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T. FETZER

CIGARETTE MACHINE CATCHER

Filed May 22, 1924

Fig. 1.

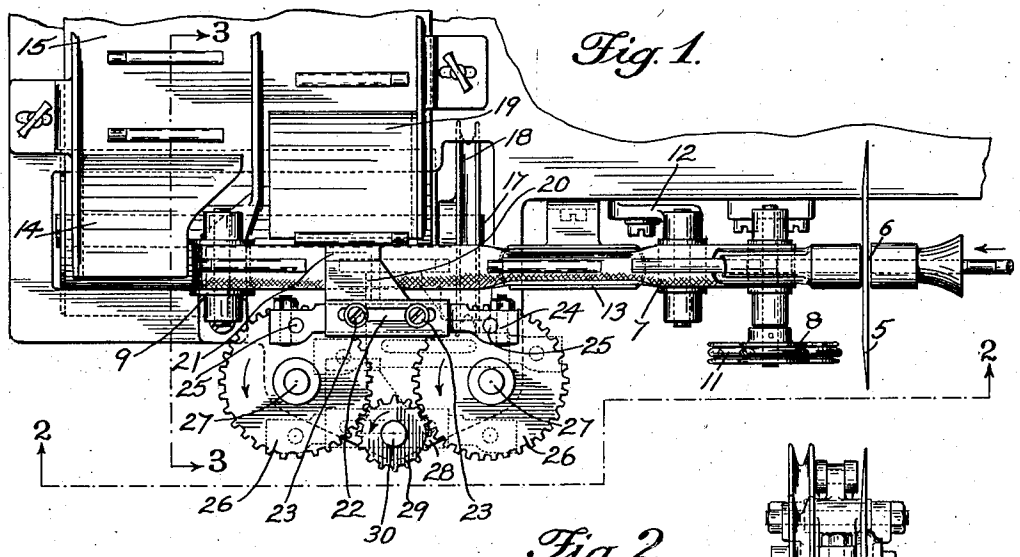


Fig. 2.

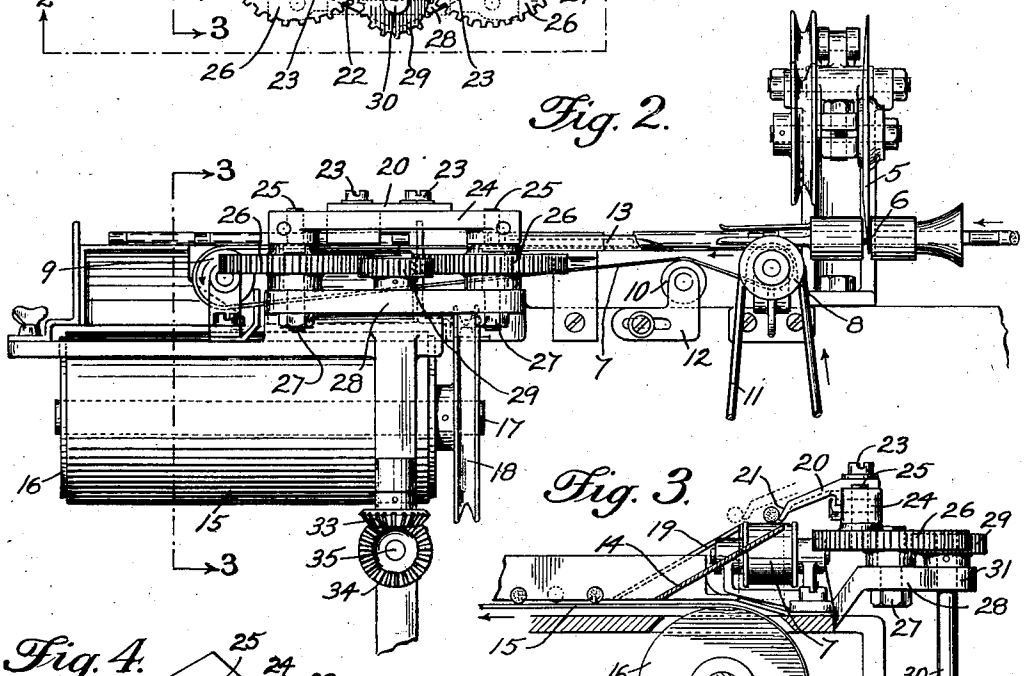
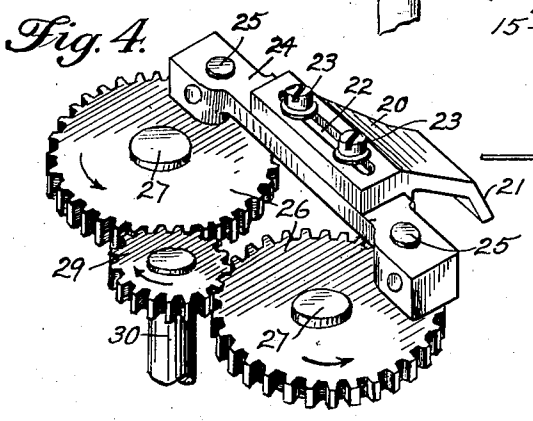


