July 12, 1955 L. STEINER 2,712,824

MACHINES FOR MAKING TOBACCO REFILLS

Filed March 9, 1951

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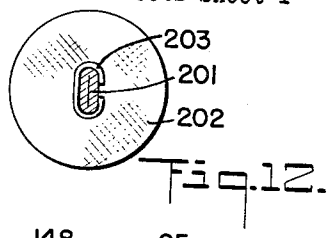
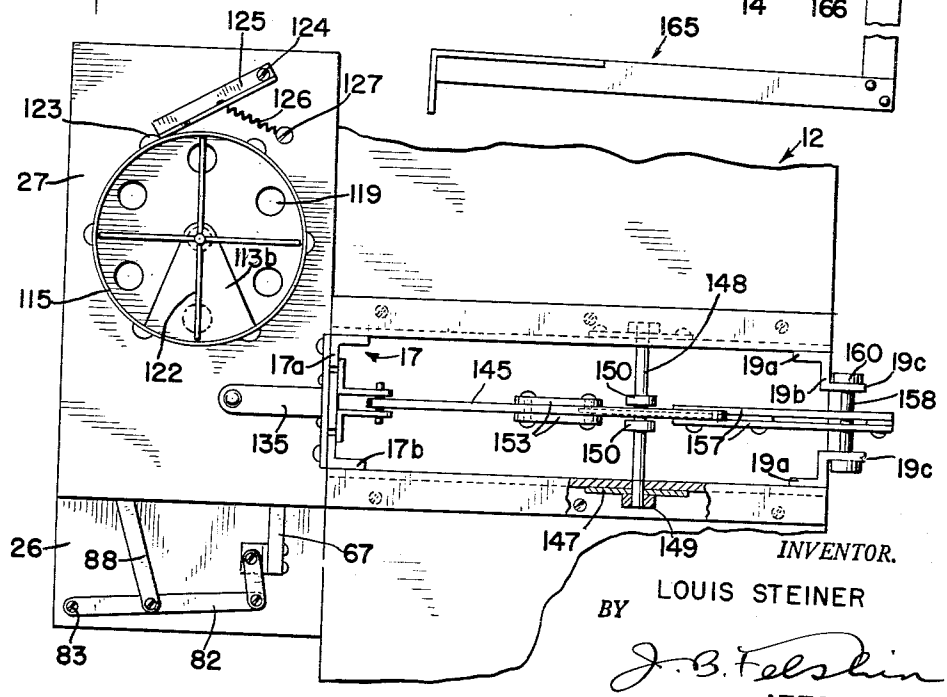


Fig. 12.

Fig. 1.

Fig. 2.



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Fig. 3.

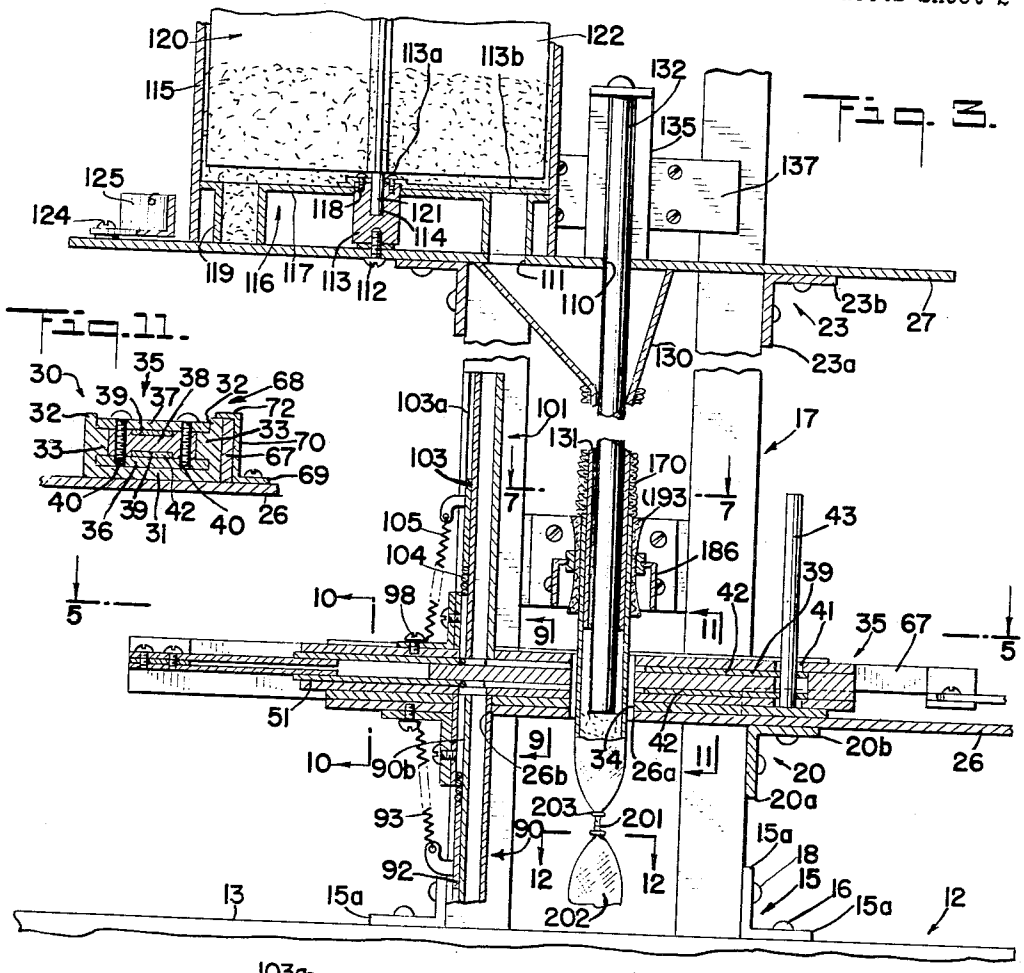
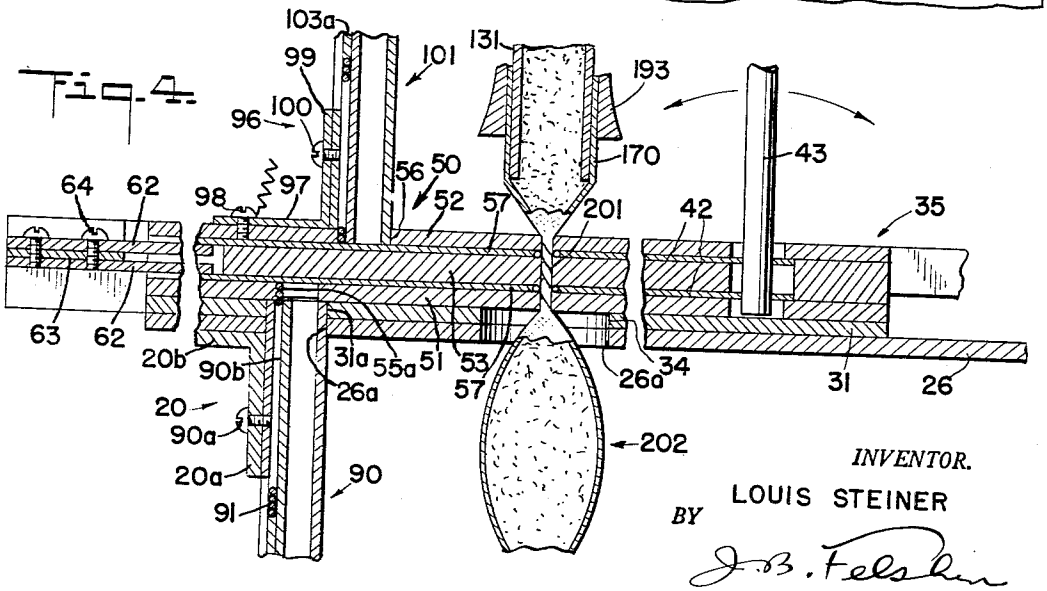


