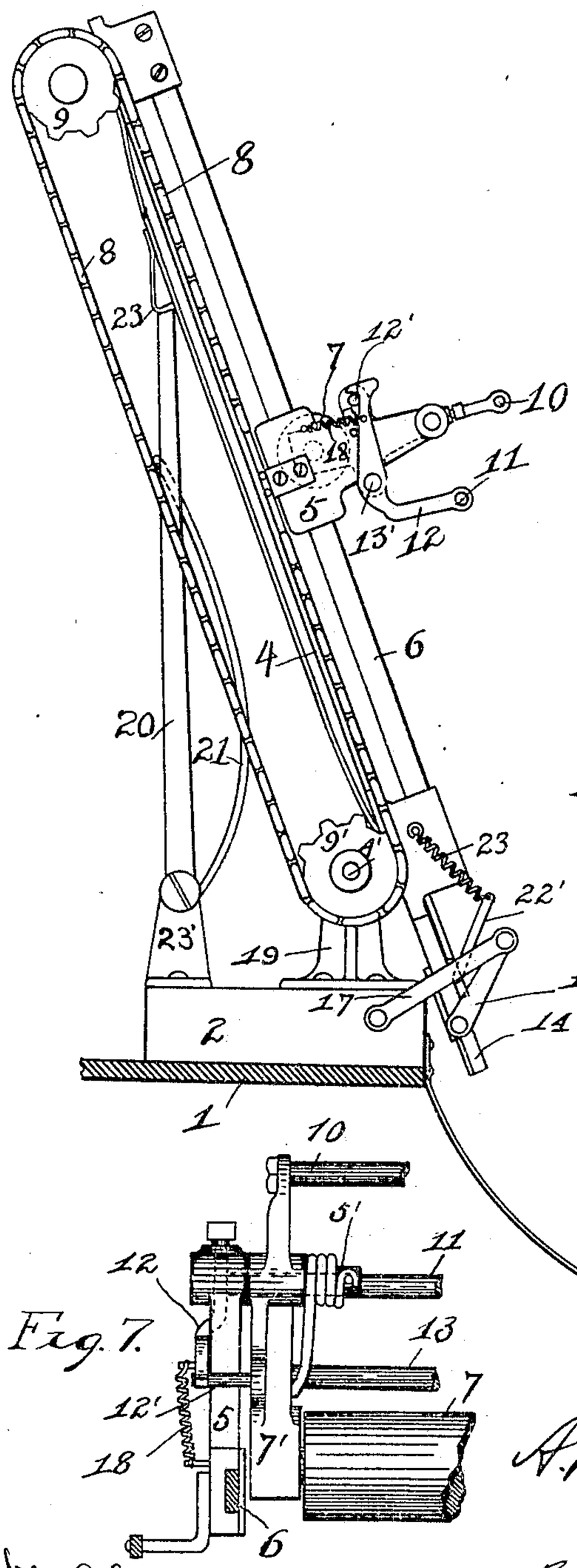

Fig. 3.

Fig. 7.

