

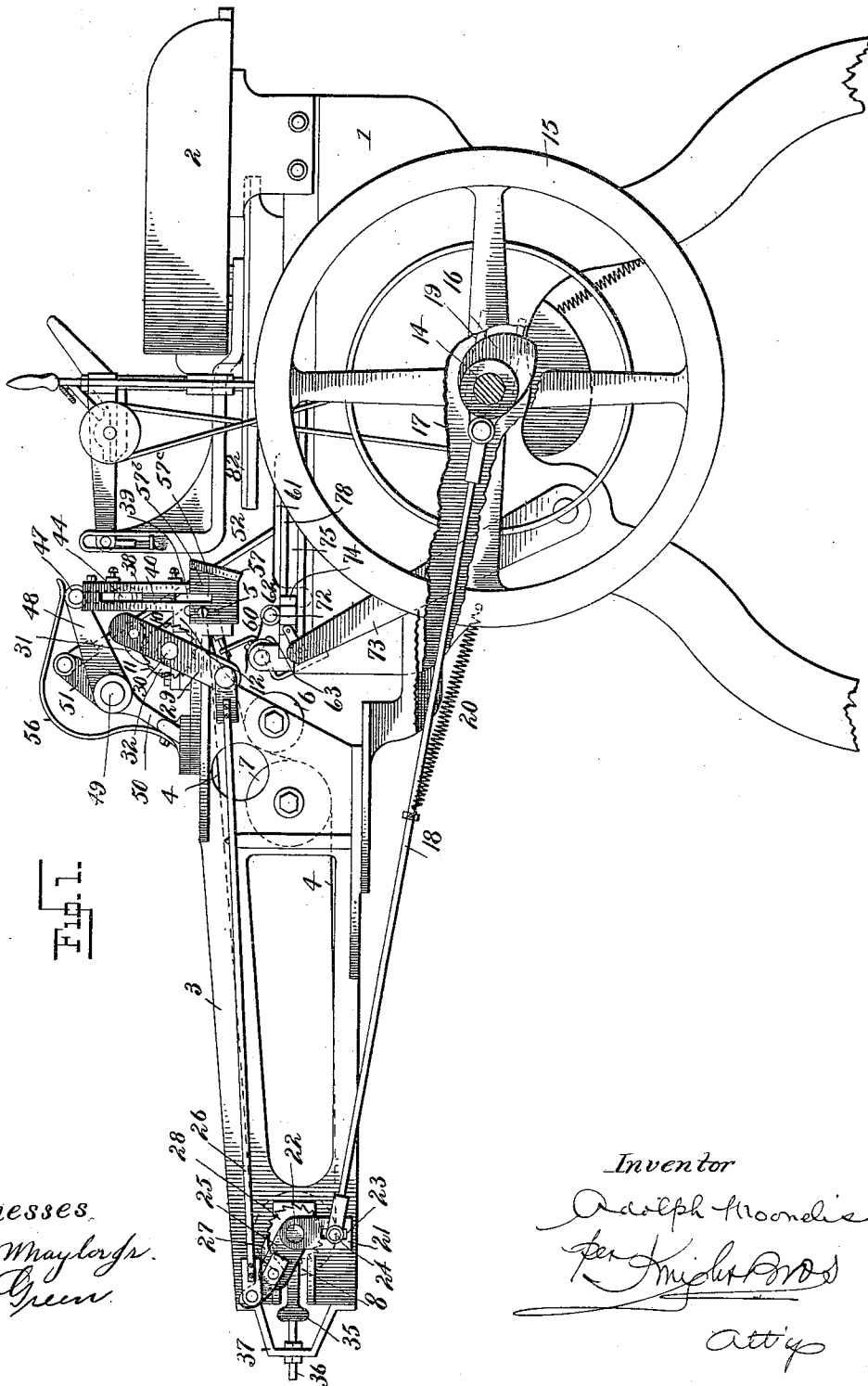
(No Model.)

7 Sheets—Sheet 1.

A. MOONELIS.
CIGARETTE MACHINE.

No. 546,822.

Patented Sept. 24, 1895.



