No. 669,150. Patented Mar. 5, 1901.

B. F. STRICKLER.

TOBACCO SCRAP MACHINE.

(Application filed Aug. 17, 1899.)

(No Model.) 3 Sheets—Sheet 1.

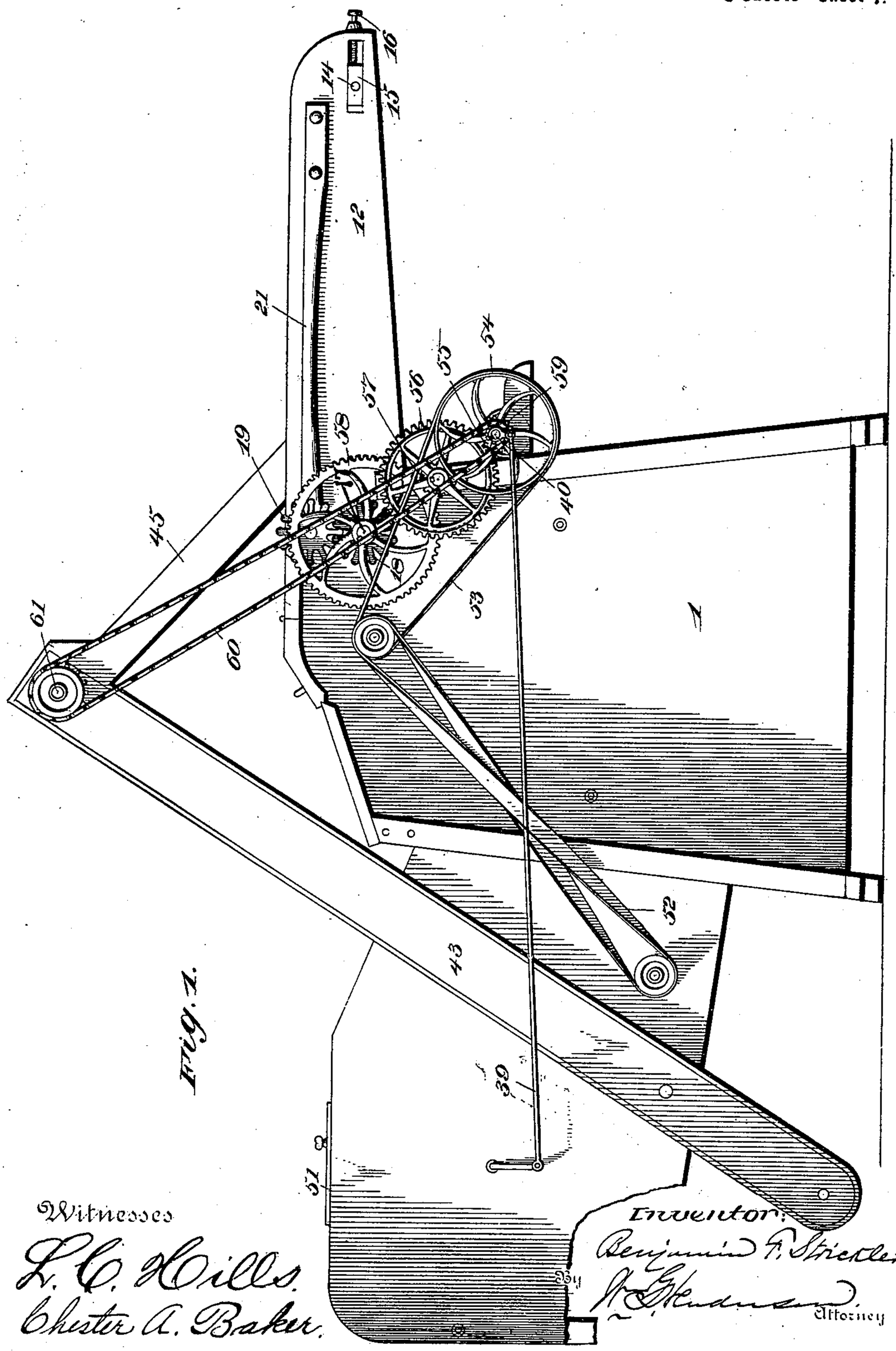

Fig. 1.