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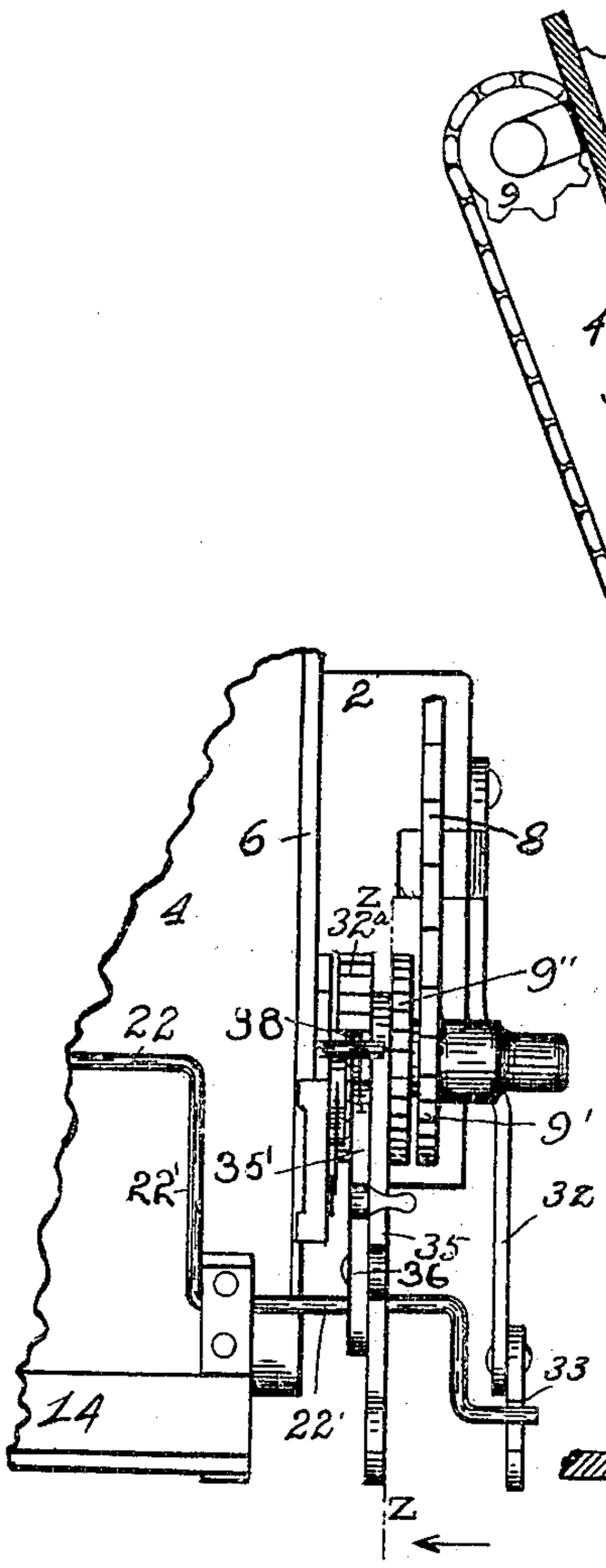

Fig. 5.

