March 28, 1950 J. F. TUOHY 2,502,186

COIN INSERTER FOR CIGARETTE PACKAGES

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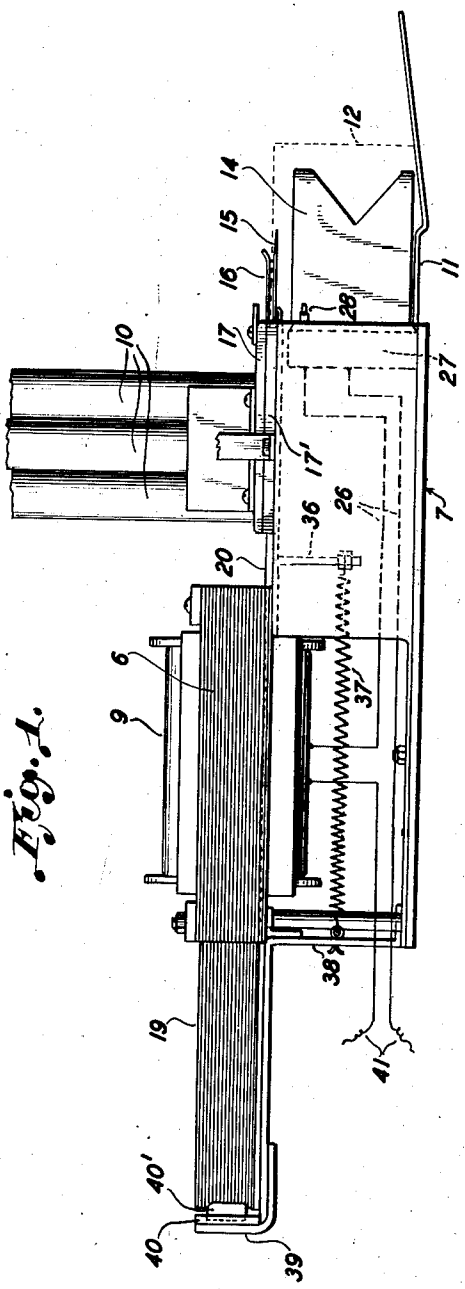


Fig. 1.

