

MACHINE AND METHOD FOR MAKING CIGARETTES

Filed June 25, 1968

3 Sheets-Sheet 1

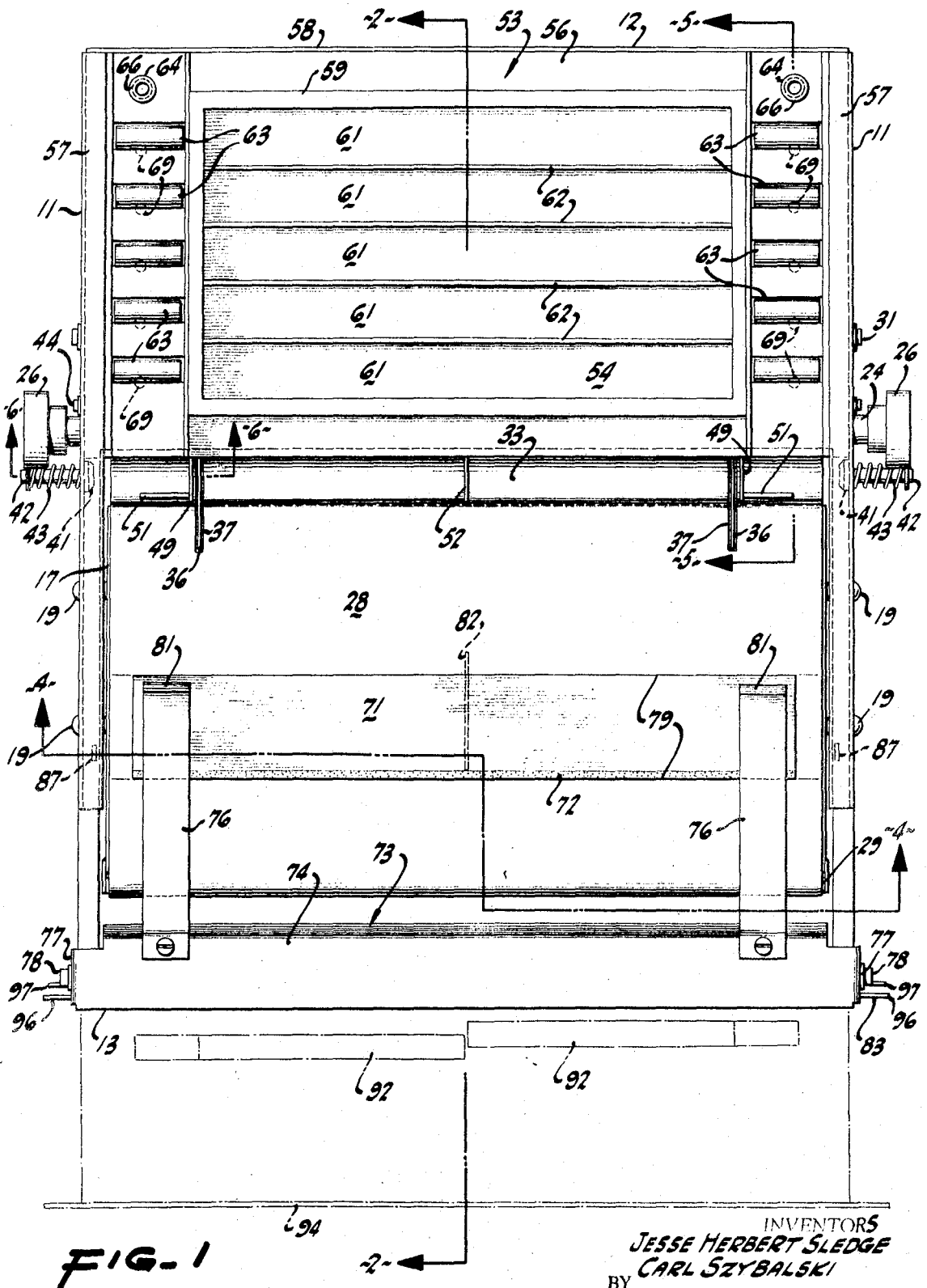


FIG. 1

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ATTORNEYS

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3 