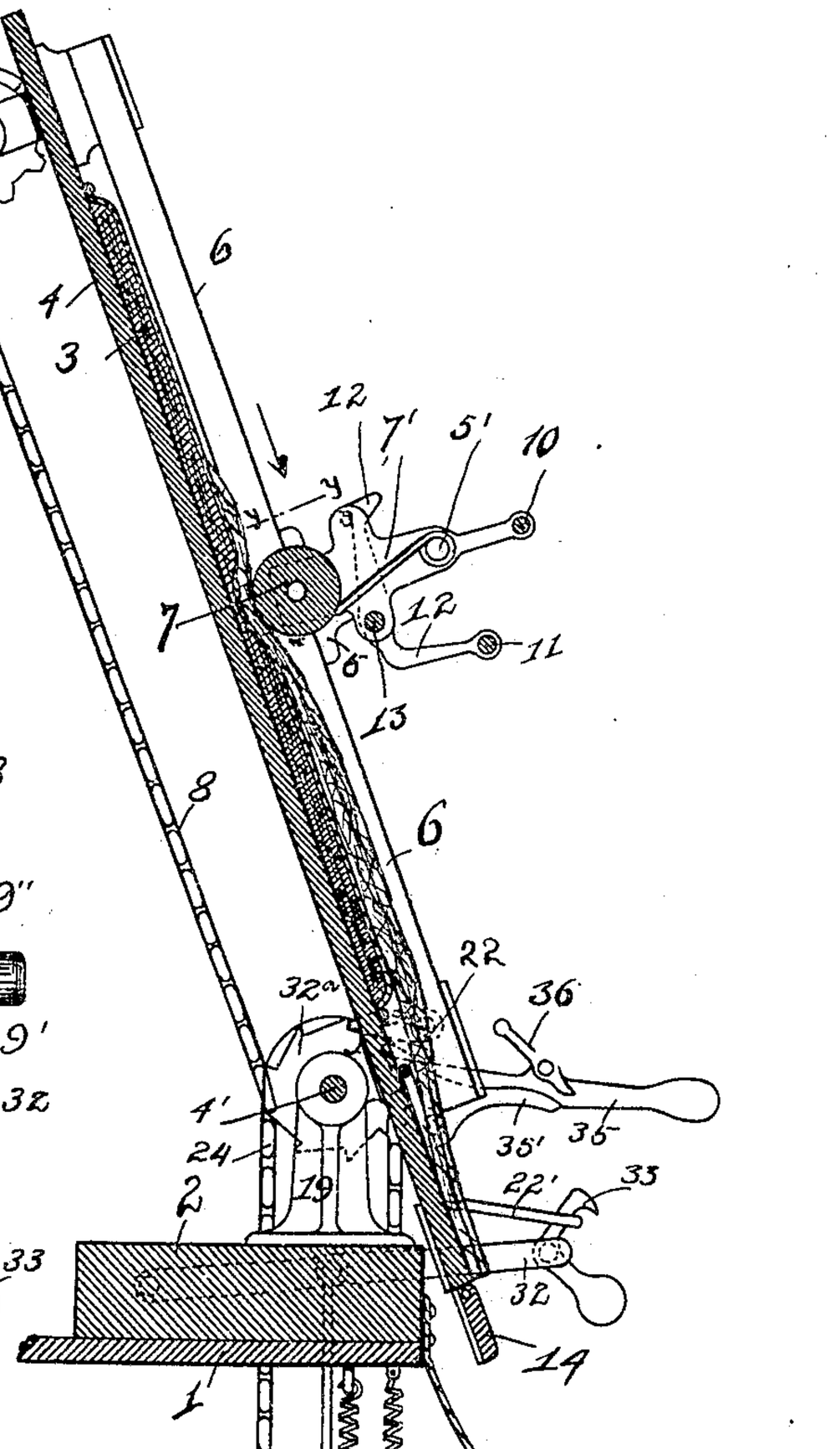

Fig. 4.

Fig. 6.

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No. 788,077. Patented April 25, 1905.

UNITED STATES PATENT OFFICE.

ALBERT R. TIFFANY, OF DAYTON, OHIO, ASSIGNOR TO WALTER M. BRENNER, OF DAYTON, OHIO.

TOBACCO-LEAF-SIZING MACHINE.

SPECIFICATION forming part of Letters Patent No. 788,077, dated April 25, 1905.

Application filed January 18, 1905. Serial No. 241,597.

To all whom it may concern:

Be it known that I, ALBERT R. TIFFANY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Tobacco-Leaf-Sizing Machines; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in machines for sizing or assorting tobacco-leaves preparatory for shipment. Before the tobacco-leaves are sized or assorted they are contained in bunches of different length leaves and the leaves are required to be stripped and assorted in bundles of uniform lengths. This operation of sizing or assorting is now generally performed by hand labor, which is objectionable not only on account of the cost attending such labor and the slowness with which the work is accomplished, but also on account of the more or less waste or loss of tobacco arising from the fact that the operators find it easier to bring the leaves to a uniform size by tearing off the ends of the longer leaves. The scrap thus formed is worth comparatively little, and this is an objectionable feature attending the hand operation of sizing or assorting the leaves.

It is the object of this invention to provide a machine which will overcome the difficulties above mentioned and which will automatically separate the bunches and assort or size the leaves in an expeditious manner and will enable each assortment of leaves to enter a receptacle from which they may be removed before an assortment of different lengths of leaves will enter said receptacle.

Preceding a detail description of the invention reference will be made to the accompanying drawings, of which—

Figure 1 is a top plan view of the machine, showing several bunches of tobacco-leaves in position thereon for sizing or assorting. Fig. 2 is a side elevation of the machine with a portion of the stationary table broken away and shown in section. Fig. 3 is a similar view of the opposite side of the machine with the lower mechanism removed. Fig. 4 is a sectional view on the line *x x* of Fig. 1. Fig. 5 is a detail plan view of the operating side of the machine, portions of the table being broken away. Fig. 6 is a detail elevation on the line *z z* of Fig. 5. Fig. 7 is a detail elevation showing one end of the releasing-roller and its supporting devices.

In a detail description of the invention similar reference characters indicate corresponding parts.

