(No Model.)

4 Sheets—Sheet 1.

N. P. PERKINS.

TOBACCO CUTTING MACHINE.

No. 579,306. Patented Mar. 23. 1897.

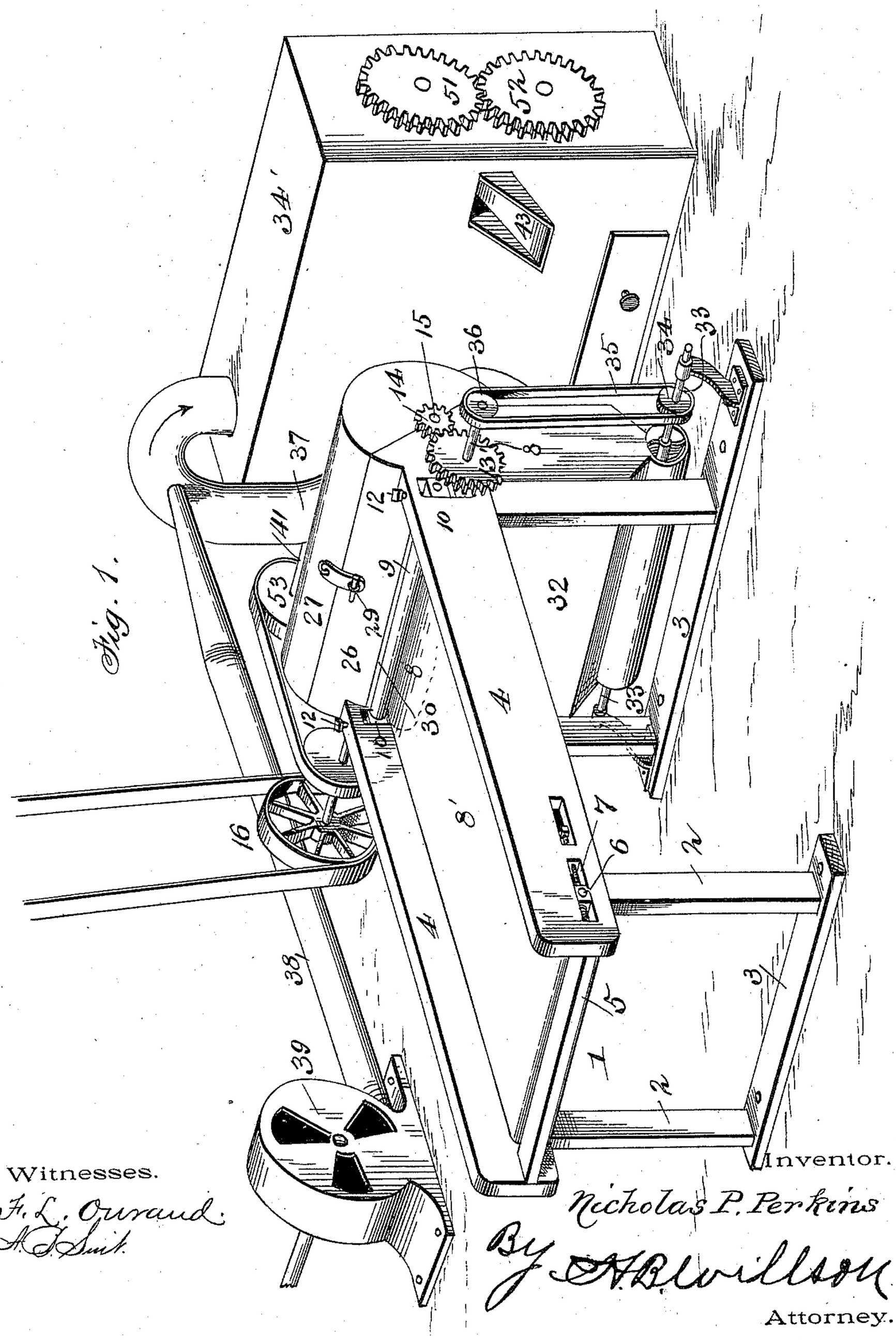

Fig. 1.

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N. P. PERKINS.

TOBACCO CUTTING MACHINE.

