April 28, 1925.

1,535,784

E. KOERNER

TRESTLE OR CONTAINER FOR RECEIVING MANUFACTURED CIGARETTES

Filed June 21, 1924 5 Sheets-Sheet 1

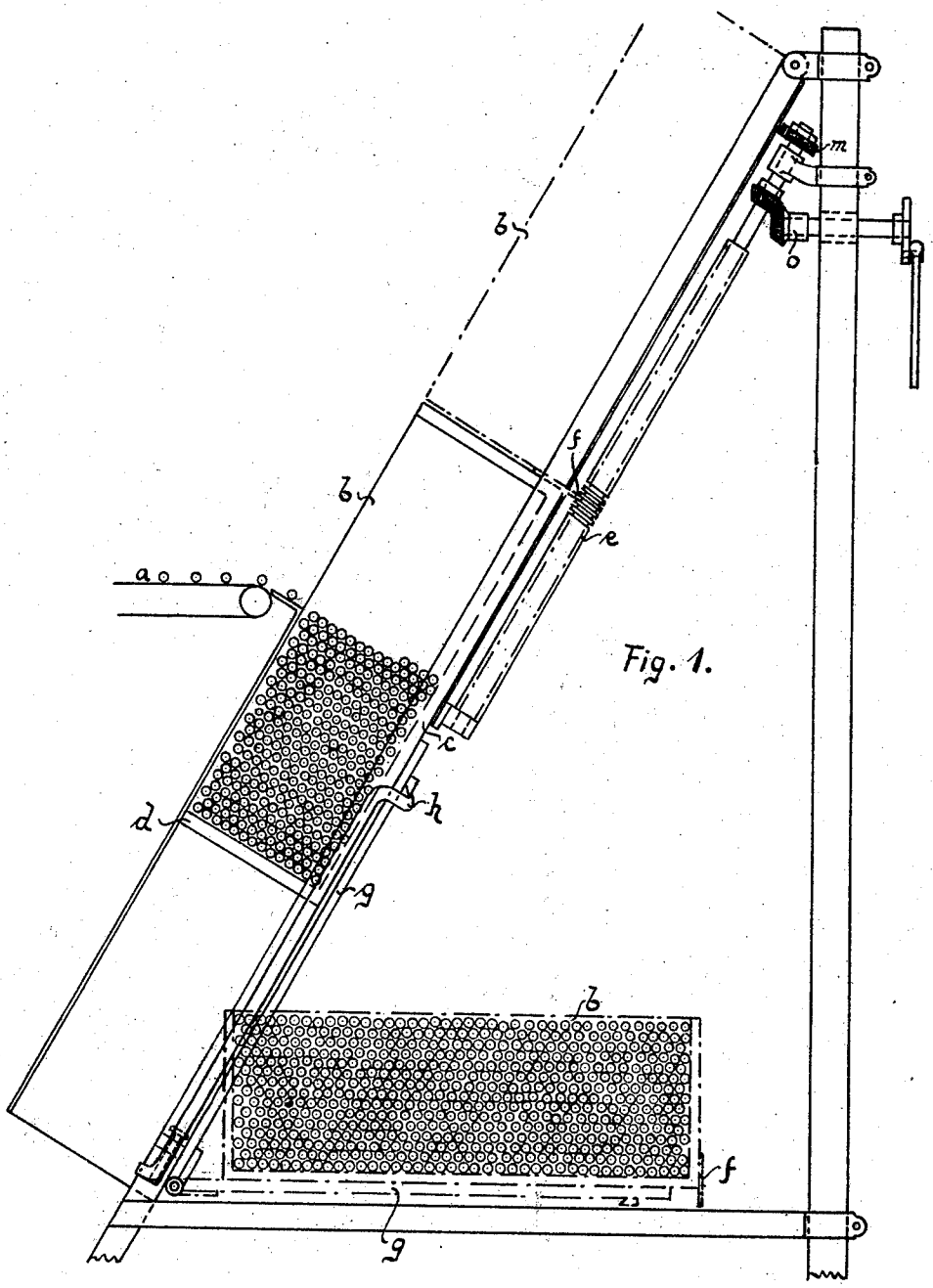


Fig. 1.