Witnesses
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Chester A. Baker.

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(Application filed Aug. 17, 1899.)

(No Model.) 3 Sheets—Sheet 2.

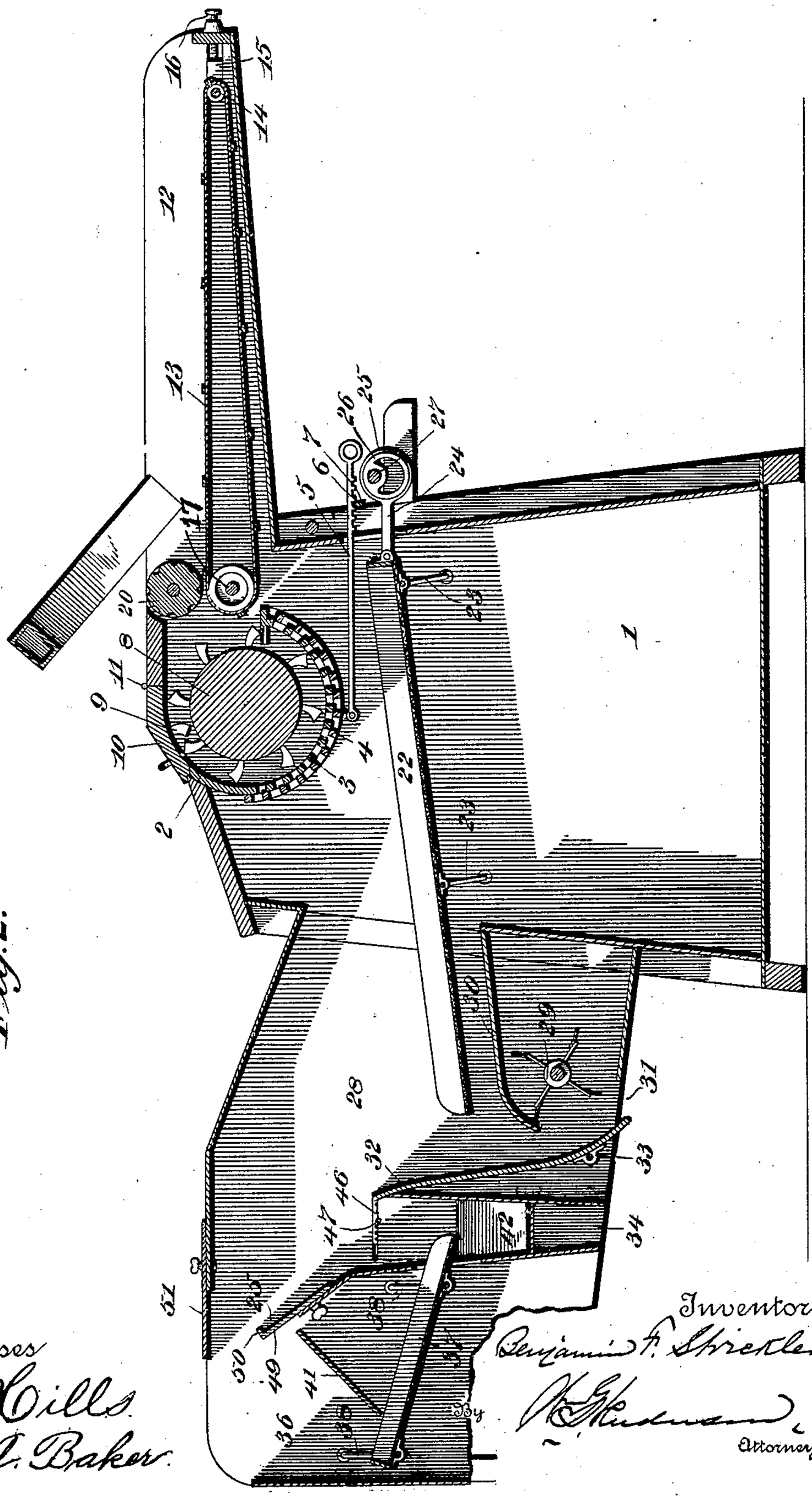

Fig. 2.