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Fig. 2

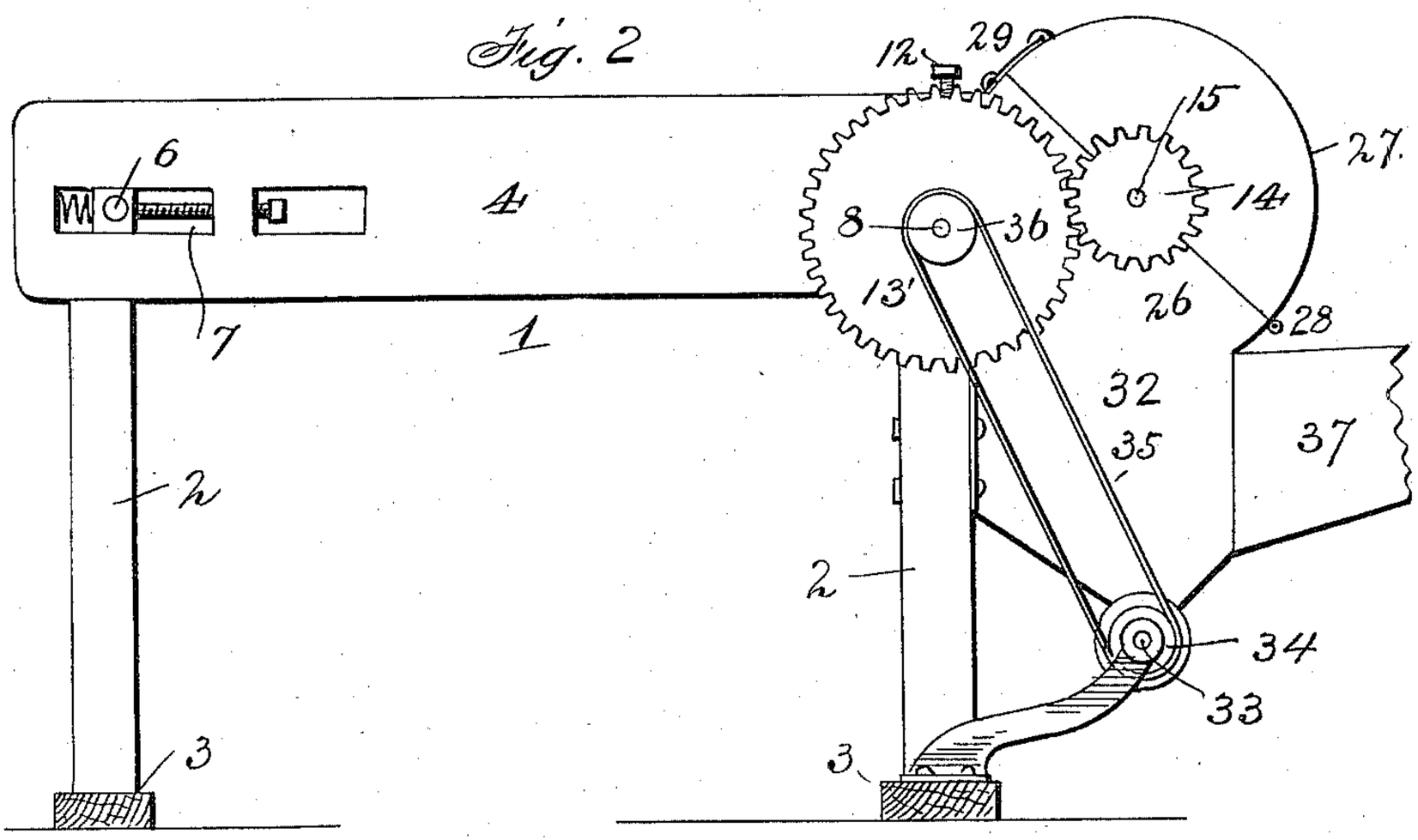


Fig. 3.