Sheets-Sheet 2

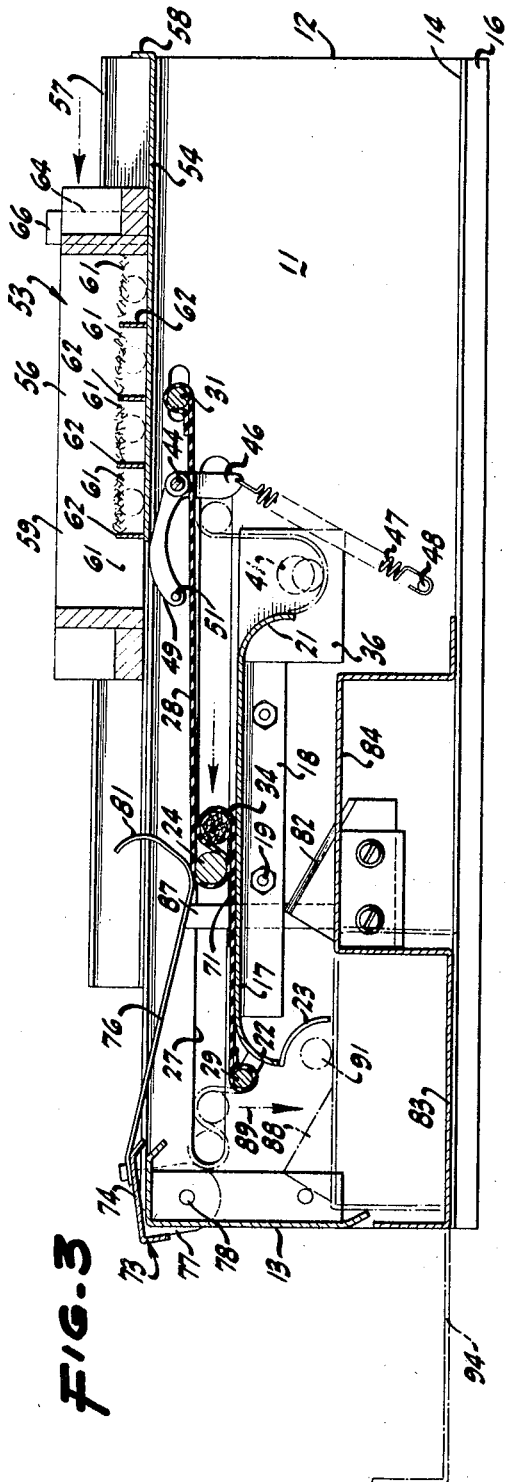


FIG. 3

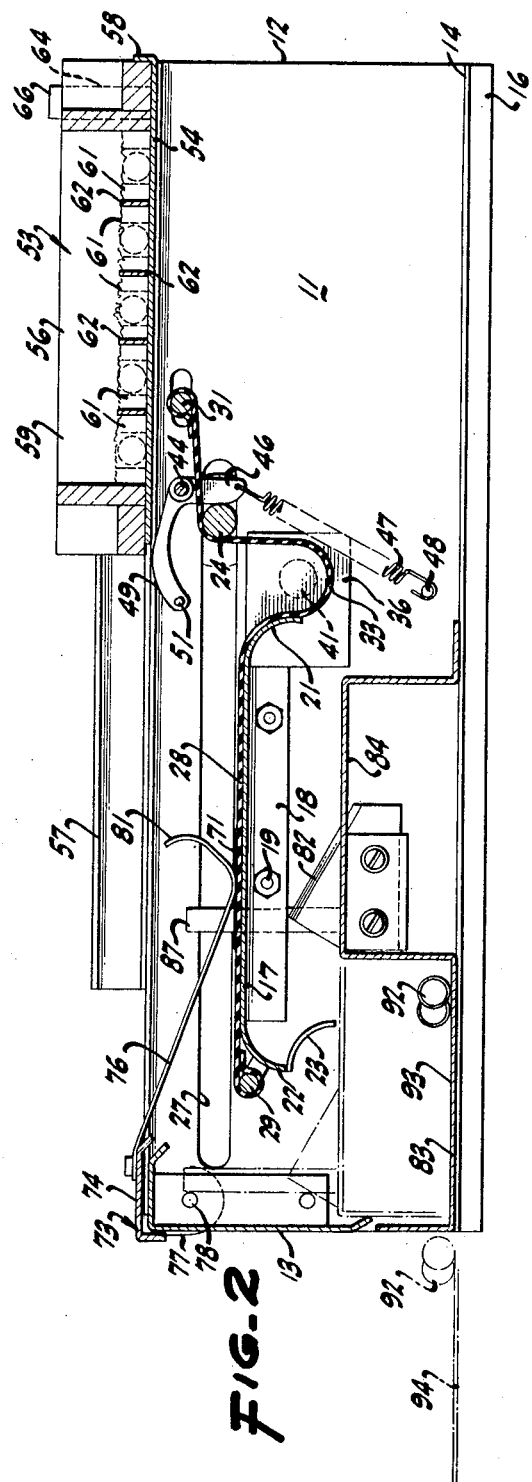


FIG. 2

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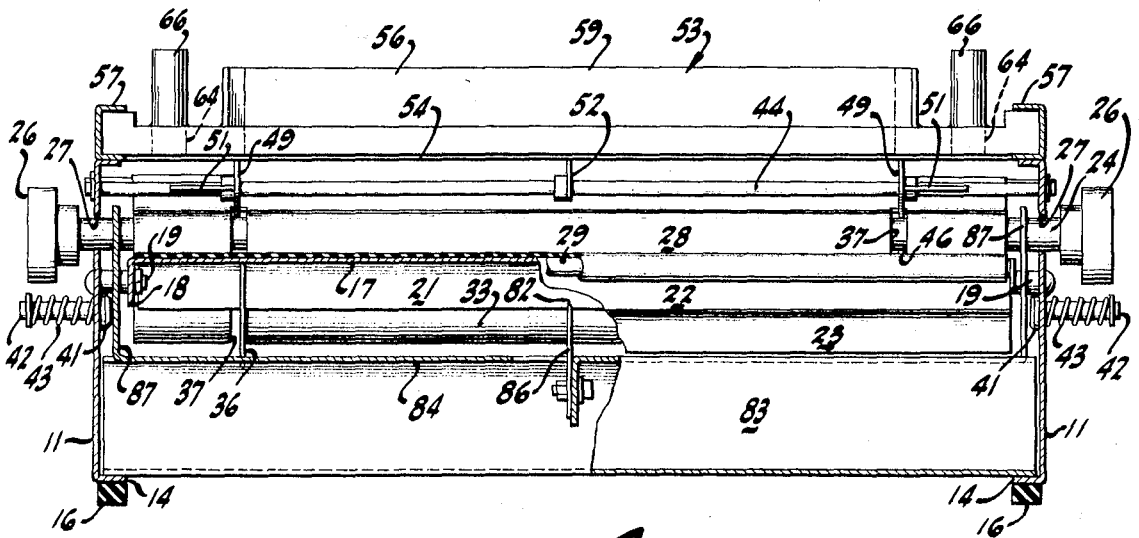


