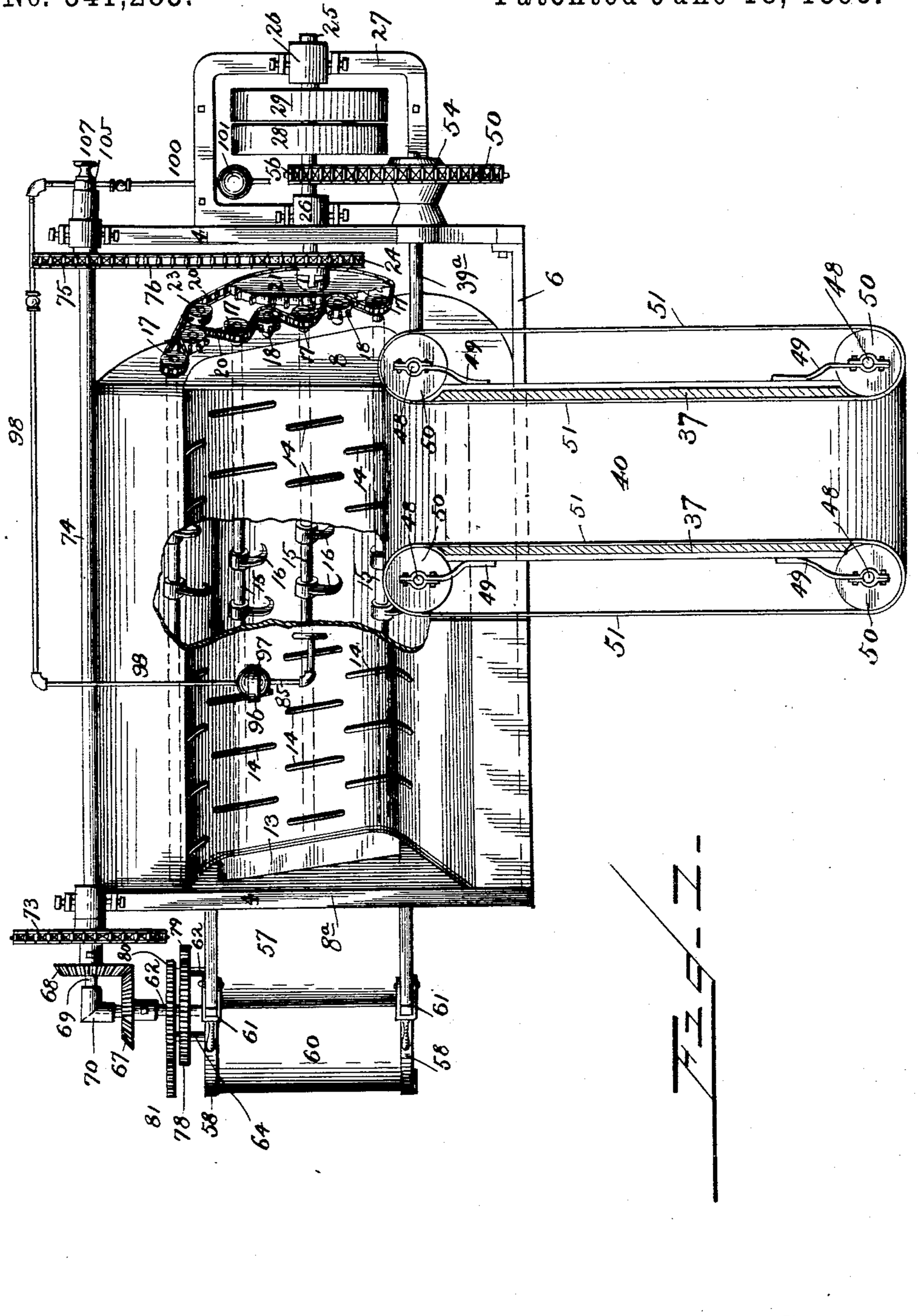
(No Model.) 5 Sheets—Sheet 1.

J. H. KESTER.

TOBACCO CASING AND FLAVORING MACHINE.

No. 541,283. Patented June 18, 1895.



Witnesses:
F. L. Ourand.
Emmett L. Hone.