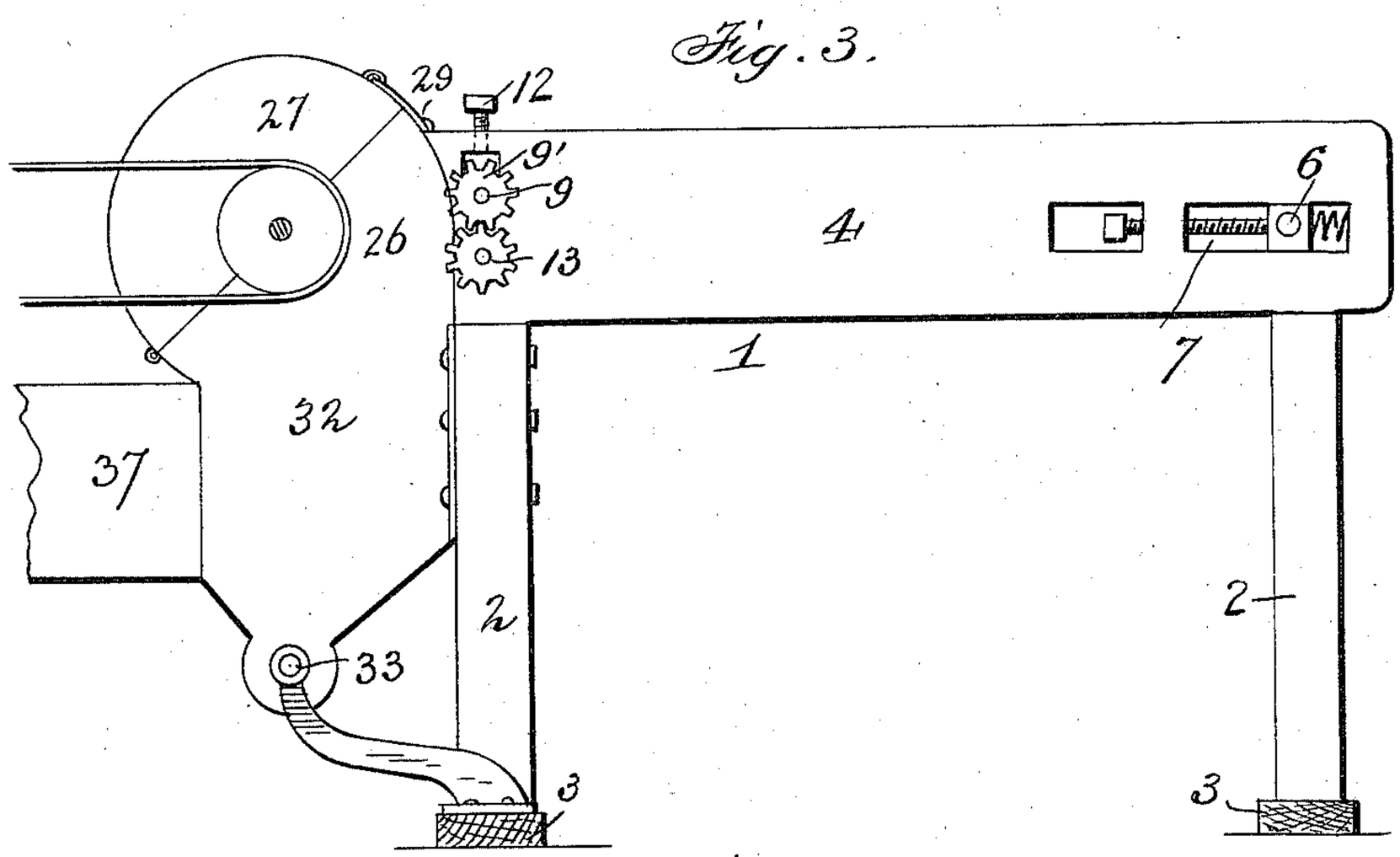
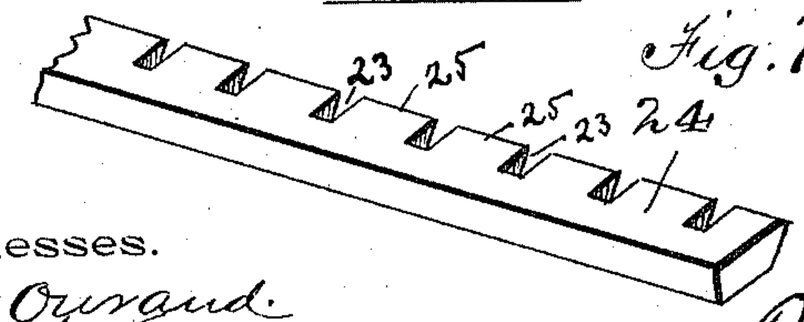


Fig. 7.



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(No Model.) 4 Sheets—Sheet 3.

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TOBACCO CUTTING MACHINE.

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Fig. 4.