Fig. 11.

Fig. 4.



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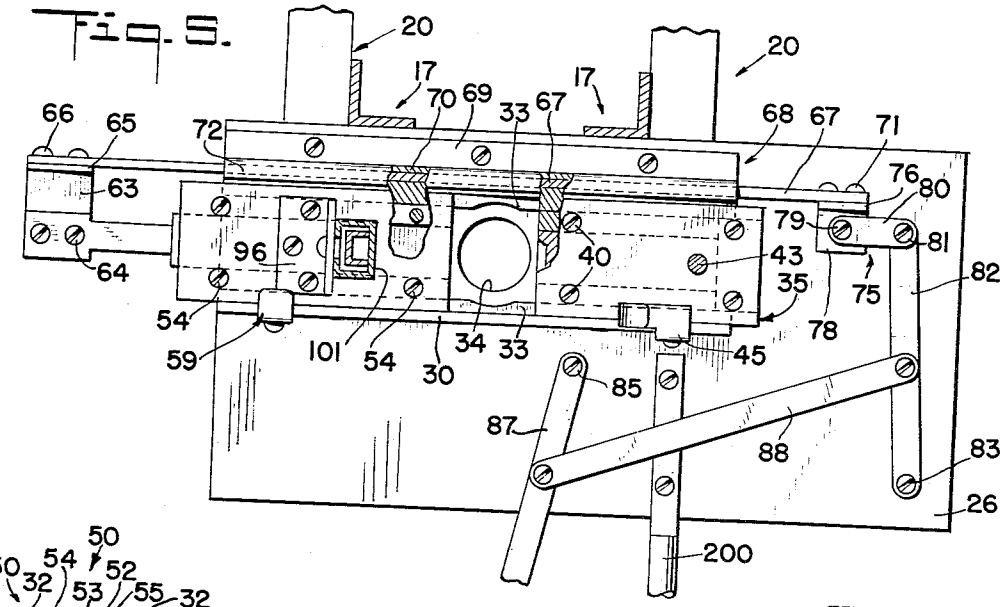
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Fig. 5.



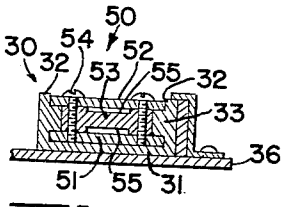


Fig. 9.

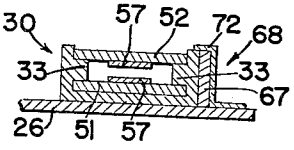


Fig. 10.

Fig. 6.

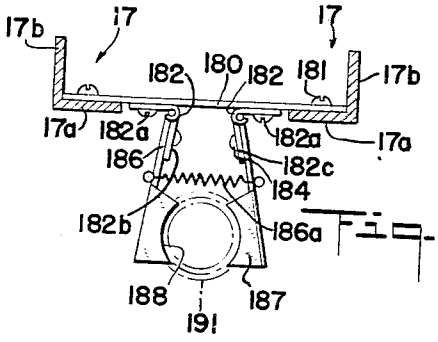


Fig. 7.

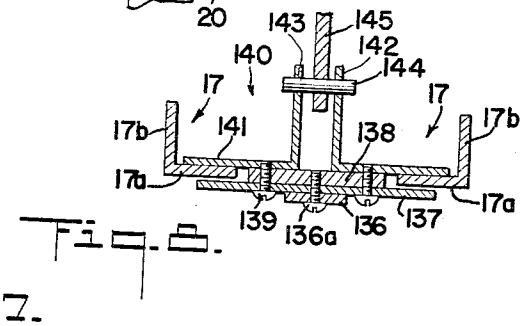


Fig. 8.