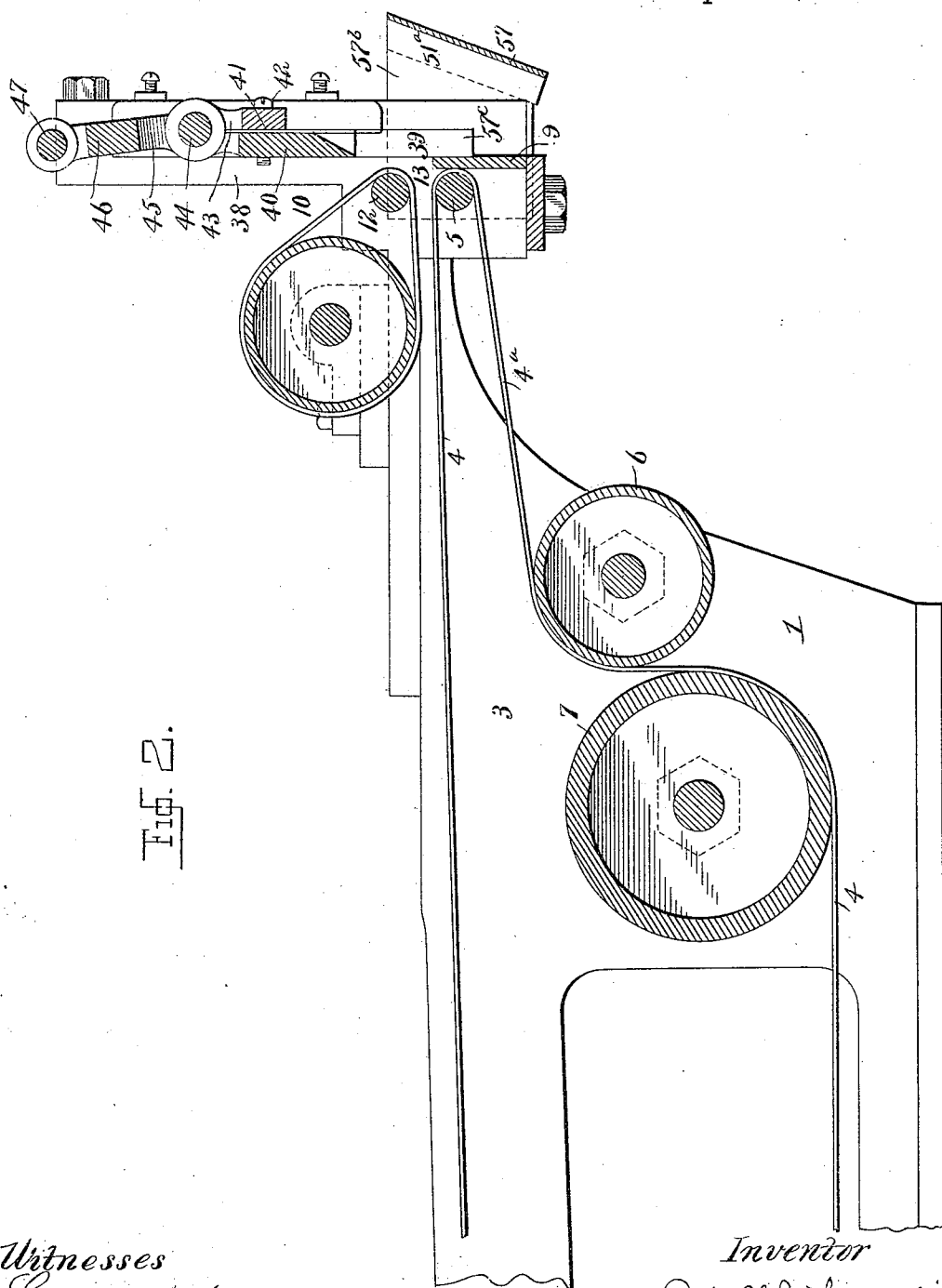
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7 Sheets—Sheet 2.

