

June 8, 1965

B. SCHUBERT

3,187,482

DEVICE FOR FILLING CIGARETTE FRAMES

Original Filed Oct. 22, 1959

2 Sheets-Sheet 1

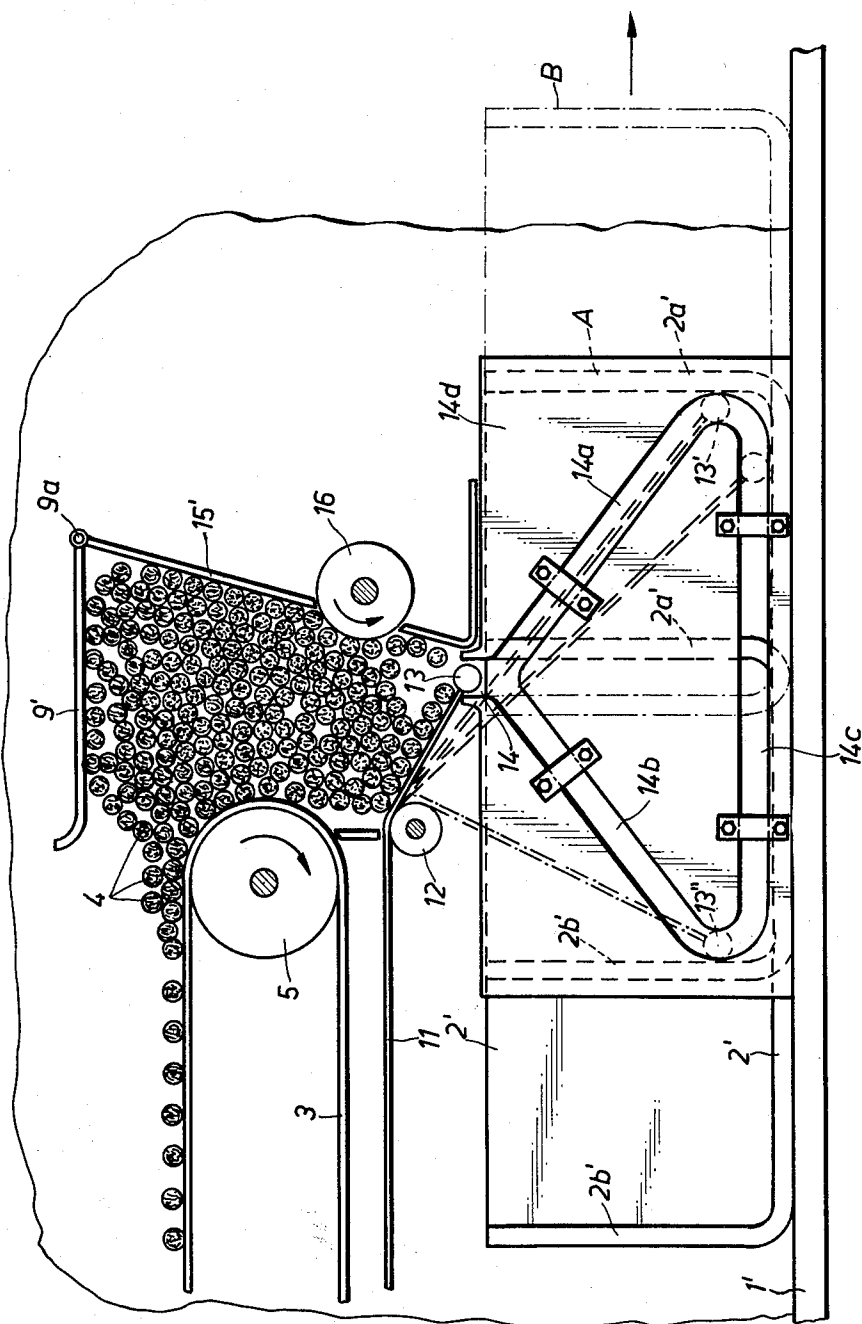


Fig. 1

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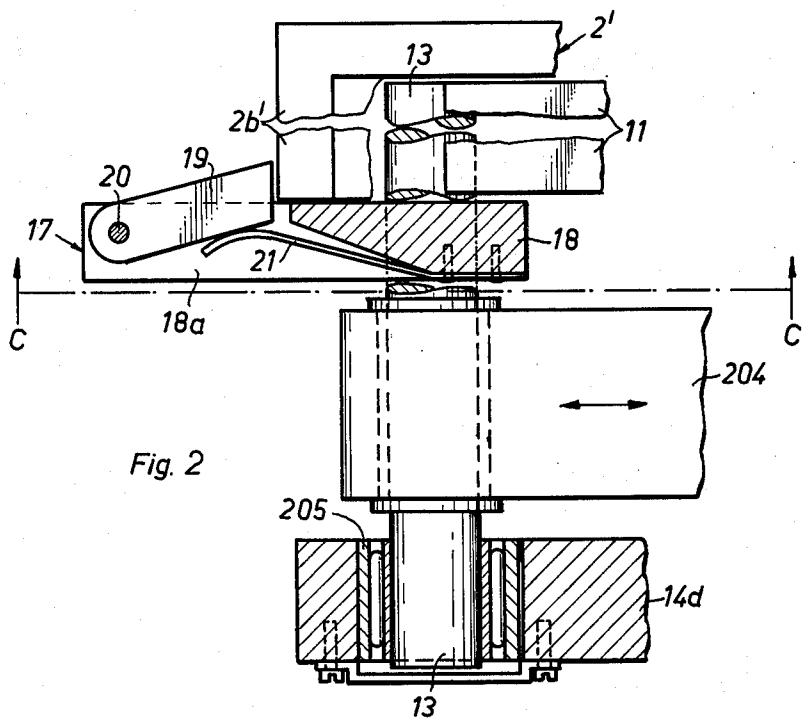