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MACHINES FOR MAKING TOBACCO REFILLS

Louis Steiner, Rockaway Park, N. Y.

Application March 9, 1951, Serial No. 214,686

13 Claims. (Cl. 131—75)

This invention relates to machines for making tobacco refills or inserts for smoking pipes.

An object of this invention is to provide a machine of the character described comprising highly improved means for successively filling with pipe tobacco successive portions of a flexible tubular sleeve of heat resistant fibers, constricting portions between said successive filled portions, and clinching each constricted portion at a pair of spaced points, so that the constricted portions may be severed between the spaced clinched points to produce individual smoking pipe tobacco refills, plugs or cartridges.

Another object of this invention is to provide a machine of the character described comprising a container for tobacco for dispensing tobacco to a hopper, a tube extending downwardly from the hopper and over which tube a long flexible sleeve of heat resistant fibers may be pulled up and bunched, and the lower end of the sleeve twisted to constrict the same, means to apply a pair of spaced staples to the twisted and constricted portion of the sleeve, a rod coaxially slidable within the hopper tube to tamp tobacco downwardly into a closed portion at the lower end of the flexible sleeve, said rod being movable upwardly after tamping so that the filled lower end of the sleeve can be pulled down a predetermined distance below the lower end of the tube and again twisted and constricted above the filled portion of the sleeve so that another pair of spaced staples may be driven through said second twisted portion, and whereby the operation can be repeated to form an elongated series of closed interconnected tobacco filled containers which may be severed between the spaced staples to provide individual pipe refills.

A further object of this invention is to provide a device of the character described in which the tobacco container is rotatable and has a bottom formed with a plurality of angularly spaced downwardly projecting tubular portions, said container resting on a plate having an opening communicating with the top of the hopper, the arrangement being such that as the container is rotated each of said tubular extensions passes over the openings in the plate so that the contents of said tubular extension will successively drop through the opening and into hopper.

Still another object of this invention is to index the tobacco container at the angular positions where said tubular extensions are over the opening in the plate.

Yet another object of this invention is to provide in a machine of the character described a collar frictionally pressing the bunched up flexible sleeve against the tube to permit the sleeve to be pulled down or payed out gradually, said friction collar serving to hold back the portion of the sleeve above the collar.

Yet another object of this invention is to provide a strong, rugged and durable machine of the character described which shall be relatively inexpensive to manufacture and yet practical and efficient to a high degree in use.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is a side elevational view of a machine embodying the invention, with parts broken away and in cross-section;

Fig. 2 is a top plan view of said machine;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a partial enlarged view of a portion of the structure shown in Fig. 3 and showing the machine in another position;

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 3;

Fig. 6 is a front elevational view of the structure shown in Fig. 4;

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 3;

Fig. 8 is a cross-sectional view taken on line 8—8 of Fig. 1;

Fig. 9 is a cross-sectional view taken on line 9—9 of Fig. 3;

Fig. 10 is a cross-sectional view taken on line 10—10 of Fig. 3;

Fig. 11 is a cross-sectional view taken on line 11—11 of Fig. 3; and

Fig. 12 is an enlarged cross-sectional view taken on line 12—12 of Fig. 3.

Referring now in detail to the drawing, 10 designates a machine embodying the invention. The same comprises a frame 11. Said frame 11 comprises a horizontal base 12 having a top wall 13, a front downwardly extending flange 13*a*, a rear downwardly extending flange 13*b* and downwardly extending parallel side flanges 13*c*. The base 12 may be supported on any suitable legs 14.

Attached to the top of the base 12 are a pair of horizontally extending parallel angle irons 15, running from front to rear relative to said base. Said angle irons 15 have outwardly extending flanges 15*a* contacting the top surface of top wall 13 and parallel upwardly extending flanges 15*b*. The flanges 15*a* may be riveted to the table 12 as by rivets 16 (Fig. 3). The front ends 15′ of the angle irons 15 are at the front of the base and the rear ends 15″ of said angle irons are at the rear of the base.

Mounted on the base and extending upwardly therefrom are a pair of front, vertical, parallel angle irons 17 having aligned inwardly extending flanges 17*a* and parallel rearwardly extending flanges 17*b*. The lower ends of the angle irons 17 rest on the top of the base. The lower ends of the flanges 17*b* are riveted to the flanges 15*b* by means of rivets 18.

Mounted on the rear of the base and between the rear ends of the members 15 are vertical supports 19. The supports 19 have parallel flanges 19*a* contacting the inner surfaces of flanges 15*b* and are riveted or screwed thereto by fastening members 19*d*. Extending inwardly from the flanges 19*a* are aligned flanges 19*b* and extending rearwardly from the upper portions of the flanges 19*b* are parallel flanges 19*c*. It will be noted that members 17 extend upwardly to a higher level than members 19, as shown in Fig. 1 of the drawing.

Interconnecting members 17 and 19 at points somewhat above members 15 are parallel, horizontal, angle shaped members 20. Said members 20 extend forwardly beyond members 17. Said members 20 have downwardly projecting flanges 20*a* parallel to one another and contacting flanges 17*b* and 19*a* and are riveted or fastened

thereto as at 21 and 22. Members 20 furthermore comprise outwardly extending horizontal aligned flanges 20*b*.

