

No. 764,845.

PATENTED JULY 12, 1904.

J. G. HAVENS.  
TOBACCO STRIPPING MACHINE.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

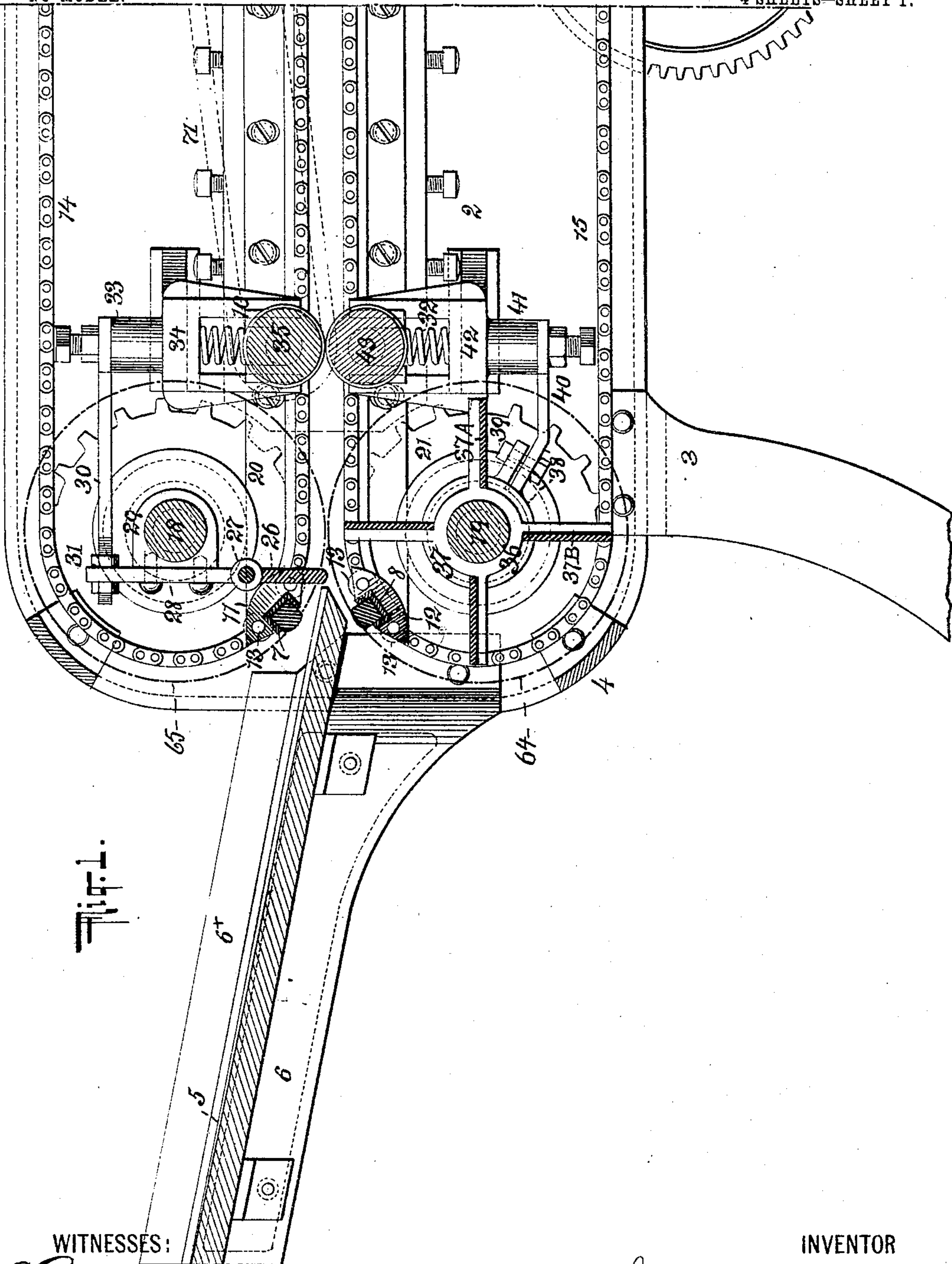


Fig. 1.