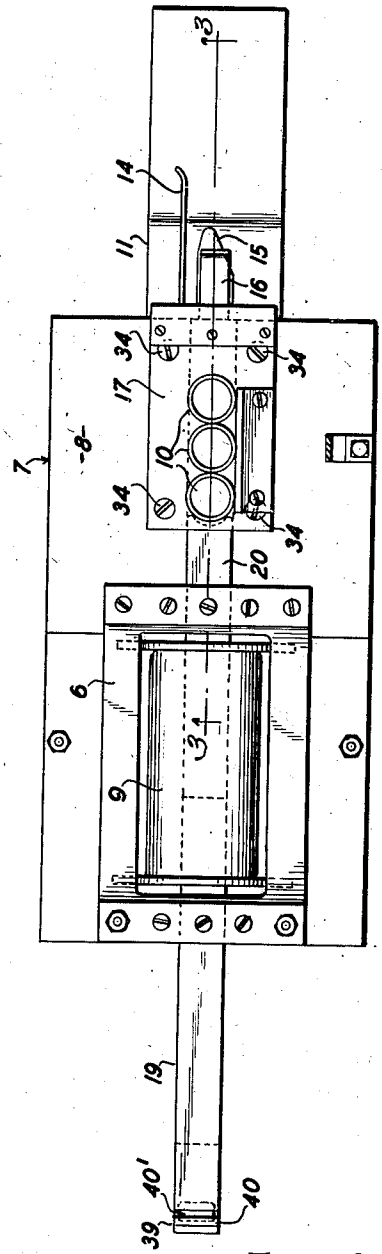


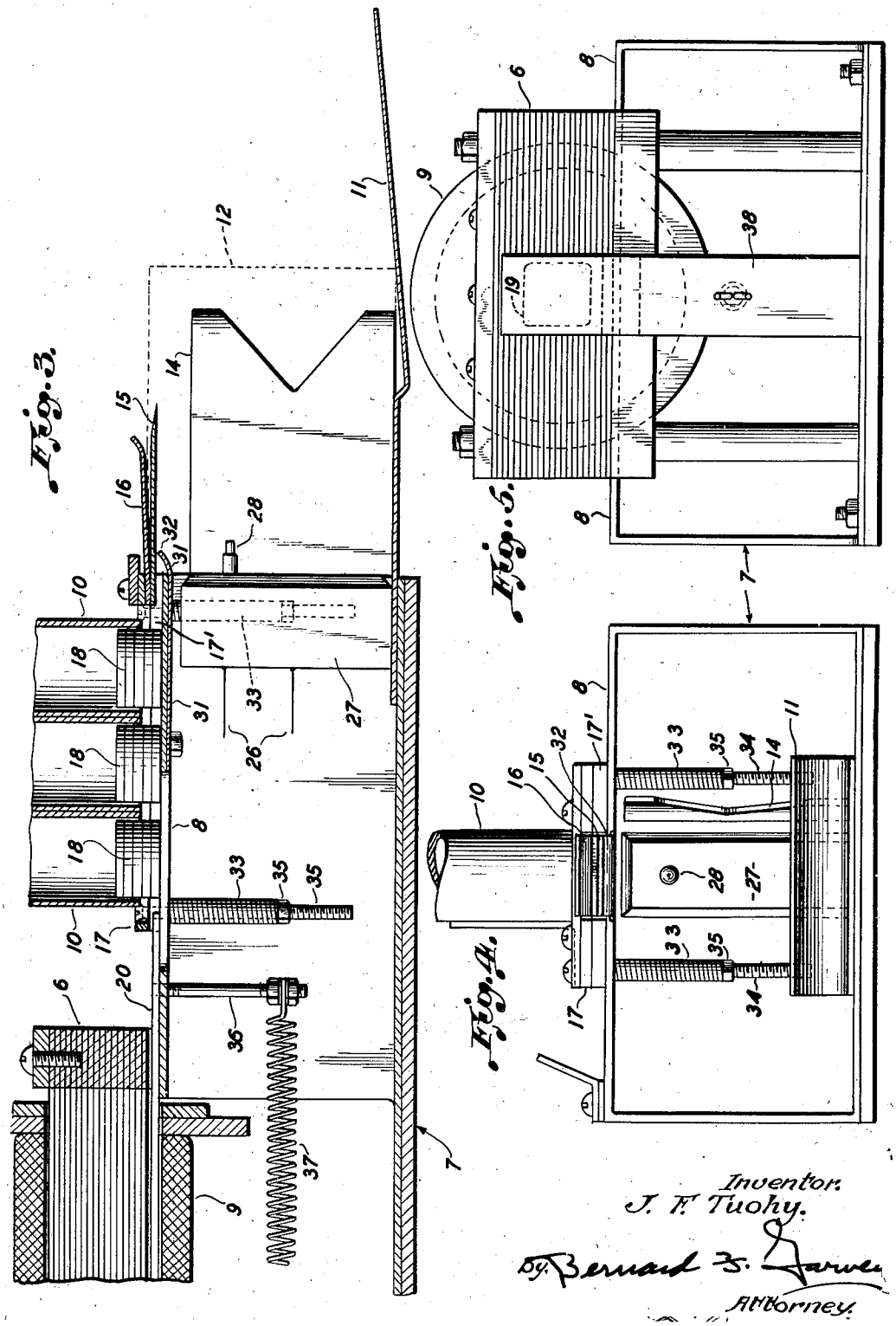
Fig. 2.

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COIN INSERTER FOR CIGARETTE PACKAGES

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9 Claims. (Cl. 226—2)

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The present invention relates to a coin inserter for inserting coins in cigarette packages used in vending machines, and more particularly relates to a coin inserter embodying improvements over the coin inserter of co-pending application, Serial Number 661,387, filed April 11, 1946, now abandoned, of which this application is a continuation-in-part.

