No. 658,059. Patented Sept. 18, 1900.

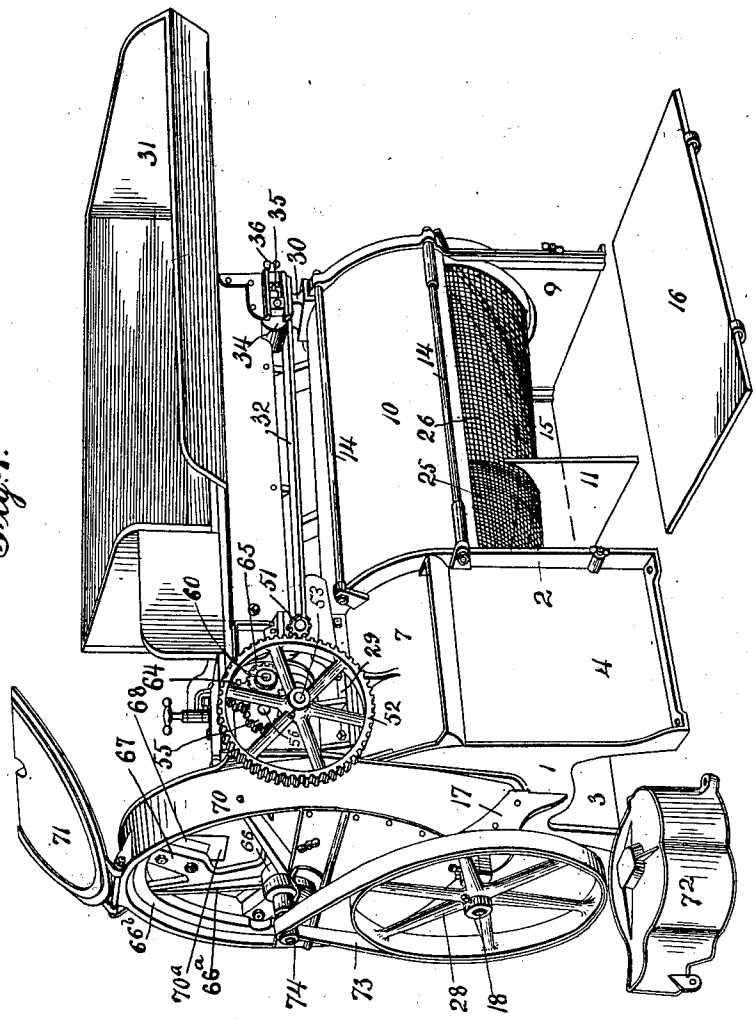
N. DU BRUL.

TOBACCO CUTTING MACHINE.

(Application filed Apr. 19, 1900.)

(No Model.) 6 Sheets—Sheet 1.

Fig. 1.



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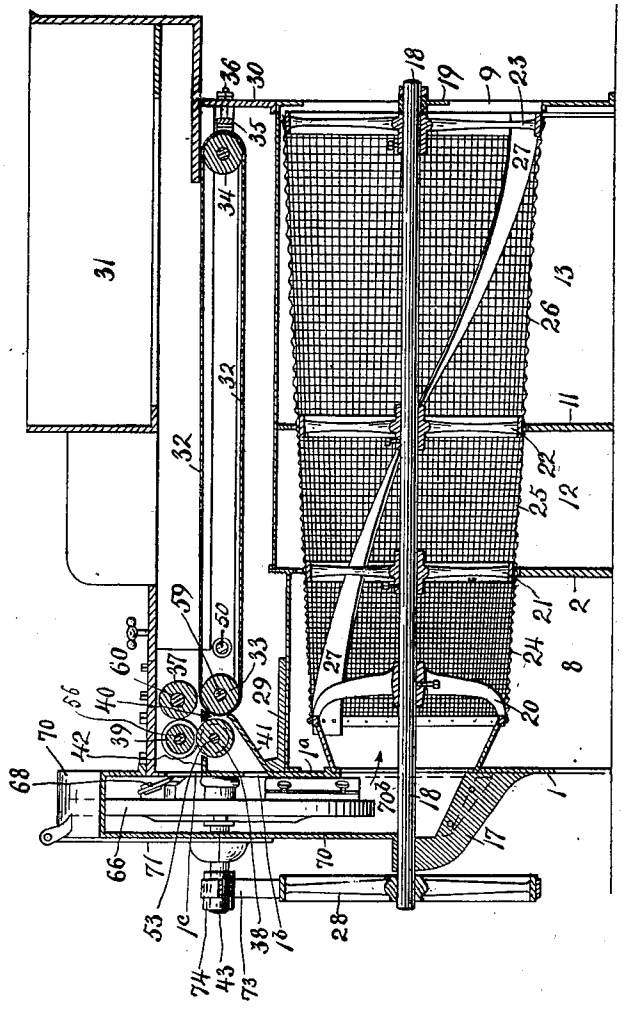
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Fig. 2.