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By M. Lee Helms
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Fig. 2.

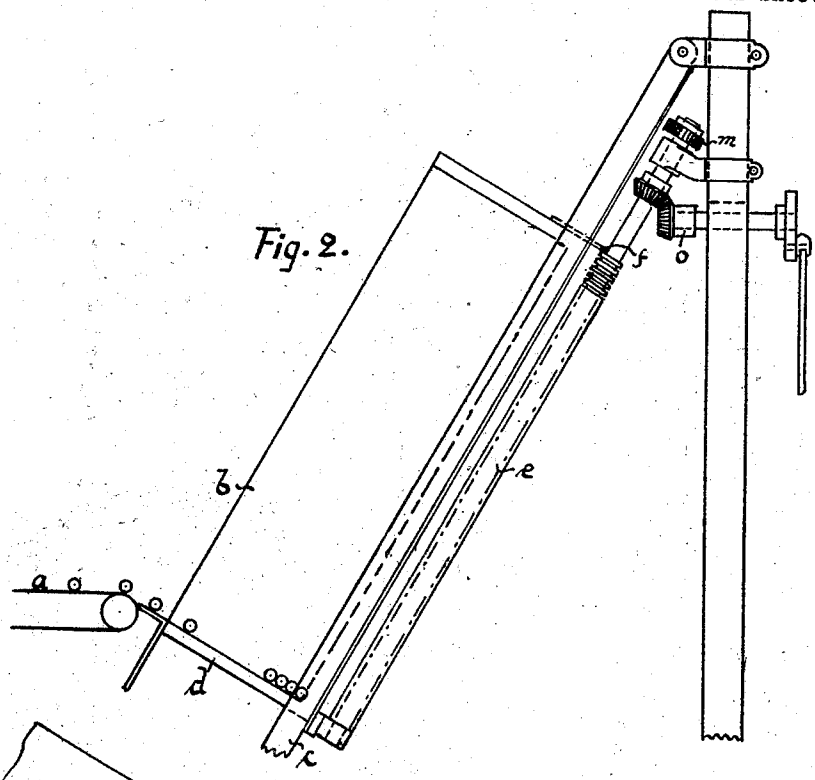


Fig. 3.

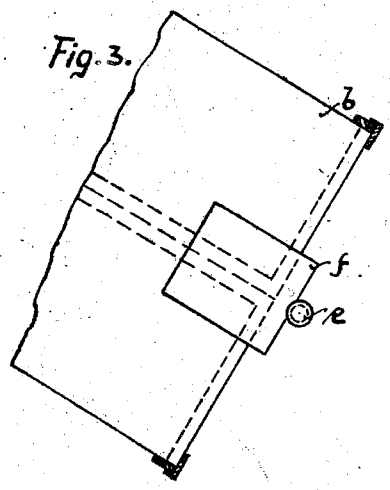
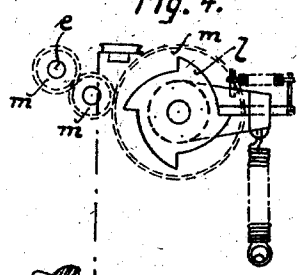
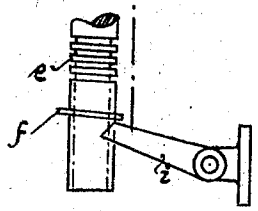


Fig. 4.





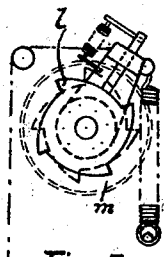
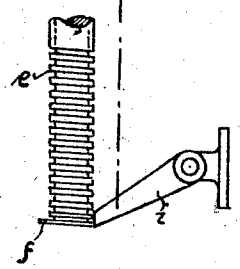


Fig. 5.