Witnesses
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TOBACCO SCRAP MACHINE.

(Application filed Aug. 17, 1899.)

(No Model.) 3 Sheets—Sheet 3.

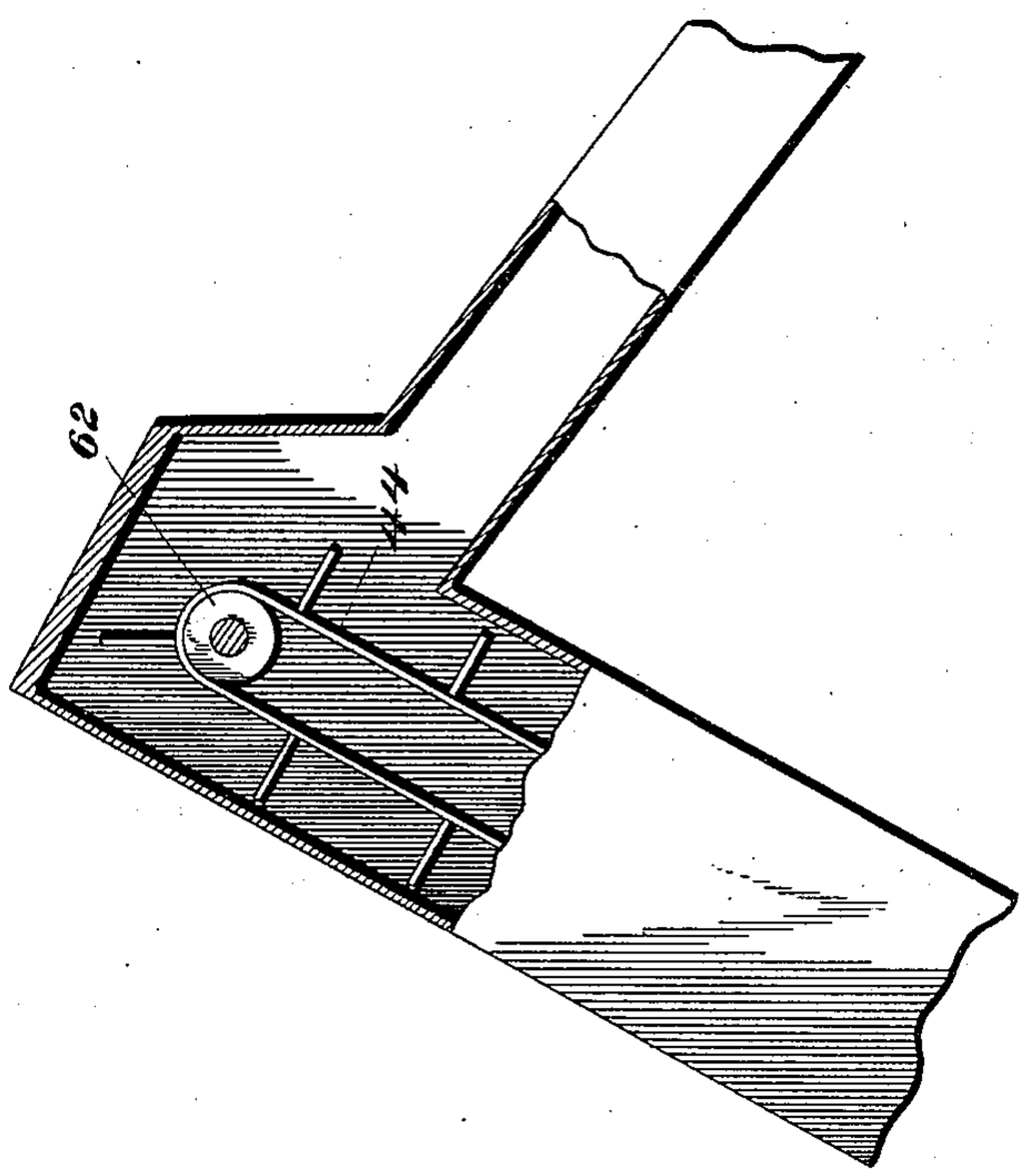

Fig. 4.