FIG. 4

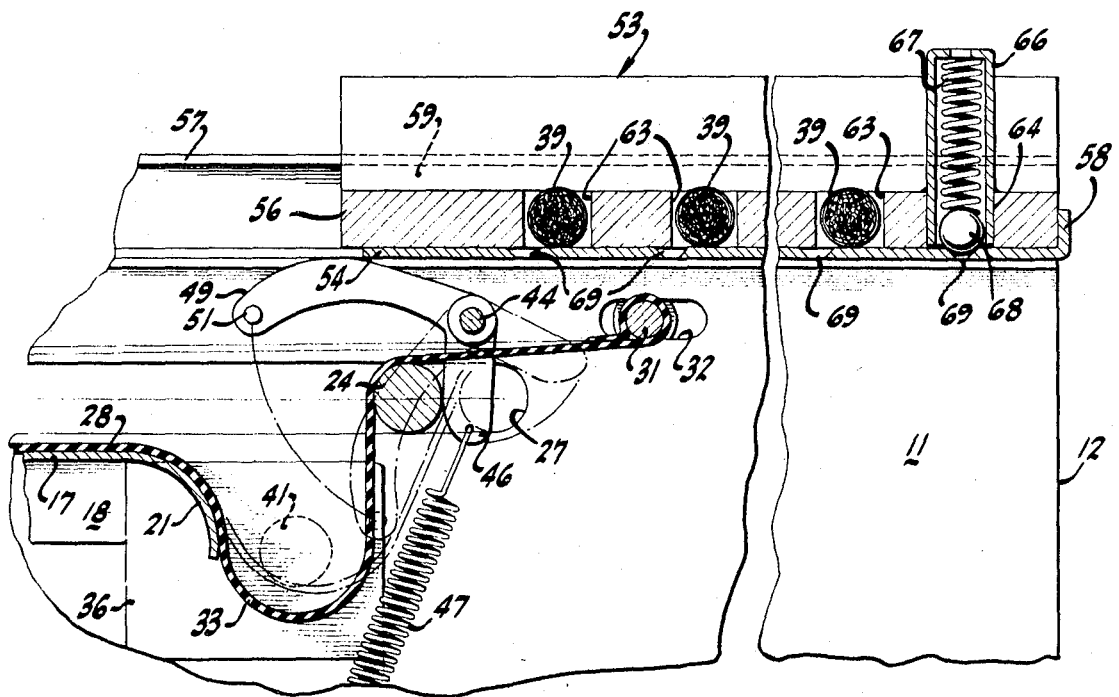


FIG. 5

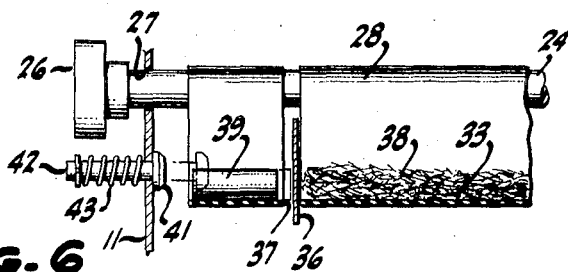


FIG. 6

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3,515,147

MACHINE AND METHOD FOR MAKING CIGARETTES

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U.S. Cl. 131—29

6 Claims

ABSTRACT OF THE DISCLOSURE

A machine for rolling filter cigarettes by depositing filters and tobacco in a pocket in a flexible apron and compressing and rolling the filters and tobacco onto a piece of cigarette paper in a moving bight in the apron formed between a roller and a plate is provided with a magazine for supplying a sequence of filters and measured amounts of tobacco to the pocket, resetting means for reforming the pocket, holding means for holding the paper on the apron in advance of the fold therein and a blade for cutting rolled cigarettes to proper length.

BACKGROUND OF THE INVENTION

The invention relates to machines and methods for making cigarettes and in particular to machines and methods wherein a measured portion of tobacco which has been deposited in a pocket in an apron is compressed and rolled onto a piece of cigarette paper in a moving bight formed in the apron between a roller and a plate.

The method of rolling cigarettes in which tobacco is compressed and rolled onto a piece of cigarette paper by a moving bight in an apron formed between a roller and a plate is old in the art and machines utilizing this method have been used for many years. In machines of this character for personal or portable use, however, there has been no effective provision for the rolling of filter cigarettes. Further, tobacco must be supplied to such machines for each cigarette rolled and, in many cases, in unmeasured amounts. Finally, paper positioned on the apron of such machines in advance of the bight therein tends to be pushed along this apron rather than be received therein flat and unwrinkled with the result that imperfect cigarettes are rolled.

SUMMARY OF THE INVENTION

The invention is a method and a portable machine for rolling cigarettes of the same general character as that described above, but which also incorporates certain additional features which make the method easier to accomplish and the machine a more practical one. Means are provided for automatically reforming the pocket in the apron for the receipt of tobacco and filters at the beginning of a rolling operation. A magazine, capable of receiving sufficient tobacco and filters for a number of cigarettes and of depositing measured portions thereof in the pocket at the beginning of each rolling process, is also supplied together with a device for aligning the filters in the pocket before the process begins. The paper problem is also solved by a holder which holds the paper in its position in advance of the bight, only releasing it when a substantial portion thereof has been received within the bight.

It is thus an object of the invention to provide a cigarette making machine for personal use with a magazine capable of receiving sufficient tobacco and filters for numerous cigarettes and of depositing the amount thereof required by one rolling process in position therefor.

It is another object of the invention to provide a cigarette making machine for personal use which is capable of making cigarettes with filters thereon.