WITNESSES:

*Gustav Dietrich*

*Edwin H. Buttrick*

INVENTOR

*Joseph Goodenough Havens*

BY *Robert Benjamin*  
his ATTORNEY



No. 764,845.

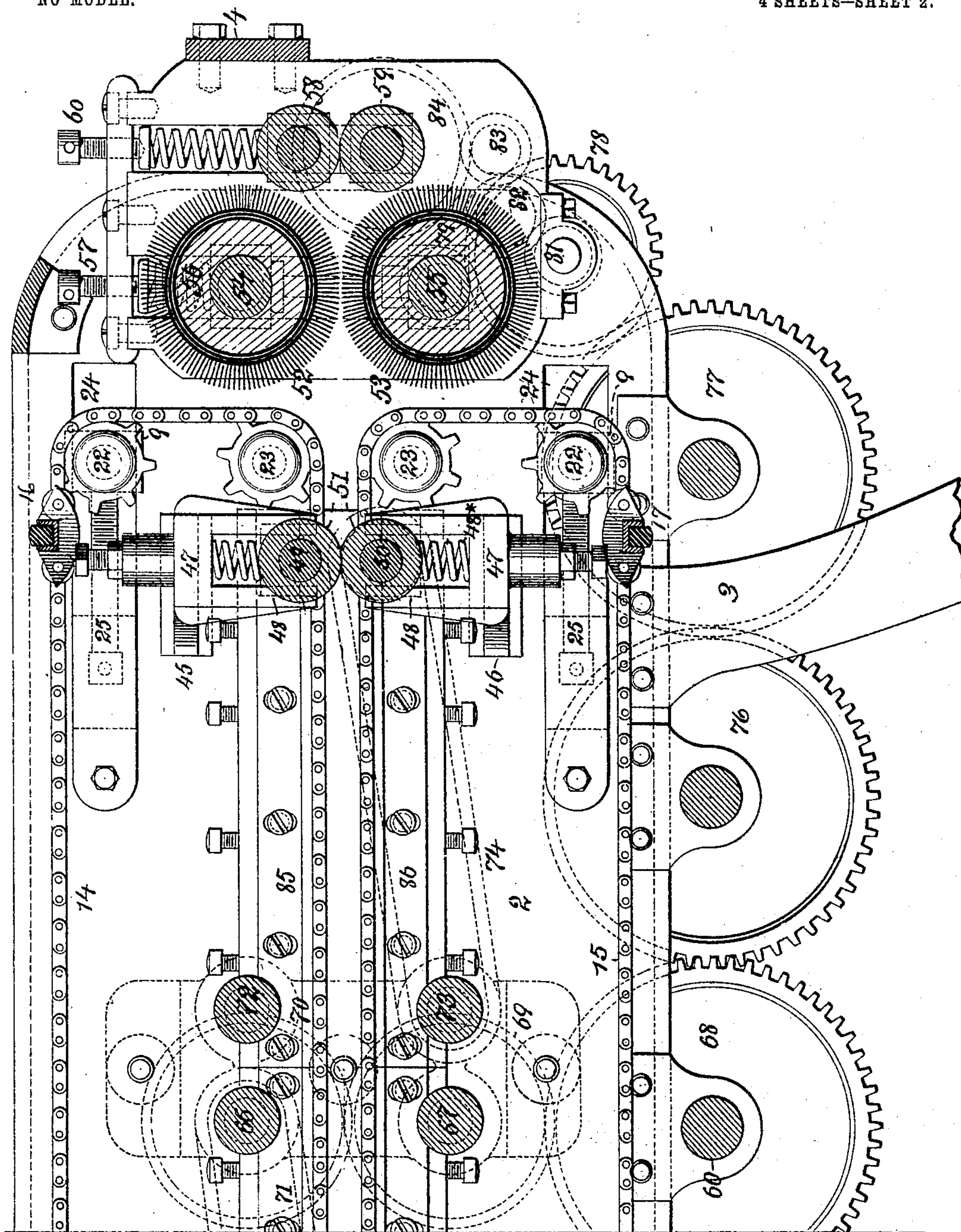
PATENTED JULY 12, 1904.