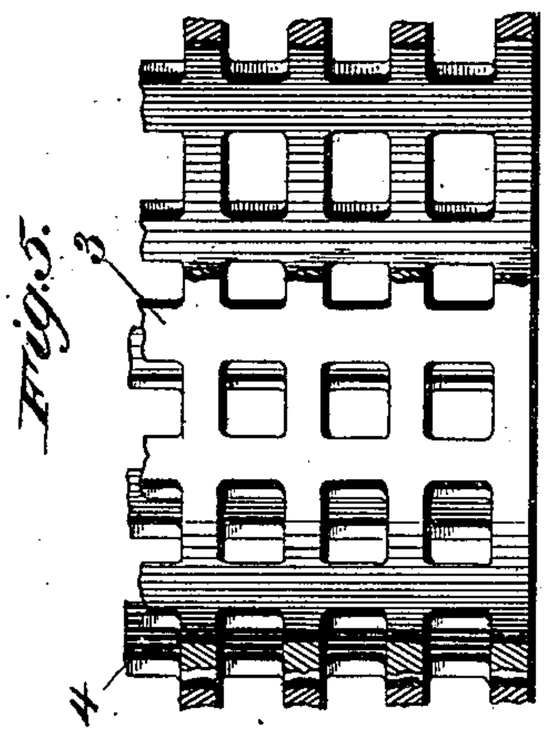

Fig. 5.