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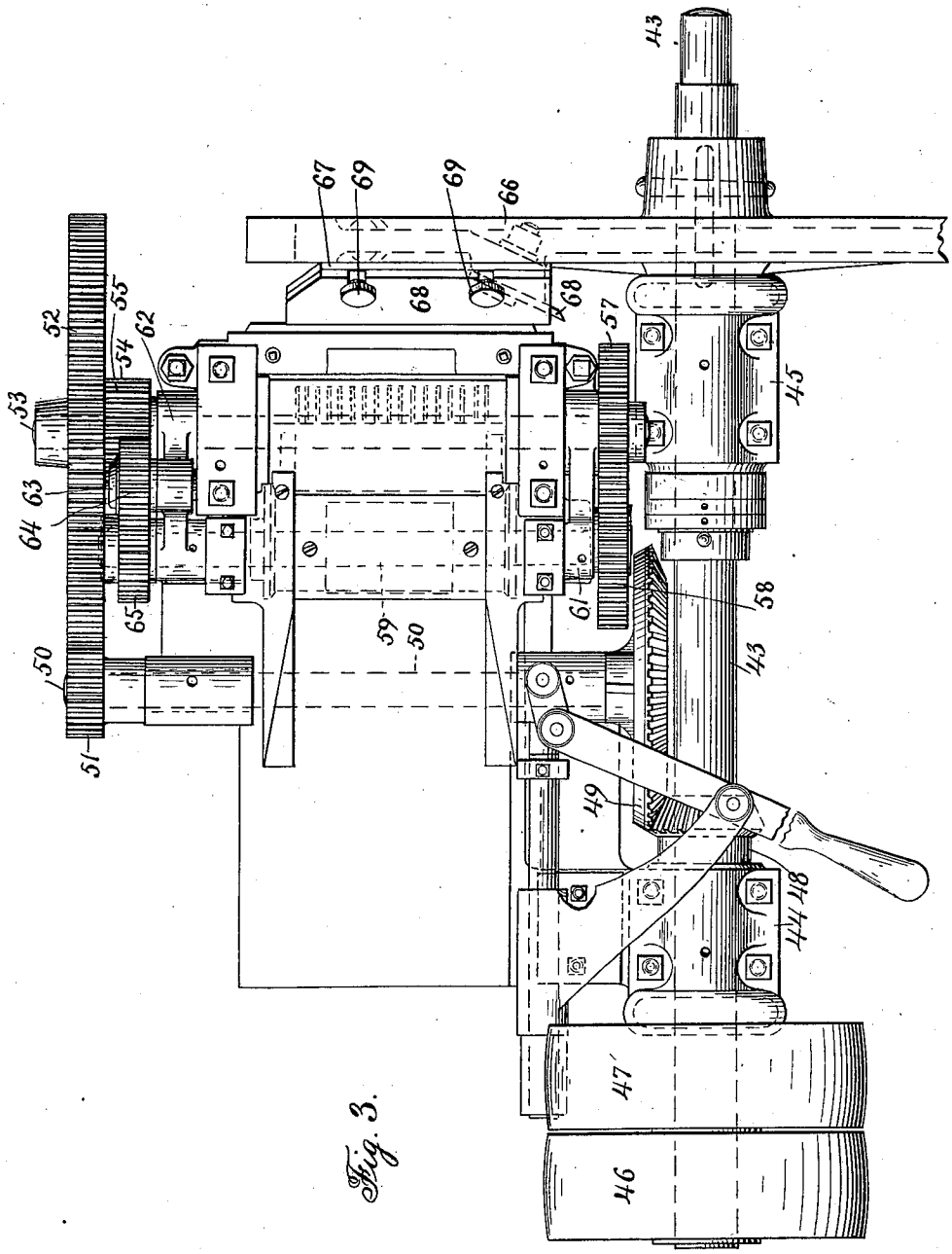


Fig. 3.

