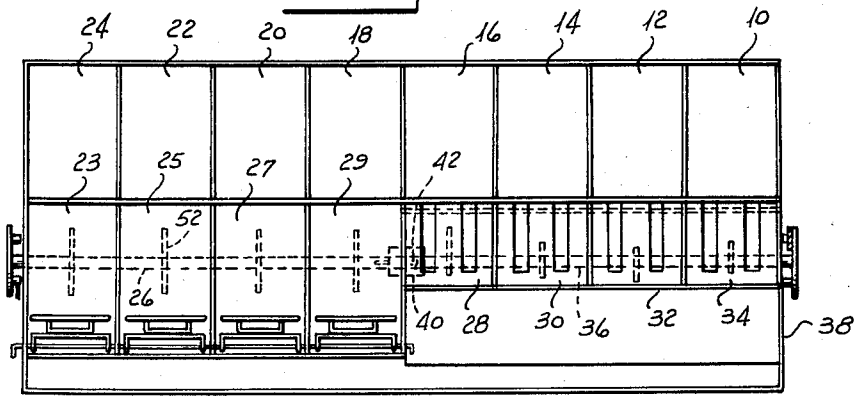
Feb. 2, 1960 C. GABRIELSEN 2,923,434

MATCH VENDING ASSEMBLY

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Fig 2



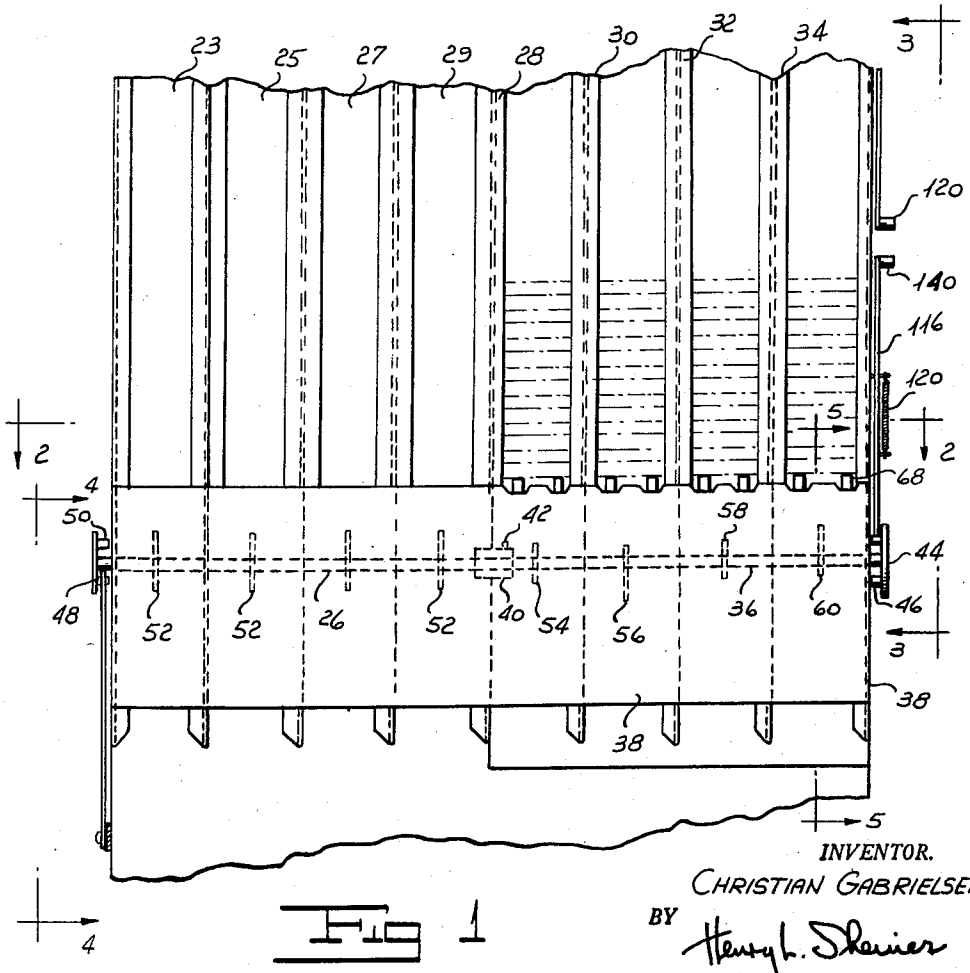


Fig 1

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MATCH VENDING ASSEMBLY