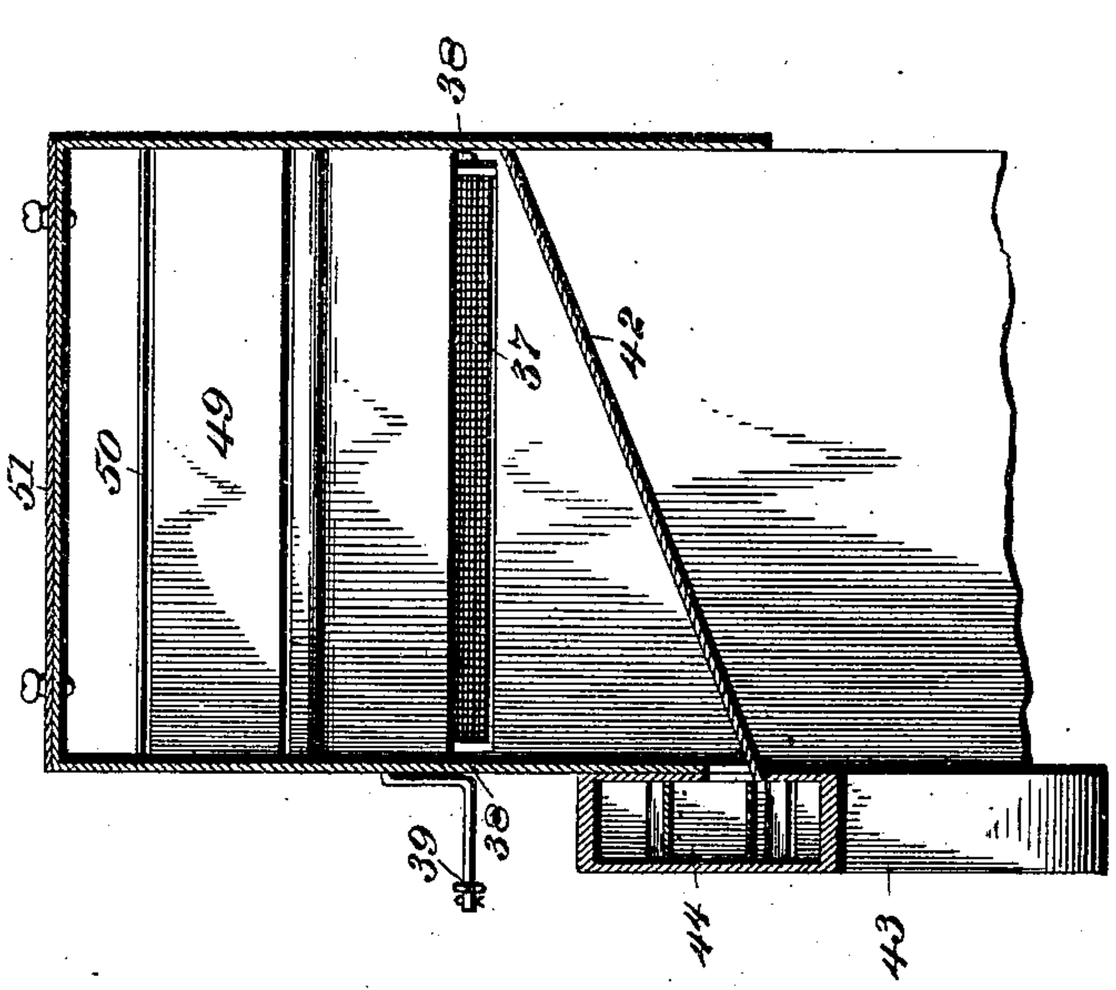

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN STRICKLER, OF BENROY, PENNSYLVANIA.

TOBACCO-SCRAP MACHINE.

SPECIFICATION forming part of Letters Patent No. 669,150, dated March 5, 1901.

Application filed August 17, 1899. Serial No. 727,529. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN STRICKLER, a citizen of the United States, residing at Benroy, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Tobacco-Scrap 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.

My invention relates to tobacco-scrap machines, and has for its object to construct such a machine in which the tobacco will be uniformly fed to the breaking or concave cylinder, where it will have large and hard foreign substances separated from it, while the tobacco will be properly granulated and then have the dust separated from it, the granulated leaf then passing into the separator, where the lighter particles are separated from the stems, the latter being discharged, while the particles of leaf are carried along to a grader, the coarser particles being deposited in a box provided for the "seconds," from which box they may be reconducted to the breaking-cylinder, to be again passed through the machine and prepared to be utilized with the other good scrap.

The invention consists in the construction and arrangement of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part thereof, and in which—

Figure 1 is a side elevation of the machine; Fig. 2, a vertical longitudinal section through the same; Fig. 3, a vertical cross-section; Fig. 4, a detail view of the elevator with a portion broken away to illustrate the endless elevator-belt, and Fig. 5 a detail view of the regulator for the discharge of the scrap from the breaker or concave.

In the drawings the numeral 1 designates a casing, in the upper part of which is the concave or breaker cylinder 2, consisting of the concave foraminous wall 3, the openings in which are controlled by the concave foraminous regulator 4, having openings corresponding with those in the wall 3 and adapted to be moved or shifted by a suitable lever 5, held at its adjustment by engagement of its teeth 6 with the stop 7, so that the size of the discharge-openings may be adjusted to suit the conditions of the tobacco being acted upon by the toothed cylinder 8, the teeth of said cylinder being substantially of the form shown and which extend from one to the other end of the cylinder and will be so arranged that they will pass between a row of fingers 9, if fingers 9 be used, which is not always necessary. The concave cylinder 2 is provided with a cover 10, hinged at 11 and adapted to open in the direction of rotation of the spiked cylinder 8, so that if any hard and heavy substances enter the concave with the tobacco-leaf they will be thrown against the under side of the cover, so as to lift the cover and escape from the machine, the cover then dropping by gravity. The hinged cover thus constitutes an automatically-operating valve for the escape of such foreign substances, thus preventing the machine from choking or being damaged by the pressure of such foreign substances.