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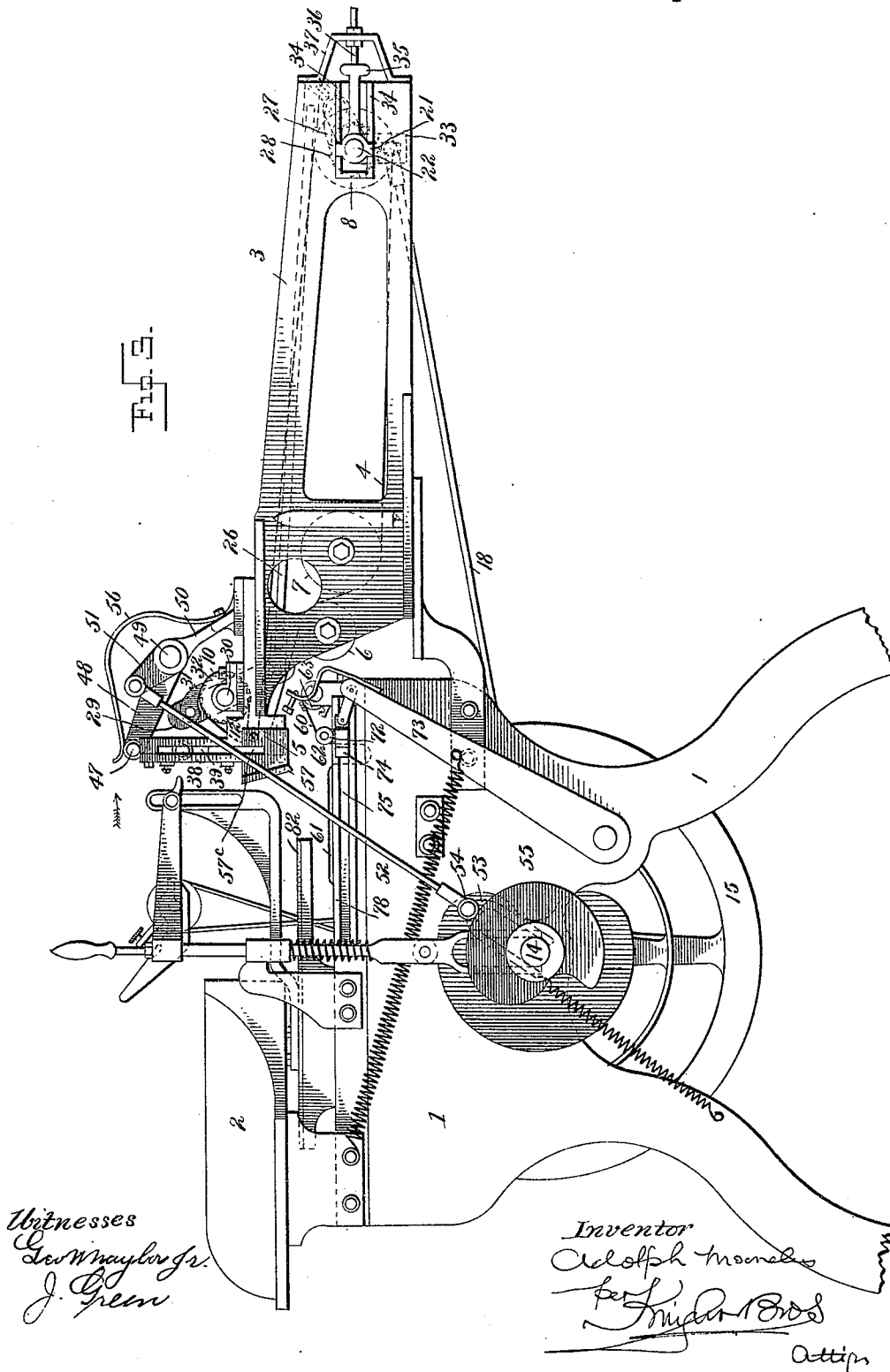
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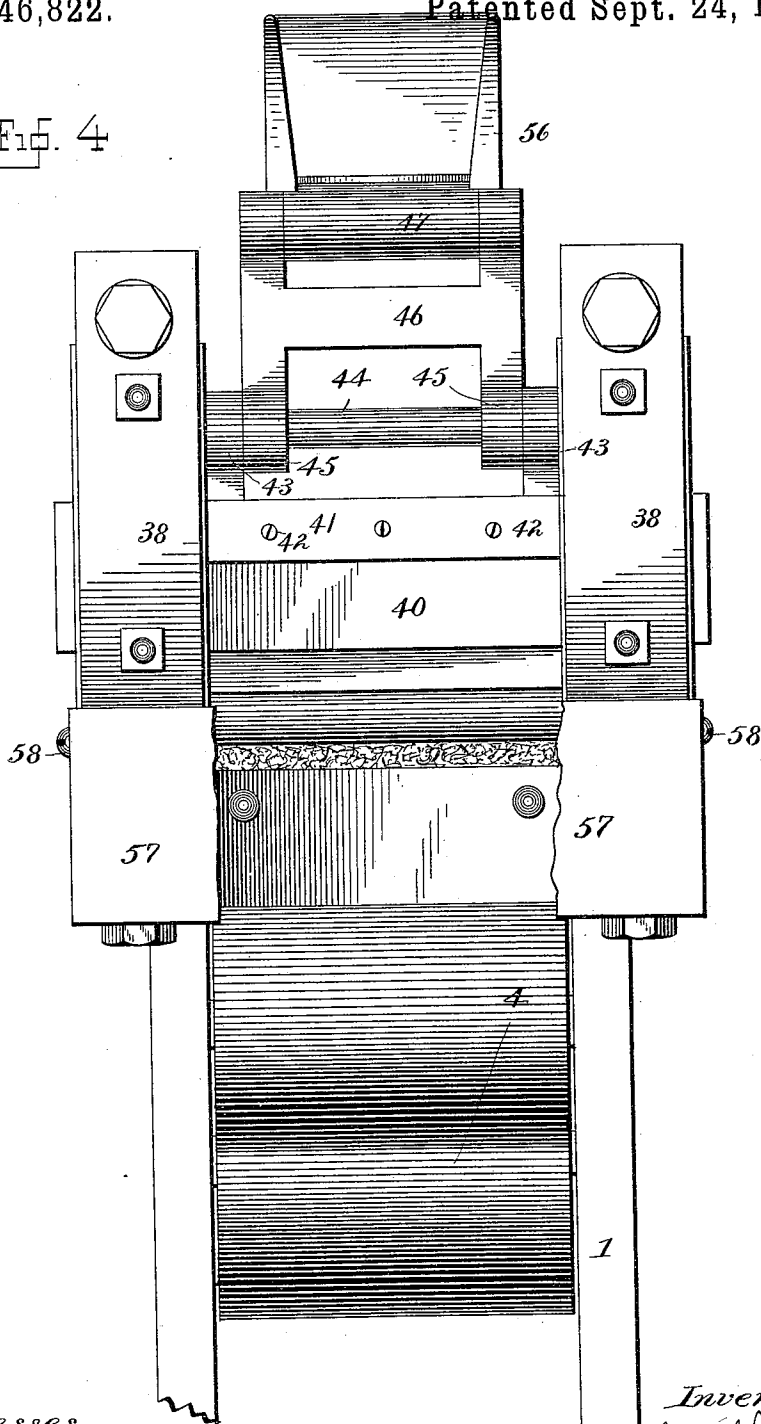


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Fig. 4



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Fig. 5.

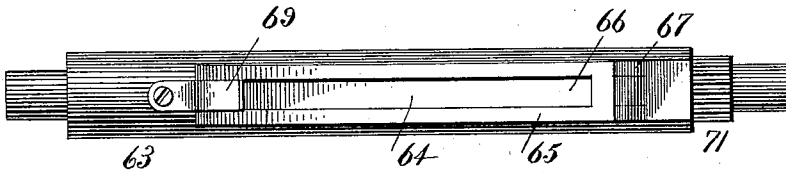


Fig. 6.