Fig. 2

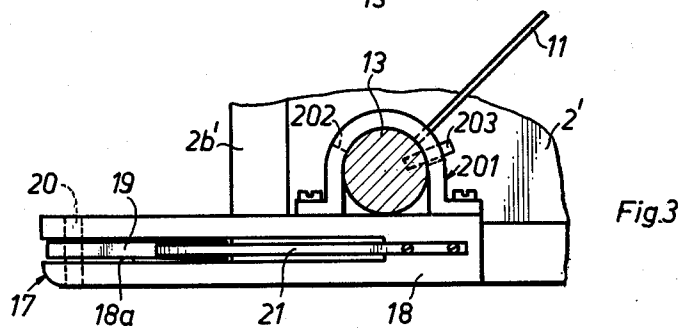


Fig. 3

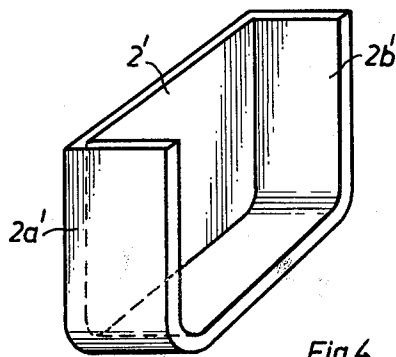


Fig. 4

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DEVICE FOR FILLING CIGARETTE FRAMES

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Original application Oct. 22, 1959, Ser. No. 847,999, now
Patent No. 3,024,585, dated Mar. 13, 1962. Divided
and this application Jan. 12, 1962, Ser. No. 165,813
Claims priority, application Germany, Oct. 24, 1958,
H 34,619

2 Claims. (Cl. 53—236)

This invention relates to novel and improved means for filling cigarette frames with cigarettes and constitutes a division of application Serial No. 847,999, filed October 22, 1959 and allowed September 12, 1961 and now Patent No. 3,024,585.

Arrangements for filling cigarette frames are known in which a transfer device is loaded with cigarettes and then moved downwardly into a cigarette frame whereupon one or more hinged bottom flaps in the transfer device are caused to swing downwardly in order to unload the cigarettes into the frame. The transfer device is then returned upwardly out of the frame and brought into condition to be reloaded. Unless in such known arrangements the total width of the bottom flaps substantially equals the length of the frame, the filling is not satisfactory. As a result, transfer devices of this type necessarily are large and cumbersome, requiring considerable space and heavy and expensive operating mechanisms. The filling procedure is slow.

It is an object of the invention to provide novel and improved means of the kind indicated in which the free edge of a cigarette supporting member of the transfer device is caused to sweep along substantially the entire interior surface of the frame from the top of one end wall to the top of the opposite end wall in the process of filling the frame with cigarettes.

Other objects and advantages of the invention will be obvious from the following description of several embodiments thereof with reference to the accompanying drawings, in which

FIG. 1 is a partly diagrammatical elevation view of the invention;

FIG. 2 is a top view of the locking device employed in the invention with portions in horizontal section;

FIG. 3 is a sectional view of the locking device along the line C—C of FIG. 2, and

FIG. 4 shows a perspective view of the frame to be filled with cigarettes.

Referring to FIG. 1, a frame 2' to be filled is disposed on a support 1' which may be an intermittently movable endless conveyor. At some distance above the frame 2' to be filled an endless supply conveyor 3 is mounted on pulleys of which only one, numbered 5, is shown. An upwardly extending abutment plate 15' arranged in horizontally spaced relation from the pulley 5 forms one wall of a hopper for the cigarettes which are discharged by the endless conveyor 3 onto a slidably mounted steel tape 11 arranged below the conveyor 3. This plate 15' extends downwardly to the upper edge of the frame 2' to be filled. A sensing finger 9', which is pivotally mounted at 9a on the plate 15', is arranged above the cigarettes in the discharge position and controls the movement of the steel tape 11 in accordance with the accumulated height of the cigarettes 4 resting on the tape 11. The steel tape 11 is guided over a feed roller 12 and its front edge is attached to a transverse rod 13 which is arranged in a guide slot 14 provided in a vertical plate 14d. The guide slot 14 forms the apex of two oppositely inclined guide slots 14a and 14b, the lower ends of which are connected with each other by a horizontally extending