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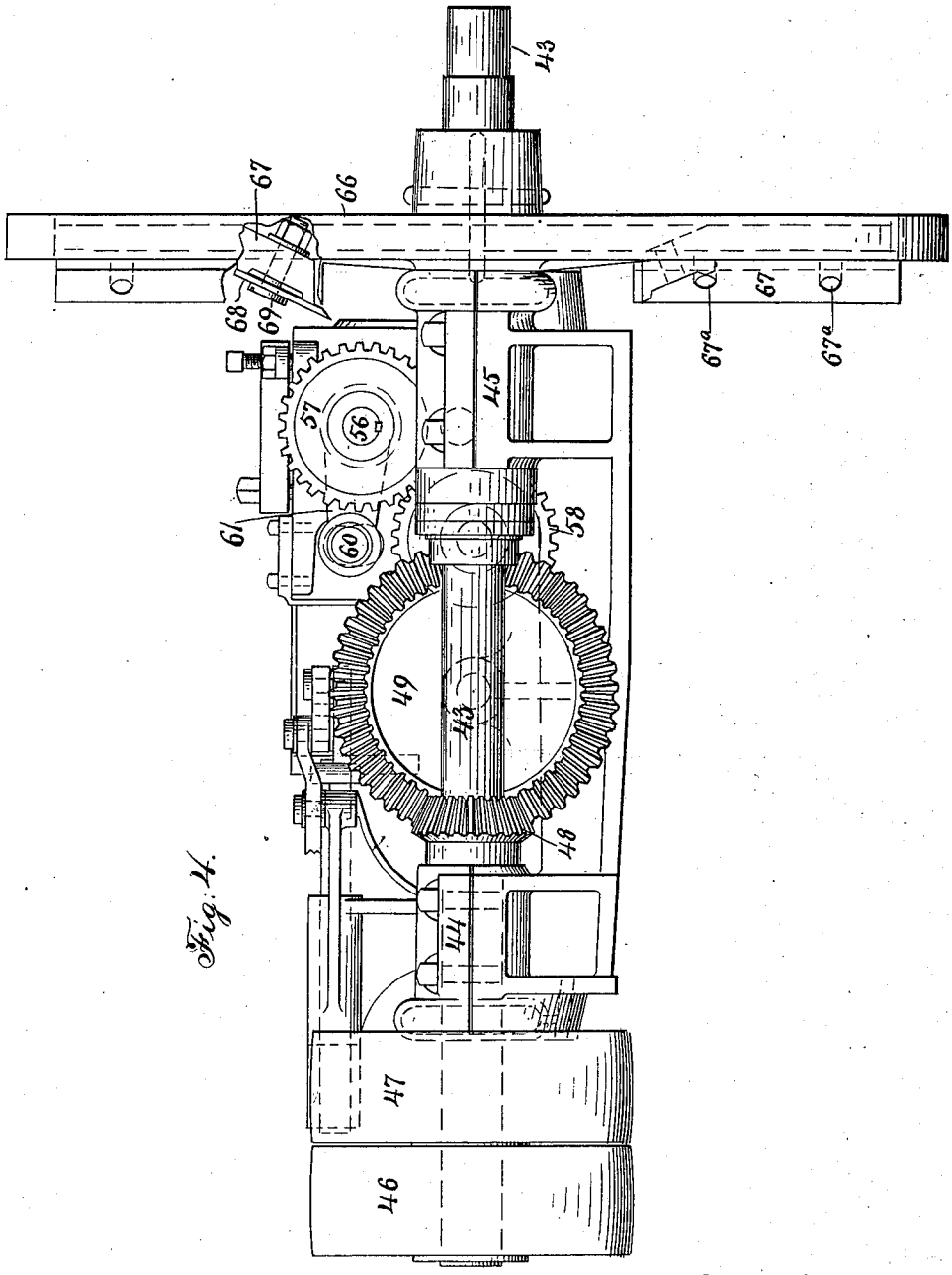


Fig. 4.