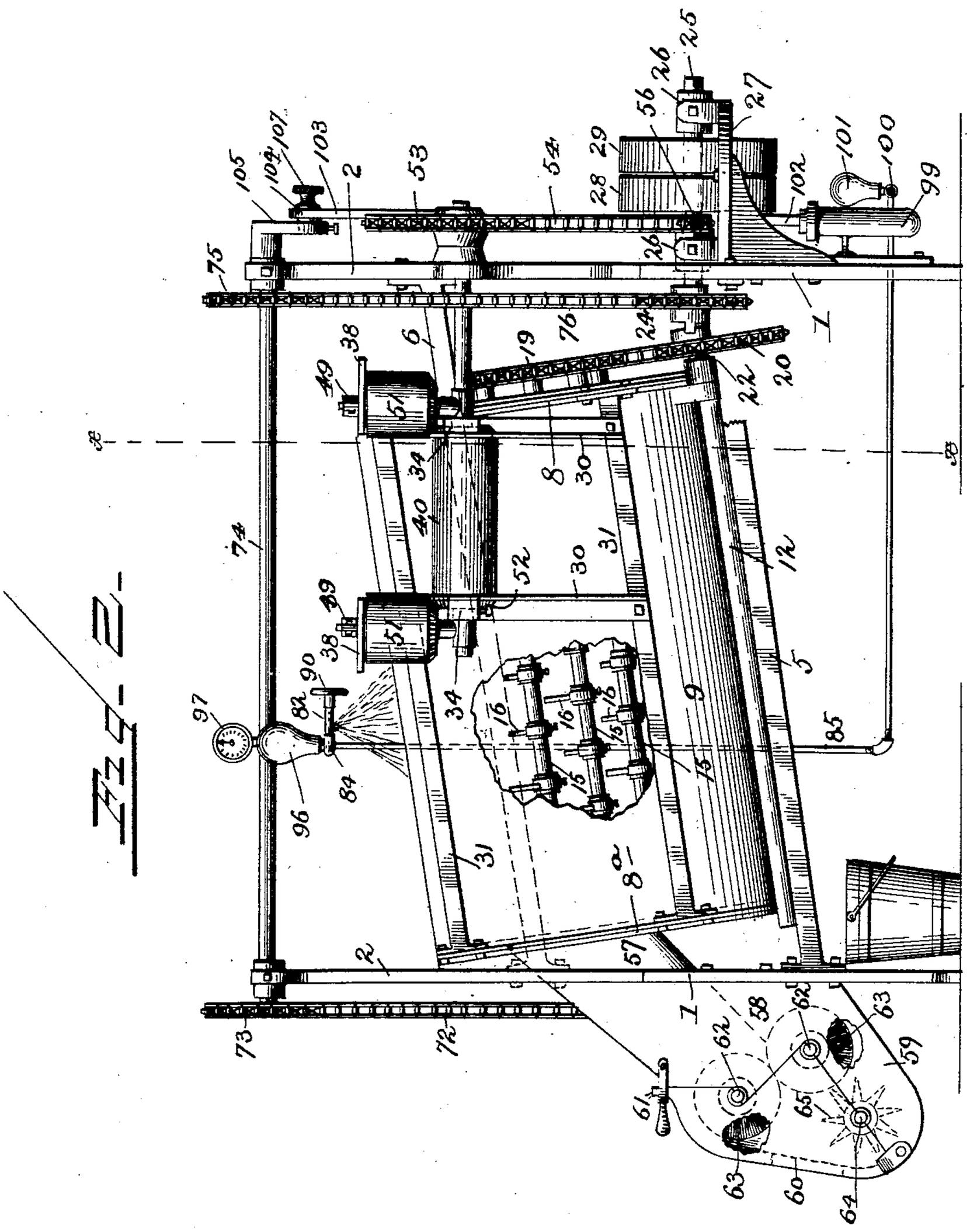
Inventor:
John H. Kester,
by Laws Bagger & Co.
Attorneys.

(No Model.) 5 Sheets—Sheet 2.

J. H. KESTER.

TOBACCO CASING AND FLAVORING MACHINE.

No. 541,283. Patented June 18, 1895.



WITNESSES:
F. L. Ourand.
Emmett L. Jones.

INVENTOR:
John H. Kester,
by Laws Baggett & Co.
Attorneys.

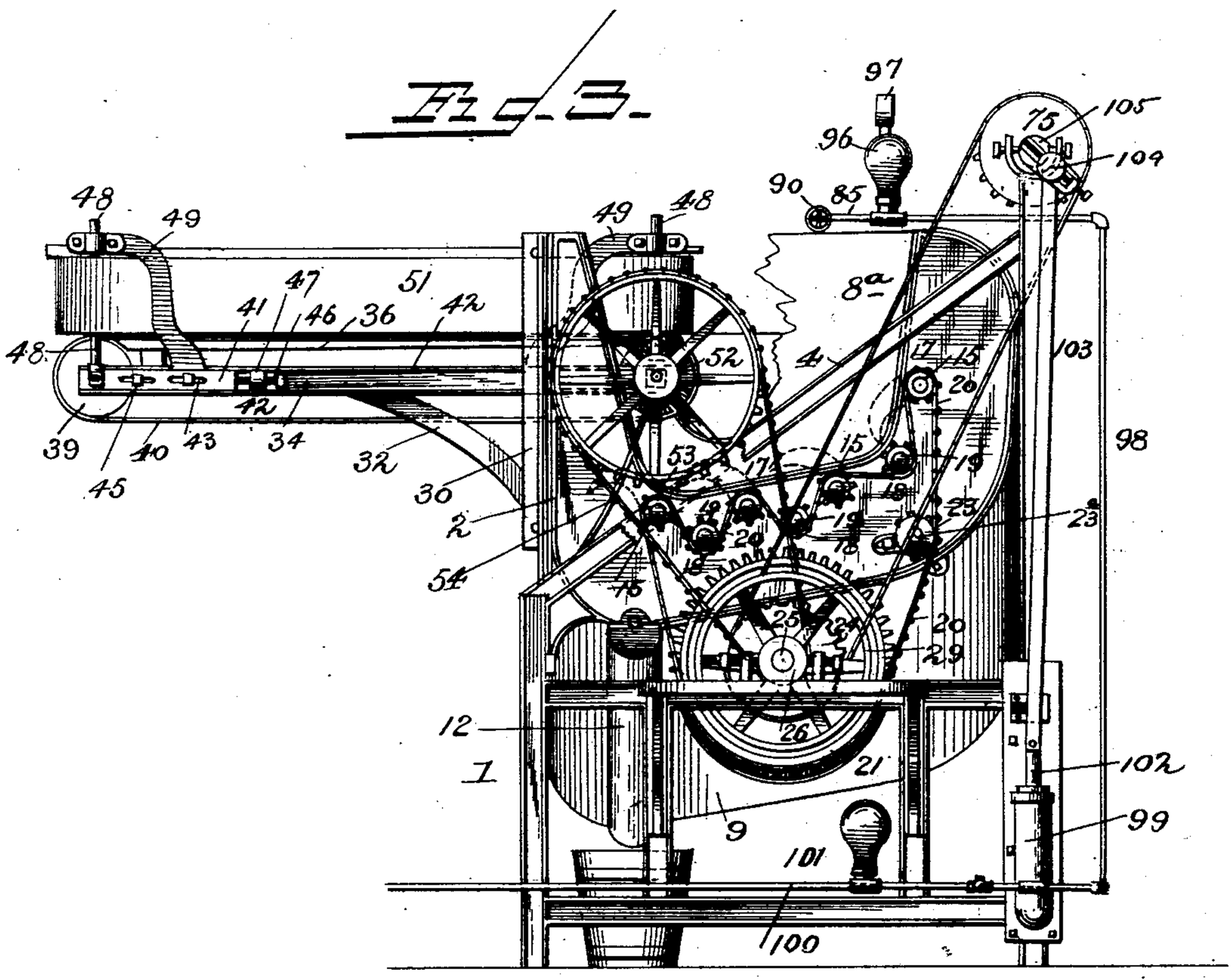
(No Model.) 5 Sheets—Sheet 3.