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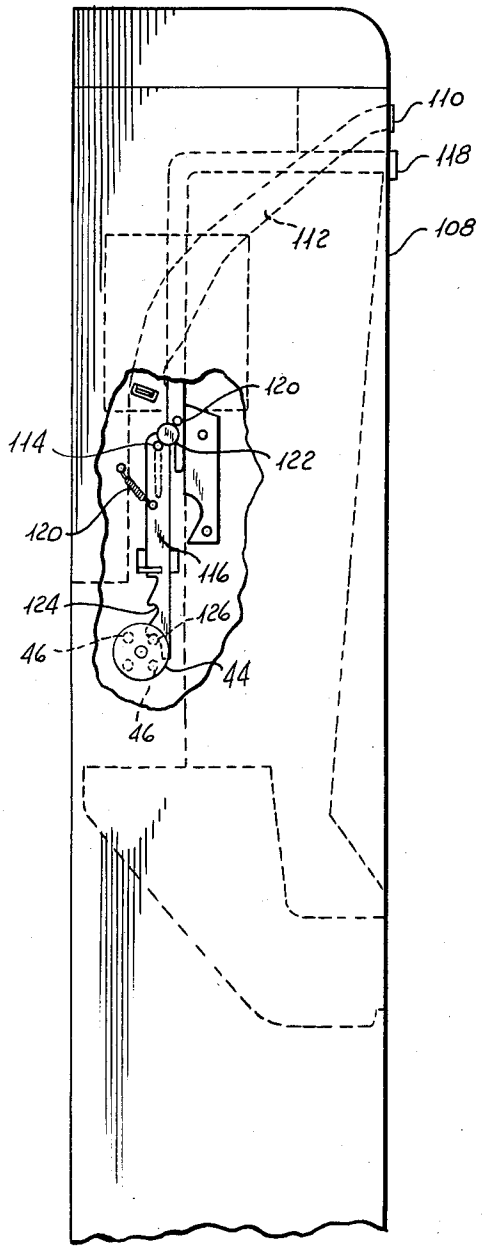
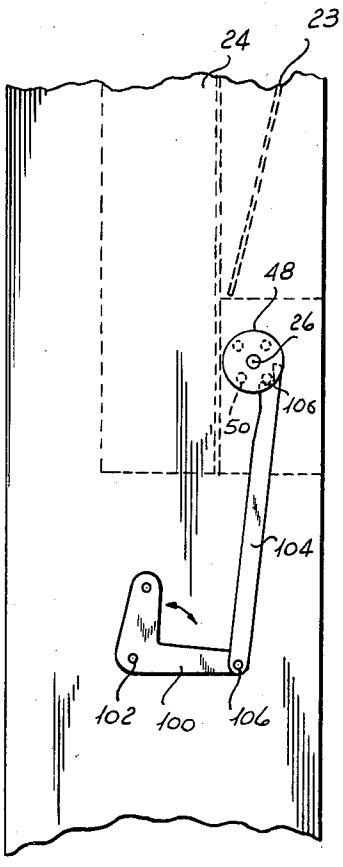


Fig 3

Fig 4



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MATCH VENDING ASSEMBLY

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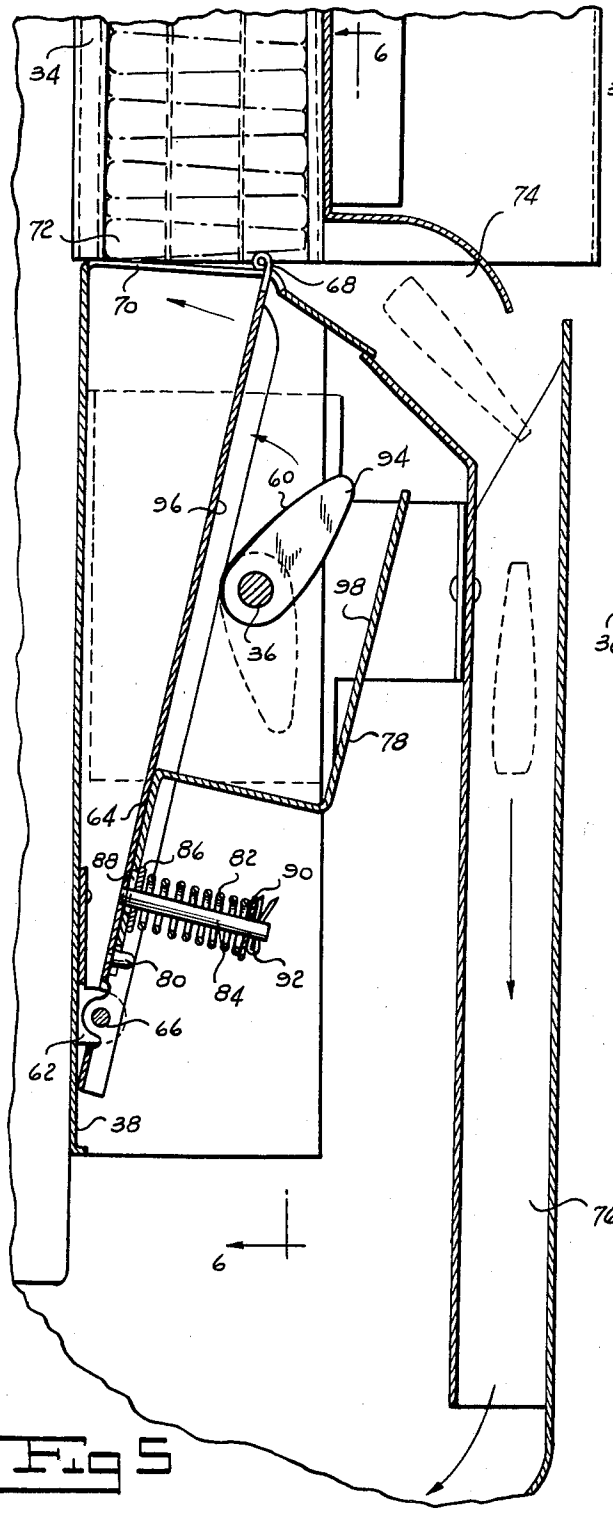