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guide slot 14c. When a frame 2' is moved into its filling position, the front wall 2a' of this frame 2' is positioned prior to the start of the filling operation directly under the lower end of the abutment wall 15'. When the filling operation commences, the transverse rod 13 moves along the forward guide slot portion 14a until it approaches the bottom of the frame as shown in the position 13', thereby causing the cigarettes to slide along the tape 11 into the frame 2'. During this movement the rod 13 engages the front wall 2a' of the frame 2' and moves the latter into the position indicated by the dotted lines A. Thereupon the rod 13 with the tape 11 attached thereto moves along the bottom of the frame 2', namely along the horizontal portion of the guide slot until it reaches the position 13'' at the rear wall 2b' of the frame 2'.

The rod 13 has mounted thereon a locking device 17 (FIGS. 2 and 3) which will engage the rear face of the rear wall 2b' of the frame 2', or, the locking device may also engage farther rearwardly the inner face of the front wall of the next frame which follows the first mentioned frame in its filling position.

This locking device consists of a mounting bar 18 attached to the transverse rod 13. The mounting bar is provided at one end with a slot 18a in which is pivotally mounted about a pin 20 a locking pawl 19. A leaf spring 21 urges this locking pawl 19 normally to its operative position in which the pawl engages the rear wall 2b' of the frame 2'. When the rod 13 moves now upwardly along the rear portion 14b of the guide slot 14, then the frame 2' and, if desired, also the following frame is moved along and moves into the position B indicated in dash and dotted lines. The rod 13 thereupon moves entirely out of the frame 2' and will be located in the position it had before the filling operation started, namely in the position shown in FIG. 1.

In order to move the front wall of the succeeding frame into the proper position, in case the frames 2' are arranged directly one behind the other, it is necessary to move the succeeding frame a certain distance forward. This may be accomplished by the support 1' upon which the frames 2' are placed when this support 1' is constructed as a conveyor device, or the guide slot 14 has to be shaped in such a manner that the rod 13, prior to its removal from the slot, causes the frame to move an additional short distance forwardly, whereupon the rod 13 is moved upwardly and is then moved backwardly into its initial position.

For the purpose of improving the feed of the cigarettes into the frame 2', there is provided in the abutment wall 15' a rotatable roller 16 as shown in FIG. 1.

The locking device 17 is pivotally mounted on the transverse rod 13 by a U-shaped bracket 201 which surrounds the rod 13 as shown in FIG. 3. The curved portion of the bracket 201 is provided with a circumferentially extending slot 202 in which a pin 203 projecting radially from the rod 13 is movable. Consequently, the locking device 17 is able to swing around the rod 13 as far as this is permitted by the slot 202. Owing to this arrangement the locking device 17 is prevented from gliding away toward the right after the rod 13 has reached the position 13' in which the lower part of the locking device 17 touches the support 1', but in consequence of its inclination to the left strikes upward during a further downward movement of the rod 13 and, finally, reaches the support of the support 1'. In this manner an engagement of the pawl 19 behind the rear wall 2b' of the frame, as shown in FIG. 2, is secured. The rod 13 is being moved by means of a lever 204, for instance by a bent lever, which permits a sliding movement of the rod 13 in the guide slot 14.

The rod 13 is supported in known manner in a pin-bearing 205 so that an easy guiding in the guide slot 14

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is made possible. The rod 13 is loosely rotatably mounted in the lever 204.

What I claim is:

1. A device for filling cigarettes into frames, including an endless conveyor provided at one end with a pulley over which the conveyor passes and over which the cigarettes are discharged from the conveyor into a frame placed below said pulley, an upwardly extending plate horizontally spaced from said pulley to form one wall of a hopper from which the cigarettes are discharged into said frame, and a transfer member for guiding said cigarettes from said hopper into said frame in such a manner that the cigarettes enter said frame progressively from one end to the other, said transfer member comprising a tape, the front end of which is positioned below said pulley and is attached to a transverse rod adapted to move along a triangular guide groove arranged in a stationary wall positioned adjacent one side of said frame to be filled with cigarettes, the base of said guide slot extending along the bottom of said frame.

2. A device for filling cigarettes into frames, including an endless conveyor provided at one end with a pulley over which the conveyor passes and over which the cigarettes are discharged from the conveyor into a frame placed below said pulley, an upwardly extending plate

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horizontally spaced from said pulley to form one wall of a hopper from which the cigarettes are discharged into said frame, and a transfer member for guiding said cigarettes from said hopper into said frame in such a manner that the cigarettes enter said frame progressively from one end to the other, said transfer member comprising a tape, the front end of which is positioned below said pulley and is attached to a transverse rod adapted to move along a triangular guide groove arranged in a stationary wall positioned adjacent one side of said frame to be filled with cigarettes, the base of said guide slot extending along the bottom of said frame, said transverse rod having attached thereto a locking device which at the end of the movement of said rod engages the rear wall of said frame and causes said frame to move away from its filling position.

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