Members 17 and 19 are also interconnected by a pair of horizontal similar angle shaped members 23, disposed above and coextensive with members 20. Members 23 have downwardly extending flanges 23*a* contacting the outer surfaces of the flanges 17*b* and 19*a* and are riveted or otherwise fastened thereto as at 24 and 25. Members 23 also project forwardly of members 17, as shown in Fig. 1 of the drawing. Members 23 furthermore comprise outwardly extending aligned flanges 23*b*.

It will now be understood that members 15 are similar and symmetrically disposed to one another; members 17 are similar and symmetrically disposed to one another; members 19 are similar and symmetrically disposed to one another, and members 23 are similar and symmetrically disposed to one another. It will also be observed that members 23 are located substantially at the upper ends of members 19.

Mounted on and supported by the portions of members 20 which extend forwardly of members 17 is a horizontal bottom plate 26. Mounted on and supported by the portions of members 23 which extend forwardly of members 17 is an upper horizontal plate 27. The plates 26 and 27 are substantially rectangular. Their front edges are in a common vertical plane with the front ends of members 20 and 23. Plate 26 extends further to the right than does plate 27, and plate 27 extends further to the left than plate 26, locking at Fig. 3 of the drawing.

The bottom plate 26 is formed with an opening 26*a* disposed forwardly of member 17 and centrally between members 20. Said plate 26 is furthermore formed with a through opening 26*b* disposed adjacent the left member 20, looking at Fig. 3. The centers of openings 26*a* and 26*b* are substantially equidistant from the plane of flanges 17*a*.

Mounted on and fixed to the top of lower plate 26 and in front of member 17 is a guide member 30 which extends from side to side. It comprises a bottom wall 31 from which extend upwardly, front and rear walls 32. At the inner sides of walls 32 are inwardly extending aligned parallel ribs 33. The bottom wall 31 is formed with a central opening 34 registering with opening 26*a*. Said bottom wall 31 is furthermore formed with an opening 31*a* registering with the opening 26*b*. Slidably mounted on member 30 and on one side of the central opening 34 is a slider 35 comprising a plate 36 lying on plate 31 and engaging the underedges of the ribs 33. Slider 35 further comprises a top plate 37 disposed between the side walls 32 and contacting the top edges of the ribs 33. Plates 36 and 37 are coextensive.

Disposed between the plates 36 and 37 is a plate 38 contacting the inner edges of the ribs 33. Plate 38 is formed at its upper and lower surfaces with central longitudinal grooves 39. Plates 36, 37 and 38 are attached together to form a unit by means of vertical screws 40. The plates 36, 37 and 38 are formed for the purpose hereinafter appearing with registering through openings 41.

Disposed within the grooves 39 are staple anvil blades 42. The blades 42 are slidable in the grooves 39. Attached to the outer ends of the blades 42 is a vertical rod-like handle 43 passing through the registering openings 41 and extending upwardly above the slider 35. It will now be understood that the slider 35 is slidable relative to the fixed guide member 30, and the anvil blades 42 have a limited sliding movement relative to the slider 35. The purpose for this construction will be explained hereinafter.

The slider 35 is movable from its outer position, shown in Fig. 3, to its inner position, shown in Fig. 4. The outer positions are also illustrated in Figs. 5 and 6 of the drawing. Means is provided to retain the slider 35 in its innermost position. To this end there is pivoted to the front wall 32 as at 44, a latch member 45 having an arm 46 and an arm 47 extending at right angles thereto, and a hook 48 extending from the arm 47. When member 35 is moved inwardly to the position shown in Fig. 4, the latch member 45 may be swung in a clockwise direction, looking at Fig. 6, so that the arm 47 thereof engages the outer end of said slider 35 to hold it in its innermost position. When slider 35 moves inwardly its outer end will register with the outer end of guide member 30.

Also slidable within the guide member 30 and disposed on the left side of the opening 34 is a second slider 50. The slider 50 comprises a bottom plate 51 contacting the top surface of bottom wall 31 and disposed between said walls 32 and engaging beneath the ribs 33. Said slider 50 further comprises a top plate 52 disposed between said walls 32 and contacting the upper surfaces of the ribs 33. Said slider 50 also comprises an intermediate plate 53 disposed between the ribs 33 and contacting plates 51 and 52. Plate 53 may be attached to the plates 51 and 52 by means of vertical screws 54. Plate 53 is formed in its upper and lower surfaces with longitudinal grooves 55. It will be noted that the plate 53 is not as long as the plates 51 and 52. Its right end registers with the right ends of said plates 51 and 52, but its left end, looking at Fig. 3, terminates short of the left ends of plates 51, 52. Plate 51 is furthermore formed with an opening 55*a* registering with opening 31*a* but of smaller dimension. Plate 52 is formed with a through opening 56 offset inwardly with respect to the opening 55*a*. Slidable within the grooves 55 are staple driver blades 57. The driver blades 57 project to one side beyond the left end of plate 53. Thus the slider 50 may slide relative to the guide member 30 from the positions shown in Figs. 3, 5 and 6 to the position shown in Fig. 4. In moving the slider 50 to such position it is moved to the right, looking at Fig. 4. Means is provided to retain the slider 50 in its innermost position. To this end there is pivoted to the front wall 32, as on pivot 58, a latch 59 having an arm 60 and an offset arm 61. The latch 59 is normally in the position shown in Figs. 5 and 6. However, when the slider 50 is moved inwardly to the position shown in Fig. 4 the latch 59 may be swung in a counterclockwise direction through an angle of 90° so that arm 61 will engage the left end of the slider 50 to hold it in its innermost position, shown in Fig. 4.