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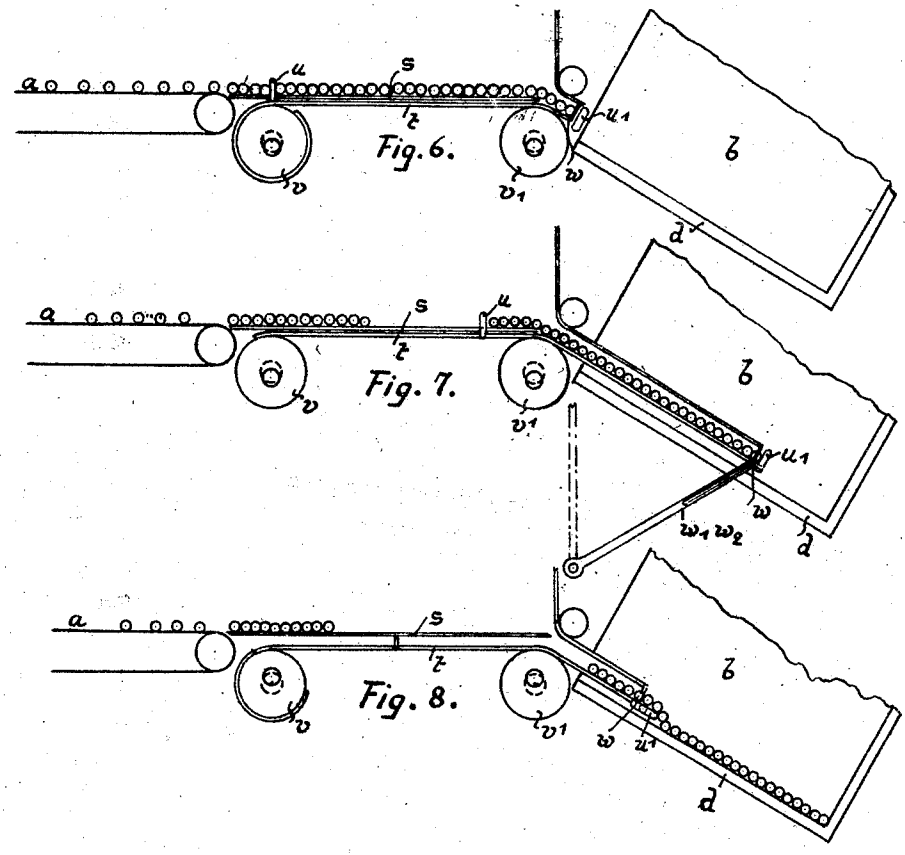


Fig. 6.

Fig. 7.

Fig. 8.

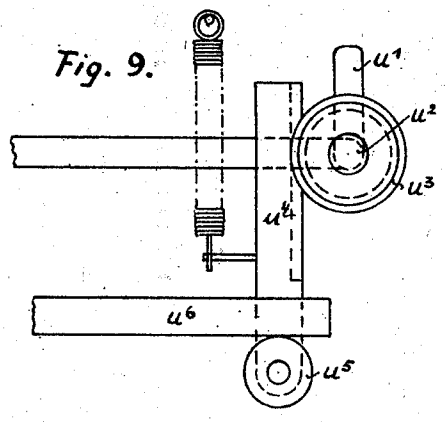


Fig. 9.

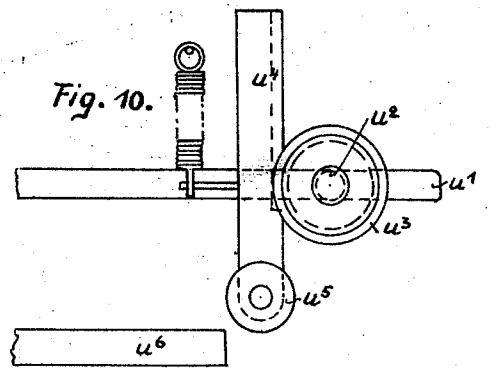


Fig. 10.