By further experimentation and extensive use, I have determined that a coin inserter made in accordance with the teaching of this present invention will automatically adapt itself to occasional bent or distorted coins. This present coin inserter also has means to positively direct the coin or coins into the cigarette package thereby preventing fouling of coins against the end of the cigarette package. A more compact arrangement of the elements and improvements in certain elements themselves are also objects of this invention.

Many other objects and advantages will be apparent from the following description of the present invention, wherein;

Figure 1 is a side elevational view of a coin inserter for cigarette packages constructed in accordance with the present invention, the coin holding hoppers being shown fragmentarily;

Figure 2 is a top plan view of the same;

Figure 3 is a fragmentary longitudinal sectional view taken on the line 3—3 of Figure 2 looking in the direction of the arrows showing to advantage the manner of mounting the coin hoppers on the inserter frame together with the cigarette package supporting and incising mechanism;

Figure 4 is a detail fragmentary front elevational view of the inserter; and

Figure 5 is a detail fragmentary rear elevational view of the inserter.

The coin inserter of the present invention comprises a frame generally designated 7, the top 8 of which provides a platform or table which is adapted to receive a solenoid 9 and a coin holder 10. The front end of the frame is equipped with a bottom plate 11 for supporting a cigarette package indicated by dotted lines 12. The forward end of the frame also carries a side plate 14 against which one side of the cigarette package 12 is adapted to abut. Suitable incising mechanism for the wrapper of the cigarette package is also employed which consists of a knife 15 and a parallel superimposed presser-foot 16, both the knife and the foot extending forwardly from the front of the frame 7 as advantageously illustrated in Figures 1 to 4 inclusive. A flexible element 31 is also mounted on top 8 having an upwardly

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curved end 32 extending beyond frame 7 into close proximity with knife 15. By this construction, as a cigarette package is urged on the outer end of the plate 11 inwardly toward the frame 7, the wrapper of the package is penetrated by the projecting forward end of the knife 15. Further movement of the package causes the wrapper to be impressed between the knife and the presser-foot 16 correspondingly urging the wrapper slightly away from the package to provide sufficient space between the wrapper and the package for the accommodation of the coins in a manner more fully hereinafter described.

The base 17 of the coin holder 10 is yieldably secured to the upper face 8 by means of four bolts 34 and springs 33 thereon. Nuts 35 allow for adjustment of the compression of springs 33. The yieldable mounting thus provided allows the raising of the coin hoppers 10 which are secured at their lower ends to base plate 17. This yieldable mounting allows the coin hoppers 10 to be slightly raised whenever a coin in the mechanism is of unusual thickness or deformed. The base 17 of the coin holder 10 is normally spaced from the top 8 of the frame by spacer 17' or the like, an amount equal to the thickness of the ordinary coin. Coins 18 mounted in the hoppers 10 are permitted to gravitate into engagement with the top of the frame, sufficient space being provided to permit the evacuation of a single coin from each hopper. The evacuated or released coins are urged from beneath the hoppers toward and into the space between the cigarette wrapper and its package provided by the incising mechanism.

The solenoid 9, and its associated mechanism now to be described, constitutes the feeding means for the coins 18. The solenoid 9 embodies a core 6 and an armature 19 movable through a complemental opening extending longitudinally through the body of the solenoid 9. The bottom of the armature 19 is extended to provide a coin pusher plate 20. A stud 36 fastened to pusher plate 20 provides a support for one end of spring 37. The other end of spring 37 is fastened to end member 38 which is secured to frame 7. Spring 37 thus restrains armature 19 in its normal position shown in the figures and tends to return armature 19 to this position after solenoid 9 has been actuated. End member 38 is extended to provide an abutment 39 limiting the outward movement of armature 19. A cushion 40 on abutment 39 cooperates with a cushion 40' on the armature 19 to absorb the shock incident to return of the armature.

In order to effect energization of the armature

19, there is provided an electric circuit indicated by the wires 26, the solenoid 9 and also a micro-switch 27. The front of the micro-switch is provided with a switch button 28 which is adapted to be actuated by pressure of one end of the cigarette package 12 thereagainst. Electrical energy is supplied from a conventional source through wires 41.