J. H. KESTER.

TOBACCO CASING AND FLAVORING MACHINE.

No. 541,283. Patented June 18, 1895.

Fig. 3.



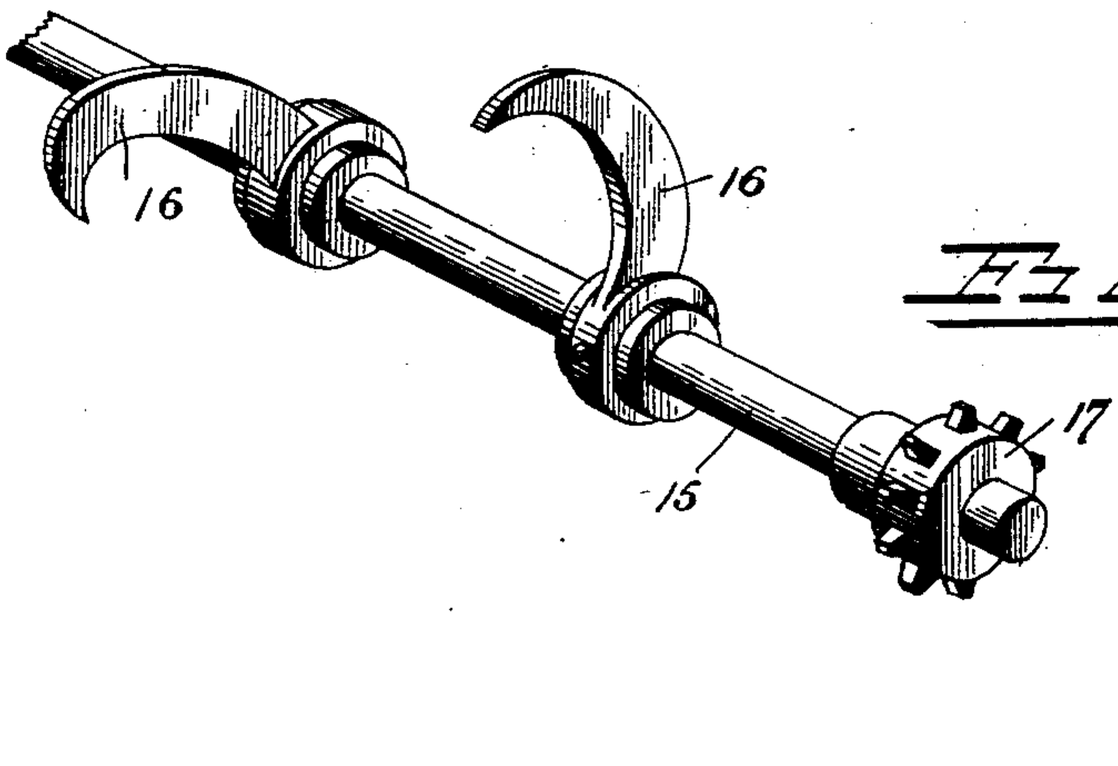


Fig. 6.

WITNESSES:
F. L. Ouraud.
Samuel H. Jones.

INVENTOR:
John H. Kester,
by Louis Bagger & Co.
Attorneys.

(No Model.) 5 Sheets—Sheet 4.

J. H. KESTER.

TOBACCO CASING AND FLAVORING MACHINE.

No. 541,283. Patented June 18, 1895.