Another object of the invention is to provide a cigarette making machine for personal use in which the pocket in the apron thereof for receipt of tobacco and filters at the beginning of the making process is automatically formed.

Another object of the invention is to provide a cigarette making machine for personal use in which cigarette paper is held in a suitable position for receipt thereby and released when so received.

Another object of the invention is to provide a method of making cigarettes in which measured portions of tobacco and filters are supplied for succeeding operations thereof.

Another object of the invention is to provide a method of making filter cigarettes which is suitable for personal use.

Still another object of the invention is to provide a generally improved machine and method for making cigarettes.

Other objects of the invention will be apparent from the description in conjunction with the drawings included herewith.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a cigarette making machine embodying the invention.

FIG. 2 is a sectional view taken along the line 2—2 in FIG. 1.

FIG. 3 is a sectional view similar to that of FIG. 2 showing the cigarette making process in an intermediate stage, other stages being shown in phantom.

FIG. 4 is a sectional view taken along the line 4—4 in FIG. 1.

FIG. 5 is a fragmentary sectional view to an enlarged scale taken along the line 5—5 in FIG. 1 which shows the apron pocket being reformed in phantom.

FIG. 6 is a sectional view taken along the line 6—6 in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The machine embodying the invention is generally box-like, having a pair of sides 11 (FIG. 4), a front end 12 and a rear end 13. These, together with other components of the machine which are not otherwise specified, may be made of any convenient material such as molded plastic or sheet aluminum or stainless steel. For access to the elements mounted therein, the top and bottom of the machine are open, although flanges 14 bent inwardly from the bottom edges of sides 11 have strips of cushioning material 16 affixed thereto to serve as support for the machine.

Positioned within the machine at an intermediate depth therein is a plate 17 extending the entire width thereof and extending longitudinally from generally the center of the machine to a position a spaced distance from the rear end 13 (FIGS. 2, 4). The plate 17 may be mounted by affixing flanges 18 depending from the sides thereof to the sides 11 of the machine by suitable fasteners 19. The front end of the plate 17 has a downwardly curved portion 21, while the rear end thereof has a downwardly curved portion 22 to which is attached a further portion 23 which also curves downwardly but in the opposite sense from the portion 22.

Extending transversely of the machine is a horizontal roller 24 (FIG. 2). The roller 24 extends through the sides 11 of the machine to knobs 26 (FIG. 1) and is constrained to move in slots 27 (FIG. 2) in the sides 11 at a small distance above the plate 17 from a position a spaced distance forward of the forward portion 21 of the plate 17 to a position between the rear portion 23 of the plate 17 and the rear end 13 of the machine.

The conventional cigarette making machine is completed by an apron 28 (FIGS. 1, 2) extending over the plate 17. The apron 28 is flexible and may be conveniently made of a rubberized cloth material. It is mounted between rods 29 and 31 (FIG. 2) which extend transversely of the machine. Rod 29 is mounted on the rear end portion 22 of the plate 17 in a position just rearwardly of the portion 22 and just below the level of the plate 17. Rod 31 extends between, and is affixed to, the sides 11 in a position slightly higher than, and somewhat forward of, the end of the slots 27 in the sides 11. The apron 28 extends the width of the machine and is of a length somewhat greater than the distance between the rods 29 and 31 such that the apron is slack therebetween. The amount of slack in the apron may be conveniently determined by providing the mounting position of the rod 31 on the sides 11 with some longitudinal leeway such as slots 32.

As shown in FIG. 2, when the roller 24 is positioned adjacent the forward end of the slots 27, the slack in the apron 28 may take the form of a pocket 33 (FIG. 2) formed between the forward portion 21 of the plate 17 and the roller 24. However, as the roller is moved along the slots to a position above the plate 17 (FIG. 3), the slack in the apron 28 will take the form of a bight 34 formed by the portion of the apron trapped between the roller 24 and the plate 17. This bight 34 will move as the roller 24 is moved rearwardly in the slots 27 and the surface of the bight will rotate as the portion of the apron rearwardly thereof passes thereinto along the surface of the plate and then passes out around the roller 24. Accordingly, tobacco which is within the bight will be rolled as the roller 24 is moved rearwardly. Transition from the pocket 33 to the bight 34 takes place as the roller 24 is moved in the slots 27 past the forward portion 21 of the plate 17, and at this point tobacco within the pocket is compressed.

The embodiment of the invention disclosed herein is adapted to roll two filter cigarettes. The cigarettes are rolled as a single unit, in end-to-end relation with the filters on the outer ends, and as a last step in the procedure, the single unit is cut through the center thereof by means which will be disclosed later on, resulting in the two cigarettes.

Provision for filters is made by a pair of plates 36 mounted to pass through the pocket 33 in the apron 28 through slits 37 cut therein (FIG. 1). As is particularly shown in FIG. 6, tobacco 38 is placed in the pocket 33 between the plates 36 while a filter 39 is placed at each end of the pocket outside of the plates 36 and in abutment therewith. As the tobacco and filters are moved away from the plates 36, compression and rolling thereof will cause the tobacco to move against the filter, but not around it, resulting in a firm and uniform cigarette.

Aligning the filter 39 transversely of the machine in the pocket 33 and positioning it against the plate 36 may be accomplished by a button 41 (FIG. 1) mounted on a shaft 42 passing through the side 11 in a position to engage the filter in the pocket. A spring 43 holds the button against the side 11 until its use is desired at which time depression of the shaft 42 by an operator of the machine will move the button into a position shown in dotted line in FIG. 6. Repeated depression of the shaft 42 tends to jiggle a filter into the desired transverse orientation, on the event it is not in alignment when dropped into position, and a final depression will move it into a position in abutment with the plate 36.