J. G. HAVENS.  
TOBACCO STRIPPING MACHINE.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

4 SHEETS—SHEET 2.



WITNESSES:

*Gustav Dittrich*

*Edwin H. Dittrich*

Fig. 2.

INVENTOR

*Joseph Goodenough Havens*

BY *Samuel Benjamin*  
his ATTORNEY



No. 764,845.

PATENTED JULY 12, 1904.

J. G. HAVENS.  
TOBACCO STRIPPING MACHINE.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

4 SHEETS—SHEET 3.

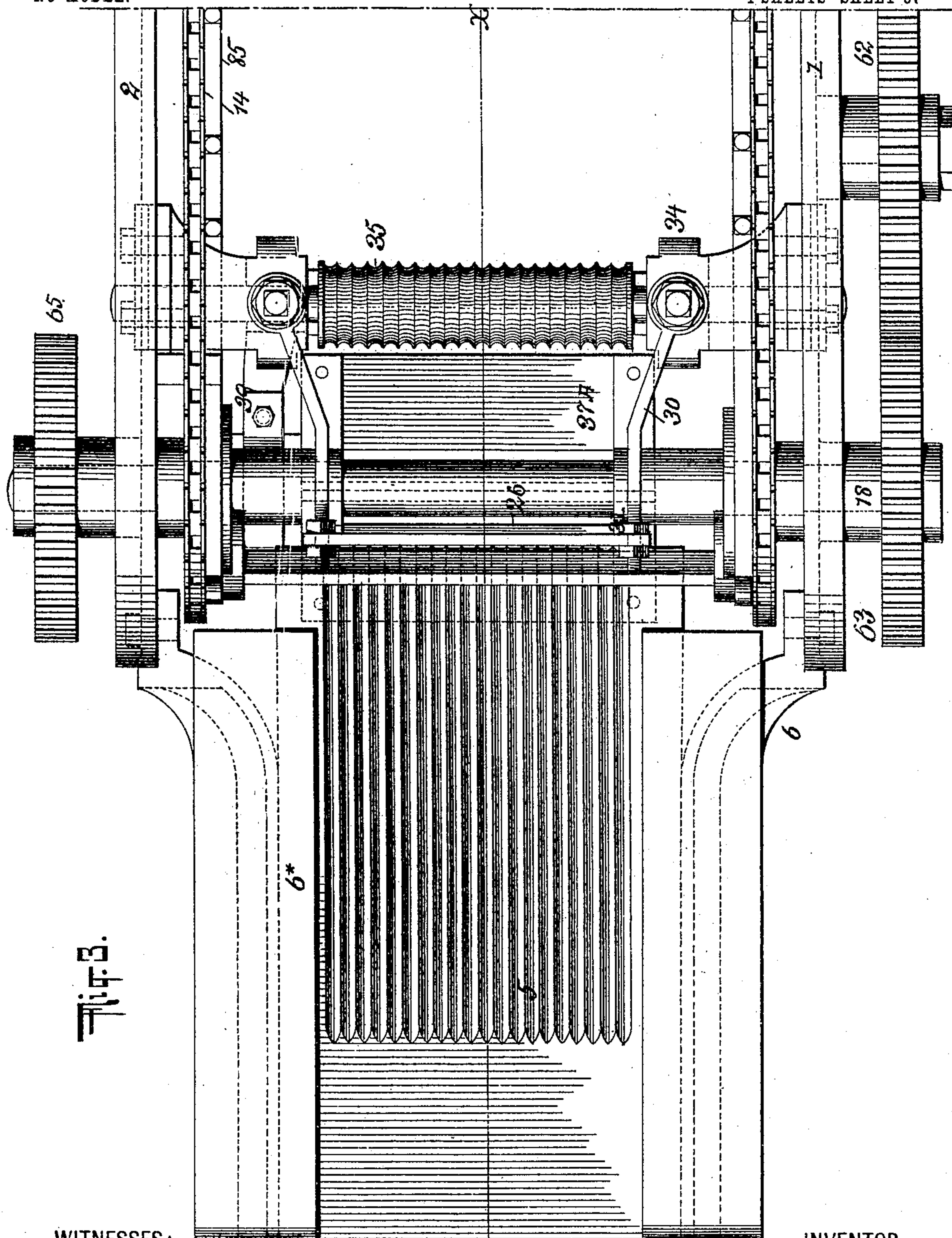


Fig. 3.