In front of the concave is an open trough 12, in which is an endless traveling apron 13 for carrying the tobacco to the cylinder, said apron at one end passing around a roller 14, carried by a sliding box 15, controlled by a screw 16, so as to keep the apron taut. At the other end of the apron is a roller 17, the shaft of which on the outside carries a long-toothed sprocket 18, which meshes with a long-toothed sprocket 19 on the end of the shaft of the feed-roller 20, which is corrugated longitudinally, so that the corrugated surface will take a firm grip on the tobacco-leaves and properly feed them from the apron into the cylinder. The corrugated roller is mounted in vertical sliding boxes, so that the rolls may yield vertically to the tobacco passing beneath it, and the roller is pressed down by two springs 21, of which there will be one on each side of the trough, with their free ends bearing down on the journals of the corrugated roll, said springs preferably being of elongated form, as shown, and made of metal or strong elastic wood, so as to exert the necessary tension.

Beneath the concave 2 is a shaking sieve

or screen 22, supported by crank-shafts and hangers 23 and having a pitman 24 connected thereto and to the shaft 27, the pitman being formed with a ring or collar 25, fitting around an eccentric 26 on a shaft 27, by which a reciprocating movement is given to the shaker. The shaker sieve or screen 22 passes at its discharge end into a flue or casing 28, said casing being provided with a fan 29, located beneath a shield 30, so that the blast created by the fan will pass upward in front of the discharge end of the shaker, and thus elevate and carry the granulated tobacco discharged from the shaker, while the tobacco-stems by reason of their greater specific gravity will drop down in front of the fan and out from the casing 31 to any suitable receptacle that may be provided for the same.

A chute-board 32, located forward of the fan and shaker and which may be stationary, but is preferably pivoted, as shown at 33, serves to direct the air-blast and particles of tobacco separated from the stems in a forward direction over the box 34, which will receive the seconds, while the lighter particles of tobacco will be carried forward through the throat 35 to the chamber 36, where they will fall into a grading screen or shaker 37, which is supported from hangers 38 and which has a vibratory movement imparted thereto by a rod 39, leading from the crank 40 on the shaft 27. A board 41 may be used to direct the tobacco onto the upper end of the shaker. The shaker 37 makes a uniform grade of scrap when used, and the particles of leaf too large to pass through the shaker will be discharged from its tail end into the seconds-box 34, being discharged into the inclined bottom 42 of said box, from whence it, together with what scrap has dropped into the box from its top, is discharged into the elevator-leg 43, up which it is carried by the endless carrier 44 and discharged again into the feed-trough 12 through the spout or chute 45, to again pass through the cylinder and concave.

By adjusting the board 32 nearer to or farther away from the end of the shaker 22 the force and direction of the blast from the fan can be controlled to suit the conditions of the tobacco being made into scrap, a stronger blast being required for heavy stock than for lighter stock, the board being held to its adjustment by the notched lever 46 engaging a stop-pin 47. The force of the air-blast at the throat 35 can also be regulated by the adjustable board 49, provided with a flange 50 to retard the movement of the stock over the board, and also by an adjustable board 51 at the top of the throat. These adjustable boards 49 and 51 in the actual working of the machine are found to give excellent control of the work under the conditions of the tobacco requiring a modified or controlled blast of air at such point, the adjustment depending on the condition of the tobacco as found at the time by the operator.

Power is transmitted to the fan-shaft from any suitable source and transmitted from thence through the belt 52 to the shaft of the toothed cylinder 8. From the shaft of this cylinder it is transmitted by a belt 53 to the pulley 54 on the shaft 27. From this shaft it is transmitted by the pinion 55 to the gear-wheel 56 and from a pinion 57 on its shaft to the gear-wheel 58 on the shaft of roller 17 and from the long-toothed sprocket 18 to the sprocket 19, which imparts motion to the feed-roll 20. From a sprocket-pinion 59 on the shaft 27 motion is transmitted through chain 60 to a sprocket or pulley 61 on the top roller 62 of the endless elevator-carrier 44.