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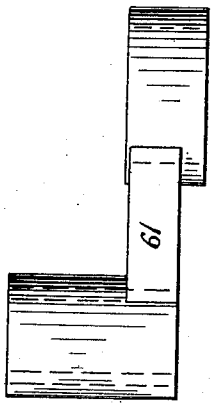


Fig. 6.

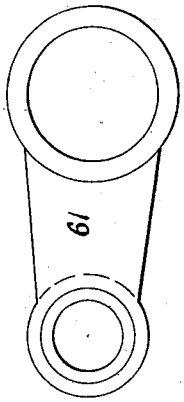


Fig. 7.

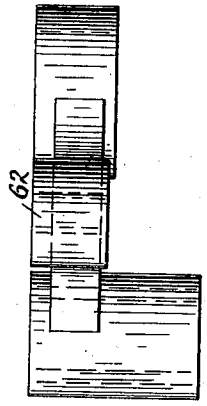


Fig. 8.

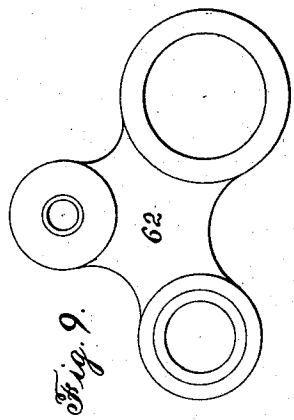


Fig. 9.

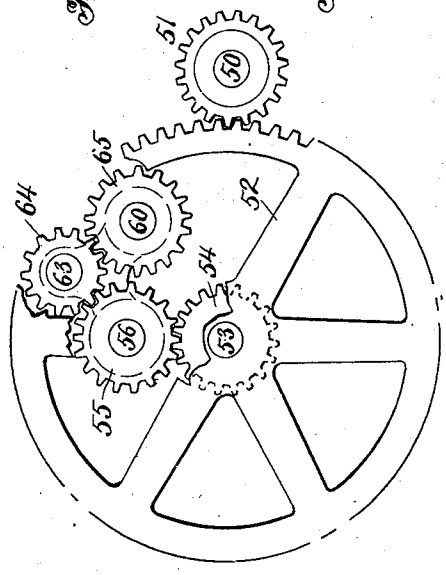


Fig. 5.

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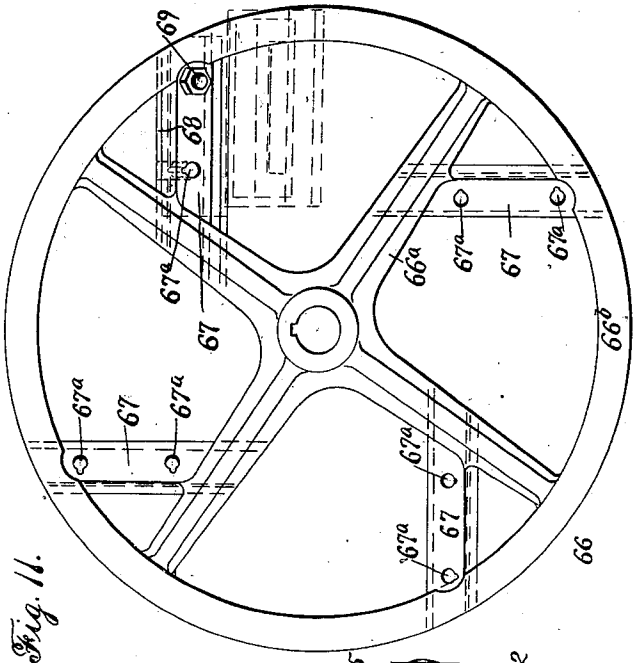


Fig. 11.