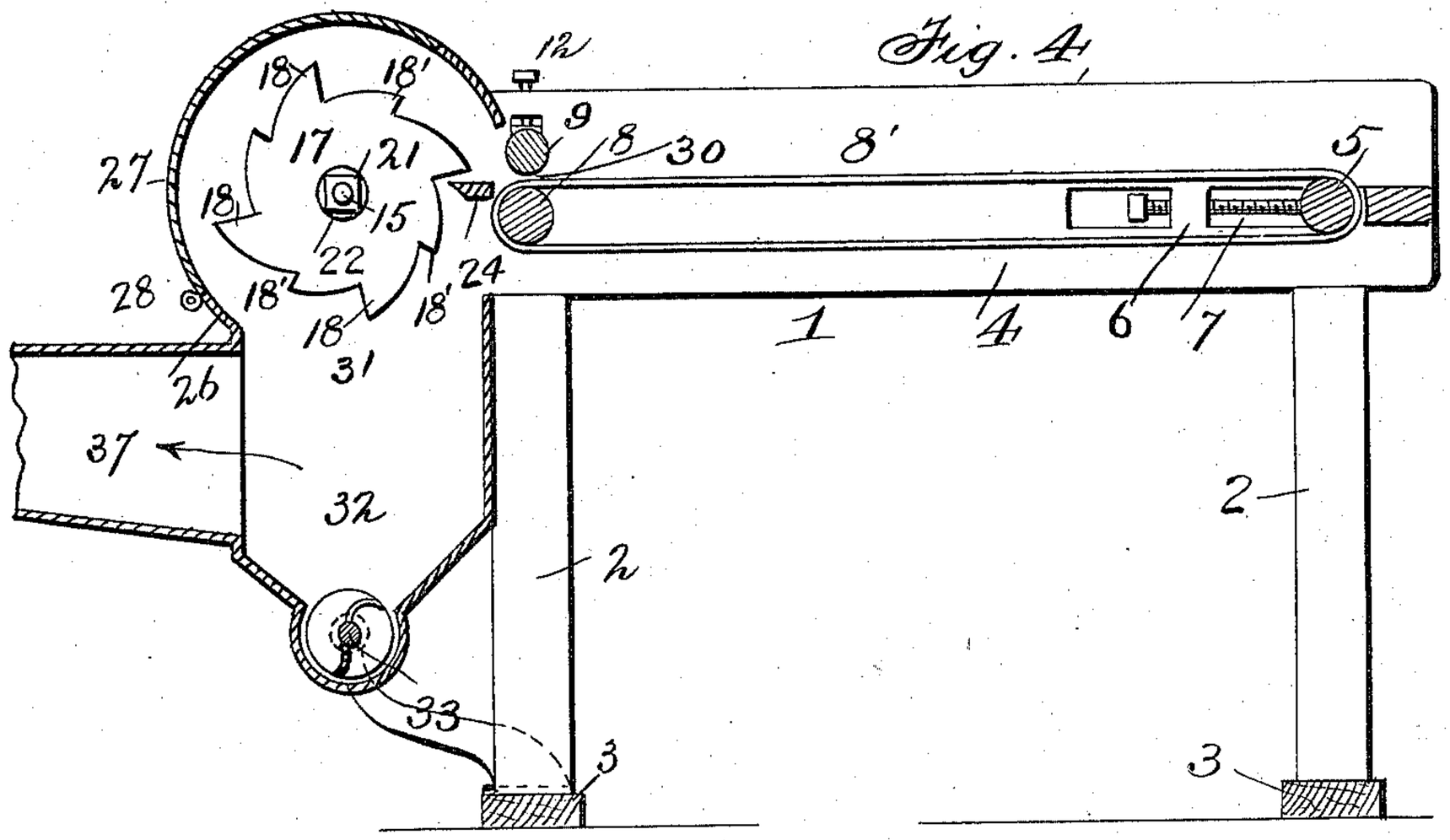


Fig 8.