The mechanism for sizing or assorting the leaves is primarily supported upon a stationary platform or table 1, the rear portion of which is broken away in the several views of the drawings. This table is supported upon a suitable number of standards 1′, and upon the upper forward portion of said table a base 2 is supported, which in turn supports the tilting table 4, upon which the leaves are sized or assorted. In the operations of this table it assumes two positions, as shown in Figs. 2 and 3. The position shown in Fig. 2 is that in which the table receives the bunches of tobacco-leaves prior to the operation of sizing the same, and the position shown in Fig. 3 is that in which the operation of sizing said leaves takes place. Very convenient means for holding the table in these operative positions are provided and consist of a supporting-arm 20, which is fulcrumed in the rear and centrally of the table 4 upon a shaft which is mounted in brackets 23′, resting upon the base 2. This arm 20 is controlled by a spring 21 of suitable strength to maintain the table in the position for receiving the bunches of leaves, Fig. 2. In the position in which the leaves are sized the arm 20 engages at its upper end a stop 23, which is attached to the under side of said table. The forward end of said table 4 is fulcrumed or hinged upon a horizontal shaft 4′, which is mounted in standards 19, secured to the base 2. The upper surface of said table is provided with a cushion or padded portion 3, upon which the

bunches of leaves, as shown in Fig. 1, are placed, and has a suitable yielding nature. The object of this padded portion 3 is to obviate the possibility of any damage being done to the tobacco-leaves during the sizing operations, which are performed by a releasing-roller 7, which is caused to travel upward over the bunches of leaves and to release in its intermittent movement the leaves of uniform lengths. This releasing-roller 7 has its journals mounted in brackets 7′, which are hung upon the pivots 5′, said pivots being mounted in carriage-brackets 5, which travel on tracks 6, suitably mounted on the ends of the tilting table 4. The brackets 7′ are connected by a transverse tie-rod 13 and by a transverse rod 10, which latter rod provides a handle for conveniently elevating said brackets and therewith the releasing-roller 7 to the position shown in Figs. 1 and 2 and for lowering said roller to the position shown in Figs. 3 and 4, which is its operative position. The brackets 7′ and rods 13 and 10 may be termed the "roller-frame." The said roller is elevated when being moved to a lower position preparatory to its upward travel during which the leaves are sized, or, in other words, in each movement of said roller leaves of uniform lengths are released from the bunches. Fig. 1 shows said roller very nearly at the upper limit of its movement and elevated and ready to be moved down to its lower position, from which it travels upward step by step over the leaves and releases all leaves of a similar length in each movement, as before stated. The carriage-brackets 5 5 have studs 13′, which form pivots for latches 12, said latches being connected by a transverse handle-bar 11, which provides means for uniformly elevating or lowering said latches to engage pins 12′ on the brackets 7′ when the releasing-roller 7 is lowered to an operating position and for releasing said pins 12′ to permit said brackets 7′ and roller 7 to be elevated, as in Fig. 2. The said latches are normally controlled in their lower positions and in contact with the pins 12′ by contractile springs 18. The said carriage-brackets are connected with endless chains 8 8, which surround upper and lower chain-wheels 9 9′, the lower wheels 9′ being mounted upon the shaft 4′, which, as before stated, provides a fulcrum for the tilting table 4. The lower edge of said tilting table has hinged to it a butt-board 14, against which the butt-ends of the leaves rest when the bunches are laid upon the table preparatory to the sizing operations. The butt-board automatically assumes a position at right angles to the tilting table when said table is in a position to receive the bunches of leaves, as shown in Fig. 2, and a position parallel with said tilting table when the latter is elevated for the sizing operations, as in Figs. 3 and 4. It will be understood that when the releasing-roller 7 is traveling upward over the bunches of leaves the said leaves should be free to drop by gravity into a receiver 15. Hence the necessity of providing means for automatically changing the positions of the butt-board 14 is provided and consists of toggle-levers 16 and 17, which are located at one side of the table 4, and one member of which is pivoted to the base 2 and the other member is fixed to the hinge of said butt-board. It will be seen that in the movement of the table from the position shown in Fig. 2 to the position shown in Fig. 3, and vice versa, the movement of the levers 16 and 17 will lower or elevate the butt-board. During the operation of the releasing-roller 7 the bunches of leaves are suitably agitated or shaken in order to loosen the leaves from the bunches and permit them to drop freely when the releasing-roller liberates each leaf by passing over the tip end thereof. This means for agitating said bunches consists of a shaker in the form of an angle-rod 22, which extends across the lower portion of the table and lies beneath the bunches of leaves with its ends loosely inclosed and terminating in crank portions 22′, one of which is connected with a retractile spring 23 and the other of which is engaged by a gravity-dog 33, pivoted to a lever 32. The said lever 32 is connected with a foot-treadle 25 by suitable rod 30 and is maintained in an elevated position by a spring 28.