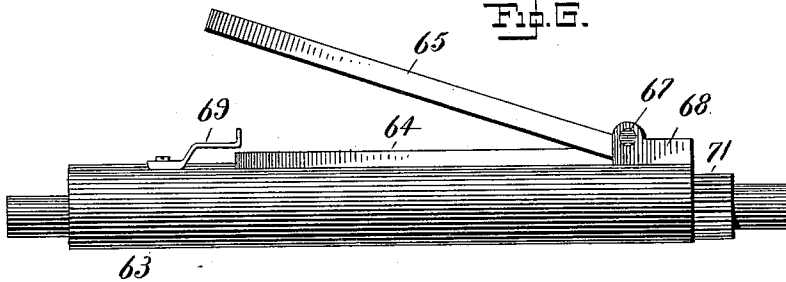


Fig. 7.

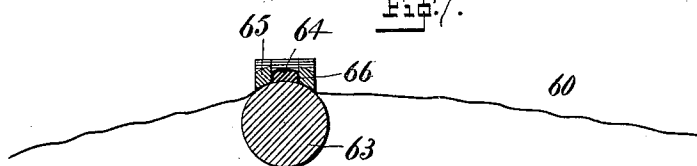
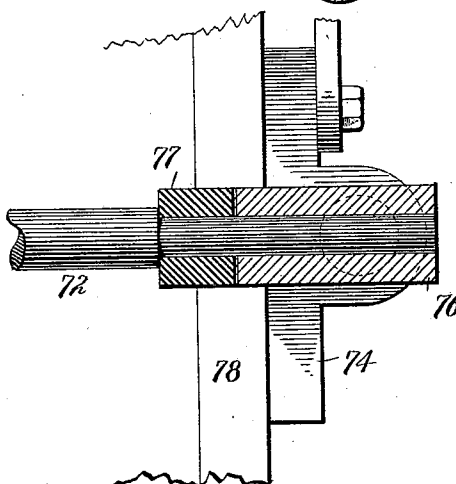


Fig. 8.



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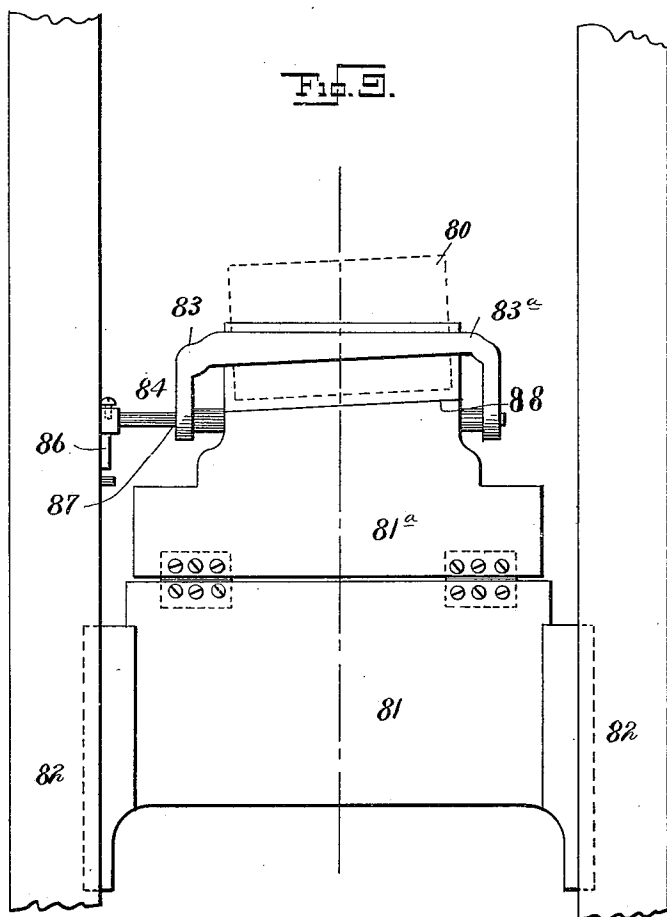
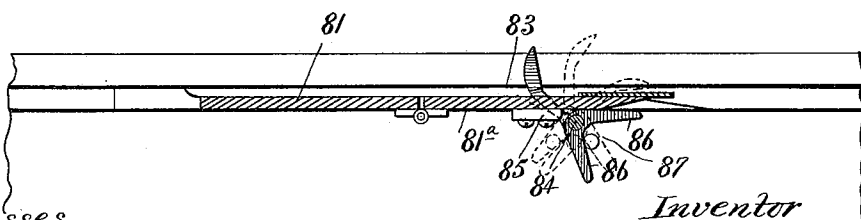


Fig. 10.