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

THEODORE FETZER, OF BROOKLYN, NEW YORK, ASSIGNOR TO AMERICAN MACHINE & FOUNDRY COMPANY, A CORPORATION OF NEW JERSEY.

CIGARETTE MACHINE CATCHER.

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To all whom it may concern:

Be it known that I, THEODORE FETZER, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Cigarette Machine Catchers, of which the following is a specification.

This invention relates to an improvement in cigarette machine catchers.

In making cork-tipped cigarettes on continuous rod machines, cork tips of double length are sometimes applied to the continuous rod at intervals equal to the lengths of two cigarettes. The rod is then cut into individual cigarettes, one cut being made at the center of the applied cork, and another midway between adjacent applications of the same. The individual cigarettes are then discharged into a catcher where half of them lie with their cork tips at one end, and the other half with their cork tips at the other end. The cigarettes must then be removed from the catcher and sorted by hand, for when the cigarettes are packed for the market the tips must all lie at the same end of the collocation. The main object of the present invention is the production of a catcher that will automatically sort the tipped cigarettes. A further object is the production of such a device which is applicable to the standard commercial cigarette machines now in use. And another object is the production of a device of this general character which is capable of being operated at high speed without generating excessive vibration of the machine proper. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a plan view of a catcher constructed in accordance with the invention; Fig. 2 is a side elevation of the structure shown in Fig. 1, viewed from the broken line 2—2; Fig. 3 is a cross-sectional elevation taken on the lines 3—3 in Figs. 1 and 2; and Fig. 4 is a perspective view of the pushing device employed in the structures shown in Figs. 1 to 3 inclusive.

In carrying the invention into effect, there is provided means for forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving another part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, so that in each of the receiving means all the cigarettes therein will lie with their tips at the same end.

In the best constructions, the cutoff mechanism of the cigarette machine proper delivers the cigarettes directly to the forwarding means; the forwarding means includes a belt and means for curling the same to straighten cigarettes received from the cutoff mechanism; and the pushing means has an orbital movement just over the belt and intersecting the path of the cigarettes forwarded thereby. All of the above mentioned means and devices may be widely varied in construction within the scope of the claims, for the particular catcher selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described.

In the device selected to illustrate the invention, there is provided a cutoff mechanism including a circular knife 5 coacting with a ledger plate 6. This cutoff mechanism and its mode of operation are well known in the art and a detailed description thereof, being unnecessary to a full understanding of the present invention, is omitted in the interest of brevity.

The cutoff mechanism delivers individual cigarettes directly to a belt 7 running over pulleys 8, 9 and 10, the pulley 8 being driven by a belt 11, deriving its motion from one of the shafts of the cigarette machine proper in connection with which the present device is used. The pulley 10 is an idler and carries an adjustable bracket 12, the adjustment being for belt tightening purposes and effected in a well known manner. As the cigarettes are discharged from the cutoff mechanism to the belt 7, they do not always fall straight to the belt; and for the purpose of straightening cigarettes which do not fall straight on to the belt, there is provided a

stationary trough 13 through which the upper run of the belt 7 moves. This trough curls the belt within its range of action, and cigarettes resting on the curled portion of the belt are straightened thereon by gravity.

The belt 7 forwards the cut off and straightened cigarettes to a considerable distance from the cutoff mechanism, and beyond the end of the belt is located what may be termed primary cigarette receiving means. This primary cigarette receiving means includes an inclined plate 14 and a belt 15 underrunning said plate and moving in a direction at right angles to the direction of movement of the forwarding belt 7. The belt 15 overruns a pulley 16 fast on a shaft 17 and operated by a belt, not shown, which overruns a pulley 18 and derives its motion from one of the shafts of the cigarette machine proper. The belt 15 also overruns an idle pulley, not shown, but suitably supported from the frame of the cigarette machine proper.

At one side of the forwarding belt 7, near the delivery end of the same, there is located what may be termed a secondary receiving means for the cigarettes which includes an inclined plate 19 and the belt 15 before referred to. As the cigarettes are forwarded by the belt 7, they are alternately delivered to the primary receiving means and to the secondary receiving means, for the reason hereinbefore indicated.