Attached to the inner surfaces of the outer ends of the drivers 57 are parallel bars 62 between which is disposed a spacer plate 63. The bars 62 and the spacer plate 63 are attached together by screws 64. The spacer plate 63 is offset rearwardly and is formed at its rear end with a flange 65. The flange 65 is riveted as by rivets 66 to a horizontal operating bar 67 which contacts the rear surface of the rear wall 32 of guide 30. Means is provided to guide the operating member 67 and hold it against said rear surface. To this end there is attached to the top of lower wall 26 a Z-shaped guide member 68 having a rearwardly extending flange 69 contacting wall 26, a vertical wall 70 parallel to and spaced rearwardly of the rear wall 32, and a top flange 72 extending forwardly from the upper end of wall 70 and contacting the top edge of the rear wall 32. Thus the bar 67 rests on lower wall 26 and slides between the rear wall 32 and wall 70 of member 68, and it is held down on wall 26 by the top flange 72.

Attached to the right end of operating member 67 is an angle shaped connector 75 having a vertical flange 76 riveted as at 71 to the operating member 67. Extending forwardly from the flange 76 is a bottom flange 78 carrying a pivot pin 79. Pivoted to the pivot pin 79 is a link 80 connected by a pivot pin 81 to a bar 82 pivoted to the bottom plate 26 as at 83. Pivoted to the top of the bottom plate 26 as at 85 is a lever arm 87, interconnected by a link 88 to an intermediate portion of arm 82.

It will now be understood that when the lever **87** is swung in a counterclockwise direction, or to the right, looking at Fig. 5 of the drawing, arm **82** will be swung in a clockwise direction moving operating bar **67** to the right and hence moving the driver blades **57** to the right. When the operating lever **87** is swung to the left, or in a clockwise direction, looking at Fig. 5, arm **82** will be swung in a counterclockwise direction moving the bar **67** to the left for retracting the driver blade **57**. The driver blades **57** may be retracted to positions clearing the openings **55***a* and **56**.

Fixed to flange **20***a* of the left member **20**, by means of a screw **90***a*, is a staple magazine **90** of any usual construction. The magazine **90** is disposed vertically and its upper end projects into the registering openings **26***b*, **31***a*. The magazine **90** includes a track **90***b* on which is slidably mounted a strip **91** of convential staples. Slidable on the track is a pusher **92** normally urging the staple strip upwardly through the action of a coil tension spring **93** which interconnects the pusher with flange **20***b* of said member **20**. The staples are moved upwardly toward slider **50** through the opening **55***a* and when the driver blades are retracted sufficiently the uppermost staple will move into the lower groove **55**.

Attached to the top slider **50** is an angle plate **96** comprising a horizontal flange **97** fixed to the top of the slider by a screw **98**. Extending upwardly from the flange **97** is a flange **99** disposed adjacent the opening **56**. Attached to the flange **99** by means of screw **100** is a vertical staple magazine **101**, the lower end of which projects down into the opening **56**. The staple magazine may be of any usual construction and includes a pusher **103** on a track **103***a* for pushing the staple strip **104** downwardly toward slider **50** and the opening **56**. The pusher **103** is normally urged downwardly by a spring **105** which interconnects the pusher with the screw **98**. Thus the staple strip is pushed against the upper driver blade **57**. However, when the driver blades are retracted to the left sufficiently the lowermost staple will enter the upper groove **55**. When member **87** is swung in a counterclockwise direction to move bar **67** to the right, the driver blades **57** will drive a pair of staples against the anvils **42**. The purpose for driving the staples will be explained hereinafter.

It will be noted that when the latches **45** and **49** are up and the sliders **35** and **50** are moved away from each other a space or opening is presented between the inner ends of the sliders which registers with the openings **26***a*, **34** as shown in Fig. 3 of the drawing. It will be further noted that the upper staple magazine **101** moves with the slider **50**.

The upper plate **27** is formed with an opening **110** disposed directly above the openings **26***a* and **34**. Offset to one side of the opening **110** is another opening **111** formed in said plate **27**. Attached to the top of the plate **27** at a point offset from the opening **111** and by means of a screw **112** is a hub or block **113** formed in its upper surface with a downwardly extending blind hole **114**. The screw **112** passes through an opening in plate **27** and is screwed to the lower end of the hub or block **113**. Rotatably mounted about the hub **113** is a cylindrical container **115**, which may be open at its upper end. The lower edge of the container **115** may rest on the upper wall **27**. The opening **111** is disposed inwardly of the cylindrical wall **115**.

Fixed to the inside of the cylindrical container **115** is a false bottom member **116** having a top flat wall **117** spaced above the wall **27**. The wall **117** is formed with a central opening **118** through which the hub **113** passes. Member **116** is rotatable about said hub **113**. Extending downwardly from the wall **117** are a plurality of equiangularly spaced tubes **119**, open at their upper and lower ends. The lower ends of the tube **119** contact the upper surface of the top wall **27**. The internal diameters

of the tubes **119** are the same as the internal diameter of the opening **111**.

Member **116** is fixed to the cylindrical container **115** in any suitable manner. It will now be observed that as the container **115** and its false bottom member **116** are rotated, the tubes **119** successively register with the opening **111**. Tobacco for smoking pipes may be inserted into the container. Within the container also is an agitator member **120**. The agitator member **120** has a central axle **121** which is rotatably received in the opening **114**. Said agitator **121** also has radial vanes or wings **122**. Said agitator may project above the upper end of the container **115** as shown in Fig. 1 of the drawing.

It will now be understood that the agitator **120** may be rotated independently of the container **115** for agitating the tobacco therein, so as to keep it loose.

Means is provided to index the tubes **119** relative to the opening **111**. To this end there is fixed to the container **115** a plurality of screws **123** having heads disposed exteriorly of the container. The heads **123** are equiangularly spaced similar to the tubes **119**. Pivoted to the top of wall **27** as on pivot pin **124** is an arm **125** pressed against the container by means of a coil tension spring **126** interconnecting said arm with a post **127**. When the outer end of the arm **125** contacts one of the heads of the screws **123**, one of the tubes **119** registers with the opening **111**. Thus, as the container is rotated to each new position it is accurately indexed in proper position by means of engagement of arm **125** with one of the screws **123**.