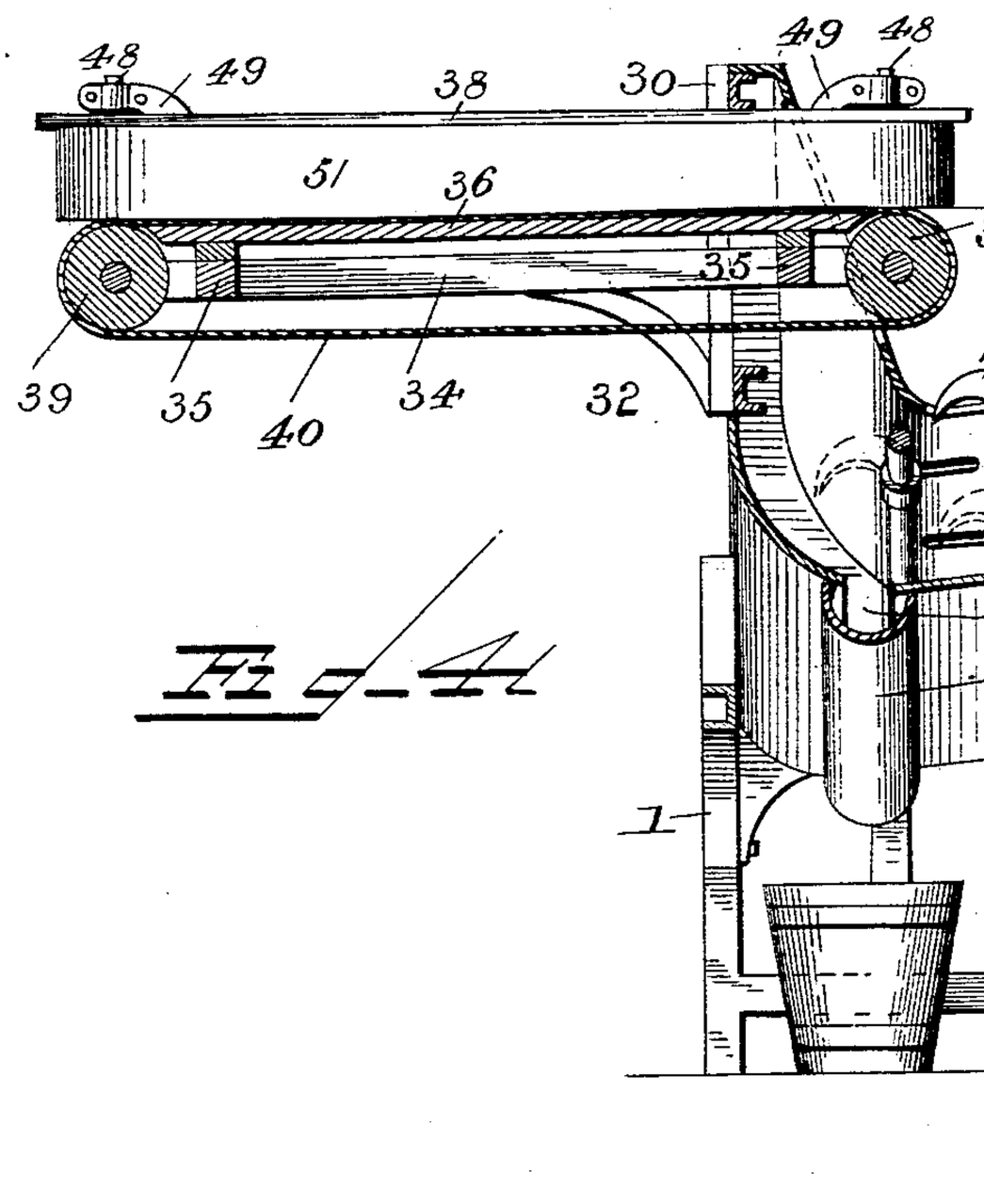


Fig. 4.

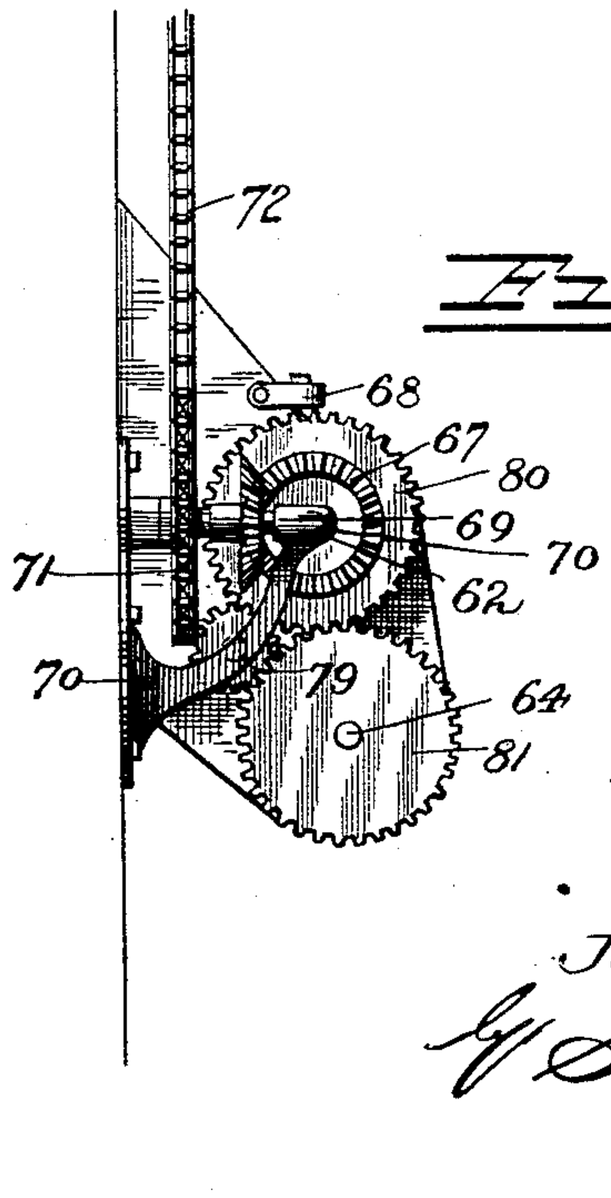


Fig. 5.

Witnesses:
F. L. Ouray.
Emmett L. Jones

Inventor:
John H. Kester;
by Laws Bagger & Co.
Attorneys.

(No Model.) 5 Sheets—Sheet 5.

J. H. KESTER.

TOBACCO CASING AND FLAVORING MACHINE.

No. 541,283. Patented June 18, 1895.

Fig. 7.

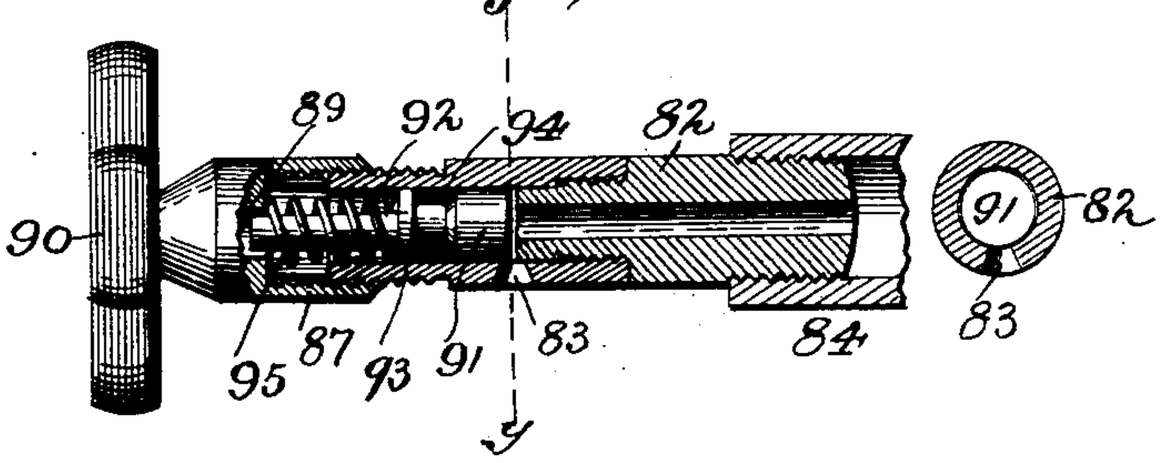


Fig. 8.