The invention also includes means for automatically reforming the pocket 33 when the roller 24 has been returned to the forward portion of the slots 27 to begin a new rolling cycle. As is particularly shown in FIG. 5, where the pocket is being reformed, a shaft 44 extending transversely of the machine, is mounted for rotation in the sides 11 slightly above the forward end of the slots 27. A pair of arms 46 extend downwardly from the shaft through the slits 37 in the apron 28 into a position where

they are engageable by the roller 24 shortly before it reaches the forward end of the slots 27. Accordingly, motion of the roller all the way to the forward ends of the slots causes the shaft 44 to be rotated through engagement of the roller with the arms 46. Springs 47 stretch from the ends of the arms 46 to a rod 48 extending transversely of the machine and mounted on the sides 11 thereof in a position such that the shaft 44 will automatically be returned to its unrotated position when the roller 24 has been moved rearwardly in the slots.

A pair of fingers 49 extend generally rearwardly, with a small downward curvature, from the shaft 44 (FIG. 5) when it is in its unrotated position. The fingers 49 are positioned to the outside of the plates 36 and each has a pin 51 extending outwardly therefrom to overlie a substantial portion of the margin of the apron 28. Upon rotation of the shaft 44 through engagement of the roller 24 with the arms 46, the fingers 49 are rotated against the upper surface of the apron 28 and through the space between the roller 24 and the forward portion 21 of the plate 17. The slack in the apron 28 is thus pushed into this space, forming the pocket 33 for receipt of tobacco and filters. A third finger 52 extends outwardly from the center of the shaft 44 (FIG. 1) generally parallel to the fingers 49 to form the pocket in the portion of the apron between the plates 36 in a similar manner.

In the invention, tobacco and filters are supplied to the pocket 33 by a magazine, generally designated 53 (FIGS. 1-3, 5), which is capable of storing sufficient filters and tobacco for the making of a number of cigarettes, but delivering to the pocket only those filters and the amount of tobacco needed to roll the two cigarettes the machine may make at a time. In the present embodiment, the magazine is designed to hold tobacco and filters for ten cigarettes or five operations of the machine.

The magazine 53 is comprised of a platform 54 and a sliding member 56. The platform 54 is rectangular and is mounted on the top of the machine extending between the sides 11 and from the front end 12 to a position over the front edge of the pocket 33. The sliding member, which may conveniently be made or molded of plastic, 56 is constrained to move longitudinally of the machine along the upper surface of the platform 54 and the upper edges of the sides 11 by guides 57 (FIG. 4). Motion of the sliding member 56 past the forward end 12 is prevented by an upturned flange 58 on the forward edge of the platform 54 (FIGS. 3, 4), while the opposite edge of the platform is free from obstruction.

The central portion of the sliding member 56 is rectangular in plan and surrounded by a wall 59. It is divided into five transversely extending troughs or cells 61 by four transverse dividers 62 (FIGS. 1, 2) extending from the bottom of the sliding member upwardly to a height less than that of the wall 59. The bottoms of the troughs 61 are thus open although they are effectively closed by the positioning of the sliding member 56 on top of the platform 54. Sliding of the sliding member over the free edge of the platform above the pocket 33 allows tobacco in the troughs 61 to sequentially drop into the pocket. The height of the dividers 62 are such that when the troughs are full to a level equal thereto, they contain the amount of tobacco needed for two cigarettes. Thus if a portion of tobacco measured to be equivalent to ten cigarettes is simply dumped into the center portion and spread between the troughs to form a level surface all the way across, each trough will end up containing the right amount of tobacco for two cigarettes.

The portions of the sliding member 56 to the sides of the central portion, each contain five troughs 63, also bottomless, and each of a size to contain one cigarette filter designated 39. These troughs 63 are so positioned that there is one at each end of each of the troughs 61 so that as the tobacco in one of the troughs 61 is deposited in the pocket 33 between the plates 36, a filter from a corresponding trough 63 is deposited in the pocket

33 in each of those portions thereof outside of the plates 36.

The sliding member 56 also carries means by which it may be stopped and held in a position such that only one set of troughs 61 and 63 are positioned over the pocket 33 at a time. Adjacent the front edge of the sliding member on each side thereof are positioned a pair of holes 64 (FIGS. 1, 2) passing vertically therethrough. A sleeve 66, open at the bottom and closed enough at the top to provide for a spring seat, is affixed therein. A spring 67 in each of the sleeves 66 presses a ball 68 out of the bottom thereof to sit in a series of detents 69 in the platform. The detents 69 are so positioned along the platform that when a ball 68 is positioned therein, only one set of the troughs 61 and 63 are positioned over the pocket 33.

Completion of the rolling of the cigarette is accomplished by rolling the tobacco and filters contained in the bight 34 onto a piece of cigarette paper 71 (FIGS. 1, 2) positioned on the apron 28 in advance of the bight. As the paper is received within the bight, it tends to follow the apron around the tobacco with the result that the tobacco becomes rolled therein. A gummed edge 72 on the paper 71 (FIG. 1) which may be moistened in any suitable manner shortly before the paper is entirely received within the bight, causes the paper to be sealed to itself when it has completely enclosed the tobacco and filters.