Attached to the underside of wall **27** is a hopper **130** surrounding the openings **110** and **111**. The hopper **130** tapers downwardly and inwardly and extending downwardly from its lower end is a tube **131** which terminates at its lower end just above the guide member **30**. The tube **131** is aligned with the opening **110** and with the openings **34** and **26***a*. Extending axially through tube **131**, through the hopper **130**, and through the opening **110** is a tamping rod **132**. The rod **132** projects above wall **27**. Attached to the upper end of the rod is a slider member **133** which slides up and down on members **17** and is disposed above members **23**.

The sliding member **133** comprises an angle shaped member **134** having a horizontal forwardly extending arm **135** and a vertical downwardly extending arm **136**. The upper end of the rod **132** is fixed to the forward end of the arm **135** in any suitable manner. The arm **136** is disposed centrally between members **17** and is disposed in a vertical plane forwardly of the flanges **17***a*. Attached to the rear of arm **135** by screws **136***a* is a guide plate **137**, the side portions of which are disposed in front of the flanges **17***a*.

Fixed to the rear surface of plate **137** is a spacer plate **138**. Plate **138** is fixed to plate **137** by means of screws **139**. Plate **138** is disposed between the inner edges of the flanges **17***a*, as shown in Fig. 8 of the drawing. Attached to the rear of the spacer plate **138** by said screws **139** are a pair of similar symmetrically disposed angle shaped members **140**, comprising aligned or coplanar outwardly extending flanges **141** and parallel flanges **142**. The screws **139** are screwed to the flanges **141**. The flanges **141** contact the rear surfaces of the flanges **17***a*. Thus the flanges **17***a* are disposed between plate **137** and flanges **141**.

The parallel flanges **142** are formed with aligned openings **143** carrying a transverse pivot pin **144**. Pivoted to the pivot pin **144** is the upper end of a lever **145** which is inclined downwardly and rearwardly between the members **23** to a point therebelow. Lever **145** is formed with a longitudinal slot **146** adjacent its rear end.

Attached to the outer surfaces of the flanges **23***a* of members **23** are downwardly extending plates **147** formed with aligned openings supporting a transverse horizontal pivot pin **148**. Collars **149** may be fixed to

the outer ends of the pivot pin **148** to prevent longitudinal movement with the latter. The pivot pin **148** passes through the slot **146**. Collars **150** may be fixed to the pin **148** on opposite sides of the lever **145**.

Pivoted to an intermediate portion of the lever **145**, as at **152**, are a pair of parallel similar links **153** carrying at their lower ends a pivot pin **154**. Pivoted to the pivot pin **154** and received between the lower ends of the links **153** is the forward end of a bar **155**. Attached to the opposite sides of the bar **155** by means of screws **156** are a pair of parallel plates **157** which pass rearwardly between members **19**. Supported by the flanges **19***c* of said members **19** is a horizontal transverse pivot pin **158** provided with collars **160** at its outer ends disposed on the outer sides of said flanges **19***c*. The pivot pin **158** passes through an opening in the plates **157**. Received between the rear ends of the plates **157** rearwardly of the pivot pin **158** is the upper end of a bar **162**. The upper end of the bar **162** is fixed to plates **157** by screws **163**. The bar **162** may extend downwardly to a point spaced above the floor. It extends below the base **12**.

Fixed to the lower end of the bar **162** is a foot pedal **165**. The bar **162** is connected to the front flange **13***a* of the base by a coil tension spring **166**. It will now be understood that the spring **166** normally tends to rotate the bar **162** forwardly or in a clockwise direction about the pivot pin **158**. When the foot pedal **165** is engaged by the foot of the operator and pressed rearwardly to tension the spring **166**, plates **157** which form a lever together with the bar **155** are rotated in a counterclockwise direction, pulling down on the links **153**, thereby causing the slider **133** to slide down. During such action the pivot pin **148** moves through the slot **146** of the lever **145**. As the slider **133** moves down the rod **132** likewise moves downwardly in the tube **131**. During the operation the rod **132** moves from its "up" position, shown in Fig. 4 of the drawing, to its "down" position, shown in Fig. 3.

In accordance with the invention a flexible sleeve **170**, preferably of woven glass fiber or other heat resistant or non-burning material, is moved upwardly through the openings **26***a* and **34** and through the space between the separated sliders **35** and **50**. The upper end of the flexible sleeve is then pulled over the tube **131** and pushed or bunched upwardly until a suitable length of the sleeve is fitted over the tube. Means is provided to retain the bunched or gathered sleeve in such condition while permitting the lower end of the tube to be gradually payed out or pulled downwardly. To this end there is fixed to the rear surfaces of the flanges **17***a* of support **17** at a point spaced above the plate **26**, a plate **180**. The plate **180** may be attached by means of screws **181** or in any other suitable manner. The plate **180** straddles the space between the flanges **17***a*, as shown in Fig. 7 of the drawing.

Attached to the front of plate **180** and disposed inwardly of the flanges **17***a* are a pair of similar, symmetrical hinges **182**. The hinges **182** have fixed sleeves or portions **182***a* attached to the plate **180** and a pair of swingable sleeves or portions **182***b*, **182***c* attached by screws **184** to a pair of arms **186**. On the upper edges of the front portions of said arms are inwardly extending wings **187** having part-circular inner edges **188**. The wings **187** engage within the annular groove **190** of an annular ring **191** which surrounds the tube **131** and is spaced concentrically therefrom.