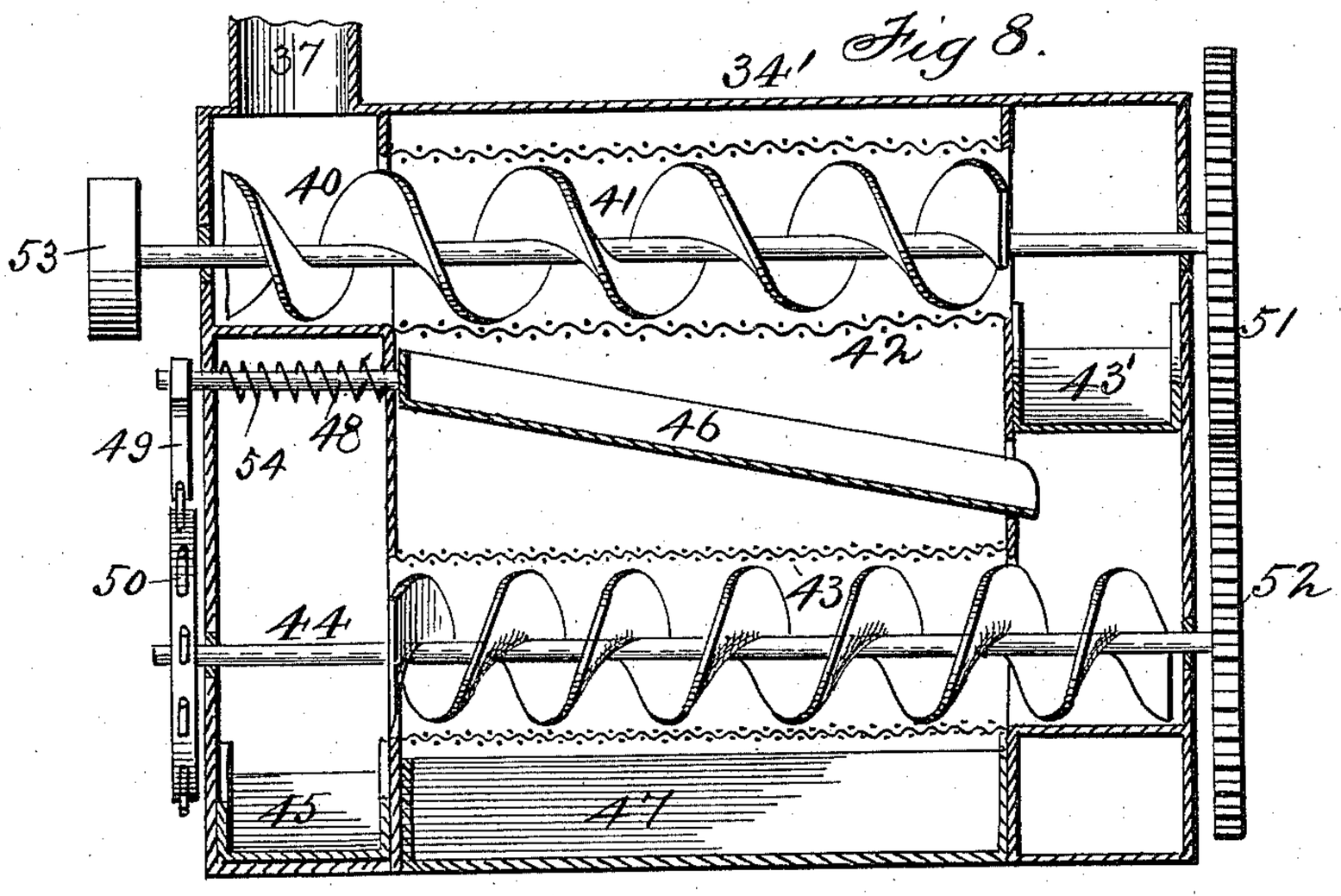


Fig. 5.

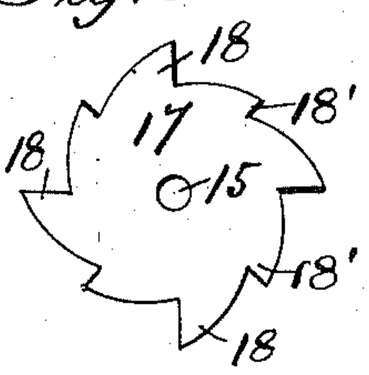
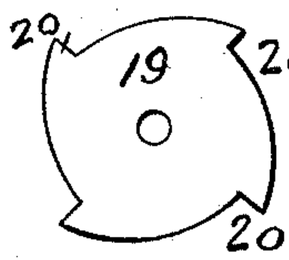


Fig. 6



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(No Model.) 4 Sheets—Sheet 4.

N. P. PERKINS.

TOBACCO CUTTING MACHINE.

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Fig. 9.