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Fig. 11.

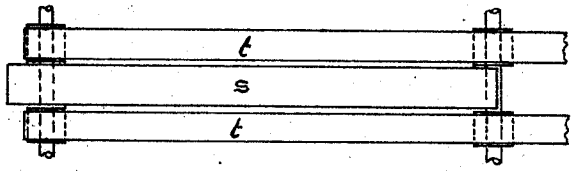


Fig. 12.

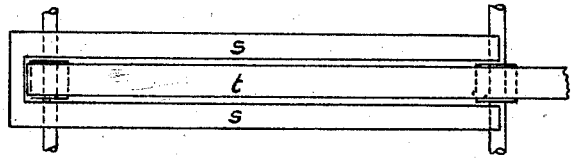
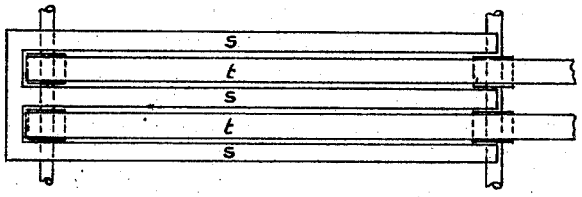


Fig. 13.



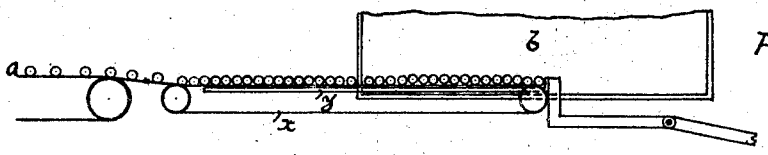


Fig. 14.

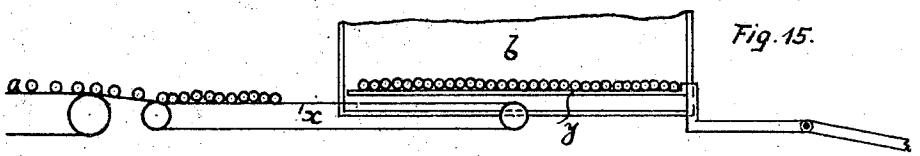


Fig. 15.

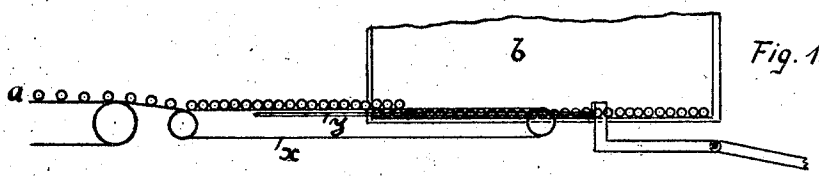


Fig. 16.

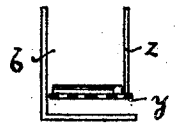


Fig. 17.

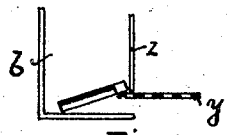


Fig. 18.

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Fig. 19.