Attached to the inside of the tube **191** is a sleeve **193** of felt or other material which will create friction with the sleeve **170** by pressing the latter against tube **131**. The sleeve **193** creates friction so as to permit the sleeve **170** to be pulled down or payed out gradually while holding back the bunched up portion of the sleeve thereabove.

Members **186** are interconnected by a coil tension spring **186***a*. Said members **186** may be separate if desired to release the ring **191** and the sleeve **193** so they may be moved downwardly.

The upper end of the sleeve **170** may be inserted within the sleeve **193** and said sleeve **193** then moved upwardly to place the upper end of the flexible sleeve **170** over the lower end of the tube **131**. Sleeve **193** and its ring **191** may then be moved upwardly and engaged with the wings **187**. Then the sleeve **170** may be pulled upwardly and bunched in the space between the upper end of the sleeve **193** and the lower end of the hopper. A suitable length of sleeve **170** may be bunched or gathered together.

It will be noted that tobacco from the tube **119** which registers with the opening **111** drops into the hopper and then down into the tube **131** surrounding the rod **132**, moving downwardly to the lower end of the sleeve.

The operation of the machine will now be described. With the rod raised the lower portion of the sleeve **170** may be twisted. Then the sliders **25** and **50** may be moved inwardly toward each other and the latches **45** and **59** swung outwardly and downwardly in the directions shown by the arrows in Fig. 6, and engaged with the outer ends of said sliders. The lever **87** may then be moved to the right toward a fixed arm **200** fixed to the table **126**. The lever **187** may be squeezed toward the arm **200** to facilitate its operating. During such operation the drive blades **57** will drive a pair of staples through the twisted portion of the sleeve against the anvils. The rod **43** may then be grasped and pushed to the left to tighten or fully clinch the arms of the staples. Lever **87** may then be moved back to its normal position to retract the drive blades. The latches **45** and **59** may then be swung upwardly to the position shown in Figures 5 and 6 and disengaged from the outer ends of the sliders **35** and **50** which may then be separated. The sleeve may then be pulled down a predetermined length. The container **115** may then be rotated to bring the tube **119** over the opening **111** so that a quantity of tobacco will drop into the hopper and down into the tube and into the sleeve above the applied staples. The foot pedal **165** may then be pressed rearwardly to bring the rod **132** downwardly to tamp the tobacco into the bottom of the sleeve. The foot pedal **165** may then be released so that the spring **166** raises the rod **132**. The sleeve is then twisted, as shown in Fig. 4 of the drawing, to provide a twisted portion **201** which will be disposed just between the lower end of the tube **131** or between the inner ends of the sliders **35** and **50**. The sliders **35** and **50** may then be again moved inwardly toward each other. The latches **45** and **59** are moved downwardly to hold them, and lever **87** is then again squeezed to drive a pair of staples around the twisted portions **201**. Rod **43** may then be pressed to the left to fully clinch the staples. In the drawing, numeral **203** designates the clinched staples, as shown in Fig. 12 of the drawing.

Due to this action a refill plug or cartridge **202** of smoking tobacco will be formed between spaced twisted and stapled points in the sleeve **170**. The above action is repeated so that a plurality of connected cartridges **202** are formed. When the sleeve **170** is all used up, the connected cartridges may then be severed at their twisted portions **201** between pairs of staples to separate the connected cartridges into separate cartridges or plugs. These plugs or cartridges may be inserted into a smoking pipe and as the smoker smokes the tobacco, the sleeve being made of heat resistant material such as woven glass will not burn. The ash remains in the sleeve or pocket and after the smoker is finished smoking, the sleeve with the ashes may be easily removed or shaken out.

It will be observed that the rod **132** substantially fills the tube **131**, and that said rod is raised above the tube before tobacco from the hopper may drop down through the tube.

Means is provided to insure the insertion of a predetermined or measured amount of tobacco down into the bottom of the sleeve each time the rod **132** is raised above the tube. To this end there is fixed to the block **113**, as by screws **113***a*, a plate **113***b* lying on the top

wall 117 and above the opening 111 and any tube 119 which registers therewith. Thus as the container 115 rotates and the tubes 119 are filled with tobacco, as a tube rotates beneath the plate 113 said plate will cut off communication to said tube so that it will have a measured amount of tobacco therein. This measured amount of tobacco will drop down through the opening 111 and into the hopper 130. When the rod 132 is raised so that its lower end is above the tube 131, tobacco will then drop from the hopper through the tube into the bottom of the sleeve. Then the rod may be moved downwardly to tamp the tobacco and thereafter raised to permit the stapling operation. With such construction a measured amount of tobacco sufficient to make one plug or refill will drop into the sleeve for each operation.

Although this machine is described as making refills of tobacco, it will be understood that the machine can be used for any comminuted or powdered or soft material.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A machine of the character described comprising a tube, a hopper at the upper end of the tube, a rod passing axially through the hopper and into the tube, a container communicating with the hopper for feeding tobacco to the hopper which may then pass down through the tube, said tube being adapted to receive a flexible sleeve thereover, means for slidably moving the rod relative to the tube, whereby tobacco may be tamped down into the lower end of the sleeve by means of the rod, and means for applying a pair of staples on the sleeve and below the lower end of the tube.

2. In a machine of the character described, a plate formed with a hole, a tube disposed above the plate and in alignment with the hole, means for supplying tobacco to the tube, a rod passing through the tube concentrically thereof and spaced from the inner surface of the tube, said tube being adapted to receive a flexible sleeve thereover, means for reciprocating the rod within the tube, the lower end of the tube being disposed above the plate, and means supported on said plate adapted to apply a pair of spaced staples on the sleeve.