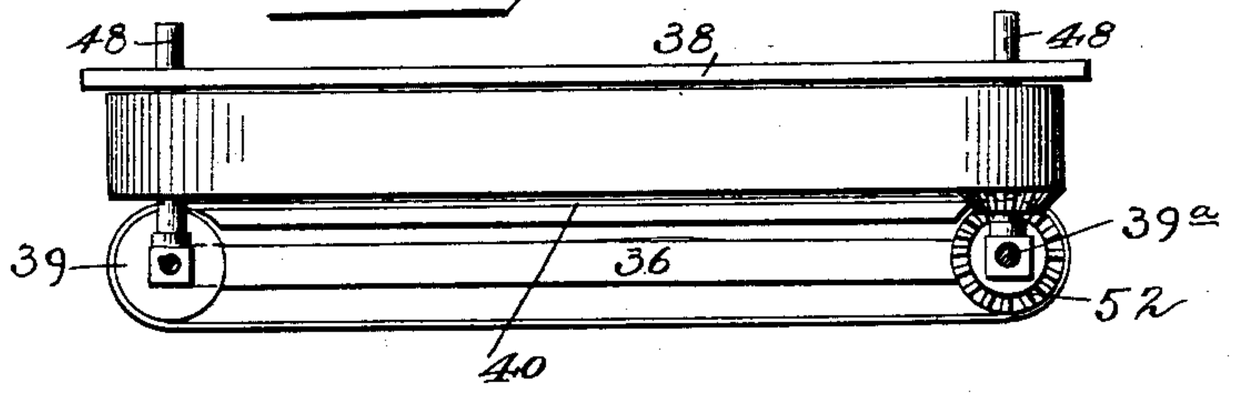


Fig. 8a.

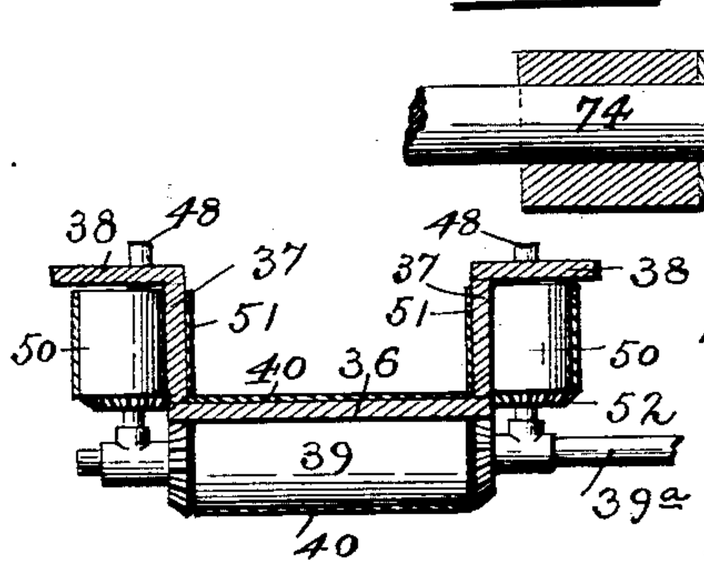


Fig. 9.

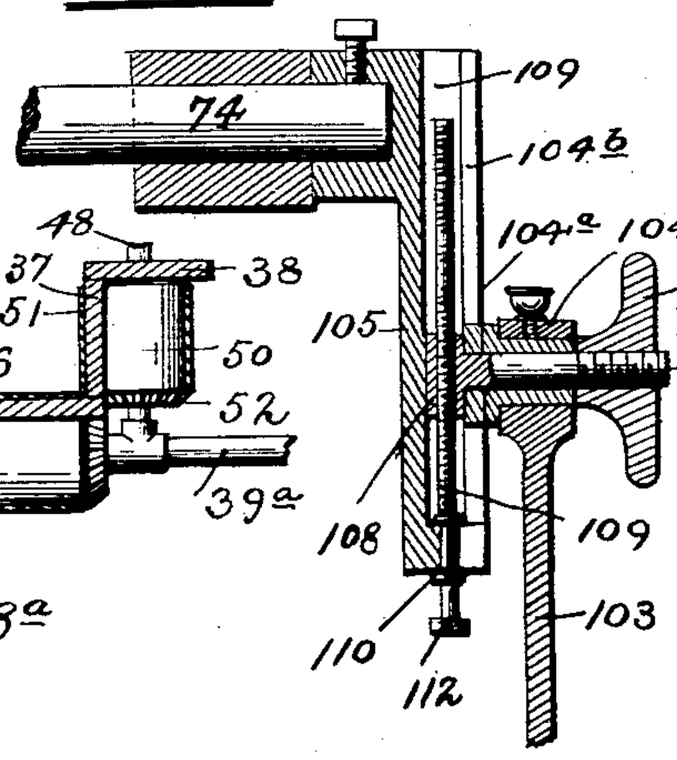


Fig. 10.

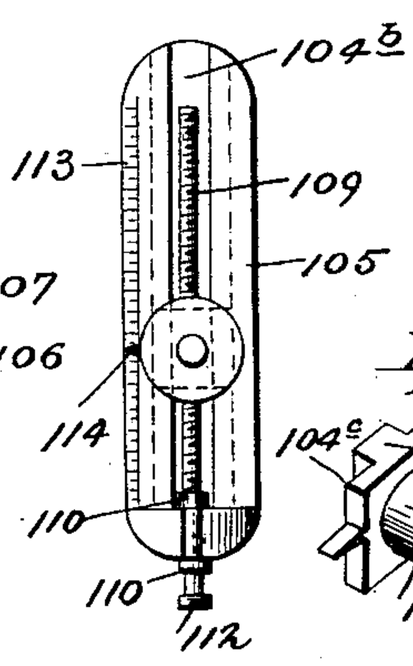
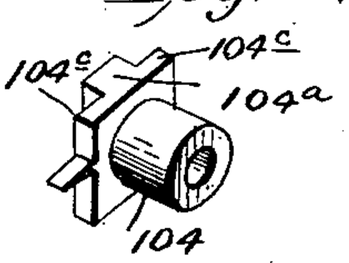


Fig. 10a.