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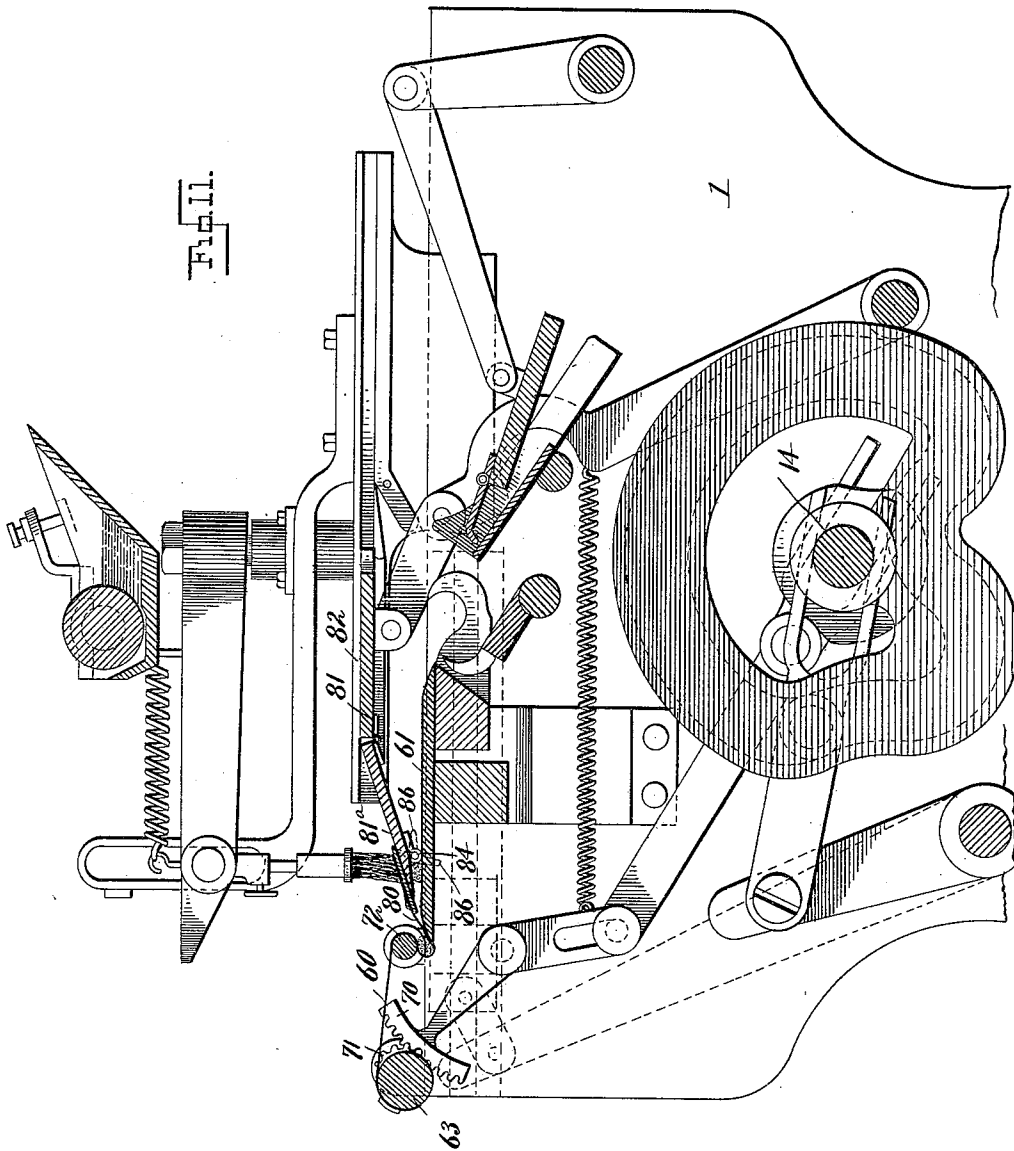
(No Model.)

7 Sheets—Sheet 7.

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UNITED STATES PATENT OFFICE.

ADOLPH MOONELIS, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN TOBACCO COMPANY, OF NEW JERSEY.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 546,822, dated September 24, 1895.

Application filed April 9, 1894. Serial No. 506,906. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH MOONELIS, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a specification.

My invention has reference more particularly to improvements adapted for use in the cigarette-machines set forth in my patents on cigarette-machines, Nos. 514,238 and 514,240, both dated February 6, 1894, which patents relate to machines for making what are known as "all-tobacco cigarettes." In this class of machines the tobacco to form the cigarette-fillers is fed in a mass to suitable cutters, which sever from the mass of tobacco certain portions to form the fillers, which fillers are then deposited upon a suitable rolling-apron, upon which the wrapper is also placed, the wrappers being all previously cut to a predetermined size and shape. A bunching-roller then acts with the apron to roll the wrapper around the filler to form the completed cigarette, which is then delivered from the machine.

In my patents above referred to I show certain devices for producing the cigarettes in the manner substantially as above specified, and one of the objects of my present invention is to simplify and improve the mechanism for feeding a mass of tobacco to the cutter as well as to improve the devices for operating the cutter, so as to produce a more perfect and evenly-formed cigarette, while at the same time so arranging the parts that they will co-act for feeding the mass of tobacco and operating the cutter simultaneously and uniformly. These improved devices are adapted to be used in conjunction with other parts and features set forth in my above-mentioned patents as well as in other relations as may be preferred.

In my said patents I show means for feeding wrappers separately to a rolling-apron and for placing one edge of each wrapper into a pocket formed in said apron in proximity to the filler, and in my said Patent No. 514,240, also, I show means for holding the wrapper upon its carrier while said wrapper is being presented to the filler on the apron, and for

then releasing said wrapper to enable it to be deposited upon said apron.

One of the objects, therefore, of my present invention is to provide improved means for holding a wrapper upon its reciprocating-carrier and for releasing the wrapper from said carrier when the latter begins to recede from a position near the pocket in the apron. By this means I am enabled to positively place the wrapper in the desired position upon the apron and to leave it there without disturbance, so that it will be properly wrapped upon the filler when the apron is moved by the bunching-roller for that purpose.