Paper 71 heretofore positioned on an apron such as 28 in advance of the bight 34 has been pushed, at least in part, along the apron in advance of the bight by a roller similar to 24, with the result that it is frequently received within the bight in a twisted or creased condition, if at all. The result, of course, is unsatisfactory cigarettes and a waste of tobacco, filters, paper and time. This problem is prevented in this invention by a paper holder 73 (FIG. 2) which comprises a bar 74, mounted transversely of the machine for frictionally resisted rotation, and a pair of spring fingers 76 extending therefrom for engagement with paper 71 positioned on the apron 28. The bar 74 may conveniently be mounted across the upper edge of the machine at the rear end 13 thereof by fastening ears 77 depending from the ends thereof to the sides 11 by frictional fasteners 78. The paper 71 may be positioned on the apron 28 to be engaged by the spring fingers 76 by lines 79 scribed on the apron, and when so positioned, the bar 74 may be rotated into a position such that the fingers push down against the paper to frictionally hold it in place, the friction fasteners 78 holding the bar in this position.

When the paper has been substantially received within the bight, as shown in FIG. 3, the holder 73 is no longer necessary. Accordingly, the ends 81 of the spring fingers 76 may be formed such that interaction between them and the roller 24 (FIG. 3) will cause them to rise from the paper and ride over the roller.

The final step in the making of cigarettes in the invention is cutting the double cigarette rolled by the machine into two parts. This is accomplished by the knife blade 82 mounted on the slide 83. The slide 83, as best shown in FIGS. 2 and 3, is mounted in the machine for longitudinal movement thereof through the rear end 13. The slide has a central portion 84 which is planar and raised such that the lower edge of the curved portion 23 of the plate 17 slides along the upper surface thereof as the slide is moved longitudinally of the machine. The knife blade 82 is mounted longitudinally of the machine in the center of this portion extending vertically therefrom such that its edge extends at an angle upwardly and rearwardly therefrom. A slot 86 through the curved portion 23 of the plate 17 allows passage of the knife blade therethrough as the slide 83 is moved.

Arms 87 extend upwardly from the edges of the slide 83 in the vicinity of the knife blade 82 into position for engagement by the roller 24 as it is moved along the slots

27. Thus, as the roller is moved, the slide 83 is also moved by this engagement such that the knife blade 82 is passed through the slot 86 into the position 88 shown in phantom in FIG. 3. When the roller reaches the end of its travel, the double cigarette is dropped from the apron as indicated by the arrow 89 in FIG. 3 into the position 91. The slide 83 is then manually pushed into the machine and while the double cigarette is held by the portion 23 of the plate 17, the knife 82 passes therethrough depositing the two cigarettes 92 on the lower portion 93 of the slide as shown in FIG. 2 where they may be gathered by withdrawing the slide from the machine manually to the position 94 shown in phantom in FIGS. 1 and 2. Manual operation of the slide 83 may be facilitated by ears 96 extending from the sides thereof and ears 97 extending from the sides 11 of the machine.

In operation, the machine is prepared by moving the sliding member 56 of the magazine 53 up against the flange 58. An amount of tobacco measured for ten cigarettes is deposited within the wall 59 and spread evenly through the troughs 61. Ten filters are placed in the troughs 63. The roller 24 is moved all the way to the forward end of the slots 27 so that the pocket 33 is formed in the apron 28 by the operation of the fingers 49 and 52. A piece of paper 71 is positioned on the apron 28 between the lines 79 and the fingers 76 of the holder 73 are moved into engagement therewith to hold it in place.

Operation is begun by sliding the sliding member 56 until the balls 68 drop into the first of the detents 69. The first of the troughs 61 will then be positioned over the pocket 33 and the tobacco contained in this trough will be dropped into the pocket 33 to the outsides of the plates 36 from the troughs 63. The filters may be properly aligned and positioned against the plates 36 by operation of the buttons 41 as described above. The machine is now ready for the rolling step to begin.

Rolling is begun by moving the roller 24 with the knobs 26 along the slots 27 towards the rear end of the machine 13. As the roller moves over the curved portion of 21 of the plate 17, the pocket 33 will be transformed into the bight 34 and the tobacco and filters will be compressed against each other therein. The paper will be received within the bight when the roller reaches that portion of the apron, the holder releasing the paper when the roller interacts with the ends 81 of the spring fingers 76. Just before the gummed edge 72 of the paper is received within the bight 34 it may be moistened by the application of water thereto by a sponge or the like. When the paper has been entirely received within the bight and sealed against itself, the double cigarette is complete, and the cutting procedure described above may then follow.

The procedure may be repeated four more times with the tobacco and filters in the magazine 53 by moving the sliding member 56 one step each time. The sliding member may then be returned to its initial position and refilled for repetition of the entire cycle. Thus, by the machine described, ten complete, uniform cigarettes with filter thereon may be quickly formed. Obviously the capacity is merely limited by the size of the magazine.

From the foregoing description it is seen that the method that is practiced is one in which a row of correspondingly elongated parallel bodies of uniformly measured loose tobacco are in side-by-side relation, which bodies are equal to double the length of the tobacco portion of a single cigarette. The row of bodies is supported for movement in one direction a predetermined distance normal to the lengths of said bodies at spaced intervals of time, and for rolling the leading body in said one direction about its longitudinal axis between each successive interval to a uniformly compacted cylindrical body of said length and at approximately the same time enclosing and securing the compacted body in a cigarette paper by rolling said body in a sheet of said paper. The paper en-

closed body is then cut centrally between its ends into two equal lengths providing two cigarettes.

The method may also include the step of aligning a pair of filters at the ends by rolling it and the body in said paper, during the rolling of the body in the paper, whereby two cigarettes with a filter on one end of each will be produced.