In the use of this invention, it is to be understood that the armature 19 will be normally held in an outer inoperative position as shown in Figures 1 and 2 through the instrumentality of the spring 37 acting through pusher bar 29. As soon, however, as a package of cigarettes has been moved on the bottom plate 11 into engagement with the switch button 28, the electric circuit is closed through the wires 26 thereby energizing the solenoid 9 and attracting the armature 19 in an obvious manner. As the armature 19 is attracted into the solenoid body 9, the coin pusher plate 20 is advanced beneath the coin holder 10 thereby urging the bottom coins out between knife 15 and flexible element 31 and then into the opening between the wrapper and the package provided by the knife 15. In passing outwardly, the coins depress the end 32 of flexible element 31. The flexible element 31 therefore exerts a pressure on the underside of the coins and acts to guide them, thereby insuring that the coins will enter the cigarette package at the proper angle without danger of tearing the package or becoming fouled. After each cycle of operation of the armature through the solenoid body, the armature is retracted under influence of the spring 37.

When an occasional thick or deformed coin reaches the bottom of a coin hopper 10, the pusher plate 20 in urging the thick or deformed coin outwardly, will cause the coin hopper 10 to rise sufficiently to allow the coin to be pushed out. The operation is therefore completely automatic. The yieldable mounting for the coin hoppers 10 is such that a thick or deformed coin itself forces the coin hopper upward enough to allow the coin to be pushed out.

Various changes may be made herein within the scope of the appended claims.

What I claim is:

1. A coin inserter for cigarette packages comprising a frame, a solenoid on the frame, a coin holder yieldably mounted on the frame, a core movably mounted in the solenoid, and a coin pusher bar extending from one end of the core and movable beneath the coin holder to urge coins gravitating through the latter into a package held against one end of the frame.

2. A coin inserter for cigarette packages comprising a package supporting frame, a coin holder yieldably mounted on the frame, and means slidably mounted on the frame and engageable beneath said holder to move coins from the latter into the package.

3. A coin inserter for cigarette packages comprising a package supporting frame, a coin holder yieldably mounted on the frame, and mechanism on the frame, operable by pressure of the package thereagainst, to actuate a moving part

of said mechanism for urging coins into the package.

4. A coin inserter for cigarette packages comprising a frame, a solenoid on the frame, a coin holder yieldably mounted on the frame, a core movably mounted in the solenoid, a coin pusher bar extending from one end of the core and movable beneath the coin holder to urge coins gravitating through the latter into a package held against one end of the frame, and a spring anchored on said frame and engaged with the core to retract the latter in the solenoid body.

5. A coin inserter for cigarette packages comprising a package-supporting frame, a core-equipped solenoid on the frame, a coin holder yieldably mounted on the frame, mechanism on the frame, operable by pressure of the package thereagainst, to actuate said core, and means on the core for urging coins into the package.

6. A coin inserter for cigarette packages comprising a frame, a solenoid mounted on the frame embodying a movable core, a coin holder yieldably mounted on the frame, the bottom of which is spaced from the frame top, means on the solenoid core movable beneath said coin holder to urge coins, which gravitate from the holder, to a point beyond one end of the frame, a cigarette wrapper incising means mounted on the end of the frame toward which said coins are moved, said incising means forming an opening between the cigarette wrapper and package for the accommodation of coins, a flexible element mounted on the frame below the incising means to direct coins passing between the incising means and the flexible element, and means in electrical connection with said solenoid and operable by movement of the cigarette package on the incising means to effect operation of the solenoid core.

7. In a coin inserter of the type embodying a solenoid-operated pusher bar for urging coins from beneath a coin hopper into a cigarette package: a yieldable mounting for the coin hopper to prevent fouling by deformed coins; and a flexible guide to direct coins into the package.

8. A coin inserter for cigarette packages including a frame, a coin holder mounted on the frame in spaced relation to the latter to permit the passage of coins therebeneath, and means securing the holder to the frame comprising spring carried bolts to permit the holder to yield when a thickened coin is being moved therebeneath.

9. The same as claim 8 with the addition of means on each bolt engageable with its spring to effect adjustment of the latter.

JOHN F. TUOHY.

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