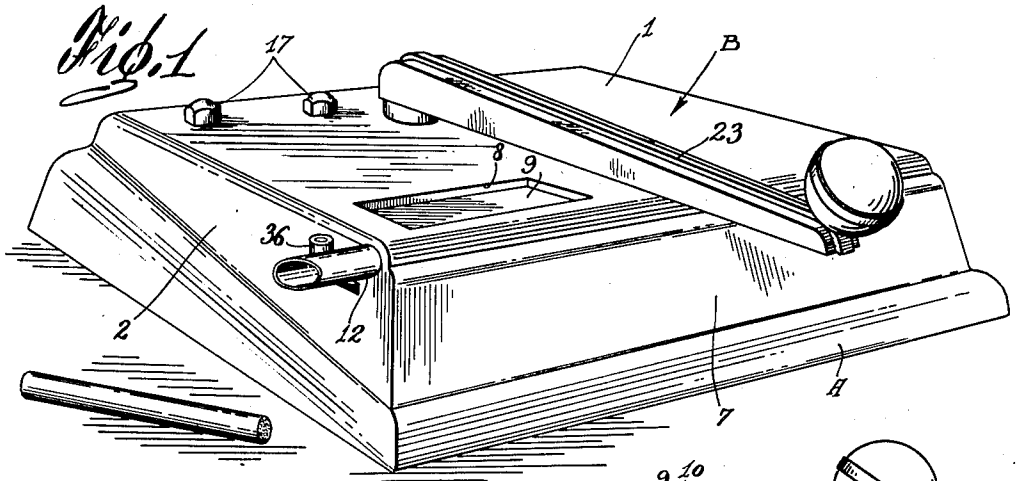
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CIGARETTE MAKING MACHINE