Witnesses:
F. L. Durand.
Arnold Jones.

Inventor.
John H. Kester,
by Louis Bagger & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN H. KESTER, OF WINSTON, NORTH CAROLINA.

TOBACCO CASING AND FLAVORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,283, dated June 18, 1895.

Application filed January 28, 1895. Serial No. 536,480. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. KESTER, a citizen of the United States, and a resident of Winston, in the county of Forsyth and State of North Carolina, have invented certain new and useful Improvements in Tobacco Casing and Flavoring Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to machines for casing and flavoring tobacco and its object is to provide an improved construction of the same which shall possess superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a tobacco casing and flavoring machine constructed in accordance with my invention. Fig. 2 is a side elevation of the same, partly broken away. Fig. 3 is an end view. Fig. 4 is a transverse section on the line *x x*, Fig. 2. Fig. 5 is a detail view of the mechanism for driving the rotating brushes and beater at the lower or exit end of the machine. Fig. 6 is a detail perspective view of one of the rotating finger or tooth shafts. Fig. 7 is a longitudinal sectional view, partly in elevation, of the liquid-spraying device, showing at the right thereof a transverse section on the line *y y* of the cylindrical section with which the supply-pipe and adjustable head are connected. Fig. 8 is a side elevation of the belts for feeding the tobacco to the machine. Fig. 8ª is a central transverse section of the same. Fig. 9 is a longitudinal sectional view of the crank for driving the pump, the pitman, and the means for varying the stroke thereof to increase or decrease the quantity of liquid fed to the spraying device. Fig. 10 is a front elevation of the crank, showing the graduations thereon. Fig. 10ª is a detail perspective view of the adjustable head and its pin with which the wrist-pin of the pump-pitman is connected.

In the said drawings, the reference numeral 1 designates short uprights or standards; 2, long uprights; 3, transverse end bars connecting the said standards together, and 4 inclined brace bars connected with the upper ends of said short and long standards, forming end frames which are connected together by inclined bars 5 and 6 thus constituting a frame for supporting the working parts of the machine.

The numeral 7 designates an inclined, trough shaped tobacco receptacle, closed at each end by heads 8, 8ª, preferably made of sheet metal, and provided with a casing 9 forming a chamber 9ª, also closed at each end by the heads 8, forming a closed chamber 10 for containing the finger bars hereinafter described, and provided at one side with a slot 11 extending from end to end of the casing and provided on its under side with a gutter 12, open at its lower end. The lower end of the tobacco receptacle is formed with an outlet opening 13, and in its bottom is formed a series of slots 14.

Located within the chamber 10 and journaled in the heads 8 and 8ª thereof are a series of shafts 15, provided with curved fingers 16, which during the rotation of the shafts project through the slots in the bottom of the tobacco receptacle which are preferably arranged spirally thereon, and the fingers of one shaft alternating with those of the adjoining shafts so that when the shafts are rotated the fingers will not strike each other. Four of these shafts are shown in the present instance although more or less may be employed, as desired, and they are inclined to correspond with the inclinations of the tobacco receptacle and its casing. The upper ends of the shafts project through the head 8 at this end of the machine and are provided with sprocket wheels 17 around which and intermediate idle sprocket wheels 18, journaled on stud shafts 19, secured to said head, passes a sprocket chain 20, also passing around a large sprocket wheel 21, journaled on a stud shaft 22, secured to the said head at the lower end thereof. The object of these idle sprockets is to hold the chain to the sprockets 17, so as to insure the rotation of the shafts. The numeral 23 designates a tightener sprocket, mounted upon an adjustable stud shaft 23ª, which works in a slot in the head 8, and is employed for tightening the sprocket chain in case it becomes loose and sags. It is obvious that instead of the sprockets and chains, intermeshing cog wheels or pinions may be employed for rotating the finger shafts. The hub

of the wheel 21 is connected by means of a toggle or universal joint with the hub of a sprocket wheel 24, secured to a driving shaft 25, journaled in bearings 26, of a bracket 27 secured to one of the end frames of the machine. This shaft is provided with a driving pulley 28 and a loose pulley 29, with which is adapted to engage a belt, not shown, connected with any suitable motor.

Secured to one side of the machine and projecting over the tobacco receptacle near the upper end thereof is a feeding mechanism for delivering the tobacco to be cased and flavored to the receptacle. This feeding mechanism is constructed as follows:

The numeral 30 designates two vertical bars which are secured to inclined bars 31, which in turn are secured to the heads 8 and 8ª. Secured to the bars 30 are brackets 32, which support horizontal side bars 34, connected together by transverse bars 35, and supported upon these latter bars is a rectangular horizontal board or platform 36, the ends of which are beveled or curved on the under side, as seen more clearly in Fig. 4. Secured to said platform near each side thereof is a vertical board 37, extending from end to end thereof, to the upper edges of which are secured outwardly extending boards 38, forming a trough, as seen in Fig. 8ª. Journaled to the inner ends of the side bars 34, is a roller 39, around which passes an endless belt 40 which also passes around a similar roller 39, journaled to longitudinally adjustable bearings 41 secured to the outer ends of said bars. These bearings consist of rectangular plates which are seated between guide flanges 42, formed by turning the upper and lower edges of said bars outwardly at right angles, and formed with longitudinal slots 43, through which pass set screws 45, engaging with recesses in the said bars. A screw 46 passing through a correspondingly threaded aperture in a lug 47 secured to said bars is employed for forcing the said roller outwardly to tighten the belt, which belt travels over the upper side of the platform which prevents it from sagging. Journaled to the outer ends of each of said bearings 41, is a vertical shaft 48, the upper ends of which are journaled in brackets 49 also secured to said plates. Similar shafts and brackets are also provided at the inner ends of the bars 34, and upon these shafts are mounted vertical rollers 50, around which pass endless belts 51, which also travel along the inner sides of the vertical boards 37, which prevent the belts from sagging outward, and the boards 38, projecting over said belts prevent any tobacco from the trough falling onto the same. To each end of the shaft 39ª of the inner roller 39 is secured a bevel gear 52, which meshes with corresponding gears on the inner vertical shafts 48. This shaft 39ª is extended horizontally through one of the end frames of the machine and is provided with a sprocket wheel 53, connected by sprocket chain 54 with a sprocket wheel 56, on the driving shaft 25, by means of which movement is transmitted to said endless belts.