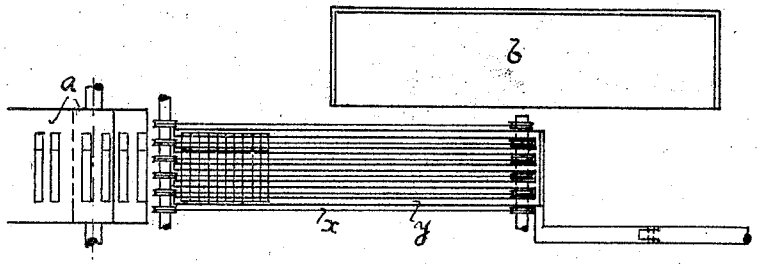
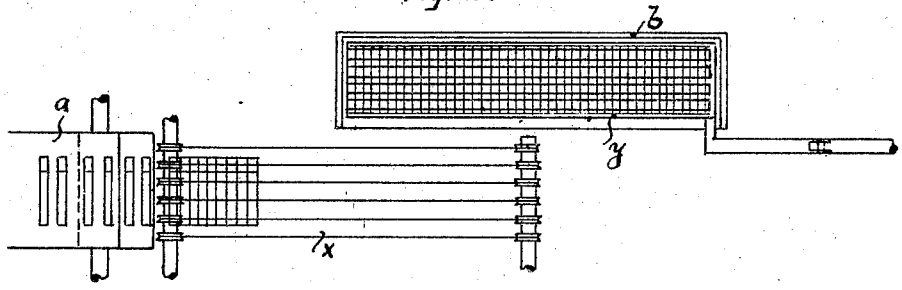


Fig. 20.



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By M. Lee Helms
His Attorney

Patented Apr. 28, 1925. 1,535,784

UNITED STATES PATENT OFFICE.

EWALD KOERNER, OF DRESDEN, GERMANY, ASSIGNOR TO UNITED CIGARETTE MACHINE COMPANY, INC., OF LYNCHBURG, VIRGINIA, A CORPORATION OF VIRGINIA.

TRESTLE OR CONTAINER FOR RECEIVING MANUFACTURED CIGARETTES.

Application filed June 21, 1924. Serial No. 721,508.

To all whom it may concern:

Be it known that I, EWALD KOERNER, a subject of the German Republic, and resident of Nr. 37, Borsbergstrasse, in Dresden, Free State of Saxony, German Republic, have invented a new and useful Improvement in Trestles or Containers for Receiving Manufactured Cigarettes, of which the following is a specification.

The present invention has for its object a filling-device for cigarette-machines arranged with a cigarette-trestle or container moved along for receiving the cigarettes manufactured. The novelty of said filling-device consists mainly in that the trestle or container is positively moved along in interruptions in accordance with the thickness of the cigarettes to be manufactured and in such a manner that the cigarettes are inserted or supplied in series into the trestle or container. The trestles or containers to be filled or supplied with cigarettes are arranged at an acute angle to the endless band supplying them in such a manner that the cigarettes supplied by said endless band are left to themselves, in other words, inserted in series above each other into the trestle positively moved along. A conveyor-slide may be arranged between the endless band supplying the cigarettes and the trestle or container to be filled, said slide working in such a manner that it receives a series of cigarettes and said series is supplied into the trestle or container in the shape of a full series of cigarettes.

The supplying apparatus mentioned above can be modified in such a manner that a second endless band consisting of narrow bands, wires or the like is combined with or arranged between the endless band supplying the cigarettes and the trestle or container to be filled with cigarettes. This second endless band co-acts together with a slide formed as a rag and moved, on the one hand, vertically, and, on the other hand, horizontally in the direction of movement of the endless band and transversally to said direction in such a manner that the slide lifts the cigarettes resting on the narrow bands, wires or the like and delivers the rows or series of cigarettes into a trestle or container during the insertion of the slide mentioned.

The object of the present invention is represented in the drawings annexed to the description.

Figs. 1 and 2 represent in front elevation the filling device for the trestles or containers connected with a cigarette-machine, said trestles or containers being filled with different quantities of cigarettes. Fig. 3 shows part of a side elevation of the wall of a container represented in Fig. 1. Figs. 4 and 5 represent in longitudinal views two positions of the feeding-device of the trestles or containers.