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Fig. 1



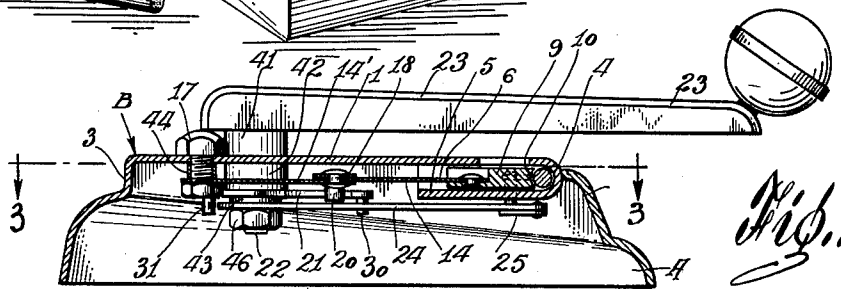


Fig. 2

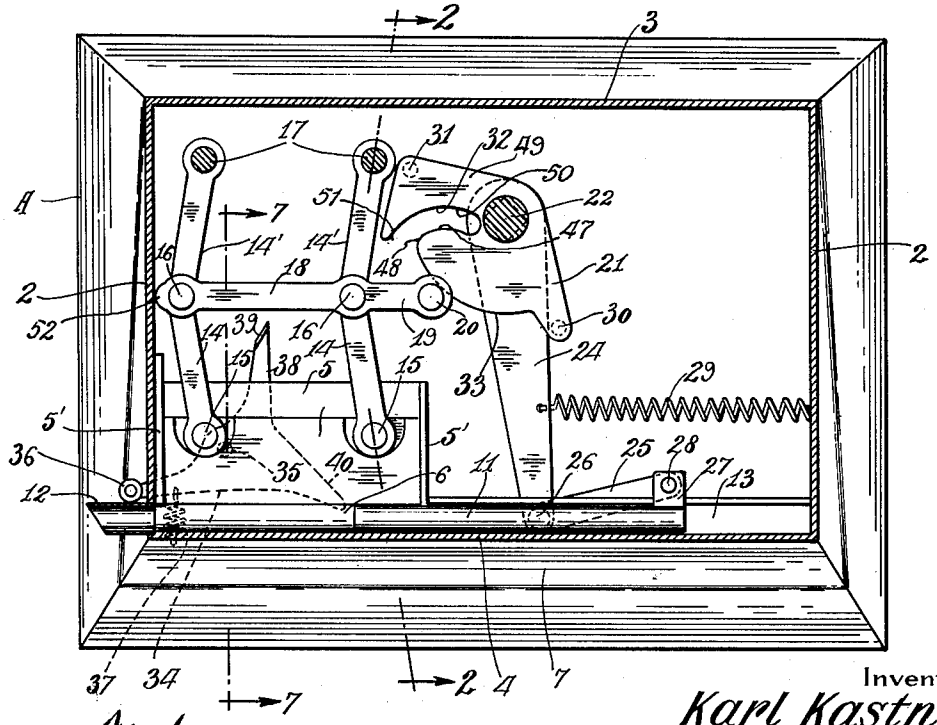


Fig. 3

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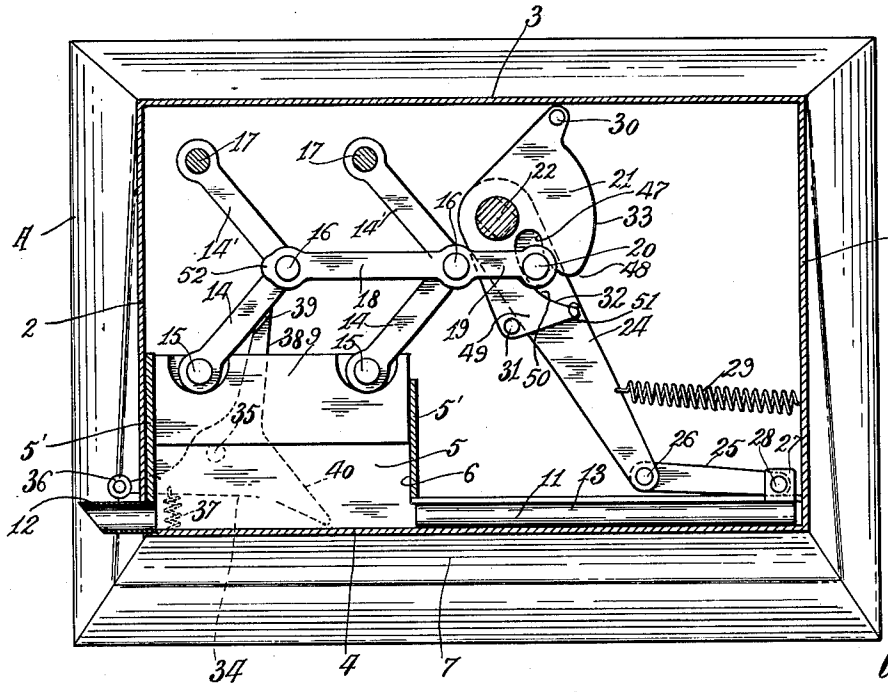