WITNESSES:

*Gustav Dietrich.*

*Edwin H. Dietrich.*

INVENTOR

*Joseph Goodenough Havens*

BY *Barth Benjamin*  
his ATTORNEY

No. 764,845.

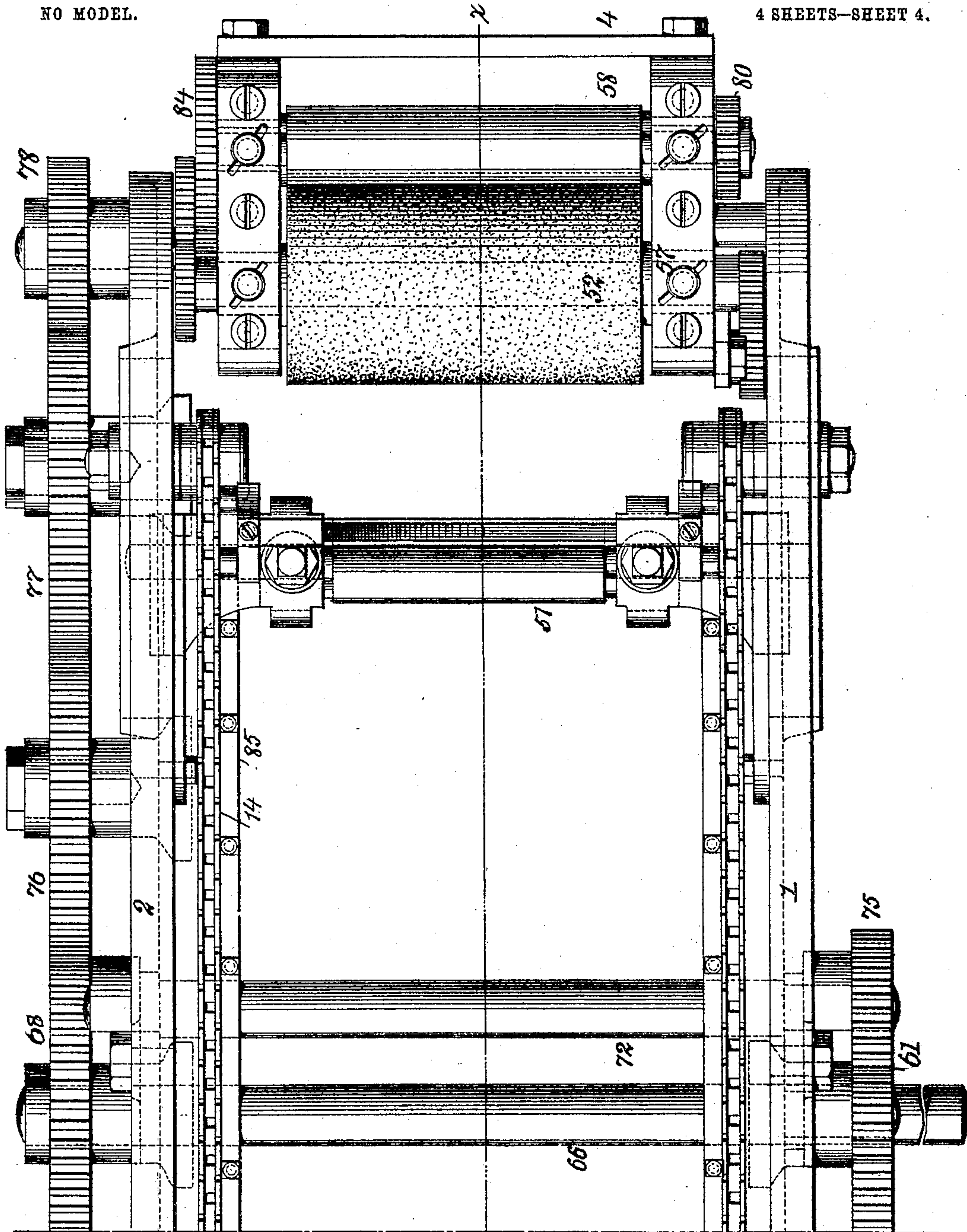
PATENTED JULY 12, 1904.