Figs. 6, 7 and 8 show in various positions the supply-slide receiving the cigarettes intended to be introduced into the trestle or container. Figs. 9 and 10 are a detailed arrangement for disengaging the projection or nose usually holding the series of cigarettes resting on their support prior to their insertion into the trestle or container. Figs. 11, 12 and 13 represent in plan and on a larger scale various modifications of the supporting or conveyor-band. Figs. 14 to 18 show in longitudinal and transversal views a modified form of the apparatus for conveying the cigarettes in rows into the trestle or container. Figs. 19 and 20 show another arrangement for conveying the cigarettes placed in rows by a support or conveyor formed of endless wires and actuated to be moved in a horizontal plane and in front of the longitudinal side of the trestle or container from which position the cigarette rows are conveyed by grate-like supports into the container.

a, Figs. 1 and 2, is the endless band conveying the cigarettes manufactured in the machine to the trestles or containers *b* which rest on an oblique guide-way *c* and are to be filled with said cigarettes. A screw-spindle *e* is arranged below the guide-way *c* and can temporarily be rotated in any suitable manner, so for instance by a drive *o*, arranged in the upper part of the trestle-frame. A stop *f* fastened to the front wall of each of the trestles or containers projects into the thread of the screw-spindle *e* in such a manner that dur-

ing the temporary rotary-movement of the screw-spindle *e* the trestle or container *b* is positively moved along for a defined length equal, for instance, to the thickness of a single cigarette. A longitudinal slot arranged within the guide-way *c* serves to guide the stop *f*.

The length of the thread of the screw-spindle *e* can be such that after the filling of a trestle or container with cigarettes, the stop fastened to said trestle is released, whereupon the trestle newly to be filled and resting on the trestle filled already with cigarettes is engaged with its nose *f* by the thread of the spindle *e* and is connected by its lower wall to the endless conveyor band *a*, Fig. 2.

The lower part of the guide-way *c* is formed as a hinged bottom *g*, Fig. 1, the closed-position of which can be ensured by a locking-device *h*. On placing the filled trestle onto the bottom *g*, the latter can be opened after releasing the locking-device *h*, viz, brought into the horizontal position shown in Fig. 1. The filled trestle or container is removed and the bottom *g* can be returned to its closed position in any suitable manner.

For the purpose of permanently adjusting the position of the stop *f* of one trestle or container in front of the front end or beginning of the thread of the screw-spindle *e* and ensuring, after having filled one trestle or container with cigarettes, the positive movement of a length equal to the thickness of the neighboured walls of the trestles situated one above another, the spindle *e* can, on disengaging or releasing a trestle filled with cigarettes, additionally be rotated by the screw-spindle by means of the mechanism represented by way of example in Figs. 4 and 5. The stop *f* moved together with the screw-spindle *e* arranged on the trestle or container *b* takes, during the lower part of its movement, with it the lever *i* and releases it again after the stop *f* has left the screw-spindle *e*. The forward extremity of the lever *i* is so shaped that a certain period will elapse between the release of the stop *f* from the screw-spindle *e* and the release of the lever *i* from the stop *f*, said period being so measured that the lever *i* can move back at the end of the periodical rotation of the screw-spindle. By pressing down the lever *i* the mechanism *l* is wound up which is in connection with the screw-spindle *e* through the tooth-wheels *m* and a clutch not shown in the drawing, for the rotation of the spindle mentioned in one direction. During the backward movement of the lever *i* an additional rotary movement of the spindle *e* is obtained by the mechanism *l* in such a manner that the stop *f* stands in front of the front end or beginning of the thread and the trestles or containers are moved along in such a manner that the lower wall *d* of the trestle or container meets the endless conveyor band and the cigarettes left to themselves are inserted into the trestle or container in rows or series during the positive longitudinal movement of said trestle or container.