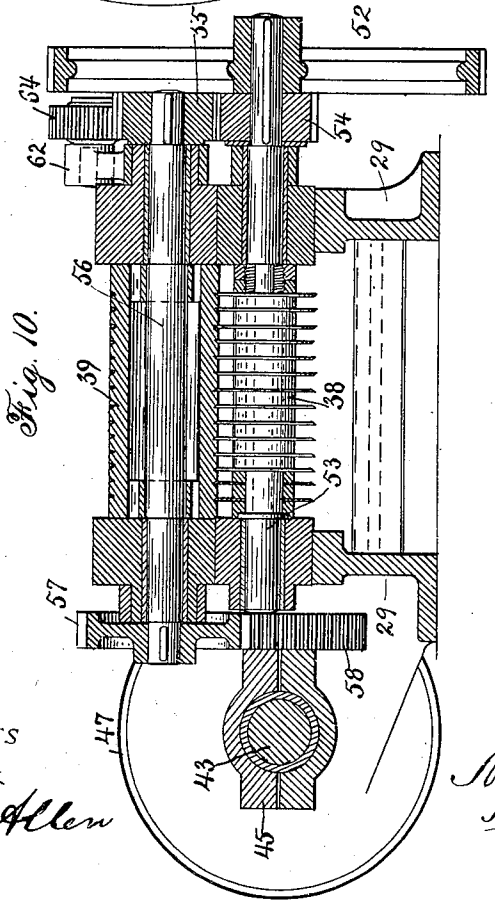


Fig. 10.

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UNITED STATES PATENT OFFICE.

NAPOLEON DU BRUL, OF CINCINNATI, OHIO.

TOBACCO-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 658,059, dated September 18, 1900.

Application filed April 19, 1900. Serial No. 13,528. (No model.)

To all whom it may concern:

Be it known that I, NAPOLEON DU BRUL, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Tobacco-Cutting Machines, of which the following is a specification.

My present invention relates to improvements in that class of tobacco-cutting machines for improvements in which Letters Patent No. 560,483 were granted to myself on the 19th day of May, 1896.

My present improvements comprise a novel arrangement of driving connections and gearing, a new arrangement of the cutting-blades on the fly-wheel, and the provision of spiral feeding-blades within the screen, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved tobacco-cutting machine, the cover of the front gearing being removed and the cover of the housing being open. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a detail enlarged top plan view of the inner end of the machine, showing the driving connections and gearing. Fig. 4 is a rear view of the same. Fig. 5 is a detail view of the front gearing. Fig. 6 is an enlarged detail top plan view of the rear link or yoke of the feed-roller shaft. Fig. 7 is a rear view of the same. Fig. 8 is an enlarged detail top plan view of the front link or yoke of the feed-roller shaft. Fig. 9 is a rear view of the same. Fig. 10 is a vertical transverse section of the upper part of the machine, taken on a line with the cutting-roll shafts. Fig. 11 is an elevation of the cutter fly-wheel.

The body of the machine comprises an outer frame 1, an inner frame 2, a rear plate 3, a front plate 4, and a hood 7, suitably fastened together, so as to provide an inner screen-chamber 8.

9 is a frame located at the right-hand end of the machine for supporting the outer end of a cover 10, extending from the inner frame 2 of the body. The space between the inner frame 2 of the body and the right-hand frame 9 and beneath the cover 10 is divided by an intermediate frame 11 to provide an intermediate screen-chamber 12 and an outer screen-chamber 13. The inner frame 2 of the body and the right-hand frame 9 are connected by tie-rods 14, the lower tie-rods of which provide hinges for the suspended rear door 15 and suspended front door 16, respectively, of the intermediate screen-chamber 12 and outer screen-chamber 13.

17 is a bracket secured to the outer frame of the body, providing a bearing for one end of a screen-shaft 18, which is journaled at its other end on a bar 19, secured across the right-hand frame 9. Mounted on and fastened to this shaft at a suitable distance apart are a series of spider-frames 20, 21, 22, and 23 for supporting a series of communicating grading-screens 24, 25, and 26, located, respectively, in the inner screen-chamber 8, intermediate screen-chamber 12, and outer screen-chamber 13. Extending through the series of grading-screens is a spiral feeding-blade 27 for assisting the material in passing therethrough. This feeding-blade extends from end to end of the series of screens, about one-half around the same. The screen-shaft 18 carries a pulley 28, which is connected with the power mechanism. Secured to the outer ends of the hood 7 and cover 10, respectively, is an inner bracket 29 and an outer bracket 30 for supporting the feeding-hopper or trough 31.

32 is the feed-apron, mounted on an inner roller 33, journaled in the inner bracket 29, and an outer roller 34, journaled in a yoke 35, having a tightening device 36, secured to the outer bracket 30. Journaled above the inner roller 33 is an upper feed-roller 37, which gravitates to hold the material beneath it on the feed-apron for assisting the feeding of the material.