With a machine having its parts constructed and arranged as described the tobacco-leaf is formed into scrap of a superior grade in a comparatively short time and with comparatively little labor, and the operation of the machine can be so controlled by the operator that it can be made to work in a most efficient manner and with more satisfactory results on tobacco of different kinds, or, in other words, according to the conditions and requirements of the leaf being at the time operated on.

I have illustrated and described what I have found to be the best construction and arrangement of parts; but changes can be made and the essential features of my invention be still employed.

Having described my invention and set forth its merits, what I claim is—

1. In a tobacco-scrap machine, the combination with the concave having the lower foraminous concave-wall, the rotatable toothed cylinder working within said concave for granulating the tobacco, the foraminous concave-regulator working against the lower face of the foraminous wall of the concave, means for moving said regulator, and a shaking-screen for screening the granulated tobacco delivered from the concave, substantially as described.

2. In a tobacco-scrap machine, the combination with the concave and its rotatable toothed cylinder for granulating the tobacco, of the automatically-operating cover at the top of the concave and opening in the direction of rotation of the toothed cylinder, and a shaking-screen for screening the granulated tobacco delivered from the concave, substantially as described.

3. In a tobacco-scrap machine, the combination with the apertured concave and its toothed cylinder for granulating the tobacco, of the casing inclosing the concave and its cylinder, the flue in communication with the interior of the casing through an opening between the two, a shaking-screen extending through the opening between the flue and casing and lying partly within the casing beneath the concave to receive and screen the granulated tobacco discharged from the concave and having its tail end lying within the flue, a chute-board in front of the tail end of

the screen within the flue, and a fan beneath the screen and arranged to direct an upward air-blast between the end of the screen and said chute-board, substantially as described.

4. In a tobacco-scrap machine, the combination with the apertured concave and toothed cylinder for granulating the tobacco, of the casing inclosing the concave and its cylinder, the flue at one end of the casing and communicating with the interior of the casing through an opening between the two, a shaking-screen extending through the opening between the casing and flue and lying partly within the flue and partly within the casing to receive and screen the granulated tobacco discharged from the concave, a fan for creating an air-blast through the flue, a box located in the lower part of the flue to receive the "seconds" as the granulated tobacco is driven by the blast through the portion of the flue above the top of the "seconds-box," and boards or valves located near the discharge end of the flue to control the air-blast at the discharge end of the flue, substantially as described.

5. In a tobacco-scrap machine, the combination with the feed-trough, the apertured concave and its toothed cylinder, of the casing inclosing the concave and cylinder, the flue at one end of the casing and in communication with the interior of the casing, through an opening between the two, the shaking-screen extending through the opening between the flue and casing and lying partly below the concave to receive and screen the granulated tobacco discharged from the concave and partly within the flue, the fan for creating an air-blast through the flue, the "seconds-box" located in the lower part of the flue below the portion through which the granulated tobacco is driven by the air-blast, and a return-elevator for delivering tobacco from the "seconds-box" back into the feed-trough, substantially as described.

6. In a tobacco-scrap machine, the combination with the concave having an apertured bottom and its toothed cylinder, of the casing inclosing the concave and cylinder, the flue at one end of the casing and in communication with the interior of the casing through an opening between the two, the shaking-screen extending through the opening between the flue and casing and lying partly within the casing beneath the screen to receive the granulated tobacco discharged from the concave and partly within the flue, the fan for creating an air-blast through the flue, the "seconds-box" in the lower part of the flue below the portion through which the granulated tobacco is driven by the air-blast, valves near the discharge end of the flue for controlling the air-blast at the discharge end of the flue, the second shaking-screen in the flue beneath the discharge end thereof and discharging into the "seconds-box," and the return-elevator leading from the "seconds-box" to the feed of the concave, substantially as described.

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

BENJAMIN FRANKLIN STRICKLER.

Witnesses:
B. R. PAXTON,
PERRY J. M. HEINDEL.