J. G. HAVENS.  
TOBACCO STRIPPING MACHINE.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES:

*Gustave Dietrich*

*Edwin H. Breterich*

Fig. 4.

INVENTOR

*Joseph Goodenough Havens*

BY *Lawrence Benjamin*  
his ATTORNEY



# UNITED STATES PATENT OFFICE.

JOSEPH GOODENOUGH HAVENS, OF ASBURY PARK, NEW JERSEY.

## TOBACCO-STRIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 764,845, dated July 12, 1904.

Application filed July 8, 1903. Serial No. 164,656. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH GOODENOUGH HAVENS, of Asbury Park, New Jersey, have invented a new and useful Improvement in Tobacco-Stripping Machines, of which the following is a specification.

The invention relates to a machine for stripping the leaf portion of a tobacco-leaf from the stem; and it consists in certain improvements upon the tobacco-stripping machine disclosed in United States Letters Patent No. 713,886, granted to James A. Hutcheson November 18, 1902.

The said improvements consist in the novel construction and arrangement of the feed-table, the gate, and clamping-bars associated therewith and also of the rotary receiving-table and mode of operating the same; also, in the construction and arrangement of the brushing and delivering devices; also, in the various combinations more particularly hereinafter pointed out.

In the accompanying drawings Figures 1 and 2 jointly constitute a vertical longitudinal section of the entire machine on the line *xx* of Figs. 3 and 4, the feed end being shown in Fig. 1 and the delivery end in Fig. 2. Figs. 3 and 4 jointly constitute a top view of the whole machine, (certain parts of the gearing being omitted for clearness,) Fig. 3 corresponding to Fig. 1 in showing the feed end and Fig. 4 to Fig. 2 showing the delivery end.

Similar numbers of reference indicate like parts.

The frame of the machine consists of the side plates 1 and 2, supported on the standard 3 and connected by transverse girders, as shown at 4. The feed-table 5 is supported on the side plates by brackets 6 at an inclination, as shown. Its upper surface is preferably channeled, the number of channels corresponding to the number of stripping-grooves, hereinafter to be explained, and registering with said grooves. At its delivery end the table is preferably beveled on its under side. It is provided with side plates 6<sup>x</sup>.

*The clamping and drawing-in devices.*—These consist of two metal bars 7 and 8, channeled over the middle portion of their length and receiving in said channels bars of rubber

or other elastic material. Said bars are carried at their ends by cam-plates 11 12, in which are rollers 13. The pins carrying said rollers are connected to the ends of sprocket-chains, of which there are four, two on each side of the machine. Two of these chains are shown in Fig. 1 at 14 and 15. There may be a plurality of pairs of drawing-in bars with cam-plates similarly arranged and connected to said sprocket-chains, the second pair of bars distant half the length of the sprocket-chains from the first pair, as shown at 16 17. At the front of the machine the sprocket-chains 14 15 pass over four sprocket-wheels—two carried on the shaft 18 and two on the shaft 19. One of the sprocket-wheels on the shaft 18 and the corresponding lower one on the shaft 19 are respectively shown at 20 and 21, Fig. 1. The arrangement of the forward sprocket-wheels 20 21, of the sprocket-chains, the clamping-bars 7 8, and the supporting cam-plates is the same as disclosed in the aforesaid Hutcheson patent. At the rear end of the machine, Fig. 2, each sprocket-chain instead of passing over a single sprocket-wheel, as shown in said Hutcheson patent, passes over two smaller sprocket-wheels, as shown at 22 23. The inner small sprocket-wheels 23 turn on short shafts journaled in the side plates 1 and 2. The outer sprocket-wheels 22 are disposed on short shafts arranged in sliding bearings 9, which in turn are placed in horizontal slots 24 in said side plates. These bearings can be moved longitudinally the slots by means of the screws 25. In this way the sprocket-chains can be tightened as may be desired.

