Aug. 20, 1935. H. H. WHEELER 2,012,149

PASTER FOR CIGAR MACHINES

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FIG. 2

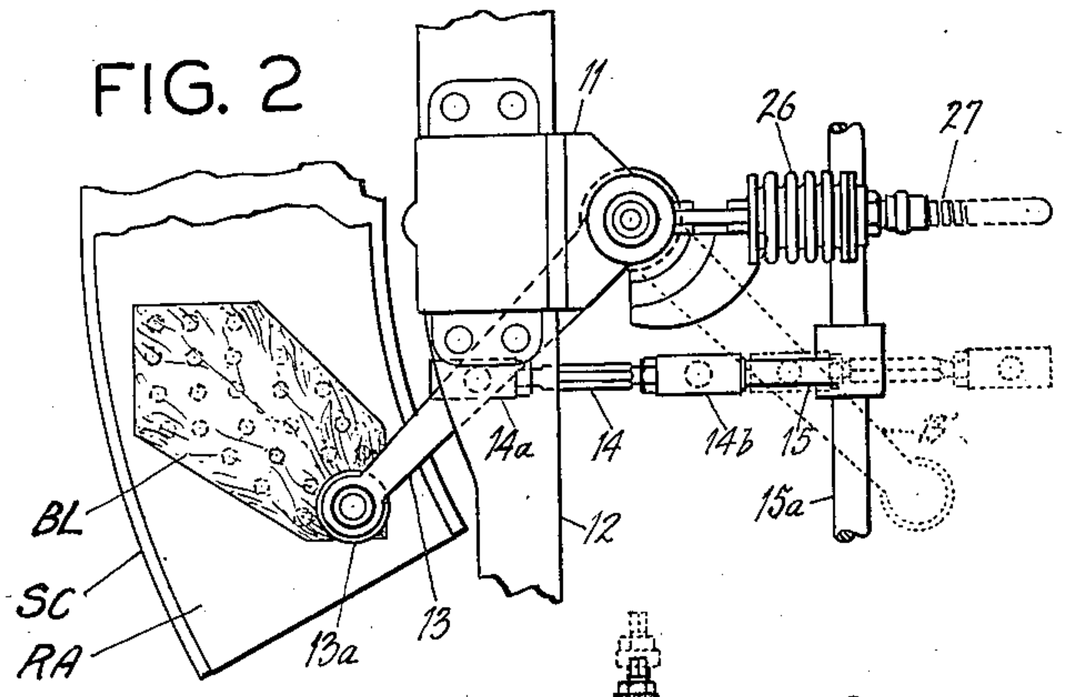


FIG. 1

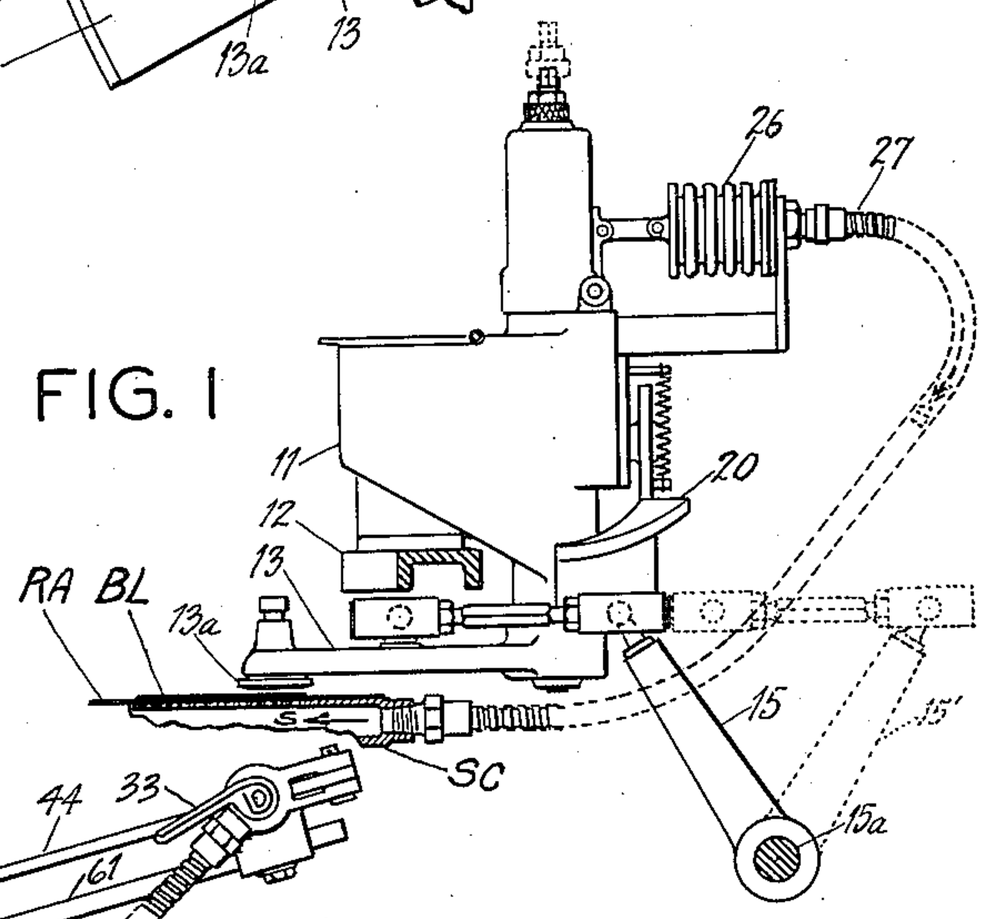


FIG. 4