My invention further consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a side elevation, partly broken, of a cigarette-machine embodying my improvements. Fig. 2 is an enlarged detail central section taken through the forward part of the tobacco-feeding devices and the cutter. Fig. 3 is a side elevation of the machine, looking from the side opposite that shown in Fig. 1. Fig. 4 is an enlarged detail face view of the cutter, the chute being broken away, showing the stationary cutting-edge at the mouth of the feeding-belts. Fig. 5 is a plan view of the roller to which the bunching-apron is secured, showing improved means for detachably securing the apron thereto. Fig. 6 is an edge view thereof. Fig. 7 is a cross-section thereof, showing the apron secured in position. Fig. 8 is a detail view of the bunching-roller and part of its operating devices in section. Fig. 9 is a detail plan view of the reciprocating wrapper-carrier and its wrapper-holding devices. Fig. 10 is a central longitudinal section thereof, and Fig. 11 is a central vertical section showing the improved wrapper-holder as applied to the reciprocating wrapper-carrier.

In the machine shown in the accompanying drawings the whole operation of forming a completed cigarette is performed excepting that of cutting the wrapper to the desired shape.

In carrying out my invention I may use any desired form of main frame 1, upon which may be mounted a suitable table or shelf 2 to receive the wrappers in quantity in position to enable the operator to readily place them upon the carrier hereinafter described. At one side of the frame 1 is carried an extension 3, which supports the filler-forming devices as follows: 4 is an endless belt or band that passes over rollers 5, 6, 7, and 8, suitably journaled in the extension 3. The roller 5 is comparatively small to form a sharp bend in the belt 4, said roller being located close to a stationary cutting-edge 9, hereinafter explained. The belt 4 then passes the roller 6, which is larger than the roller 5, and under the roller 7, from whence said belt passes over the roller 8, all as clearly shown in Figs. 1, 2, and 3.

By the arrangement above described I am enabled to use a large feeding-roller 8 for the belt 4, while the inner or delivery end of the belt is elevated at its under portion 4^a, whereby a space is provided to receive the rolling devices without unduly increasing the size of the machine. The arrangement also provides a horizontal upper portion for the belt upon which the tobacco for the cigarette-fillers is placed. Above the inner or delivery end of the belt or band 4 is a complementary belt or band 10, that passes over a large feeding-roller 11 and a smaller roller 12, clearly shown in Fig. 2.

The rollers 11 and 12 are suitably journaled in the extension 3, and the roller 12 is placed tangentially to the roller 11 on a horizontal plane, so that a portion 10^a of the belt 10 will extend horizontally over the belt 4. The roller 12 lies over the roller 5, and they may be of about the same size, as shown, and between them is formed a delivery-mouth 13, as well as a space 14, in which the tobacco is fed to the cutter. The operator places the tobacco for the filler upon the belt 4, and when it reaches the belt 10 it is compressed between the two belts and fed forward over the cutting block or edge 9, the upper edge of which is about on a line with the upper portion of the belt 4.

The belts 4 and 10 are to be moved with corresponding speed and in the same direction, and for this purpose the rollers 8 and 11 are turned simultaneously by a single main operating-cam as follows: 14 is the main shaft, that is suitably journaled in the frame 1 and provided with a pulley or wheel 15 for turning it. On the shaft 14 is a suitably-shaped cam 16, that bears on a friction-roller 17 on a reciprocating rod 18, having one end 19 forked to straddle the shaft 14, the roller 17 being held on the cam 16 by a spring 20, that is connected at one end to the frame 1. (See Fig. 1.) The outer end of the rod 18 is connected with a crank 21 on the shaft 22 of the roller 8. The rod 18 may be adjustably connected with the crank 21, as by a slot 23 in said crank receiving the pivot 24, which may be

suitably secured to said crank, whereby the length of stroke of the crank 21 and thereby the extent of rotation of the roller 8 can be regulated. From the crank 21 or the shaft 22 extends a crank-arm 25 at a suitable angle to the crank 21, and to the crank 25 is suitably pivotally connected a rod 26. The crank 25 also pivotally carries a pawl 27, that engages a ratchet-wheel 28 on the shaft 22 or the roller 8, whereby the latter is given intermittent rotary motion by the rod 18. The rod 26 is also pivotally connected with a rock crank or lever 29, that is hung on the shaft 30 of the roller 11. The crank 29 is shown extending on opposite sides of the shaft 30, and near its upper end a pawl 31 is pivotally carried by said crank-arm in engagement with a ratchet-wheel 32, carried by the shaft 22 or the roller 11.

The arrangement and operation of the foregoing parts are such that as the rod 18 is reciprocated the roller 8 will be turned step by step to intermittently feed the belt 4, while at the same time the rod 26 will be reciprocated by the action of the rod 18 to turn the roller 11 step by step to give the belt 10 an intermittent feed coextensive and commensurate with the feed of the belt 4. As the belts 4 and 10 are thus moved together by a prime or universal moving element they will act evenly and uniformly on the tobacco being fed between them, so that the tobacco will be correspondingly compressed at all points in its passage between the belts. Thus a filler of uniform thickness or density can be made and the resultant cigarettes will all be substantially alike.