Fig. 4

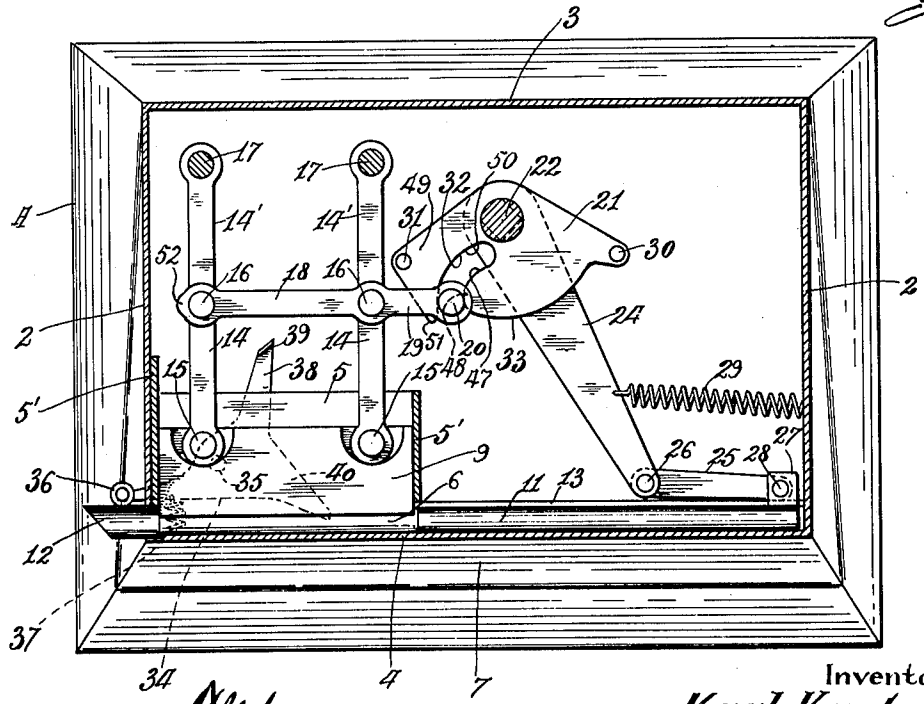


Fig. 5

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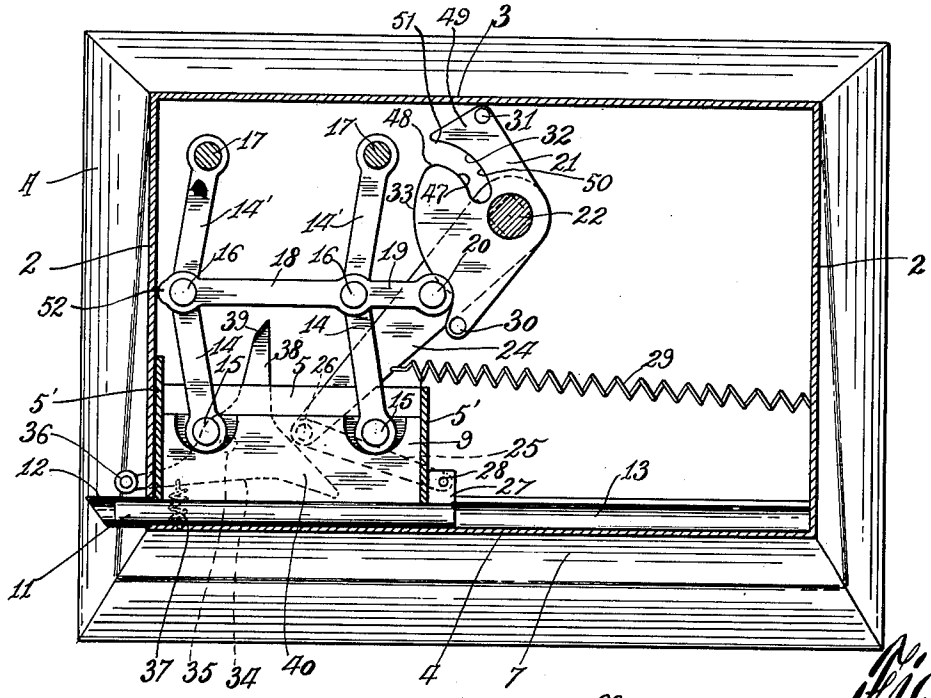