To the lower end of the tobacco receptacle, at the outlet opening thereof is secured a downwardly extending inclined chute 57, terminating in a box or receptacle comprising the heads 58, rim 59 and a hinged cover 60, provided with catches 61, said cover being provided with an outlet, shown in dotted lines Fig. 2, for the escape of the tobacco coming from the tobacco receptacle or mixing chamber. Journaled in the heads 58 are two transverse shafts 62, provided with brushes 63, and a shaft 64, provided with a number of blades 65, which strike the tobacco as it comes from between the brushes and forces it out of the opening in the cover 60. The upper shaft 62 at one end is provided with a bevel gear 67, which meshes with a corresponding gear 68, secured to a shaft 69, journaled to a bracket 70 in one of the end frames of the machine. This shaft is provided with a sprocket wheel 71, connected by a sprocket chain 72, with a similar wheel 73, on a horizontal shaft 74, journaled in the end frames of the machine. At the opposite end this shaft is provided with a sprocket wheel 75, connected by a chain 76, with sprocket wheel 24, on the driving shaft 25. Said shaft 62, is also provided with a cog wheel 78, which meshes with a smaller wheel or pinion 79, on the lower shaft 62 so that when said wheel 78 is rotated by the means just described said wheel or pinion 79 and its shaft and brush will also be rotated but at a much greater speed so that as the tobacco passes between the brushes the liquid will be evenly spread thereon or incorporated therein. Said upper shaft 62 is also provided with a cog wheel 80 which meshes with a similar wheel 81, on the shaft 64, whereby the same is rotated and the beaters or blades caused to strike the tobacco and eject it through the slot in the cover 60, of the box or receptacle with which the chute leading from the inclined tobacco receptacle communicates.

Located above the tobacco receptacle at about the center thereof is a spraying device for spraying a liquid flavoring solution onto the tobacco contained therein, which spraying device is constructed as follows:

The numeral 82, designates a cylindrical section having an outlet opening 83, on its under side at a right angle to and communicating with the central bore thereof. The inner end of this section is screw threaded interiorly to receive the correspondingly threaded end of a coupling 84, the opposite end of which is connected with a supply pipe 85. The outer end of the section 82, is reduced and screw threaded, with which is connected a correspondingly threaded cap 87, the head or end of which is provided with a recess 89 in its inner side. This cap is also provided with a hand wheel 90 at its outer end by which it may be rotated. Located in said section 82, is a valve 91, which is provided with a

provided with agitating fingers projecting through said slots, substantially as described.

2. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle having slots in its bottom and an outlet at its lower end, of the rotatable shaft located below said receptacle and having agitating fingers projecting through said slots, substantially as described.

3. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle having slots in its bottom and an outlet at the lower end of the rotatable shafts located below said receptacle provided with agitating fingers projecting through said slots, the sprockets on the ends thereof, the intermediate idler sprockets, the sprocket chain and the sprocket wheel and driving shaft, substantially as described.

4. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle having slots in its bottom and an outlet at its lower end, of the casing connected therewith forming a closed chamber having a slot and gutter on the lower side, and the rotatable shafts located in said chamber and having agitating fingers projecting through said slots, substantially as described.

5. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle having slots in its bottom and an outlet at its lower end, and the rotatable shafts located below said receptacle, provided with agitating fingers projecting through the slots therein, of the feeding mechanism comprising a support secured to the frame of the machine, the endless horizontal and longitudinal endless belts, the rollers, and means for actuating the same, substantially as described.

6. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle, having slots in its bottom and an outlet at its lower end, and the rotatable shafts located below said receptacle provided with agitating fingers projecting through said slots, of the side bars connected with the said receptacle, the horizontal board, supported thereby, the longitudinal side boards secured thereto, the outwardly extending boards secured to said side boards, the rollers, the longitudinal and horizontal endless belts and means for actuating the same, substantially as described.

7. In a tobacco casing and flavoring machine, the combination with the inclined tobacco trough or receptacle, having slots in its bottom and an outlet at its lower end, the casing secured thereto forming a closed chamber and the rotatable shafts located in said chamber having agitating fingers projecting through said slots of a tobacco feeding mechanism and a spraying device, substantially as described.

8. A spraying device for a tobacco casing and flavoring machine, comprising the section having a cylindrical bore and a lateral outlet opening and adapted to be connected with a supply pipe, the adjustable screw threaded cap, the valve stem and valve and the coiled spring, substantially as described.

9. In a tobacco casing and flavoring machine, the combination with the spraying device comprising the screw threaded section having a cylindrical bore and a lateral outlet opening, the adjustable screw threaded cap having a recess in its inner end, the valve stem and valve, and the coiled spring, of the supply pipe connected with said section, and the pump connected therewith, substantially as described.

10. In a tobacco casing and flavoring machine, the combination with the pump, the pipe connected therewith, and the spraying device, of the pitman the pump rod, the wrist pin to which the upper end of the pitman is pivotally connected, the crank having a slot and recess and graduations on its outer face, the head working in said recess, the screw rod engaging therewith, the screw pin formed with said head, passing through the wrist pin and provided with a hand wheel, the head fitted in said slot, and the pointer, secured thereto, substantially as described.