According to the forms of construction represented in Figs. 6 to 8 a supply-slide is arranged between the endless band *a* conveying the cigarettes and the trestle or container *b*, said slide serving to receive the cigarettes delivered by the endless band *a* and to introduce or supply the cigarettes resting on the supply-slide in the shape of a complete series into the trestle or container. Said supply-slide can be formed by a band *t* of linen, steel-plate or the like and fastened by one of its extremities to a drum *v* being under spring-pressure. The forward extremity of the slide mentioned is connected by a small projection *w* to a suitably arranged lever-mechanism. The latter may consist of two levers w^1, w^2, the upper ends of which are bifurcated and act on lateral pins arranged on the projection *w*, so that on the swinging movement of said mechanism the band *t* is moved from its starting position, Fig. 6, into the trestle or container *b*, Fig. 7.

The band *t* is provided with the stops *u*, u^1 and arranged below a guide-way *s*, situated between the endless band *a* and the trestle or container *b*. Said stops can be turned down and moved upward by a suitable device in such a manner that, after the introduction of the band *t* into the trestle or container *b*, the stop u^1 is laid down and the cigarettes resting on said band *t* are inserted into the trestle or container *b* during the removing of the band from the latter.

The aforesaid device is shown in Figs. 9 and 10 in two different positions and in connection with the other parts of the trestle or container. The stop u^1 is fastened to a shaft u^2 projecting above both longitudinal walls of the trestle. Two wheels u^3 fastened on both extremities of said shaft are in engagement with two racks u^4 carrying on their lower ends the discs u^5. The racks u^4 are under spring-action and the springs tend to permanently hold the racks in their upper position so that the stop u^1 is in its turned down position, Fig. 10. If it is intended to turn the stop u^1 into its upward position (Fig. 9) two suitable moving and swinging levers u^6 press down the racks u^4, whereby the wheels u^5 and their shafts carrying them are rotated and the stop is turned into its upward position (Fig. 9) and the cigarettes resting on the band are prevented from falling down into the trestle or container *b*.

To enable the band *t* to act together with the guide-ways *s* the latter can be shaped

as a plain surface of a width smaller than the length of the cigarettes. The band t consists, in this case of strips or wires guided on both sides of the guide-way s (Fig. 11) and provided with two stops u, u^1 fastened to them (Fig. 8). It is not necessary to fasten the stops u to the band t so as to be turned down. Said band can also be arranged in the middle of the guide-way s, Fig. 12. In this case the band t is of a width smaller than the length of the cigarettes and the guide-ways s are formed as a frame in the middle opening of which runs the band t.

In the construction according to Fig. 13 said frame is trifurcated in such a manner that two bands t run between three guide-ways s.

If the guide-way s is in the shape of a complete surface of a width corresponding to the length of the cigarette, it is provided with slots for receiving and guiding the stops u. Said stops are arranged to be turned down and moved in such a manner that during the backward movement of the band t into its starting position, the stop is situated below the cigarettes resting on the guideway s and on reaching said starting position is turned upward, the band t simultaneously receiving the cigarettes to be inserted between the stops. In this case, the stop u can also be arranged stationarily, whereas the drum v and the guide-roll v^1, (Fig. 7) are arranged to be moved vertically and guided in such a manner that during the backward movement of the band t to its starting position the stop u is situated below the guide-way s.

Another modification of the trestle or container according to which a second endless band, consisting of strips, wires or the like, is arranged between the endless band supplying or conveying the cigarettes and the trestle or container to be filled with them is shown in Figs. 14 to 18 in longitudinal section and transverse section. As seen from said figures, an endless band x, consisting of strips, wires or the like, is arranged behind the endless band a; said second endless band x operates together with a slide y formed as a rake situated in its starting position below the upper strips, wires or the like of the endless band x. The slide mentioned is vertically moved in any suitable manner for the purpose of passing from the position Fig. 14 into the position Fig. 15 and takes off the cigarettes resting on the strips, wires or the like from the endless band first mentioned. The slide y is then horizontally moved in any suitable manner in the direction of the running endless band, so that the parts take the position shown in Figs. 15 and 17. In this position the slide is situated in front of the open trestle or container.