Fig. 6

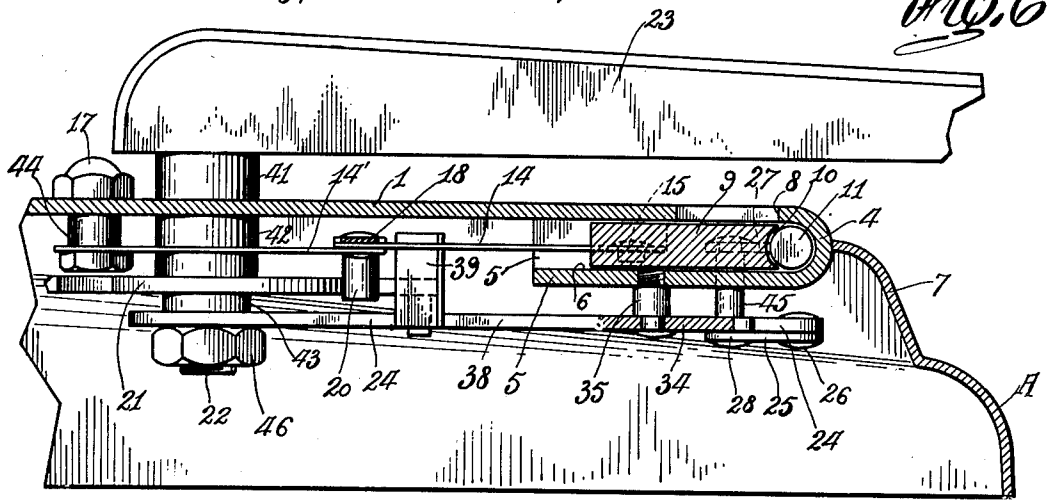


Fig. 7

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CIGARETTE MAKING MACHINE

Karl Kastner, Montreal, Quebec, Canada

Application June 4, 1952, Serial No. 291,698

3 Claims. (Cl. 131—70)

The present invention relates to a cigarette making machine and more particularly to a manually operated cigarette making machine of the portable type.

The cigarette making machine, according to the invention, is of the type using cigarette tubes and in which the tobacco is compacted and pushed within the paper cigarette tube by a single rotary motion.

The general object of the present invention is the provision of a cigarette making machine of the type above mentioned which is of improved and simplified construction.

Yet another important object of the present invention is the provision of a machine of the character described in which the tobacco is compacted and then slightly released in order to allow its easy ejection into the cigarette tube.

Yet another important object of the present invention is the provision of a machine of the character described in which the tobacco receiving and compacting chamber is made integral with the top plate of the machine thereby effecting a great simplification in the construction thereof.

Still another important object of the present invention is the provision in a machine of the above mentioned type of a cigarette tube retaining lever which maintains said tube on the machine during the tobacco ejecting operation and then automatically releases the tube at the end of said operation.

The foregoing and other important objects of the invention will become more apparent during the following disclosure and by referring to the drawings in which

Figure 1 is a perspective view of the cigarette making machine according to the invention.

Figure 2 is a cross-section of the same.

Figure 3 is a plan section along line 3—3 of Figure 2.

Figures 4, 5 and 6 are similar plan sections showing different stages of operation of the machine; and

Figure 7 is a fractional cross-section along line 7—7 of Figure 3.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the letter A indicates a base made of wood, plastic or other suitable material enclosing and supporting a casing generally indicated by B and preferably made of sheet metal. Said casing B comprises a top 1, side walls 2 and a back wall 3. The front edge portion of the top 1 is bent back in a semi-circular bend 4 to form an extension lying underneath the top 1 and forming the bottom 5 and sides 5' of a tobacco receiving chamber 6.

The base A has an upwardly extending panel 7 to close the front of the casing B and merging at its upper edge with the bend 4.

The top 1 is provided with an aperture 8, in register with the tobacco receiving chamber 6, through which aperture the tobacco is fed.

A tobacco compacting member 9, in the form of a plate having a concave front edge 10 is movable within the chamber 6 from a back retracted position clearing the aperture 8, to a forward tobacco compacting position closing the aperture 8 and leaving at the front of the chamber 6 a cylindrical space defined by the semi-circular bend 4 of the top 1 and the concave front edge 10 of said compacting member 9. A plunger 11 is movable through said cylindrical space across said chamber 6 from a retracted position, as shown in Figure 4 or 5, to a fully engaging position as shown in Figure 6. In the latter position, the plunger 11 engages the tobacco ejecting nipple 12 which is in communication with the tobacco receiving chamber 6 and is secured to a side wall 2 of the casing B.

The plunger 11 is guided in its movements and supported by a semi-circular trough 13 in alignment with the tobacco ejecting nipple 12 and with the cylindrical space of chamber 6 which is defined when the tobacco compacting member 9 is in forward position. This trough 13 is made in a manner similar to the bottom 5 of the chamber 6 by bending and extending the front edge of the top 1 of the casing B.