The roller 8 may be adjusted laterally to regulate the tension on the belt 4, and for this purpose the ends of the shaft 22 may be journaled in bearing-blocks 33, that fit in guide 34 on the ends of the extension 3, whereby the bearing-blocks 33 may be moved forward and backward. The blocks 33 may have extensions 35, in which work screws 36, that are suitably carried in brackets or bearings 37 on the extension 3, or the roller 8 may be adjusted similarly to the corresponding roller shown in my aforesaid Patent No. 514,238.

My improved cutter for severing fillers from the mass of tobacco that is fed by the belts 4 and 10 is arranged to operate as follows:

38 are standards or guides carried by the extension 3 at the ends of the cutting-block 9, said standards being vertically slotted at 39, and said slots extending below the upper edge of the cutter 9.

40 is the cutter or knife-blade that is placed on edge and having its ends located in the slots or guides 39 of the standards 38, whereby said cutter is properly guided in its up-and-down movements. The lower edge of the cutter 40 co-acts with the upper edge of the cutter 9 in severing a filler of tobacco from the mass of tobacco that is presented by the belts 4 and 10 on the edge 9, the proper amount of tobacco to be fed over said edge 9 being de-

terminated by the amount of movement that the rod 18 gives to the roller 8.

The cutter 40 is supported and actuated as follows: 41 is a cross-bar, to which a cutter 40 is secured, as by screws 42, the cross-bar 41 extending between the standards 38. (See Figs. 2 and 4.) The cross-bar 41 carries apertured lugs or arms 43, in which fits a rod 44, that receives the apertured arms 45, extending from a cross-bar 46, the upper ends of the arms 45 being connected by a rod 47, the parts 43, 46, and 47 forming a frame-like structure by which the cutter 40 can be reciprocated. Said frame pivots on the rod 44, as shown in Fig. 2. The rod 47 is pivotally connected with a crank-arm 48, that is carried by a rock-shaft 49, hung in bearings on a bracket 50, supported by the extension 3. (See Figs. 1 and 3.) To the shaft 49 is connected a crank 51, which is pivotally connected to a rod 52, having its lower end forked at 53 to straddle the shaft 14, the rod 52 carrying a friction-roller 54, that bears on a suitably-shaped cam 55 on the shaft 14.

56 is a spring that is carried by the bracket 50 and bears upon the rod 47, so as to cause the cutter 40 to descend, as well as to press the roller 54 against the cam 55, whereby by the joint action of said cam and spring the shaft 49 will be rocked to cause the cutter 40 to be reciprocated for the purpose of severing cigarette-fillers from the mass of tobacco that is being fed by the belts 4 and 10. As the cams 16 and 55 are on the same shaft 14, the relation of feeding movements of the belts 4 and 10 to the cutting action of the cutters 9 and 40 will be so regulated and timed, that as the cutter 40 rises the tobacco will be fed over the cutter 9, and as the cutter 40 descends the belts 4 and 10 will stop feeding until said cutter has severed a filler from the mass of tobacco. By this means the exact amount of tobacco desired for each filler can be accurately determined, and the fillers thereby made uniform in size.

57 is a suitable chute having an open top and bottom, one side 57^a being inclined inwardly toward the vertical plane of the cutter 9, so as to direct the filler from the cutters to a rolling-apron that is located beneath said cutters. The chute 57 is shown substantially in the form of a three-sided frame, the sides 57^b of which are shown secured on the extension 3 by screws 58, the sides 57^b also having slots 57^c aligned with the slots 39 in the standards 38 to permit the necessary descent of the cutter 40.

The rolling-apron 60 is shown lying on a table or bed-plate 61, and said apron and bed-plate may be arranged substantially as shown in my above-mentioned patents. The pocket 62 of the apron 60 lies directly beneath the cutter 40 to receive the filler from said cutter. One end of the apron 60 is permanently secured to the table 61, while its opposite end is adjustably secured to a rock-shaft 63, journaled in suitable bearings in the frame 1, and

for the purpose of conveniently adjusting the slack in the apron 60, I have provided means for detachably securing said apron to the shaft 63, which means is more clearly shown in Figs. 5, 6, and 7. In said figures 64 is a rib extending longitudinally on the shaft 63, upon which the apron 60 is adapted to lie, as in Fig. 7.

65 is a bar having a central slot 66, that is adapted to receive the rib 64, so as to confine the apron upon said rib and against the shaft 63, as shown in Fig. 7. The bar 65 is shown pivoted at 67 to a bracket 68 on the shaft 63, and the free end of the bar 65 is held firmly against the shaft 63 by a suitable clip 69, that may be pivoted on the shaft 63, so as to swing sidewise thereon to enable it to be placed over the bar 65, as shown in Fig. 5, to hold said bar upon the apron; but of course the bar 65 can be otherwise held on the shaft 63, if desired. With this arrangement the length of the working part of the apron can be readily adjusted to provide for rolling fillers of different diameters or to compact the fillers more or less, as may be desired. The shaft 63 may be rocked for the purpose of giving an initial drawing-movement to the apron 60 by means of a rack and pinion 70 and 71, which may be arranged and operated in the manner described in my above-mentioned Patent No. 514,240, to which reference is hereby made for a description of said mechanism.