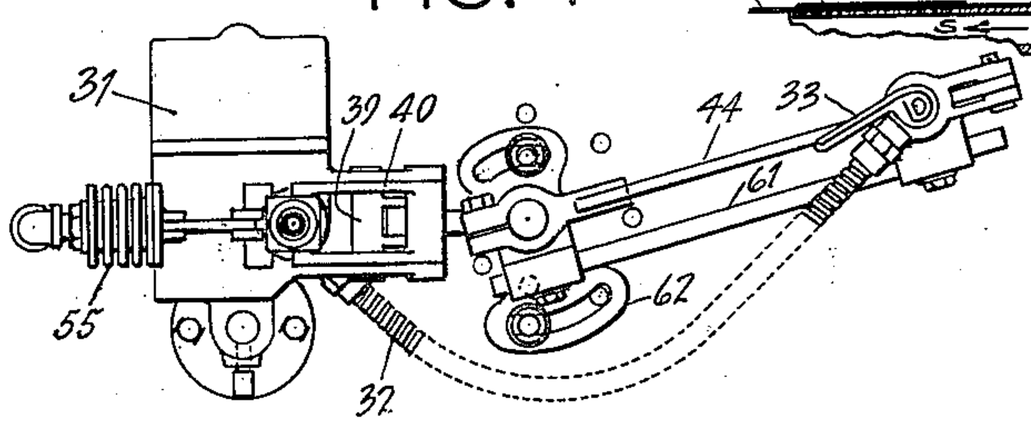
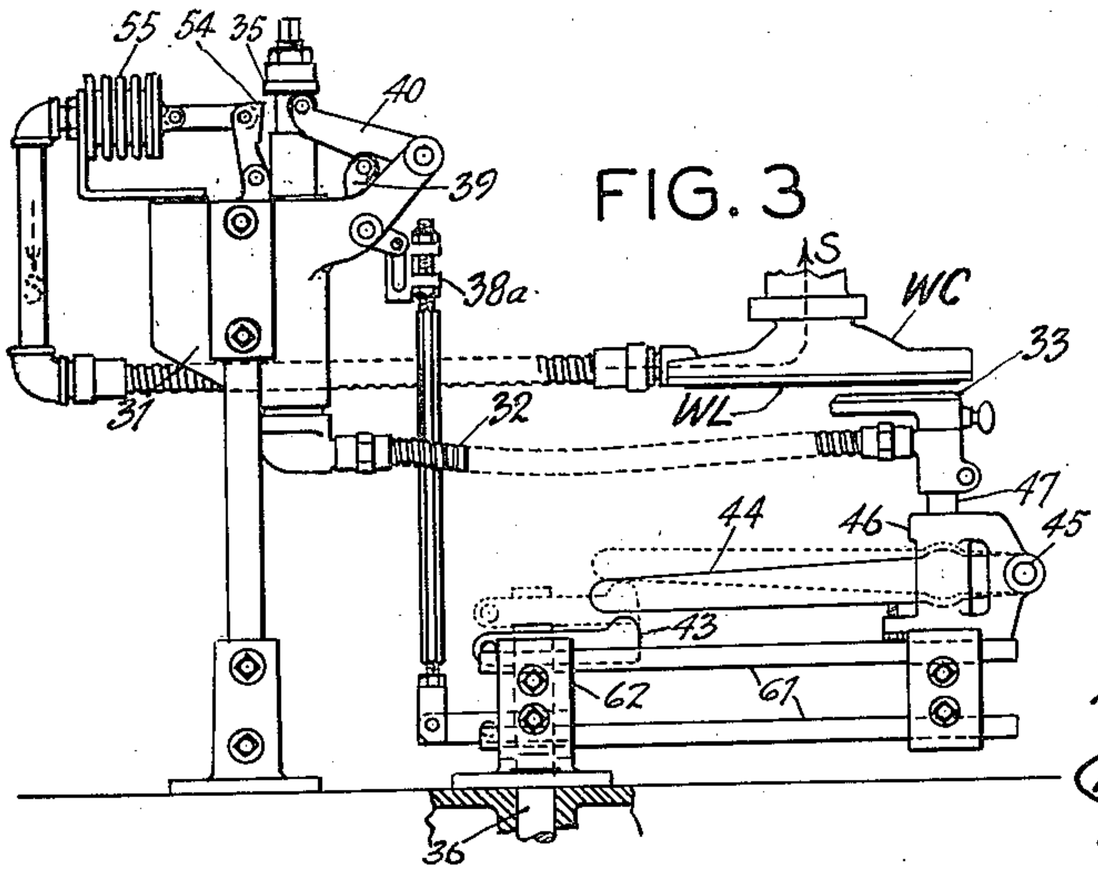


FIG. 3



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PASTER FOR CIGAR MACHINES

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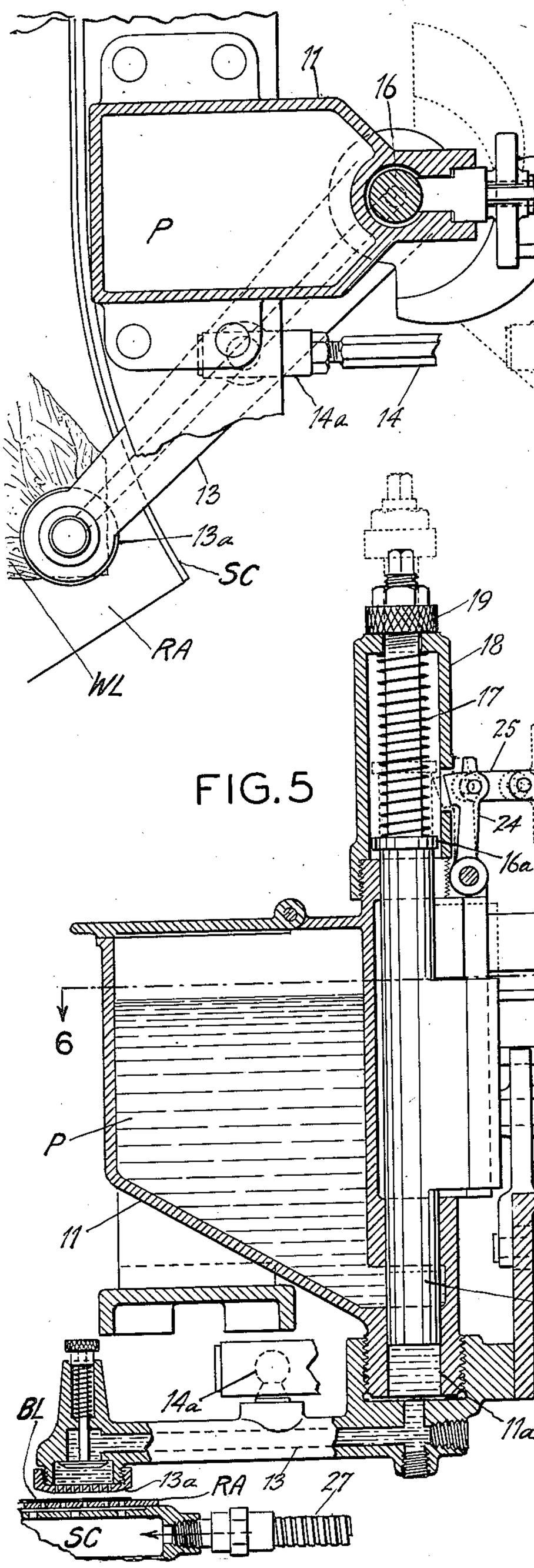