3. In a machine of the character described, a plate formed with a hole, a tube disposed above the plate and in alignment with the hole, means for supplying tobacco to the tube, a rod passing through the tube concentrically thereof and spaced from the inner surface of the tube, said tube being adapted to receive a flexible sleeve thereover, means for reciprocating the rod within the tube, the lower end of the tube being disposed above the plate, means supported on said plate adapted to apply a pair of spaced staples on the sleeve and means surrounding the tube and spaced in concentric relation thereto for frictionally pressing the flexible sleeve against the tube so that it may be payed out gradually in a downward direction below the tube.

4. In a machine of the character described a longitudinal guide formed with an opening, a first and second slider slidably mounted on said guide and on opposite sides of said opening, movable toward and away from each other to cover and uncover said opening, a pair of staple magazines on the first slider including means to feed staples inwardly from opposite sides of said first slider, a pair of staple drivers on said first slider for driving staples from said staple magazines, means for retaining said sliders against movement, and a pair of anvils

mounted on the second slider for clinching staples driven by the drivers on the first slider.

5. In a machine of the character described a longitudinal guide formed with an opening, a first and second slider slidably mounted on said guide and on opposite sides of said opening, movable toward and away from each other to cover and uncover said opening, a pair of staple magazines on the first slider including means to feed staples inwardly from opposite sides of said first slider, a pair of staple drivers on said first slider for driving staples from said staple magazines, a pair of anvils mounted on the second slider for clinching staples driven by the drivers on the first slider, means for moving said drivers relative to said first slider, and means for retaining said sliders against movement.

6. In a machine of the character described a longitudinal guide formed with an opening, a first and second slider slidably mounted on said guide and on opposite sides of said opening, movable toward and away from each other to cover and uncover said opening, a pair of staple magazines on the first slider including means to feed staples inwardly from opposite sides of said first slider, a pair of staple drivers on said first slider for driving staples from said staple magazines, a pair of anvils mounted on the second slider for clinching staples driven by the drivers on the first slider, means for moving said drivers relative to said first slider, means for retaining said sliders against movement, and means for moving said anvils relative to said second slider.

7. In a machine of the character described a longitudinal guide formed with an opening, a first and second slider slidably mounted on said guide and on opposite sides of said opening, movable toward and away from each other to cover and uncover said opening, a pair of staple magazines on the first slider including means to feed staples inwardly from opposite sides of said slider, a pair of staple drivers on said first slider for driving staples from said staple magazines, and a pair of anvils mounted on the second slider for clinching staples driven by the drivers on the first slider, means for retaining said sliders against movement, a tube fixed above the opening in the guide, the lower end of the tube being spaced above said guide, means for feeding tobacco to the tube, a tamping rod concentrically disposed within said tube, and means for reciprocating the rod within said tube.

8. In a machine of the character described a tube adapted to receive a flexible sleeve thereover, a hopper at the upper end of the tube, a friction sleeve surrounding said flexible sleeve for pressing the same against the outer surface of the tube to permit gradual paying out of the flexible sleeve to a point below said tube, and means for releasably engaging said friction sleeve said last named means comprising a pair of opposed wings on opposite sides of said tube and mounted for rotative movement about axes parallel to said tube.

9. In a machine of the character described a tube adapted to receive a flexible sleeve thereover, a hopper at the upper end of the tube, a tamping rod adjacent the hopper, a friction sleeve surrounding said flexible sleeve for pressing the same against the outer surface of the tube to permit gradual paying out of the flexible sleeve to a point below said tube, means for releasably engaging said friction sleeve, means for reciprocating said rod for tamping tobacco into the lower end of the sleeve, and means for stapling the sleeve said last named means comprising a pair of spaced staple drivers adjacent the lower end of said flexible sleeve, and an anvil associated with each of said drivers.

10. In a machine of the character described a tube adapted to receive a flexible sleeve thereover, a hopper at the upper end of the tube, a tamping rod adjacent the hopper, a friction sleeve surrounding said flexible sleeve for pressing the same against the outer surface of the tube to permit gradual paying out of the flexible sleeve

to a point below said tube, means for releasably engaging said friction sleeve, means for reciprocating said rod for tamping tobacco into the lower end of the sleeve, and means for stapling the sleeve, said last means comprising means to apply a pair of spaced staples to the sleeve.

11. In a machine of the character described, a tube adapted to receive a flexible sleeve thereover, means to apply a first pair of spaced staples so as to close the lower end of such a sleeve, means to feed a predetermined amount of tobacco to the tube, so that it drops to the lower closed end of the sleeve, means to tamp the tobacco into the lower end of the sleeve, and means to apply a second pair of spaced staples so as to close the sleeve above the tamped tobacco.

12. A machine of the character described comprising a hopper, a tube extending downwardly from the hopper, a flexible sleeve surrounding the tube, a rod slidable in the tube, means to reciprocate the rod up and down in the tube to bring the lower end of the rod to a point above the upper end of the tube, means to feed measured amounts of tobacco to the hopper, means to apply a pair of spaced staples to the flexible sleeve on the tube, said sleeve extending downwardly therefrom and adapted to receive the tobacco from the tube, and means to frictionally press the sleeve against the outer surface of the tube.

13. A machine of the character described, comprising a hopper, a tube extending downwardly from the hopper, a flexible sleeve surrounding said tube, a rod slidable in the tube, means to reciprocate the rod up and down in the tube to bring the lower end of the rod to a point above the upper end of the tube, means to feed measured amounts of tobacco to the hopper, said tube being adapted to receive the upper end of the flexible sleeve thereon whereby tobacco will flow from said hopper through said tube and into the lower end of the flexible sleeve, and means to apply a pair of spaced staples on the flexible sleeve at the end portion of the lower end thereof.

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