26, Fig. 1, is the feed-gate supported on pivots 27 from the vertical support 28, which support is secured by bolts to the front sides of the sleeves 29, through which the shaft 18 passes. The support 28 is held vertically and prevented from swinging around the shaft by means of adjustable stay-bolts 30. One end of each bolt passes through the support 28 and is threaded to receive adjusting-nuts, as shown at 31, and the other end is fixed to one of the posts 33. The purpose of gate 26 is to prevent the leaves from passing into the machine in advance of the clamping-bars and



also after the clamping-bars have carried the leaves beneath said gate to draw out and flatten said leaves, and so prepare them for the action of the stripping-rolls. The posts 33 support the slides 34, in which slides are mounted adjustable bearings 10 for the shaft of the upper stripping-roll 35.

On the lower shaft 19 is a rotary table 37, having four receiving-shelves, which are supported on radial arms extending from a sleeve 36. Around this sleeve are clamps 38, which may be tightened by means of the bolts 39. One arm of each clamp 38 is prolonged, as shown at 40, and fastened to one of the posts 41, which extend downwardly from the slides 42, in which slides are disposed the movable bearings of the shaft of the lower stripping-roll 43.

The mode of operation of this part of the device is as follows: The tobacco-leaves are placed butts foremost on the table 5 and are fed forward by hand to the feed end. Just as the leaves reach the delivery end of the table the upper bar 7 meets them, carries them along, and an instant later the leaves become clamped between the elastic faces of the bars 7 and 8. The upper bar 7, moving rearward, strikes the pivoted gate 26, lifts it, and passes under it. The gate then swings back to its original position, and the two bars 7 and 8, holding the leaves between them, continue onward and finally pass between the shafts of the stripping-rolls 35 and 43, and so force these stripping-rolls asunder, the roll-bearings moving in the slides 34 42 against the action of the helical springs 32. This separation of the stripping-rolls is as described in said Hutcheson patent. After the cam-plates 12 have passed from between the roll-shafts the stripping-rolls come together again and act upon the leaves. The construction of the rolls may be the same as is set forth in United States Letters Patent No. 694,962, granted to me March 11, 1902, and their action on the leaves is fully set out in said patent and referred to in the Hutcheson patent aforesaid, so that it need not be repeated here. The effect is to cut the leaf portion of the tobacco from the stem portion, so that while the stems remain clamped between the bars 7 and 8 the leaf portions are thrown forwardly of the machine upon the shelf 37<sup>A</sup> of the revolving table, which stands substantially horizontally in front of and below the stripping-rolls. The stripped portion of the leaves therefore accumulates on this shelf, which remains stationary until shelf 37<sup>B</sup>, which stands vertically, is struck by one of the bars 8 as said bar is carried from rear to front of the machine. The said bar rotates the table 37 on the shaft 19, so that a new shelf takes the place of 37<sup>A</sup> to receive the leaves, while the leaves accumulated on shelf 37<sup>A</sup> as said shelf takes the vertical position fall off upon the floor or into any suitable receptacle placed to receive them.

The function of the clamps 38 is to retard the rotation of the table 37 by friction, so that after the receiving-ledge has been placed horizontal and the bar 8 has ceased to act on the table said table will not continue to rotate by its own inertia.

*The treatment of the stems after the action thereon of the stripping-rolls.*—In the device of the Hutcheson patent aforesaid the stems clamped between the bars similar to the bars 7 and 8 are carried rearward and are released automatically when said bars separate as their supporting-chains pass over the rear sprocket-wheels. In my present device I provide means for taking the stems from the clamping-bars and delivering them to brushing devices and finally to delivery-rolls. These devices I will now explain.

On the inner side of each side plate near the rear of the machine are brackets, two of which are shown at 45 and 46, Fig. 2. In these brackets are slides 47 to receive the sliding bearings 48 of shafts 49 50, which carry smooth rolls 51. These rolls are driven by mechanism hereinafter explained, so that they operate to feed the stems brought between them by the clamping-bars 7 and 8 in a direction rearwardly the machine. Said rolls are separated by the passage of the cam-plates which support bars 7 and 8 in the same manner as are the stripping-rolls 35 and 43 and are similarly restored to original position by helical springs 48<sup>x</sup> acting on said bearings.