FIG. 5

FIG. 6

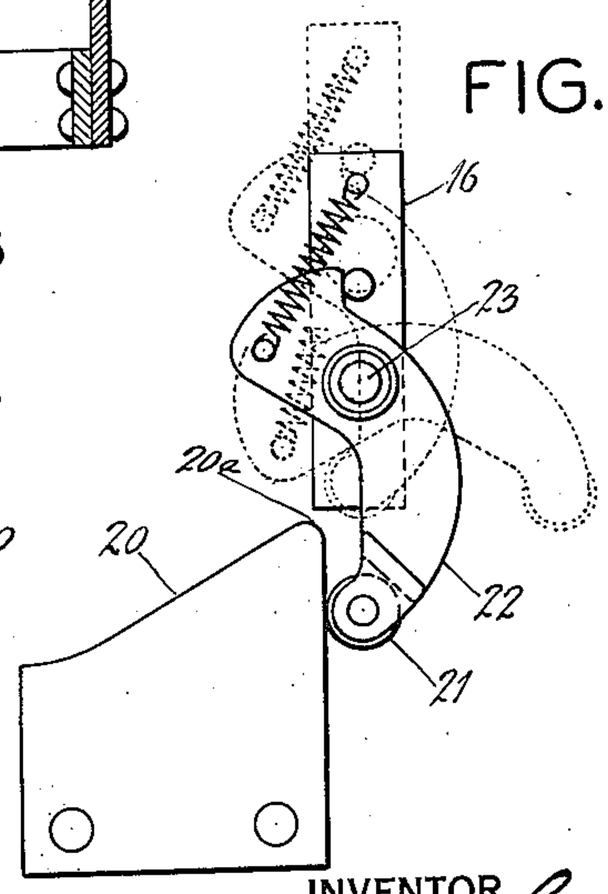

FIG. 7

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FIG. 9

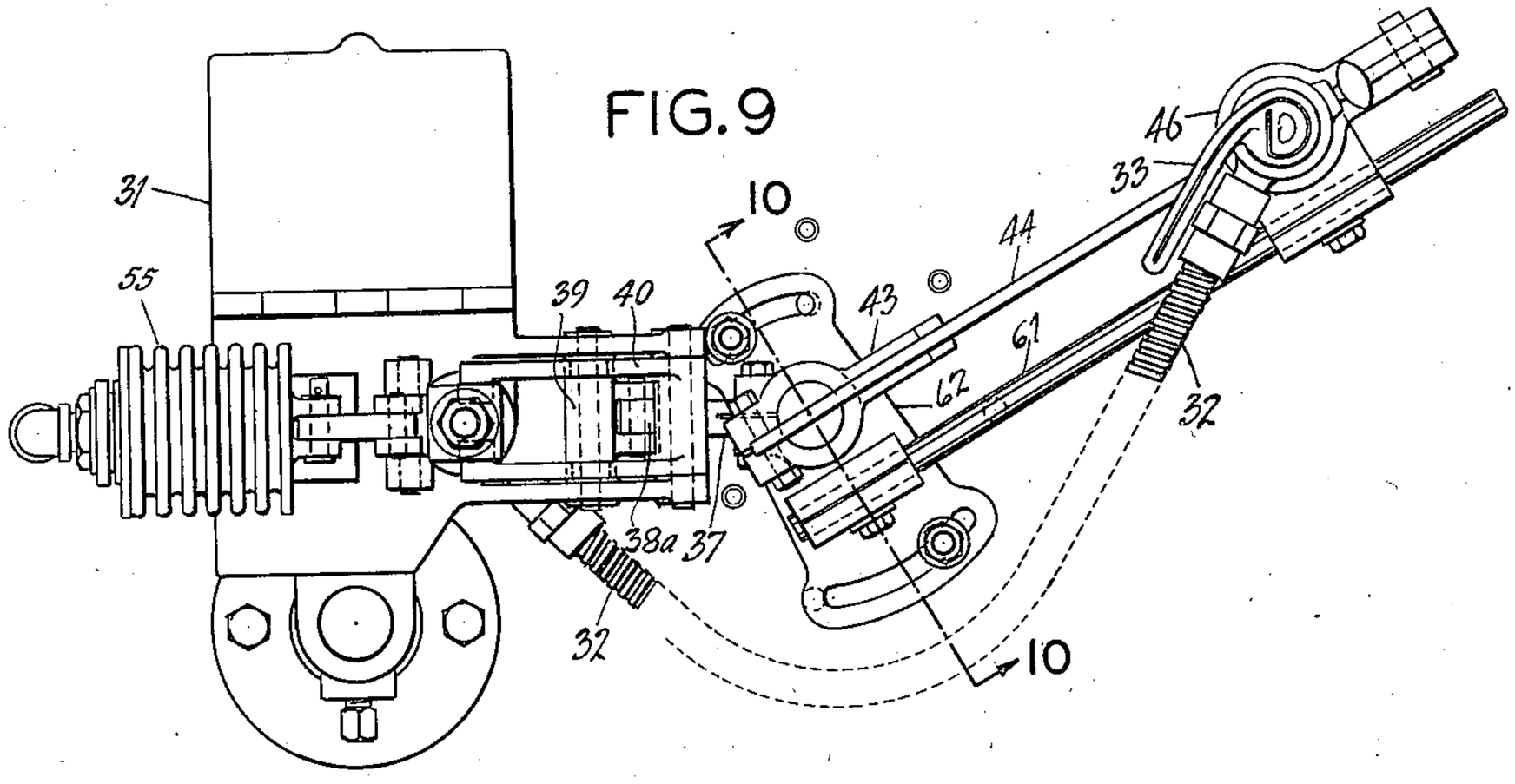


FIG. 8

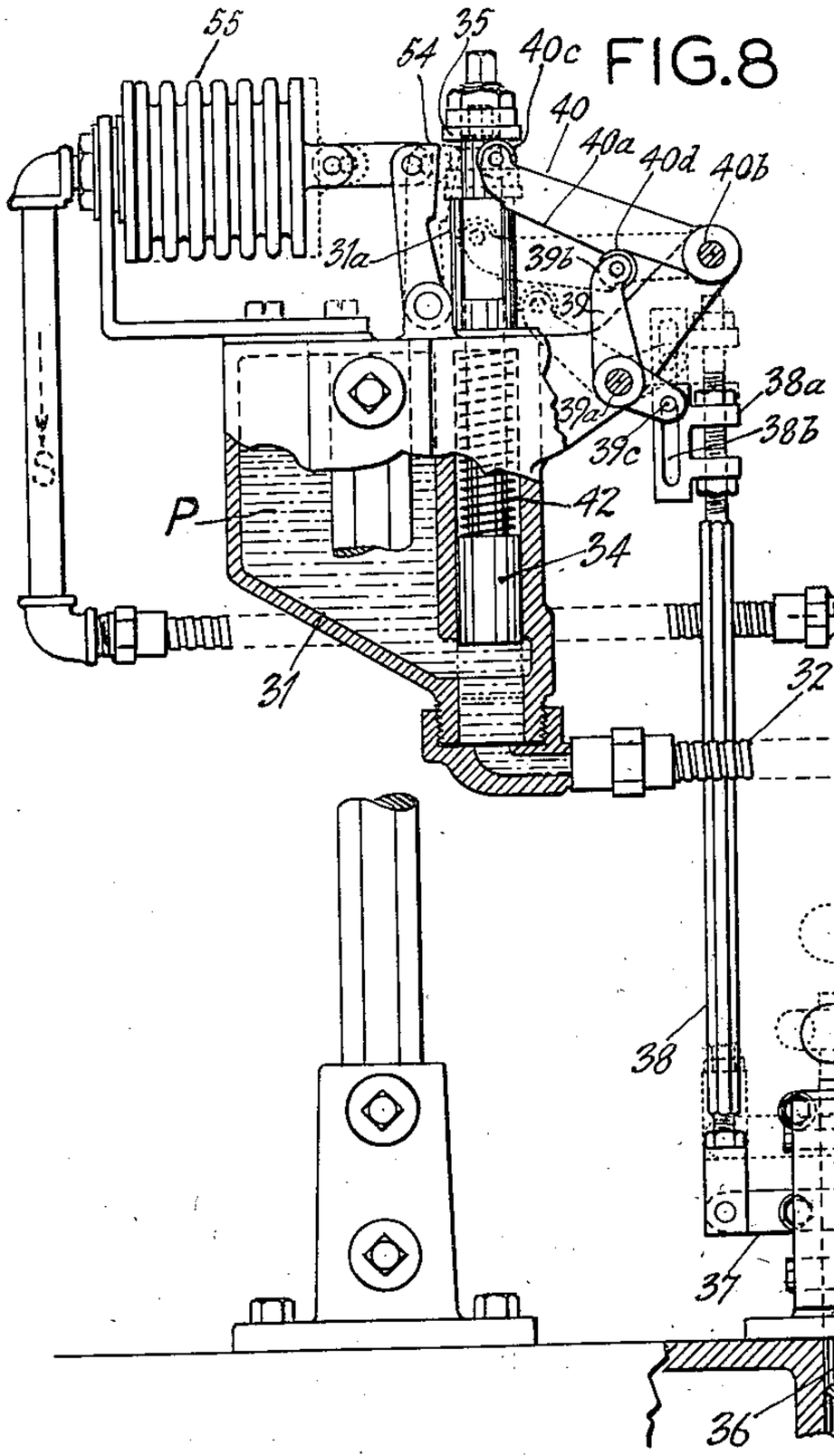
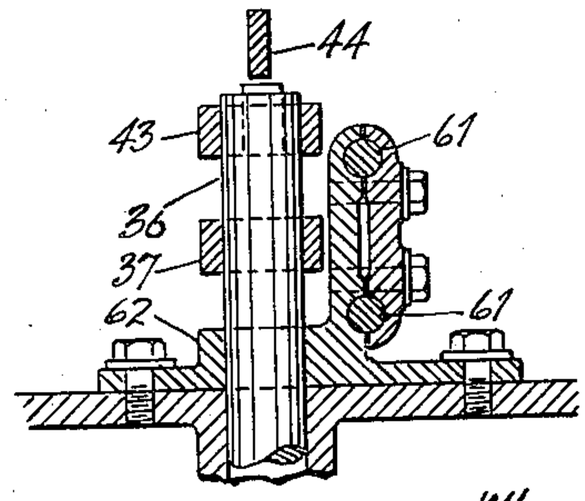


FIG. 10



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UNITED STATES PATENT OFFICE

2,012,149

PASTER FOR CIGAR MACHINES

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Application September 5, 1934, Serial No. 742,797

15 Claims. (Cl. 131—39)

In cigar machines, particularly those in which fresh bunches are made, there are usually two operations which require pasting. The first is when the bunch binder is placed on the chianti belt of the bunch rolling mechanism prior to the enclosure of the charge of filler tobacco therein, and the second when the outside wrapper is applied to the bunch.