I will now describe the means for actuating the chains 8 8 to carry the releasing-roller in its upward travel. The lower chain-wheels 9′, as before stated, are fixed to the shaft 4′, and adjacent to one of said chain-wheels there is a similar chain-wheel 9″, around which passes a chain 24, one end of which connects to a foot-treadle 26 by means of an intervening connection 31, and the other end of said chain connects with a spring 27, which in turn is connected to a rod 29, that has a permanent fixture at 29′ to the floor or other stationary part. The contraction of the springs 27 and 28 is instrumental in elevating the foot-treadles after each depression thereof, said foot-treadles being depressed together. The sprocket-wheel 9″ (see Fig. 5) is loose upon the shaft 4′ and has fixed to one side thereof a pawl support or lever 35, (see Fig. 6,) which is likewise loose upon said shaft. Adjacent to this pawl-support 35 there is a ratchet-wheel 32^a, which is fixed to the shaft 4′ and is engaged by a pawl 35′, which is pivoted on the arm 35. It will therefore be seen that in the operations of driving the chain-wheel 9″ the supporting-arm 35, carrying the pawl 35′, will be oscillated to advance or rotate the shaft 4′ through the engagement of the pawl 35′ with said ratchet-wheel 32^a. The extent of movement of the releasing-roller 7 is in the present instance an inch at a time, which, it will be understood, is transmitted through said ratchet-wheel 32^a. The leaves are measured or released during each inch movement of said

roller, and it will be understood that this may be varied according to the feedof the ratchet-wheel 32^a or the throw of the pawl 35′, and the diameter of the ratchet-wheel 32^a may accordingly be increased or reduced, as may be desired. In the present instance the machine has a capacity for sizing or assorting tobacco-leaves varying in lengths from five to twenty-four inches; but it will be readily seen that the capacity for measuring leaves of greater lengths may be obtained in the machine by increasing the size of the tilting table. In the operations of the machine the treadles 25 and 26 are engaged by the foot and operated simultaneously to vibrate the arm 32, which operates the shaker 22, as before stated, and the chains are driven to advance upward the releasing-roller 7. The shaker is given a single oscillation on each operation of its treadle 25. In the depression of the treadle 26 at the same time the shaft 4′ is operated to move the chains 8, and therewith the roller 7, upwardly through the chain-wheel 9″, which, as before stated, is driven by chain 24, which is connected with said treadle 26. This movement of the chain-wheel 9″ likewise moves upwardly the pawl-supporting arm 35, and through the pawl 35′ carried thereon the ratchet-wheel 32^a is operated, which is fixed to the shaft 4′. When the said roller has reached the limit of its upward travel, it may be lowered to the initial point of movement after refilling the table with tobacco-leaves through the operation of a detent 36, which is pivoted on the supporting-arm 35 in a position to engage the outer end of the driving-pawl 35′ and to thus cause said pawl to release the ratchet-wheel 32^a, thereby permitting the roller-carriage to be lowered by hand-power applied to the carriage-frame.

The retaining-pawl 32′ prevents any retrograde movement of the ratchet-wheel 32^a, and in the operations of resetting the releasing-roller in its initial position this retaining-pawl is disengaged from the ratchet-wheel by means of an extension 38, which projects from the pawl 35′ and lies immediately below a pin 37, that projects from a side of said retaining-pawl 32′. It will be seen from Fig. 6 that in moving the detent 36 to a position to free the engaging end of the pawl 35′ from the ratchet-wheel 32^a the extension 38 will be accordingly elevated to engage said pin, and thus lift out of contact with the ratchet-wheel the retaining-pawl 32′. Each deposit of leaves in the receptacle 15 is removed in any suitable manner before the next succeeding deposit is made by the movement of the releasing-roller.

While I have in the foregoing description specified with particularity the various structural features of the invention, it will be readily seen that many of the details thereof may be varied to a greater or less extent without departing from the essential features of said invention, which may be stated, briefly, to consist of the tilting table provided with the yielding surface upon which the tobacco-leaves are placed and the releasing-roller traveling in an incline plane and releasing all leaves of a corresponding length and permitting them to gravitate from the table into a receiver, from which they are removed in any suitable manner.