52 and 53 are cylindrical brushes carried on shafts 54 55, also journaled in the side plates. The bearings of the upper shaft 54 slide vertically in recesses in the side plate and are held down by helical springs, one of which is shown at 56, (dotted lines,) which springs may be adjusted by screws 57. The direction of rotation of the brushes 52 53 is the same as that of the rolls 51. In rear of the brushes 52 53 are the delivery-rolls 58 59, the upper roll-shaft being disposed in sliding bearings in the side plates and being provided with helical springs and adjusting-screws 60.

The operation of this part of the device is as follows: The cam-plates carrying the bars 7 and 8, which bars now grasp the stripped stem, pass between shafts of the rolls 51, thus separating those rolls against the action of their helical springs. After the cam-plates have passed through, the rolls are brought together by the action of the springs and are caused to grasp the leaves, so that when the bars 7 and 8 separate by following their respective sprocket-chains the stems remain firmly grasped between the rolls 51, which positively feed them onward to and between the rotary brushes. These brushes travel at a higher rate of speed by reason of their gearing than do the rolls 51 or the delivery-rolls 58 59. Hence the rolls 51 introduce the stems between the rotary brushes, and immediately afterward these stems are grasped between



the rolls 58 59, which draw them through and between the brushes with comparative slowness and finally eject them at the rear of the machine. The action of the brushes is to remove any remaining portions of the leaf which has escaped the action of the stripping-rolls and hence continue to adhere to the stem.

*The gearing.*—The main driving-shaft is shown at 60 and carries gear 61. Motion is transmitted to the front sprocket-wheel shafts in the following manner: from gear 61 to gear 62 on a short shaft supported in the side plate 1 to gear 63 on the lower sprocket-wheel shaft 19, which gear engages with another gear (not shown) on the upper sprocket-wheel shaft 18. On said shaft 19 on the other side of the machine is a gear 64, (dotted lines, Fig. 1,) which engages with a gear 65 on the shaft 18. The rear sprocket-wheels 22 23 are free to be rotated by the sprocket-chains.

The stripping-rolls 35 43 are driven as follows: Directly above driving-shaft 60 are two shafts 66 67, journaled in the side plates 1 and 2. On the end of the driving-shaft opposite to that which carries gear 61 is a gear 68, which engages with gear 69 (dotted lines, Fig. 2) on the lower shaft 67, which gear engages with a gear 70 on the upper shaft 66. On the shafts 66 and 67 are sprocket-gears over which pass sprocket-chains, one of which is shown at 71, (dotted lines, Figs. 1 and 2,) whereby motion is imparted, respectively, to sprocket-wheels on the shaft of the stripping-rolls 35 and 43. This arrangement of gearing is substantially the same as shown in the Hutcheson patent aforesaid. Also journaled between the side plates 1 and 2 are two shafts 72 73. The lower shaft, 73, is driven by a gear (not shown) which engages with the gear 68 on shaft 60. On shaft 73 is a sprocket-wheel which by a belt 74, (dotted lines, Fig. 2,) communicates motion to a sprocket-wheel on roll-shaft 50. The upper roll-shaft 49 is driven by a similar belt (not shown) from shaft 72, which shaft is driven by gearing 75 from gear 61. The brush-roll shafts 54 55 are geared together. Motion is imparted to the lower shaft 55 from gear 68 by the train 76 77 78 79. The shafts of delivery-rolls 58 59 are also geared together, as represented at 80, Fig. 4, and motion is imparted to the lower shaft by the train 81 82 83 84, Fig. 2. The plates 85 86 for maintaining the main sprocket-chains in line are the same in construction and operation as the corresponding parts in said Hutcheson patent.

I claim—

1. In a tobacco-stripping machine, a feed-table, a movable gate and a leaf-carrier constructed and arranged to engage the leaves in front of said gate.

2. In a tobacco-stripping machine, a feed-table, a movable gate, a leaf-carrier constructed and arranged to engage said leaves in front of said gate and means for opening said gate to permit outward travel of said carrier.

3. In a tobacco-stripping machine, a feed-table, a movable gate and a leaf-carrier constructed to engage said leaves in front of said gate and means for moving said carrier to open said gate.