A common fault with most paster devices now in use, is the difficulty of keeping the paste clean and at an even consistency. The pasting rollers generally employed in transferring the paste from the paste reservoir to the bunch binder or wrapper often convey back into the paste reservoir particles of tobacco which tend to clog the operating parts of the paster. In addition to this source of contamination the paste reservoir is usually open at the top thus exposing the paste to dust and other impurities and permitting the evaporation of the paste to change its consistency.

In this invention the paste is contained in a covered reservoir and is conveyed through a flexible pipe communicating with an orifice in the bottom of the reservoir and terminating in a nozzle which is positioned above the chianti belt or below the wrapper carrier at the point where the paste is to be applied. The paste is therefore not exposed to the air until it is deposited on the tobacco leaf section, and a more efficient operation and a more sanitary product will be obtained.

One of the most important advances afforded by this invention is the automatic control. This control prevents the application of paste to the chianti belt and/or the wrapper carrier when there is respectively no binder on the bunch rolling mechanism or no wrapper on the wrapper carrier, thereby making it unnecessary to stop the machine for the cleaning of the chianti belt or the carrier of paste applied thereto in the absence of the binder or wrapper, which has heretofore been necessary to prevent clogging of the suction holes in the wrapper carrier or the chianti belt. While the particular system of control linkage employed may take a great many forms, as penumatic, electrical or mechanical, in the particular form selected for illustration, this control consists generally of a flexible metal bellows connected to the suction line of each unit. The movable end of said bellows is connected to a latch that holds the plunger from forcing paste through the flexible pipe to the nozzle. If a binder or wrapper is in position, the increased suction caused by covering the holes in either of these units causes the bellows to collapse, thus withdrawing the latch so that the plunger can operate. If either unit for any reason is not supplied with a binder or wrapper as the case may be, the unit will not supply paste as the latch will not release the plunger.

As the stations where these operations are performed are located some distance apart, and the paste is applied to the binder on the chianti belt from above and applied to the wrapper on the wrapper carrier from below, it is desirable to provide two paster units for this work.

Another important object of the invention is to provide for greater accuracy in applying the paste. In devices of the type in which the paste applier contacted a paste roller and transferred the paste to the binder or wrapper, the amount of paste applied was to a considerable extent, determined by the thickness of the paste. Thus when the paste was thick, too much was applied, when the paste was thin, too little was applied. In the present construction, an accurately predetermined volume is applied regardless of consistency. In short, the paste is metered or measured out by volume.

An object of the invention is to provide a paster which lends itself readily to the application of the paste in any desired pattern to the binder or wrapper. In previous types especially those in which paste rollers were used, considerable difficulty was had in applying any pattern except a plain rectangular one, except by the use of grids. These grids, which dipped in a pot and placed a pattern on a leaf portion arranged face down had limitations which mitigate against flexibility of design. For instance the pot ordinarily had to be below the grid to receive the drippings. Since different shapes of cigars require pasting in different positions where the pasted portion of the wrapper is located at the end of the wrapping operation, this necessitated moving the pot to different positions from different shapes, and room for the same was sometimes difficult to find. With the present construction adjustment is easy for various shapes since only the movement of the arm and its applying nozzle need be changed and the pot may be placed where most convenient.

While the automatic paster control mechanism has been disclosed in connection with the plunger type metering paster it should be obvious that this control can be applied to pasters of the reciprocating roller type and many other types of pasters, and such application of this control feature is contemplated.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will

be hereinafter fully described and then particularly pointed out in the claims hereunto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate the same or like parts:

Fig. 1 is a side elevation showing the application of the invention to a paster supplying paste to the bunch binder on the chianti belt of the bunch rolling mechanism;

Fig. 2 is a plan view of Fig. 1;

Fig. 3 is a side elevation showing the invention in connection with a paster supplying paste to the wrapper on the wrapper carrier;

Fig. 4 is a plan view of Fig. 3 with the wrapper carrier omitted;

Fig. 5 is a sectional elevation on an enlarged scale of the paster shown in Fig. 1;

Fig. 6 is a sectional plan view on line 6—6 of Fig. 5;

Fig. 7 is a detail side view of Fig. 5, showing the plunger operating mechanism;

Fig. 8 is a side elevation, partly in section and on an enlarged scale, of the paster shown in Fig. 3;

Fig. 9 is a plan view of Fig. 8; and

Fig. 10 is a detail sectional view on line 10—10 of Fig. 9.