What is claimed is:

1. The method of making cigarettes that includes the steps of:

- (a) supporting a horizontally-extending row of horizontally-elongated, uniform, uncompressed bodies of loose tobacco in spaced, parallel, side-by-side relation, respectively confined within vertical walls defining the lateral and end dimensions of said bodies, on a horizontally-disposed, stationary plate having a straight free edge at one end of said row parallel with said bodies; said bodies being of greater thickness than the diameters of the cigarettes to be formed therefrom,
- (b) intermittently moving said walls and bodies horizontally across said plate to and past said edge in a direction normal to the latter for falling of said bodies, in succession from within said walls over said edge solely under the influence of gravity during each intermittent movement,
- (c) receiving each body immediately after falling thereof over said edge, and then
- (d) rolling each body so received in a horizontally-extending path away from said edge and during said rolling, compressing each body to a cylindrical body axially extended to a greater length than when confined within said walls, and to the diameter of the cigarette to be formed, and enclosing and securing the body so compressed within a sheet of paper to form the cigarette,
- (e) supporting on said plate a separate, cylindrical filter of the said diameter of the cigarettes to be formed adjacent one end of each of the bodies in said row thereof in axial alignment therewith but spaced therefrom, for movement of said filters with said bodies past and over said edge of said stationary plate for falling, by gravity, with the body of tobacco that is in alignment therewith, and so moving said filters simultaneous with said bodies, then,
- (f) receiving each filter after falling with the body adjacent thereto and rolling each filter in the same direction as that of the body adjacent thereto together with and in axial alignment with the latter, until the diameter of the body is the same as the diameter of the filter, and
- (g) enclosing and securing the filter so rolled within said sheet of paper at the same time each body of tobacco is so enclosed, with one end of said filter in engagement with said one end of said body,
- (h) and then discharging the cigarette so formed from said last-mentioned path.

2. The method of making cigarettes that includes the steps of:

- (a) supporting a horizontally-extending row of horizontally-elongated, uniform, uncompressed bodies of loose tobacco in spaced, parallel, side-by-side relation, respectively confined within vertical walls defining the lateral and end dimensions of said bodies, on a horizontally-disposed, stationary plate having a straight free edge at one end of said row parallel with said bodies; said bodies being of greater thickness than the diameters of the cigarettes to be formed therefrom,
- (b) intermittently moving said walls and bodies horizontally across said plate to and past said edge in a direction normal to the latter for falling of said bodies, in succession from within said walls over said edge solely under the influence of gravity during each intermittent movement,

(c) receiving each body immediately after falling thereof over said edge, and then

(d) rolling each body so received in a horizontally-extending path away from said edge and during said rolling, compressing each body to a cylindrical body axially extended to a greater length than when confined within said walls, and to the diameter of the cigarette to be formed and enclosing and securing the body so compressed within a sheet of paper to form the cigarette,

(e) supporting on said plate a separate, cylindrical filter of said diameter of the cigarettes to be formed adjacent each of the opposite ends of each of the bodies in said row thereof in axial alignment therewith, but spaced therefrom, for movement of said filters with said bodies past and over said edge of said stationary plate for falling by gravity with the body of tobacco in alignment therewith, and so moving said filters simultaneously with said body, then

(f) receiving the filters at opposite ends of each body after falling with the body therebetween and rolling said filters in the same direction as that of the body therebetween together with and in axial alignment with said mentioned body until the diameter of the body is the same as the diameter of the filters at its ends and the ends of the body between said filters are in engagement with said filters under axial extension of said body during said rolling, and holding said filters a uniform predetermined distance apart during said axial extension of said body and said compression of the tobacco of said body during said rolling thereof, and then enclosing and securing the filters so rolled with each body within said sheet of paper at the same time the body between the filters is so enclosed, for discharge with said body, and then discharging the body and filters so enclosed, and

(g) thereafter bisecting said body centrally between the ends thereof to provide a pair of cigarettes having a filter at one of their ends.

3. A machine for making cigarettes, comprising, in combination:

- (a) a horizontally-elongated, flexible, tobacco-rolling apron having a flat horizontal upper surface intermediate its ends for supporting a sheet of paper to be rolled about tobacco for forming a cigarette and an upwardly opening, horizontally-extending bight formed in one end thereof extending transversely of the length of said apron for receiving therein a horizontally-elongated body of loose, uncompressed tobacco for compression to a cylindrical body of uniform diameter less than the thickness of said body of loose uncompressed tobacco and for axial extension of said body to a greater length upon moving said bight toward the opposite end of said apron with said body of tobacco therein,
- (b) bight-moving means supported adjacent said bight for horizontal movement of the latter from said one end of said apron to said opposite end thereof for rolling and so compressing and extending said body of loose tobacco in said bight and for wrapping said paper about said compressed body and for return of said bight moving means to said one end,
- (c) a horizontally-disposed magazine supported at a lever above the level of said apron for horizontal movement over and across said bight in a direction transversely of the latter, said magazine comprising upstanding walls defining the sides and ends of a horizontal row of horizontally-elongated compartments of the same size parallel with said bight, and in side-by-side relation for respectively holding one of the horizontally-elongated bodies of loose, uncompressed tobacco to be dropped into said bight to be formed into a cigarette,
- (d) the compartments of said magazine being open at

their upper and lower sides and exposed for simultaneous filling from above, and a horizontal, stationary plate below said magazine closing the lower sides of said compartments for supporting said compartments and the tobacco therein for movement to and over said bight and for discharge of the bodies of tobacco from successive of said compartments into said bight each time the latter is formed in said one end of said apron for receiving one of said bodies, said plate having a free, straight edge adjacent to and parallel with said bight over which the tobacco in each compartment is discharged,