11. In a tobacco casing and flavoring machine, the combination with the tobacco trough or receptacle having slots in its bottom and an outlet opening at its lower end, the casing secured thereto forming a closed chamber, having a slot and gutter at its lower end, and the rotatable shafts located in said chamber and provided with agitating fingers projecting through said slots, of the pump, the pump rod, the adjustable pin, the crank and wrist pin, and means for operating the crank, the pipe leading from the pump and the spraying device connected therewith, substantially as described.

12. In a tobacco casing and flavoring machine the combination with the inclined tobacco trough or receptacle having slots in its bottom and an outlet at its lower end, the casing secured thereto forming a closed chamber with a slot and a gutter at its lower end, the rotatable shafts located in said chamber and provided with agitating fingers projecting through said slots, the chute, the box connected therewith, the brush shafts and brushes, the shaft and beaters, the gearing connected therewith, and the horizontal shaft for actuating said gearing, of the crank on the end of said shaft, the adjustable wrist pin connected therewith, the pitman, the pump rod and pump, the pipe leading from the pump and the liquid spraying device connected therewith, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN H. KESTER.

Witnesses:
THEO. MUNGEN,
BENNETT S. JONES.

stem 92, having a collar 93, between which and the valve is a packing 94. Encircling this valve stem is a coiled spring 95, the ends of which are confined between the collar and the cap 87. The supply pipe 85, is connected with an air chamber 96, provided with a gage 97. This air chamber is also connected with a pipe 98, leading from a force pump 99, which in turn is connected by means of a pipe 100, with a suitable supply tank. Not shown. This pipe is provided with a vacuum chamber 101.

The numeral 102 designates the pump rod connected with the piston, not shown, and also with the lower end of a pitman 103, the upper end of which is connected with an adjustable wrist pin or sleeve having a rectangular head 104^a which works in a slot 104^b in a crank 105, secured to the shaft 74. This head 104^a is provided with side flanges 104^c which work on the crank at each side of the slot. Passing through this wrist pin is a screw rod 106 provided with a hand wheel 107 at its outer end. The inner end of this pin is formed with a rectangular head 108 which works in a corresponding vertical recess 109 in the crank with which the slot 104^b intersects. This head or block 108 is provided with a screw threaded aperture with which engages a correspondingly threaded rod 109, passing through a cylindrical aperture in the outer end of the crank, and provided with collars 110 holding it in place and a head 112 by which it may be rotated. The outer face of the crank at one side of the slot is formed with graduations 113, and one of the side flanges 104^c of the head of the wrist pin is provided with a pointer 114, which registers with said graduations as the wrist pin is moved in the slot in the crank.

The object of the construction just described is to regulate the stroke of the piston and thereby increase or decrease the capacity of the pump or the amount of liquid flavoring material supplied therefrom to the spraying device. By rotating the screw rod 109, in one direction, the wrist pin is forced toward the end of the crank connected with the shaft thereby shortening the stroke of the pitman and consequently of the piston. A reverse movement of the screw rod will lengthen the stroke of the pitman and piston and a greater amount of liquid will be forced from the pump at each stroke of the piston. By means of the graduations on the crank and the pointer carried by the wrist pin, the proper distance of the wrist pin with relation to the shaft of the crank can be easily and readily determined.

The operation of the machine is as follows: The supply tank connected with the pump is filled with any of the usual flavoring solutions, and the wrist pin of the crank adjusted so as to give the proper stroke to the pitman connected with the pump rod. The driving shaft is then rotated which through the medium of sprocket wheels and chain will drive the shaft of the inner roller of the feeding mechanism causing the endless belts to travel inward or toward the tobacco trough or receptacle and any tobacco placed on the lower horizontal belt will be fed to said receptacle and fall therein. Through the medium of the sprocket wheel and chain and the idler sprockets and the sprockets on the shaft, the latter will be rotated causing the fingers thereon to project up through the slots in the trough or receptacle and engaging with the tobacco will toss or tumble it to one side so that the liquid from the spraying device will be thoroughly incorporated therewith. Owing to the inclination of the trough or receptacle and the spiral arrangement of the teeth thereon, the tobacco will be gradually forced to the lower end of the receptacle where it will escape through the outlet and chute to the box. While these operations are taking place the pump will be operated causing the flavoring liquid to be forced to the spraying device which will force back the valve and allow the liquid to escape through the opening in the lower side of the section onto the tobacco in the chute or receptacle. By means of the adjustable cap 87, the tension of the coiled spring can be regulated so that greater or less pressure will be necessary to open the valve, as desired. By this construction also clogging will be obviated, as in case the liquid accumulates or gums up the opening in the section, a few strokes of the pump will open the valve to its fullest extent, causing the material tending to clog the device to be forced out of the opening. After the tobacco has been mixed with a suitable quantity of the flavoring solution, it will escape into the box at the lower end of the machine and being subjected to the action of the differentially rotating brushes, the solution or liquid will be evenly incorporated with the tobacco. After passing between these brushes, the tobacco will be struck by the blades or beaters on shaft 64, and be forced out of the outlet opening in the cover of the box.

It will be noted that the meeting edges of the cover and the heads or rims of the box are cut away on a zig zag line, and semi-circular notches or recesses formed thereon, which serve as the bearings for the shafts 62 and 64. By raising the cover said shafts and the brushes and beaters can be removed for cleaning and other purposes.

Any surplus liquid which may escape through the slots in the tobacco receptacle will fall into the casing secured thereto and be conducted through the slot and gutter to a pail or other vessel at the lower end of the gutter.

Having thus fully described my invention, what I claim is—

1. In a tobacco casing and flavoring machine, the combination with the tobacco trough or receptacle having slots in its bottom and an outlet near its lower end, of the rotatable shafts located below the receptacle and