38 is the lower knife-roll, and 39 is the upper grooved roll, working together for cutting the material lengthwise as fed thereto by the feed-apron over the bridge 40. The outer frame 1 is provided with an upward extension 1^a, having a lower discharge-opening 1^b and an upper discharge-opening 1^c. Extending from the inner end of the feed-apron beneath the bridge 40 to the lower discharge-opening 1^b

is an incline 41 for conveying any short material from the feed-apron directly through the lower opening 1^b.

42 is a shear-plate leading the material issuing from between the cutting-rolls through the upper discharge-opening 1^c.

43 is the main shaft of the machine, journaled in bearings 44 and 45. Mounted on the main shaft is a fixed pulley 46 and a loose pulley 47. The main shaft also carries a bevel-pinion 48, which meshes with a bevel gear-wheel 49, keyed to the rear end of an inner transverse shaft 50, which carries at its front end a small gear-wheel 51, which in turn meshes with a large gear-wheel 52, carried on the lower transverse shaft 53, on which is secured the knife-roll 38.

54 is a small lower gear-wheel also keyed on the lower transverse shaft 53 in rear of the large gear-wheel 52. This lower gear-wheel 54 meshes with a small upper gear-wheel 55, keyed on the upper transverse shaft 56 of the grooved roll 39.

57 is a small upper gear-wheel keyed to the rear end of the upper transverse shaft 56 and meshing with a small lower gear-wheel 58 on the lower intermediate transverse shaft 59, on which the inner roller 33 of the feed-apron is keyed.

60 is the upper intermediate shaft, carrying the feed-roller 37 and loosely held in position above the inner end of the feed-apron 32, being journaled in the free outer ends of a rear yoke or link 61 and a front yoke or link 62. The inner ends of these yokes or links are loosely secured to the upper shaft 56 of the grooved roll 39. The front yoke or link 62 carries a short shaft or stud 63, on which is journaled a small gear-wheel 64, meshed by the small upper gear-wheel 55 on the front end of the grooved roll-shaft 56 and meshing with a small gear-wheel 65, keyed on the front end of the feed-roller shaft 60. This arrangement of gearing has been found to enhance the value of the machine by permitting it to be driven continuously, whereas in the arrangement of gearing shown in my Letters Patent No. 560,483, hereinbefore referred to, the machine was liable to get easily overheated and limited in its work.

66 is the cutter fly-wheel, keyed on the main shaft and working in front of the lower and upper discharge-openings in the extension 1^a of the outer frame 1. The fly-wheel 66 has radial arms 66^a and a rim 66^b. Extending from one side of the radial arms 66^a, near their outer ends, to a point on the rim adjacent thereto are knife-supports 67, having openings 67^a. These knife-supports 67 are located approximately at an acute angle to the radial arms and are inclined across the plane of the wheel, so as to hold the knife-bars 68 in a more desirable position than shown in my Letters Patent hereinbefore referred to. The knife-bars 68 are secured removably to the knife-supports 67 by means of bolts 69, and the precise angle in which they are arranged on the fly-wheel has the advantage of bringing the inner ends of the knife-bars 68 sufficiently separate from the center of rotation to impart ample movement to them to accomplish the cutting. The position of the knife-bars in my former arrangement was too near to the center of rotation, and therefore they moved too slowly to keep up with the feed.

70 is a housing for the fly-wheel, having a hinged cover 71 in the front thereof and an opening 70^a in the rear thereof for permitting the removal and replacing of the knife-bars. This housing provides a chamber 70^b, through which the cut material is directed into the grading-screen.

72 is the cover for the front gearing, secured in place by suitable fastenings.

73 is the belt, coupling the pulley 74 on the main shaft with the pulley on the screen-shaft.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

A tobacco-cutting machine comprising a main shaft, an inner transverse shaft geared to the main shaft, a lower knife-roll having its shaft geared to the inner transverse shaft, an upper grooved roll geared to the lower knife-roll, the lower apron-roller geared to the upper grooved roll, the outer apron-roller, the apron connecting the apron-rollers, the rear yoke loosely secured to the shaft of the grooved roll, the front yoke loosely secured to the shaft of the grooved roll and provided with a short shaft geared to the shaft of the grooved roll, and an upper feed-roller having its shaft loosely suspended in the outer ends of the yokes and geared with the short shaft.

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Witnesses:
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