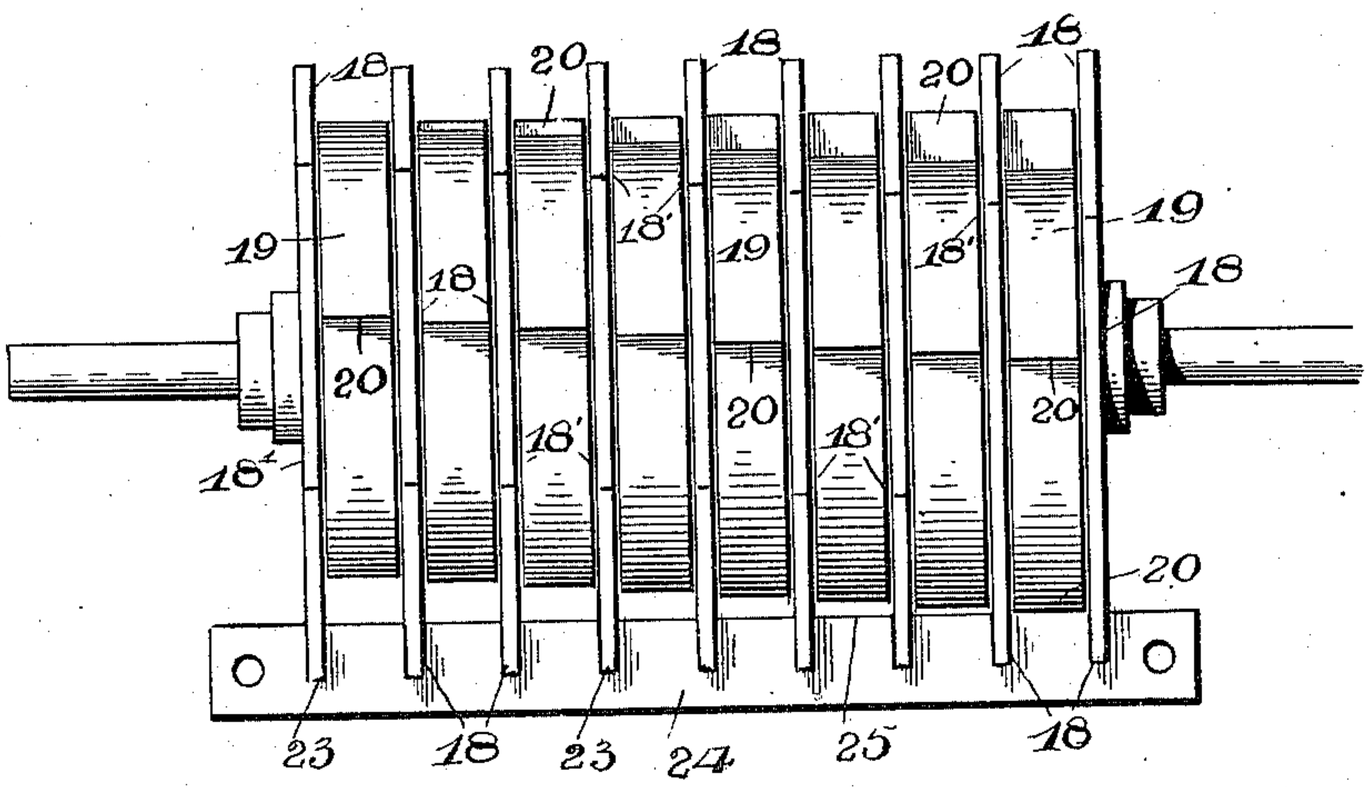
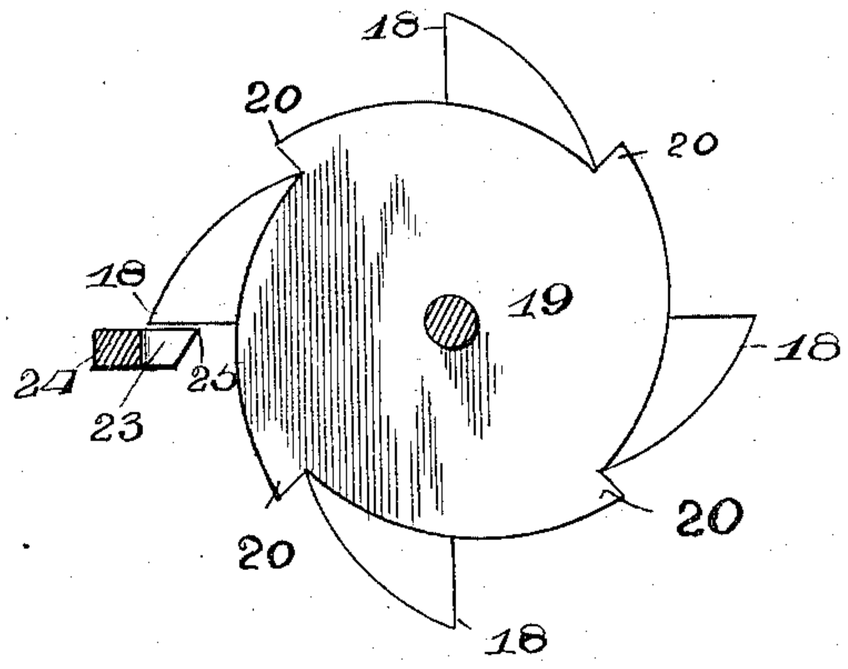


Fig. 10.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NICHOLAS P. PERKINS, OF ROANOKE, VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO JAMES O. B. PALMER, THOMAS E. JAMISON, AND J. A. JAMISON, OF SAME PLACE.