In carrying the invention into effect there is provided a cigar bunch rolling mechanism adapted to enclose a charge of filler tobacco in a bunch binder to form a cigar bunch, means for applying paste to a bunch binder on said bunch rolling mechanism, a device responsive to the absence or presence of a bunch binder on said bunch rolling mechanism for incapacitating said binder pasting means in the absence of a binder on said bunch rolling mechanism, a wrapper carrier operating to transfer wrappers to wrapper-applying position, means for applying paste to a wrapper on said carrier, and mechanism responsive to the presence or absence of a wrapper on said carrier for incapacitating said wrapper pasting means in the absence of a wrapper on said carrier. In the best constructions contemplated the binder pasting means includes a paste reservoir, a swingable conduit communicating with the interior of the reservoir and movable into position above the bunch rolling mechanism to deliver paste to a binder thereon, a plunger in said reservoir adapted to force the paste through the conduit onto the binder on the bunch rolling mechanism, and mechanism for actuating the plunger; and said device includes a detent operative to obstruct the movement of said plunger, and a sylphon bellows linked to said detent and connected to the suction chamber of the bunch rolling mechanism to move the detent out of plunger-obstructing position when there is a binder on the bunch rolling mechanism. With the best constructions the wrapper pasting means includes a paste reservoir, a nozzle connected to the reservoir and movable into contact with a wrapper on the carrier, a plunger in the reservoir adapted to force the paste through the nozzle onto the wrapper on the carrier, and mechanism for actuating the plunger and moving the nozzle in and out of operative position; and said wrapper paster incapacitating mechanism includes a detent operative to obstruct the movement of the plunger, and a sylphon bellows linked to the detent and connected to the suction head of the wrapper carrier to move the detent out of plunger-obstructing position when there is a wrapper on the suction head. These various means and parts may be widely varied in construction within the scope of the claims for the particular arrangement selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

Referring to Figs. 1 and 2 of the drawings, the paste reservoir 11 is attached to a stationary part 12 of the cigar machine. An arm 13 pivotally mounted on a boss projecting from the bottom of the paste reservoir 11, is connected by a ball-and-socket joint 14a to rod 14, which is also connected through ball-and-socket joint 14a to a lever 15 fast on shaft 15a. The latter is operated from and synchronized with the main drive of the cigar machine to impart an oscillating motion to lever 15. When lever 15 is swung into the position 15′ indicated in Fig. 1, the arm 13, which in Fig. 2 is shown positioned over the bunch binder BL spread on the chianti belt or bunch rolling apron RA of a bunch rolling mechanism of well known construction, is swung back to position 13′ as indicated by dotted lines, thus clearing the way for the operation of rolling the charge of filler tobacco in the binder and spreading the next binder on the chianti belt.

While arm 13 is in the full line position indicated in Fig. 2, nozzle 13a is positioned over the bunch binder BL at the point where it is desired to apply the paste.

In Fig. 5 of the drawings the plunger 16 is shown having completed its downward stroke, whereby a predetermined amount of paste P is forced through the conduit 13 and the nozzle 13a onto the bunch binder BL. The lower end of plunger 16 slides in an orifice 11a in the bottom of paste reservoir 11 and its upper end is surrounded by a spring 17 which is seated between a shoulder 16a on plunger 16 and the upper end of the plunger housing 18. A threaded collar 19 which limits the downward movement of the plunger 16, can be adjusted thereon so as to diminish or increase the length of the stroke in order to deliver the desired amount of paste P.

The lifting or cocking of the plunger 16 is accomplished by means of a cam 20 mounted on the hub of conduit 13, the latter being screwed on the paste reservoir to communicate with the orifice 11a. A roller 21 on the spring-tensioned arm 22, Fig. 7, fulcrumed on the pin 23 in plunger 16 bears on cam 20 carried by the hub of conduit 13 and, as the conduit 13 swings into position over the bunch rolling mechanism, the roller 21 rides over the inclined upper edge of cam 20, thus lifting the plunger 16 with the arm 22 and compressing the spring 17 until the conduit 13 completes its swing and roller 21 runs off the high point 20a on cam 20, leaving the plunger held by the detent 24 and the spring 17 compressed and ready to force plunger 16 down in the orifice 11a whenever the same is released by the detent 24. Detent 24 is connected by link 25 to a sylphon bellows 26 which communicates with the suction chamber SC formed within the rolling table of the bunch rolling mechanism, by means of a hose 27. The bunch rolling table supports the bunch rolling apron RA which rolls the charge of filler tobacco in the bunch binder BL spread upon apron RA, the binder being held thereon by suction acting through holes in the top of the rolling table in communication with the suction chamber SC and communicating with holes in the apron RA. The holes in apron RA

are all disposed to lie within the margins of the bunch binder BL so as to seal the suction chamber SC when the binder BL is placed in its proper position on the apron RA. When this condition exists, the suction S is communicated through hose 27 to sylphon bellows 26 (Fig. 5) causing it to contract and pull the detent 24 with it and thus render the detent inactive when a binder is in place on the rolling apron.

In case there should be no binder BL on the apron, or if the leaf should have been not properly placed, the suction is impaired sufficiently to permit the bellows 26 to expand and resiliently press the detent 24 into operative position. When this condition exists detent 24 will slip under shoulder 16*a* as plunger 16 is raised by roller 21 on arm 22 actuated by cam 20 during the backward swing of the conduit 13. The plunger 16 will thus be held in its up, or cocked, position until a binder is properly placed on the apron, whereupon the suction S will be restored and operate to contract the bellows 26 and withdraw the detent 24, permitting the plunger 16 to be pressed down into the orifice 11*a* by the action of spring 17. As plunger 16 enters the orifice 11*a* it causes the paste P to flow through conduit 13 and nozzle 13*a* onto the binder BL.

From the above description it will be seen that when there is no binder on the rolling apron, or if the binder has not been properly placed thereon, the plunger 16 will not function and consequently no paste will be wasted and smeared over the rolling apron.

In a cigar machine the wrapper is usually transferred from a cutter die on which it is cut from the tobacco leaf to the position in which it is applied to the bunch, by means of the suction head of the wrapper carrier which picks it up and transports it to the bunch wrapping mechanism wherein the wrapper is wound about the bunch. While in transit between the cutter die and the cigar bunch the wrapper carrier is halted for the purpose of permitting paste to be applied on the head or flag end of the wrapper.

The construction and operation of the paster device for gumming the wrapper leaf WL is illustrated in Figs. 3, 4, 8, 9 and 10.