Briefly describing the operation of the machine, the shaker 22 is released from the dog 33, and the table is placed on the inclination shown in Fig. 2. The act of moving the table elevates the butt-board 14 to a position to support the bunches of tobacco-leaves. The releasing-roller 7 having moved to its upper position on the table in the previous operations must be elevated and brought to its lower position after the table has been supplied with bunches. To accomplish this, the latches 12 are raised by the handle-rod 11 to release the roller-brackets 7′, after which the said brackets are moved from the handle-rod 10, as in Fig. 2, to elevate said roller. The pawls 35′ and 32′ are then removed from the ratchet-wheel 32^a, and the roller-carriage may be lowered, the roller moving over the bunches of tobacco-leaves free from contact therewith until it reaches its lower position. It is then lowered in contact with the bunches of tobacco-leaves and the latches or dogs 12 permitted to engage the pins 12′ to hold said roller down, as in Fig. 4. The detent 36 is then raised to release the pawls, and the dog 33 is hooked to the shaker 22, and the machine is ready for the sizing operation through pressure on the treadles 25 and 26.

Having described my invention, I claim—

1. In a tobacco-leaf-sizing machine, a table upon which bunches of leaves are placed, and a traveling roller moving over said table and releasing leaves of uniform lengths.

2. In a tobacco-leaf-sizing machine, an inclined table upon which the bunches of leaves are placed, and a traveling roller having intermittent movement over said table and releasing leaves of uniform lengths.

3. In a tobacco-leaf-sizing machine, a tilting table upon which bunches of tobacco-leaves are placed, a traveling roller having intermittent movement over the bunches and releasing the individual leaves of uniform lengths, and means for elevating said roller in moving it to the initial point of operation.

4. In a tobacco-leaf-sizing machine, a table, a butt-board adjacent thereto and adapted to assume different positions in the movements of said table to its different operative positions and a traveling releasing-roller movable lengthwise of the tobacco-leaves, and releasing leaves of uniform lengths in such movements.

5. In a tobacco-leaf-sizing machine, a tilting table, means for holding said table in different inclined positions, a traveling releasing-roller, said roller being supported upon a movable

frame, and said frame being supported upon a movable carriage.

6. In a tobacco-leaf-sizing machine, a tilting table upon which the bunches of tobacco-leaves are placed, a shaker arranged beneath said bunches, and a traveling releasing-roller movable lengthwise of and over said bunches and releasing the individual leaves of uniform lengths.

7. In a tobacco-leaf-sizing machine, a tilting table having a padded portion upon which the bunches of tobacco-leaves are placed, said table having tracks, and a traveling releasing-roller movable on said tracks in directions parallel with the lengths of said bunches.

8. In a tobacco-leaf-sizing machine, a traveling releasing-roller, an independent frame upon which said roller is mounted, a carriage upon which said roller-frame is mounted, and means connected to said carriage for moving it back and forth over the table.

9. In a tobacco-leaf-sizing machine, a table adapted to assume two degrees of inclination, a traveling releasing-roller movable over said table, and means for supporting bunches of leaves upon said table preparatory to the roller being moved to its initial position.

10. In a tobacco-leaf-sizing machine, a table adapted to assume two degrees of inclination, a traveling roller movable over said table, a shaker adapted to agitate the bunches of tobacco-leaves during the releasing movements of the roller, and means for supporting the bunches of tobacco-leaves at their butts prior to the releasing operations of the roller, said means permitting the assorted leaves to fall from the table when released by said roller.

11. In a tobacco-leaf-sizing machine, an inclined tilting table, in combination with a traveling releasing-roller, and means for elevating said roller to permit it to be moved to its initial position, and further means for maintaining said roller in its lower position during the operations of releasing the tobacco-leaves.

12. In a tobacco-leaf-sizing machine, a table movable to one position to receive the tobacco-leaves to be sized, and to another position for the sizing operation, a releasing-roller movable intermittently over said table to release all leaves of a uniform length in each movement, and a device for shaking the leaves during said releasing in order to separate each individual leaf.

13. In a tobacco-leaf-sizing machine, a tilting table, a releasing-roller traveling over said table, means for elevating said roller while moving in one direction, and means for holding it against the tobacco-leaves while moving in the other direction.

14. In a tobacco-leaf-sizing machine, a tilting table, a releasing-roller traveling over said table, means for elevating said roller while moving in one direction, means for holding it against the tobacco-leaves while moving in the other direction, and means for permitting a reversal of the movement of said roller.

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

ALBERT R. TIFFANY.

Witnesses:
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Carolyn M. Theobald.