The means employed for delivering a part of the cigarettes to the secondary receiving means includes a pusher 20 having an inclined operating surface 21 movable in an orbital path intersecting the path of the cigarettes as forwarded by the belt 7. The operating surface 21 of the pusher is inclined so that its edge engages the cigarette below its center and thus avoids the possibility of crushing the same during its removal from the belt 7.

The pusher 20 is provided with a slot 22 by means of which, in conjunction with screws 23, it may be adjusted in a fore and aft direction in accordance with the length of the cigarettes being at the time made on the machine. The pusher 20 is thus adjustably mounted on a bar 24 supported by cranks 25—25, carried on gears 26—26, mounted on studs 27—27, supported in a bracket 28, which in turn is supported by the main frame of the cigarette machine proper. The gears 26—26 are in mesh with a pinion 29 fast on the upper end of a shaft 30, journaled in suitable bearings 31—32, the former being formed in the bracket 28, and the latter in an independent bracket secured to the frame of the cigarette machine proper. A bevel gear 33 is mounted upon the lower end of the shaft 30, and this bevel gear is in mesh with a second bevel gear 34 fast on a shaft 35 which derives its motion from one of the shafts of the cigarette machine proper.

As the pusher 20 comes into contact with a cigarette occupying a position indicated by the dotted lines in Fig. 1, it is traveling forwardly at substantially the same speed as the belt 7. Immediately afterward, however, its forward movement is accelerated, due to the position of the cranks 25—25 with respect to the shafts 27—27, although its angular velocity remains the same. This acceleration, with the slight lifting tendency of the operating surface 21, delivers the cigarette to the position shown in full lines in Fig. 1, and from there it rolls down the inclined plate 17 to the belt 15. While the pusher is traveling from this point through its orbit to the position where it can again engage a cigarette on the belt 7, the cigarette immediately behind the one just pushed into the secondary receiving means is carried beyond the range of action of the pusher by the belt 7, and at the proper time is projected to the inclined plate 14, down which it rolls to the belt 15. Thus, all the cigarettes which have their cork tips at their leading ends, are delievered to the plate 14, and all the cigarettes which have their cork tips at their rear ends are delivered to the plate 19; and these plates deliver them to the common catcher belt in two rows.

The pusher is so light that it may be operated at high speed without danger of setting up excessive vibration in the cigarette machine proper.

What is claimed is:

1. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof.

2. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, and a cutoff mechanism delivering cutoff cigarettes directly to said forwarding means.

3. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said for-

warding means to the receiving means at one side thereof, said forwarding means including a forwarding belt receiving cutoff cigarettes directly from a cutoff mechanism.

4. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said forwarding means including a forwarding belt receiving cutoff cigarettes directly from a cutoff mechanism, and means for curling the belt to straighten the cigarettes received.

5. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said forwarding means including a forwarding belt receiving cutoff cigarettes directly from a cutoff mechanism, and a stationary trough curling said belt to straighten the cigarettes received.

6. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means having an orbital movement intersecting the path of the cigarettes.

7. A cigarette machine catcher comprising means for continuously forwardly cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means having an orbital movement in a horizontal plane immediately above the forwarding means.

8. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means including a pusher mounted on two cranks, and means for producing like orbital movements of said cranks.

9. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means including a pusher, two gears having cranks engaging said pusher, and a pinion simultaneously driving said gears.

10. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means having a pusher provided with an inclined operating surface.

11. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said pushing means including a driving pinion, two gears in mesh with said pinion, two cranks carried by said gears, a bar carried by said cranks and having an orbital movement, a pusher mounted on said bar, and means for holding said pusher in adjusted position fore and aft on said bar.

12. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said forwarding means including a forwarding belt receiving cutoff cigarettes directly from a cutoff mechanism and means for curling said belt to straighten the cigarettes received, and said pushing means including a pusher having an orbital movement intersecting the path of the cigarettes.

13. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part

of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said receiving means including a traveling belt.

14. A cigarette machine catcher comprising means for continuously forwarding cutoff cigarettes, means at the delivery end of said forwarding means for receiving a part of the forwarded cigarettes, means at one side of said forwarding means for receiving a part of the cutoff cigarettes, and means for pushing alternate cigarettes off said forwarding means to the receiving means at one side thereof, said receiving means including an inclined plate and a traveling belt underrunning said plate.

In testimony whereof, I have signed my name to this specification.

THEODORE FETZER.