As the paste must be applied to the wrapper on the suction head of the wrapper carrier WC from below, the nozzle end of the device is so arranged that, when the wrapper carrier has come to a temporary halt, the nozzle 33 is raised so as to contact with the wrapper WL thereon, and at the same instant the plunger 34 is released and forces paste P from the paste reservoir 31 through tube 32 and nozzle 33 onto the bottom of the wrapper WL. The motion for operating the paste plunger 34, as well as for raising the nozzle 33 so as to contact the wrapper on the wrapper carrier is derived from a vertically reciprocating rod 36, which is connected to and synchronized with the main drive of the cigar machine, as will be presently described.

In Fig. 8, the paste plunger 34 is shown by full lines in "cocked" position, and by dotted lines in "released" position, its downward movement being limited by the engagement of a collar 35 thereon with the upper end of the plunger housing 31*a* of paste reservoir 31.

The cocking operation takes place during the down-stroke of rod 36. A collar 37, which is adjustably clamped to rod 36, is connected to a pitman 38 on the upper end of which is secured the slotted frame 38*a*. Bell crank 39 which is mounted on a shaft 39*a* pivoted in lugs of the paste reservoir 31, carries at one end a pin 39*c* engaging the slot 38*b* of the frame 38*a*. As the top end of the slot 38*b* reaches pin 39*c* and, as the down-stroke of the rod 36 continues, it causes the bell-crank 39 to swing on pin 39*a* and press the roller 39*b* thereon against the cam surface 40*a* formed on the bottom edge of the lever 40 fulcrumed on pin 40*b* thereby swinging the lever 40 upwardly and bring roller 40*c* thereon into engagement with collar 35 on paste plunger 34 and lifting the plunger 34 against the pressure of spring 42. As roller 39*b* runs off the end of the cam surface 40*a* of lever 40 it drops into a recess 40*d* therein, thus holding the paste plunger 34 "cocked" as rod 36 reaches the limit of its down-stroke.

During the upstroke of the rod 36 with the pitman 38 the frame 38*a* slides freely on pin 39*c* until the lower end of its slot 38*b* meets pin 39*c*, whereupon the bell-crank 39 will be swung in a direction which will cause roller 39*b* to slip out of the recess 40*c*. Lever 40, which is now free to swing on its fulcrum, will swing downwardly as the pitman 38 continues its upward stroke, thus withdrawing the roller 40*c* on lever 40 from under the collar 35 on the paste plunger 34 so that the latter may be forced into the orifice 11*a* of the paste reservoir 31 by the action of spring 42. Whether the paste plunger 34 will drop or not at this time depends on the action of detent 54 at the time the paste plunger 34 was raised into "cocked" position by the lever 40. The action of the detent 54 is controlled by the sylphon bellows 55 which are connected to the suction head S of the wrapper carrier WC, on which the wrapper WL is held by suction.

When a wrapper is on the suction head of the wrapper carrier the suction holes of the suction head will be sealed by the wrapper and the suction S therein will be communicated to the bellows 55 by a hose connecting the same, causing the bellows to contract and move the detent 54 out of engagement with the collar 35 on plunger 34; but if no wrapper is on the carrier the suction in the bellows 55 will be so impaired that the bellows will expand and advance the detent 54 into the path of collar 35 on paste plunger 34. Accordingly, when there is no wrapper on the carrier and the paste plunger 34 is released from the roller 40*c* on lever 40, in the manner just described, the detent 54 will arrest its downward motion and thus prevent paste from being forced from the paste reservoir 31, through tube 32 and nozzle 33 onto the empty bottom of the suction head of the wrapper carrier.

In Fig. 8 the nozzle 33 is shown, by full lines, in "retracted" position and, by dotted lines, when in contact with the wrapper on the suction head of the wrapper carrier. As hereinbefore stated, the motion for raising the nozzle into contact with the wrapper on the carrier is derived from the vertically reciprocating rod 36. While the rod 36 is making its up-stroke, a finger 43 thereon encounters a lever 44 which is fulcrumed on pin 45 in slide-bracket 46. Lever 44 passes through openings in slide-bracket 46 and plunger 47 and, as bracket 43 lifts lever 44, it causes plunger 47 to rise, carrying with it the paster connections and nozzle 33.

In order to insure contact between nozzle 33 and the wrapper leaf WL on the wrapper carrier, and as a safeguard against injury, in case of carelessly made adjustments, a plunger 48 backed by a spring 49 is arranged so as to transmit the effort of lever 44 to lift plunger 47, thus

cushioning the contact between the nozzle 33 and the wrapper.

The top surface of nozzle 33 has a hook-shaped narrow slit, Fig. 9, the narrow slit being shaped to conform closely to the contour of the flag end of the wrapper, in order to deposit the paste close to the edge at the flag end of the wrapper.

As the location of the suction head of the wrapper carrier and the wrapper WL thereon at the time the paste is to be applied, varies for different shapes and sizes of cigars, it is important to provide means for adjusting the nozzle to suit the location of the wrapper. In the present invention this feature has been taken care of by supporting the slide-bracket 46 on rods 61 which permits of shifting the slide-bracket in a radial direction and as the ends of rods 61 are attached to a bracket 62, through which plunger 36 passes, the unit can be shifted around this plunger. This arrangement therefore permits of both radial and circumferential adjustments.

What is claimed is:

1. In a cigar machine, the combination with a support for an outspread tobacco leaf section, of mechanism for operating on the leaf section outspread on said support, and means responsive to the presence or absence of an outspread leaf section on said support for incapacitating said mechanism in the absence of a leaf section on said support.

2. In a cigar machine, the combination with a support for an outspread tobacco leaf section, of mechanism for operating on the leaf section outspread on said support, means responsive to the presence or absence of a leaf section on said support for incapacitating said mechanism in the absence of a leaf section on said support, and a suction chamber coacting with said support suctionally to retain the leaf section on the support, said means comprising devices connected to said chamber and operated by the change in the suction acting on said support resulting from absence of the leaf section.