TOBACCO-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 579,306, dated March 23, 1897.

Application filed May 18, 1896. Serial No. 592,033. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS P. PERKINS, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Tobacco-Cutting 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.

My invention has relation to tobacco-cutting machines, and more particularly to that class employing rotary toothed cutting-disks to cut and disintegrate the tobacco, and is designed as an improvement on the pending application filed by me on the 6th day of December, 1895, Serial No. 571,268; and to this end the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same figures of reference indicate the same parts of the invention.

Figure 1 is a perspective view of my improved tobacco-cutting machine. Fig. 2 is a view of the right-hand side of the machine. Fig. 3 is a left-hand view of the same. Fig. 4 is a longitudinal central section of the same. Fig. 5 is a plan view of one of the larger toothed cutting-disks. Fig. 6 is a similar view of one of the smaller toothed cutting-disks. Fig. 7 is a perspective view of the throat-plate, showing the slits into which the larger cutting-disks project. Fig. 8 is a longitudinal section of the receiving and assorting chamber. Fig. 9 is a top plan view of the cutting-disks and throat-plate, and Fig. 10 is a cross-section of the same.

1 designates the frame of the machine, mounted upon the supporting-legs 2 2, which rest upon and are rigidly connected to the cross-braces 3 3, which are firmly bolted to the floor.

4 4 are the side pieces, and in their front end is journaled a roller 5, mounted in adjustable bearings 6 in the slots 7 in the side pieces, and a similar roller 8 is mounted in the same plane in the rear end of the side pieces in boxes 6 6, and these two rollers 5 and 8 are connected by an endless apron 8′, which forms the feed-bed of the machine. Immediately above said roller 8 is journaled a similar roller 9, mounted in boxes 10 10 in the sides of the machine, and these boxes are vertically adjustable by means of the set-screws 12 12, so that the said roller 9 is vertically adjustable in the same plane with reference to the roller 8, one end of which is provided with a gear-wheel 13, meshing with a similar gear on the same end of the roller 9. The opposite end of this roller 8 is provided with a gear-wheel 13, meshing with a gear-wheel 14 on the main driving-shaft 15, and by means of which said feed-apron 8′ and feed-rollers 8 and 9 are operated to continuously feed the tobacco to the machine.

The main driving-shaft 15 is provided at one end with a pulley 16, which drives the machine. Upon said shaft 15 is mounted a series of toothed disks 17, formed with elongated knife-edge cutting-teeth 18 and inner teeth 18′. Intermediate the disks 17 on said shaft is located a series of smaller toothed disks 19, likewise formed with radial edged cutting-teeth 20 of a uniform length. These disks 17 and 19 are alternated on the shaft 15, to which they are firmly clamped by the washers 21 and nuts 22, the teeth on the cutting-disks 17 projecting into the rectangular slits 23 in the throat-plate 24, while the teeth 20 on the smaller disks 19 are in line with the straight edges 25 between the slits 23. As the shaft 15 revolves, the tobacco being fed by the apron and feed-rollers to the disks, the outer teeth 18 on the larger disks 17 cut into the tobacco in advance of the inner teeth and the teeth on the smaller disk 19, so that it is finely cut longitudinally in the mass before it reaches the teeth on the smaller disk, when they separate and disintegrate it into small sections. The teeth 18′ assist in keeping the cut made by the teeth 18 open and, as it were, clearing the way for said teeth 18′.

The casing 26 27 is cylindrical in form and completely covers the disks 17 and 19 on the shaft 15, the half-section 27 being secured to its opposite half-section 26 by hinges 28, and when closed an ordinary staple 29 secures

the hinged section in place. The rigid section 26 of said casing is formed with a longitudinal opening or slot 30 in the same plane as the feed-rollers 8 and 9, through which the prepared tobacco is fed to the cutting-disks. The bottom of said casing 26 is provided with a discharge-opening 31, located immediately below the central line of the cutting-disks, and the sides extend downwardly to form a chamber 32, in the bottom of which is located an ordinary conveyer-shaft 33, the outer end of which is provided with a pulley 34, around which passes an endless belt 35 to a similar pulley 36 on the shaft of the feed-apron roller 8, which gives motion to the conveyer-shaft 33.