- (e) means including said bight-moving means for discharging the cigarette formed in said bight from the latter at said opposite end when said bight-moving means is moved to said opposite end of said apron, 15
- (f) filter-positioning and moving means rigid with said magazine along the walls defining one of the ends of said row of compartments for positioning a row of filters alongside said row of compartments with one filter in axial alignment with and adjacent to each of said compartments and with said filters supported on said plate for movement with said magazine past said edge of the latter for dropping by gravity into one end of said bight simultaneously with the falling of the tobacco in the adjacent compartment that is in alignment therewith, and for rolling with said tobacco for enclosure with said tobacco within said sheet of paper, and for discharge from said bight. 20

4. In a machine as defined in claim 3;

- (g) means stationary relative to said bight adjacent to said one end of said apron providing a pocket in said bight at one end of the latter for each filter separate from the portion of the bight in which said tobacco is discharged, whereby each filter will drop into said pocket separated from the tobacco falling simultaneously with the filter, said last-mentioned means terminating at the side of said bight nearest to said opposite end of said apron when said bight is open and at said one end of said apron to enable the tobacco in said bight, during rolling thereof to compressed form to axially expand into engagement with the filter in said one end of said bight. 40

5. A machine for making cigarettes, comprising, in combination: 45

- (a) a horizontally-elongated, flexible, tobacco-rolling apron having a flat horizontal upper surface intermediate its ends for supporting a sheet of paper to be rolled about tobacco for forming a cigarette and an upwardly opening, horizontally-extending bight formed in one end thereof extending transversely of the length of said apron for receiving therein a horizontally-elongated body of loose, uncompressed tobacco for compression to a cylindrical body of uniform diameter less than the thickness of said body of loose uncompressed tobacco upon moving said bight toward the opposite end of said apron with said body of tobacco therein, 50

- (b) bight-moving means supported adjacent said bight for horizontal movement of the latter from said one end of said apron to said opposite end thereof for rolling and so compressing said body of loose tobacco in said bight and for wrapping said paper about said compressed body and for return of said bight-moving means to said one end, 55

- (c) a horizontally-disposed magazine supported at a level above the level of said apron for horizontal movement over and across said bight in a direction transversely of the latter, said magazine comprising upstanding walls defining the sides and ends of a horizontal row of horizontally-elongated compartments of the same size parallel with said bight, and in side-by-side relation for respectively holding one 70

of the horizontally-elongated bodies of loose, uncompressed tobacco to be dropped into said bight to be formed into a cigarette,

- (d) the compartments of said magazine being open at their upper and lower sides and exposed for simultaneous filling from above, and a horizontal, stationary plate below said magazine closing the lower sides of said compartments for supporting said compartments and the tobacco therein for movement to and over said bight and for discharge of the bodies of tobacco from successive of said compartments into said bight each time the latter is formed in said one end of said apron for receiving one of said bodies, said plate having a free, straight edge adjacent to and parallel with said bight over which the tobacco in each compartment is discharged, 5

- (e) means including said bight-moving means for discharging the cigarette formed in said bight from the latter at said opposite end when said bight-moving means is moved to said opposite end of said apron, 10

- (f) filter-positioning means rigid with said magazine along the walls defining opposite ends of the compartments of said row for positioning a pair of rows of cylindrical filters along said opposite ends of the row of compartments with one of the filters in each row thereof in axial alignment with and adjacent to each of the compartments and supported on said plate for movement with said magazine past said edge of the latter for dropping said filters by gravity into said bight upon discharge of the tobacco in each compartment into said bight when said magazine is moved to so discharge said tobacco, 15

- (g) said bight and said apron extending transversely of the length of said apron beyond the ends of the compartments of said row thereof for receiving in the extended ends of said bight the filters discharged from each filter-positioning means simultaneously with discharge of the tobacco from the compartment into the bight between each pair of filters, 20

- (h) partition means stationary relative to said bight adjacent to said one end of said apron providing a pocket in said bight at each end thereof separate from and outwardly of the portion of said bight in which said tobacco is discharged whereby each filter will drop into said pockets separated from said tobacco, said last-mentioned means terminating at the side of said bight nearest to said opposite end of said apron when said bight is open and at said one end of said apron to permit the tobacco in said bight during rolling thereof to compressed form to axially expand into engagement with said filters, and 25

- (i) means for bisecting the paper-enclosed body of tobacco centrally between said pair of filters after the cigarette formed in said bight has been discharged from the latter. 30

6. In a machine as defined in claim 5;

- (j) horizontally spaced bight-forming means supported in elevated positions adjacent to opposite ends of said bight and outwardly of said partition means relative to the portion of the bight between said partition means when the latter is at said one end of said apron, said bight-forming means being spaced above opposite longitudinally-extending marginal portions of said apron for downward movement to lowered positions in engagement with the portions of said apron forming said pockets in said bight, 35

- (k) said bight-moving means being engageable with said bight-forming means upon movement of said bight-moving means to said one end of said apron and actuatable by movement of said bight-moving means to said one end for moving said bight-forming means to said lower position moving said apron downwardly adjacent to said one end of said apron for forming said upwardly opening bight prior to each movement of said magazine for discharging 40

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tobacco and filters from one of said compartments into said bight,
 (1) yieldable means connected with said bight-forming means for automatically moving the latter from said lowered to said elevated positions and for holding said bight-forming means in said elevated position out of engagement with said filters when said bight-moving means is released upon its return to adjacent said one end of said apron and prior to movement of said magazine for discharging tobacco and filters into said bight whereby said bight including said pockets will be empty when the magazine is moved to discharge a body of tobacco and a pair of filters into said bight.

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