3. In a cigar machine, the combination with a suction support for an outspread tobacco leaf section, of mechanism for operating on the leaf section outspread on said support, and means responsive to the presence or absence of a leaf section on said support for controlling the operation of said mechanism, said means comprising devices operated by the change of suction acting on said support for connection to said mechanism and rendering the same inoperative when said suction decreases due to absence of a leaf section thereon.

4. In a cigar machine, the combination with a suction support for supporting a tobacco leaf section by suction, of mechanism for performing an operation on the leaf section in the making of a cigar in said machine, means responsive to the presence or absence of a leaf section on said support for incapacitating said mechanism in the absence of a leaf section on said support, and means for subsequently automatically resetting said mechanism into operating condition.

5. In a cigar machine, the combination with a tobacco leaf support, of adhesive applying mechanism for applying adhesive to a leaf on said support, and control means for said mechanism responsive to the presence or absence of a leaf on said support for preventing the application of adhesive to the support when no leaf is on the support.

6. In a cigar machine, the combination with a tobacco leaf support, of adhesive applying mechanism for applying adhesive to a leaf on said support, control means for said mechanism responsive to the presence or absence of a leaf on said support for preventing the application of adhesive to the support when no leaf is on the support, and a suction chamber coacting with said support, said control means comprising devices connected to said chamber and operated by the change in the suction acting on said support resulting from absence of a leaf.

7. In a cigar machine, the combination with a tobacco leaf support, of adhesive applying mechanism for applying adhesive to a leaf on said support, control means for said mechanism responsive to the presence or absence of a leaf on said support for preventing the application of adhesive to the support when no leaf is on the support, and means for subsequently automatically resetting said mechanism into operating condition.

8. The combination with a cigar bunch rolling mechanism adapted to enclose a charge of filler tobacco in a bunch binder to form a cigar bunch, of means for applying paste to a binder on said mechanism, and a device responsive to the presence or absence of a binder on said mechanism for incapacitating said binder pasting means in the absence of a binder on said mechanism.

9. The combination with a cigar bunch rolling mechanism adapted to enclose a charge of filled tobacco in a bunch binder to form a cigar bunch, of means for applying paste to a binder on said mechanism, and a device responsive to the presence or absence of a binder on said mechanism for incapacitating said binder pasting means in the absence of a binder on said mechanism, said binder pasting means including a paste reservoir, a swingable conduit communicating with the interior of said reservoir and movable into a position above said bunch rolling mechanism to deliver paste to a binder thereon, a plunger in said reservoir adapted to force the paste through said conduit onto the binder on said bunch rolling mechanism, and mechanism for actuating said plunger.

10. The combination with a cigar bunch rolling mechanism adapted to enclose a charge of filler tobacco in a bunch binder to form a cigar bunch, of means for applying paste to a binder on said mechanism, and a device responsive to the presence or absence of a binder on said mechanism for incapacitating said binder pasting means in the absence of a binder on said mechanism, said bunch rolling mechanism including a bunch rolling table provided with a suction chamber, and said binder pasting means including a paste reservoir, a swingable conduit communicating with the interior of said reservoir and movable into position above the bunch rolling mechanism to deliver paste to a binder thereon, a plunger in said reservoir adapted to force the paste through said conduit onto the binder on said bunch rolling mechanism, and said mechanism for actuating said plunger, and said device including a detent operative to obtruct the movement of said plunger, and a sylphon bellows linked to said detent and connected to said suction chamber to move the detent out of plunger-obstructing position when there is a binder on said bunch rolling mechanism.

11. The combination with a wrapper carrier operating to transfer wrappers to wrapper-applying position, means for applying paste to a wrapper on said carrier, and mechanism respon-

sive to the presence or absence of a wrapper on said carrier for incapacitating said wrapper pasting means in the absence of a wrapper on said carrier.

12. The combination with a wrapper carrier operating to transfer wrappers to wrapper-applying position, means for applying paste to a wrapper on said carrier, and mechanism responsive to the presence or absence of a wrapper on said carrier for incapacitating said wrapper pasting means in the absence of a wrapper on said carrier, said wrapper pasting means including a paste reservoir, a nozzle connected to said reservoir and movable into contact with a wrapper on said carrier, a plunger in said reservoir adapted to force the paste through said nozzle onto the wrapper on said carrier, and mechanism for actuating said plunger and moving said nozzle in and out of operative position.

13. The combination with a wrapper carrier operating to transfer wrappers to wrapper-applying position, means for applying paste to a wrapper on said carrier, and mechanism responsive to the presence or absence of a wrapper on said carrier for incapacitating said wrapper pasting means in the absence of a wrapper on said carrier, said carrier including a suction head on which the wrapper is suctionally retained, and said wrapper pasting means including a paste reservoir, a nozzle connected to said reservoir and movable into contact with a wrapper on said carrier, a plunger in said reservoir adapted to force the paste through said nozzle onto the wrapper on said carrier, and mechanism for actuating said plunger and moving said nozzle in and out of operative position, and said incapacitating mechanism including a detent operative to obstruct the movement of the plunger, and a sylphon bellows linked to said detent and connected to said suction head to move the detent out of plunger-obstructing position when there is a wrapper on said suction head.

14. Binder pasting means comprising a paste reservoir, a swingable conduit communicating with the interior of said reservoir and movable into binder pasting position to deliver paste to a cigar bunch binder, a plunger in said reservoir adapted to force paste through said conduit onto the binder, and mechanism for actuating said plunger, said mechanism including a spring urging said plunger down into said reservoir, and linkage for periodically raising said plunger.

15. Wrapper pasting means comprising a paste reservoir, a nozzle connected to said reservoir and movable into wrapper-pasting position, a plunger in said reservoir adapted to force the paste through said nozzle onto the wrapper, and mechanism for actuating said plunger and moving said nozzle in and out of operative position, said nozzle having a configuration suitable for application of the paste to the margins of the flag end of the wrapper.

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