37 is a pipe connected to one end of the chamber 32 and leading to the receiving and assorting chamber to be hereinafter described. 38 is a similar pipe opening into said pipe 37, through which a current of air is forced from a blower or fan 39, so that as the tobacco is fed to and disintegrated by the cutting-disks the stems, being heavier than the lighter flaky leaf, fall to the bottom of the chamber 32, where they are carried out by the conveyer-shaft 33, while the lighter comminuted leaf-tobacco is carried by the air-blast through the pipe 37 to the receiving and assorting chamber.

The assorting-chamber 34′ is preferably rectangular in shape, and as the tobacco enters it through the blast-pipe 37 it falls into a semicircular sheet-metal trough 40, and is thence carried by a conveyer-shaft 41 along a reticulated circular casing 42, from the end of which the coarse tobacco is discharged through a chute 43′ into a receptacle placed there to receive it, and it is then returned to the feed-apron to be recut. Immediately below the upper reticulated circular casing 42 is located an inclined vibrating trough 46, into which the fine loose tobacco falls, and is by it conducted by gravity to the receiving end of the lower reticulated circular casing 43, where it receives a second screening to separate the very fine tobacco-dust, which falls through the lower reticulated casing into a removable drawer 47. The graded tobacco meanwhile is being discharged from the opposite end of said reticulated casing 43 into a chute 45, from which it is delivered ready for packing for the market.

The upper end of the rocking trough 46 is secured to a vibrating shaft 48, mounted in one end of the chamber, and its end extends through the chamber and is provided with a depending arm 49, the lower end of which lies in the path of the periphery of the toothed wheel 50, secured on the conveyer-shaft 44, on the opposite end of which is a gear-wheel 52, meshing with a similar gear-wheel 51 on the upper conveyer-shaft 41. The opposite end of said conveyer-shaft 41 is provided with a pulley 53, by means of which both conveyer-shafts are rotated.

54 is a spiral spring encircling the vibrating shaft 48, one end thereof being secured to said shaft and the other to the inside of the casing, so as to return said shaft with a quick jerk or vibration when its arm 49 is moved forward by the toothed wheel 50, thereby vibrating the trough and feeding the contents down to the mouth of the lower casing 43.

In practice I make the perforated cylindrical casing 42 of wire-gauze of a considerably larger mesh than that of the wire-gauze of which the lower cylindrical casing 43 is made. It will thus be seen that the cakes or blocks of tobacco as fed to the machine are thoroughly cut up and disintegrated by the toothed cutting-disks, the stems falling to the bottom of the chamber 32, whence they are discharged outwardly by the conveyer-shaft 33, while the leaf-tobacco is carried along by the air-blast from the fan 39 through the pipe 37 to the assorting-chamber, where the dust and dirt are separated from the disintegrated leaf, and the graded tobacco is discharged at the chute 45 ready for the market.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. In a tobacco-cutting machine, a cutting device comprising the rotating shaft 15, upon which is mounted a series of disks 19 having radial cutting-teeth 20, and a series of disks 17, which are thinner in cross-section than the disks 19 and are mounted on said shaft alternately with the former, and are formed with elongated knife-edge cutting-teeth 18 and intermediate shorter teeth 18′, in combination with the stationary throat-plate 24 having the rectangular slits 23, through which the elongated teeth 18 pass, and the straight edges 25, contiguous to the teeth 20 on the disks 19, and means substantially as described for continuously feeding the material to said cutting device, as and for the purpose set forth.

2. In a tobacco cutting and grading machine, the shaft 15, the cutting-disks 17 and 19 mounted alternately on said shaft, the throat-plate 24 having the slits 23 and the intermediate straight edges 25 contiguous to the disks 17 and 19 respectively, the roller 8 mounted in fixed bearings, the roller 5, and the endless apron 8′ connecting said rollers, the roller 9 vertically adjustable in boxes 10 10 in the sides of the machine, in combination with the chambers 32 and 34′, the air or blast pipe connecting them, the conveyer-shafts 41 44 located in chamber 34′, the reticulated circular casings 42 and 43, encompassing said conveyer-shafts 41 44 respectively, and the inclined vibrating trough 46 mounted in chamber 34′ between the said casings 42 43, substantially as and for the purpose set forth.

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

NICHOLAS P. PERKINS.

Witnesses:
SAML. A. DRURY,
A. B. SUIT.