The tobacco compacting member 9 is maintained parallel with itself during its forward and backward movements and is actuated by means of two toggle joints, the link 14 of each toggle joint being pivoted at 15 to said tobacco compacting member 9 and the other link 14' of each toggle joint being pivoted to the top 1 by means of bolts 17. The links 14, 14' of one toggle joint are kept parallel to the links 14, 14' of the other joint respectively at all times by means of a transverse link 18 connecting the knee pivot 16 of each toggle joint and having an extension 19 provided with a downwardly extending stud 20.

The stud 20 on the link 18 abuts the outer edge of a cam 21 secured to an axle 22 rotatably mounted and passing through the top 1 of the casing B. A handle 23 secured to the upper end of the axle 22 serves to rotate the same in a reciprocal movement.

An arm 24 is freely pivoted on the axle 22 and is connected at its outer end to the plunger 11 by means of a link 25 pivotally secured to the arm 24 at 26 and to an extension 27 of the plunger 11 at 28. A coil spring 29 is attached to the arm 24 at one end and to the casing B at the other end to urge the arm 24 towards the right and consequently the plunger 11 into retracted position. The arm 24 is actuated through the axle 22 and cam 21 by abutting downwardly extending pins 30 and 31 secured to the cam 21, during clockwise and anti-clockwise rotation of the axle 22 respectively.

The cam 21 has an outer cam edge defined by a recess 32 extending inwardly towards the axle 22 and in substantial alignment with a radius of said axle 22, said recess 32 having a curved side 47 merging at the point 48 with a circular portion 33 coaxial with the axle 22. The other side of the recess 32 is defined by the curved edge 50 of the finger 49, said edge 50 extending to a point 51 spaced from and substantially opposite the point 48 where the edge 47 and the portion 33 are merging. Rotation of the cam 21 will impart to the stud 20 and consequently to the transverse link 18 the required movements that will be described presently.

Figure 4 shows the machine in inoperated position, ready to receive tobacco through the opening 8, the tobacco compacting member 9 and the plunger 11 being in fully retracted position. In the position shown in Figure 4, it is seen that the stud 20 engages the recess 32 of the cam 21 and that the arm 24 abuts the pin 31 of said cam 21. Clockwise rotation of the axis 22 through the handle 23 will cause displacement of the link 18 towards the left and therefore forward movement of the tobacco compacting member 9 to its front limit position as shown in Figure 5. During this movement, the arm 24 and the plunger 11 remain in their fully retracted position.

In the position of Figure 5, the levers 14, 14' of each toggle joint are in mutual alignment and the stud 20 is just about to leave the recess 32 made in cam 21. Upon

further clockwise rotation of the axle **22**, the link **18** is further displaced to the right thereby causing a slight backward movement of the tobacco compacting member **9** in order to decrease the pressure exerted on the tobacco and to allow entrance of the plunger **11** into the chamber **6** as shown in Figure 3. In the position shown in Figure 3, the stud **20** rides on the circular edge portion **33** of the cam **21** and the end **52** of the link **18** abuts against the wall **2** of the casing B whereby axial displacement of the link **18** is completely prevented during the movement of the plunger **11**.

This plunger **11** is actuated when the arm **24** comes in contact with the pin **30** on the cam **21**.

The tobacco within the chamber **6** is ejected through the nipple **12** into the cigarette tube held on said nipple **12** until the plunger **11** has reached its left limit position as shown in Figure 6.

Upon return or anticlockwise rotation of the axle **22**, the above described movements of the various elements are repeated in reverse order, according to the consecutive positions shown in Figures 6, 3, 5 and 4.

It will be noted that the spring **29** is necessary for urging the plunger **11** into fully retracted position in order to permit the tobacco compacting member **9** to take its front limit position, as shown in Figure 5, during anticlockwise rotation of the cam **21**, because the pin **31** abuts the arm **24** only after said front limit position of the tobacco compacting member **9** is reached.

As shown in Figures 4 and 5, the tobacco compacting member **9** is caused to move backward to its rear limit position when the stud **20** engages the recess **32** in cam **21** in order to displace the link **18** towards the right.