4. In a tobacco-stripping machine, a feed-table, a movable gate, a clamping device for the leaves and means for imparting to said device a movement of translation; the said clamping device being constructed and arranged first to grasp the leaves and second to open said gate.

5. In a tobacco-stripping machine, a feed-table, a swinging gate supported from above, a clamping device for the leaves and means for imparting to said device a movement of translation; the said clamping device being constructed and arranged first to grasp the leaves and second raise and pass under said gate.

6. In a tobacco-stripping machine, a feed-table, a movable gate, a pair of coacting clamping-bars and means for bringing said bars together to clamp the leaves and for imparting to said bars a movement of translation; the aforesaid parts being constructed and arranged so that, first, the upper bar descends upon the leaves at the delivery end of the table; second, the bars meet to grasp the leaves; third, the bars moving onward open the gate to permit their own passage.

7. In a tobacco-stripping machine, a stripping device, a rotary support provided with a plurality of radiating shelves and means for intermittently rotating said support to carry said shelves successively into position to receive the stripped leaves from said stripping device.

8. In a tobacco-stripping machine, a pair of coacting leaf-stripping rolls, a rotary support having a plurality of radiating shelves disposed in front of and below said rolls, and means for intermittently rotating said support to carry said shelves successively into position to receive said stripped leaf from said rolls.

9. In a tobacco-stripping machine, a stripping device, means for conveying the leaf to said stripping device, a movable receiving-table for the stripped leaf and means controlled by said conveying device for moving said table into receiving position.

10. In a tobacco-stripping machine, a stripping device, means for conveying the leaf to said stripping device, a movable receiving-table for the stripped leaf and means controlled by said conveying device for moving said table into discharge position.

11. In a tobacco-stripping machine, a stripping device, means for conveying the leaf to said stripping device, a tilting table for receiving said stripped leaf and means controlled by said leaf-conveying device for moving said table into and out of leaf-receiving position.

12. In a tobacco-stripping machine, a stripping device, means for conveying the leaf to



said stripping device, a tilting table for receiving said stripped leaf and means controlled by said leaf-conveying device for moving said table into and out of said discharging position.

5 13. In a tobacco-stripping machine, a stripping device, means for conveying the leaf to said stripping device, and a rotary support having a plurality of radiating shelves; the said leaf-conveying means being constructed and  
10 arranged to coact with said shelves to move the same successively into position to receive the stripped leaf from said stripping device.

14. In a tobacco-stripping machine, a stripping device, a rotary support having a plural-  
15 ity of radiating shelves, means for rotating said support to bring said shelves successively into position to receive the stripped leaf and means for checking rotation of said support due to its own inertia.

20 15. In a tobacco-stripping machine, a stripping device a rotary support having a plurality of radiating shelves, means for rotating said support to bring said shelves successively into position to receive the stripped leaf, and  
25 a friction-clamp on said support.

16. In a tobacco-stripping machine, a feed-table, a stripping device, and a rotary support having radial shelves disposed between and below said feed-table and said stripping  
30 device.

17. In a tobacco-stripping machine, a stripping device, a clamping device, delivery-rolls, means for moving said clamping device to said delivery-rolls, means for separating said rolls

to permit of passage between them of said 35 clamping device, means for subsequently closing said rolls to grasp the material held in said clamping device and means for releasing said material from said clamping device.

18. In a tobacco-stripping machine, a strip- 40 ping device, a carrier receiving the stem from said stripping device, delivery-rolls, means for transporting said carrier to deliver the stem to said delivery-rolls, drawing-rolls receiving said stem from said delivery-rolls and brushes 45 constructed to act on said stem during its movement from said delivery-rolls to said drawing-rolls.

19. In a tobacco-stripping machine, endless belts coacting clamping-bars thereon, and at 50 the delivery end of each belt, two wheels receiving said belt and disposed in substantially the same plane.

20. In a tobacco-stripping machine, endless belts, coacting clamping-bars thereon, and at 55 the delivery end of each belt, two wheels receiving said belt and disposed substantially in the same plane, and means for adjusting one of said wheels to vary the tension of its associated belt. 60

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH GOODENOUGH HAVENS.

Witnesses:

WM. H. SIEGMAN,  
I. A. VAN WART.