For the insertion of the cigarettes into the trestle or container b, a second horizontal movement is imparted to the slide y at a right angle to the direction of the running band.

z is a slide vertically movable which is situated in its lower position in rear of the row of cigarettes, Fig. 17, and which on the rearward movement of the slide y puts the cigarettes off the latter to insert them into the trestle or container b. If then the slide y is drawn or removed from the trestle or container b, it is horizontally moved to the lefthand side i. e. in contrary to the running movement of the endless band x. Said endless band being at rest, again, the slide y is lowered and then situated below the cigarettes running onto the endless band x.

As clearly seen from the drawings, Figs. 14 to 18, a horizontal movement of the slide y is given not only to place it in front of the open trestle or container but also to allow it to place itself below the cigarettes supplied on the endless band x when the slide moves backwards to its starting position.

Figs. 19 and 20 are the plans corresponding to the longitudinal elevations shown in Figs. 14 and 15.

What I claim is:

1. A filling device for cirgarette machines, comprising a container, means for moving the container step by step, each step being a distance in accordance with the thickness of the individual cigarettes being handled, and means for inserting a layer of cigarettes into the container at each movement of the latter.

2. A filling device for cigarette machines, comprising a container, an actuator for the container, a connection between the container and actuator, means for imparting intermittent movements to the actuator, and means for intermittently carrying layers of cigarettes into the container.

3. In a filling device for cigarette machines, in combination, a container, an actuating device for said container adapted to move the latter intermittently, means for transferring successive layers of cigarettes to the container until the latter is filled, and means whereby the container is automatically released from its actuating means after it is filled.

4. In a filling device for cigarette machines, in combination, a container, a worm, a connection between the container and worm, means for imparting intermittent rotations to the worm, means for carrying layers of cigarettes to the container during its intermittent movements by the worm, and automatic means for imparting an additional rotation to the worm, after the container is filled, and to position a succeeding container.

5. In a filling device for cigarette machines, comprising a container, means for imparting successive movements to the container, means for transferring successive series of cigarettes to the container, a guide-way for the container, a door provided in the guide-way, and means for automatically opening said door to eject the container when the latter is filled and ends its intermittent movements.

6. A filling device for cigarette machines comprising a container, a guide-way for the container, means for moving the container intermittently in said guide-way, means for automatically delivering series of layers of cigarettes to the container in its movements, said means and the container being relatively supported at an angle so that the movement of the cigarettes into position within the container is assisted by gravity.

7. A filling device for cigarette machines, comprising a container, means for moving the same intermittently, means for conveying successive cigarettes to a given point, including a belt, a table adapted to receive a series of cigarettes from the belt, and means for transferring said series from the table to the container after a movement of the latter.

8. A filling device for cigarette machines comprising a container, a receiving table for a series of cigarettes, and means for transferring said cigarettes from the table to the container, said means including a movable supporting element for the cigarettes and having a stop for preventing movement of the cigarettes in a given direction, and means for intermittently moving said stop into neutral position.

9. A filling device for cigarette machines, comprising a container, means for intermittently moving the container, means for transferring a layer of cigarettes to the container after each movement thereof, said means comprising a band for supporting the layer of cigarettes and means for imparting endwise and vertical movements to the band.

10. A filling device for cigarette machines comprising a movable container, means for conveying successive cigarettes to a given point, a receiving table for a series of said cigarettes and having spaced sections, and a carrier adapted to periodically move through said sections and transfer the cigarettes supported thereby to the container.

11. A filling device for cigarette machines, comprising a container, means for conveying successive cigarettes to a given point, a carrier adapted to receive a plurality of cigarettes from the conveyor, a stop carried by the belt, means for moving the belt to the container, and means for moving the stop to neutral position whereby the cigarettes are released from the belt.

In testimony that I claim the foregoing as my invention, I have signed my name this 28th day of May, 1924.

EWALD KOERNER.