The cigarette tube is held on the nipple **12** by means of a cigarette tube retaining lever **34** pivoted on the bottom **5** of the tobacco receiving chamber **6** by means of a shoulder pin **35**. The lever **34** projects from the side wall **2** adjacent the nipple **12** and mounts a gripping pin **36** adapted to contact the cigarette tube on the nipple **12**. Said lever **34** is urged in contact with the nipple **12** by means of a coil spring **37** attached thereto and to the front portion of the casing **1**.

The tube retaining lever **34** is provided with an extension **38** bent upwardly at its free end to form an abutment **39** adapted to come in contact with a link **14** as shown in Figure 4 in order to cause the tube retaining lever **34** to assume a releasing position at the starting position of the machine whereby the cigarette tube may be inserted on the nipple **12**. As soon as the machine is started said link **14** disengages the abutment **39** whereby the lever **34** assumes its cigarette tube retaining position as shown in Figure 5.

Near the end of the operation when the tobacco has been nearly completely ejected within the cigarette tube, that is in the position shown in Figure 6, the arm **24** comes in contact with a second extension **40** of the retaining lever **34** to pivot the latter into its cigarette tube releasing position, whereby the completed cigarette is allowed to disengage the nipple **12**.

The necessary clearance for the movements of the various parts of the machine according to the invention is obtained by disposing said parts at different levels as shown in Figure 7. For that purpose, the axle **22** is provided with spacer collars **41**, **42** and **43**, the bolts **17** with a collar **44** and the pivot **28** with a spacing sleeve **45**.

The cam **21** and the arm **24** may be easily dismounted by unscrewing the nut **46** at the lower end of the axle **22**.

While a preferred embodiment according to the present invention has been illustrated and described it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. In a cigarette making machine of the type having a tobacco compacting member movable within a tobacco receiving chamber to and from a tobacco compacting position, a pair of toggle joints and a link pivoted on said joints for actuating said tobacco compacting member to and from said compacting position; a manually operated axle, a cam secured to said axle for displacing said link and with the outer cam edge of which one end of said link is in riding contact, the outer edge of said cam being defined by a curved recess extending inwardly towards said axle and in substantial alignment with a radius of said axle, a circular portion co-axial with said axle and merging with one curved side of said recess and a curved finger forming the opposite curved side of said recess, said finger extending to and terminating at a point outwardly spaced from the point where the said circular portion merges with said first named side of said recess whereby rotation of said cam will cause said one end of said link to successively engage said circular portion and said recess of said cam.

2. A cam for use in a manually operated cigarette making machine of the type having a tobacco receiving chamber, a tobacco compacting member movable within said tobacco receiving chamber to and from a tobacco compacting position, a pair of toggle joints and a link pivoted on said joints for actuating said tobacco compacting member to and from said tobacco compacting position, said link having a stud at one end, an axle to which said cam is secured, said cam having an outer cam edge defined by a curved recess extending inwardly towards said axle and in substantial alignment with a radius of said axle, a circular portion co-axial with said axle and merging with one side of said recess and a curved finger forming the opposite side of said recess, said finger extending to and terminating at a point outwardly spaced from and opposite the point where the said circular portion merges with said first named side of said recess, said stud on said link being in riding contact with said outer cam edge.

3. A cigarette making machine comprising a casing and a nipple secured to said casing and adapted to receive a cigarette tube, a tobacco receiving chamber formed within said casing adjacent said nipple, a tobacco compacting member displaceable within said chamber to and from a tobacco compacting position, toggle lever means for displacing said tobacco compacting member, a plunger for ejecting the compacted tobacco through said nipple into said cigarette tube, an arm for actuating said plunger, a cigarette tube retaining lever pivoted on the casing for movement between a cigarette tube retaining position and a cigarette releasing position, a spring urging said lever into said first named position, a first extension on said lever and engageable by said toggle lever means for maintaining said lever in cigarette tube releasing position when said tobacco compacting member is in tobacco disengaging position, and a second extension on said lever substantially aligned therewith and engageable by said arm for maintaining said lever in a cigarette tube releasing position when said plunger has reached its tobacco ejecting position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,314,734 Ptasnik ---------- Mar. 23, 1943

FOREIGN PATENTS

464,948 Great Britain ---------- Apr. 28, 1937