72 is the bunching-roller, which may be operated in the manner set forth in my said Patent No. 514,240, to which reference is hereby made for a particular mechanism for moving said roller to roll the wrapper upon the filler, 73 being crank-arms connected by links with slides 74, carried in guides 75 on the frame 1, to which slides the bunching-roller 72 is pivoted. In my present invention I cause the bunching-roller 72 to rotate as it is moved across the rolling-table 61, the means for this purpose being shown in Fig. 8. The ends of the bunching-roller 72 are journaled in bearings 76 on the slides 74, the ends of said roller being for convenience reduced in size.

77 is a bushing or bearing disk secured on the roller 72, being shown of greater diameter than said roller, and arranged to rest on and travel along tracks 78 on the frame 1, whereby as the roller 72 is moved the contact of the bushings or disks 77 with the tracks 78 will cause the bunching-roller 72 to rotate in its bearing 76, and by this means will assist in producing a substantially true and cylindrical cigarette by evenly bearing on the filler and carefully rolling the same as it is moved along by the rolling-apron.

80 is the wrapper to be rolled upon the cigarette-filler and said wrapper is to be placed at one edge into the cavity 62 in the apron, so that the filler can be properly applied within said wrapper, and for this purpose the wrappers 80 are all previously cut to the proper size and shape and placed separately upon a suitable reciprocating wrapper-car-

rier 81, more clearly shown in Figs. 9, 10, and 11. This wrapper-carrier may be arranged and operated in the manner substantially similar to that shown in my above patent, No. 514,240, to which reference is made for a detailed description of the construction and arrangement of said wrapper-carrier and its operating mechanism, with the exception that in my present invention I provide improved means for operating the wrapper-holder that holds the wrapper 80 upon the wrapper-carrier 81.

The wrapper-carrier 81 is made in two parts, the part 81^a being hinged or pivoted to the part 81, the latter part of the wrapper-carrier being guided in suitable ways or guides 82, carried by frame 1, as shown. The wrapper-carrier 81 is adapted to be reciprocated horizontally in the guides 82, and when it reaches a certain forward position the hinged portion 81^a is permitted to descend to lie close to the apron 61, so as to present the edge of the wrapper 80 to the cavity in the apron. As mechanism for accomplishing these results is clearly shown and described in my said Patent No. 514,240, I need not further describe such means in this application, but refer to said patent for a detailed description thereof.

83 is my improved wrapper-holder, which is pivotally carried by the movable part 81^a of the wrapper-carrier and arranged to bear upon the wrapper 80 when the latter is placed upon the part 81^a, as shown in Fig. 9. The wrapper-holder 83 is shown in the form of a bail that is secured to a rock-shaft 84, pivotally carried by the swinging part 81^a of the wrapper-carrier. By preference the rock-shaft 84 is journaled in bearings 85, that are located on the under side of the swinging part 81^a of the wrapper-carrier, while the longitudinal part 83^a of the wrapper-holder lies over the part 81^a and is adapted to swing back and forth over the same. At one end the shaft 84 carries two fingers 86, that extend at suitable angles to each other, and these fingers 86 are adapted to alternately engage a pin 87 on the guideways 82, whereby when the wrapper-carrier 81 moves forward the pin 87, by engaging a finger 86, will turn the shaft 84, and thus throw the wrapper-holder 83 over forward to rest upon the wrapper 80, as shown in Fig. 9. When the wrapper-carrier recedes, the other finger 86 will engage the pin 87, whereby the holder 83 will be turned over back upon the inner part of 81^a, and thus leave the forward part thereof free to receive a new wrapper. Thus for each forward-and-back movement of the wrapper-carrier the wrapper-holder 83 will be swung forward and back to hold a wrapper while it is being carried forward for delivery to the pocket of the apron. In order that

the wrapper 80 can be conveniently wrapped upon the filler in an angular direction, and to provide a guide for the operator in placing the wrapper upon the carrier, I preferably place a guide-line 88 on the supplemental or pivoted portion 81^a of the wrapper-carrier at an angle to the line of travel of the wrapper-carrier, as in Fig. 9, so that when the edge of the wrapper 80 is placed parallel to the line 88 it will be delivered to the pocket in the apron at an angle or with one corner projected slightly farther into the pocket than the other corner. By this means as the wrapper is wound around the filler it will travel in an angular or substantially spiral direction or in the manner substantially similar to the placing of a wrapper upon a cigar.

While in the drawings I have shown certain parts of the cigarette-machine which I have not described, they are merely for the purpose of showing how my improvements may be applied to the machine shown in my said Patent No. 514,240, and the relative positions the parts will assume in conjunction with my patented machine aforesaid.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination with the bunching roller 72 and slides in which said roller is journaled, of means for moving said slides and tracks on which the roller travels and by contact with which it is rotated, substantially as described.

2. The combination of a bunching roller 72 and slides for moving it, said roller being journaled in bearings on said slides, with tracks 78 and bushings or disk 77 secured to said bunching roller and arranged to travel on said tracks to rotate said roller, substantially as described.

3. The combination of a reciprocating wrapper carrier having a pivoted portion 81^a, a wrapper holder pivoted thereon and having a shaft 84 provided with fingers extending at an angle to each other and a pin or projection to engage said fingers to turn the wrapper holder as and for the purposes specified.

4. The combination of a reciprocating wrapper carrier having a pivoted portion 81^a with a wrapper holder consisting of a bail carried by a rock shaft journaled on said wrapper carrier, said shaft having fingers projecting at a suitable angle to each other, and a pin or projection to engage said fingers alternately to rock said shaft as and for the purpose specified.

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