Fig 5

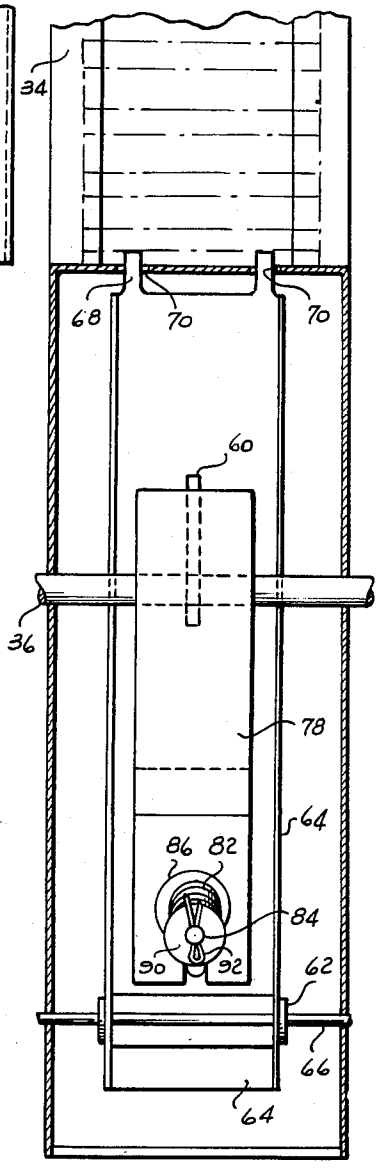


Fig 6

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United States Patent Office

2,923,434

Patented Feb. 2, 1960

2,923,434

MATCH VENDING ASSEMBLY

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Application July 29, 1952, Serial No. 301,553

1 Claim. (Cl. 221—21)

My invention relates to a match vending assembly and more particularly to an improved match vending assembly for use with a cigarette merchandising machine for dispensing one packet of matches with each purchase of a pack of cigarettes and for obtaining two packets of matches upon the deposit of a coin.

Cigarette merchandising machines in most localities are arranged to deliver a free pack of matches with each purchase of a pack of cigarettes. In some localities no free matches are given with the cigarettes, and a user must deposit a coin, usually a penny, for which he is given two folders of matches.

One object of my invention is to provide a match vending assembly for use in cigarette merchadising machines which will give one packet of matches with each package of cigarettes and in which, if additional matches are required, matches may be vended independently of the purchase of a package of cigarettes.

Another object of my invention is to provide a match vending assembly which may be set to dispense no matches with the operation of the cigarette machine, at the desire of the owner of the machine, or which may be set to dispense free matches and at the same time be able to be operated in response to a coin.

A further object of my invention is to provide an improved match dispensing assembly, which is simple in design and inexpensive in construction.

Still another object of my invention is to provide a match dispensing assembly in which a jam of the ejecting mechanism for the matches will not interfere with the operation of the vending assembly.

Other and further objects of my invention will appear from the following description.

In the acompanying drawings, which form part of the instant specification and which are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

Figure 1 is a fragmentary rear elevation of a portion of a vending machine, equipped with a match vending assembly containing one embodiment of my invention.

Figure 2 is a sectional plan view taken on the line 2—2 of Figure 1.

Figure 3 is a side elevation viewed along the line 3—3 of Figure 1.

Figure 4 is a fragmentary side elevation viewed along the line 4—4 of Figure 1.

Figure 5 is the sectional view drawn on an enlarged scale taken along the line 5—5 of Figure 1.

Figure 6 is a sectional view taken along the line 6—6 of Figure 5.

In general my invention contemplates the provision of a plurality of laterally spaced containers carried by the cigarette merchandising machine and adapted to hold columns of packets of matches stacked one upon the other. A pivoted ejector is mounted adjacent the bottom of each column and adapted to eject the bottommost packet of matches during one phase of its oscillatory movement. A rotary shaft is positioned adjacent the ejectors and carries a plurality of cams for coaction with the ejector and is adapted to drive respective ejectors through their cycles of movement. The cams are angularly displaced upon the shaft in order to successively operate the ejectors. A coin controlled mechanism is provided for rotating the cam shaft through an angle sufficient to operate two successive cams, thereby to eject two packets of matches in response to the operation of the coin mechanism. A connection is provided to an operating part of the cigarette merchandising machine for rotating the cam shaft to operate only a single ejector instead of two as in the case of the operation with the coin device and thus deliver a single booklet of matches in response to the operation of the cigarette merchandising machine. Means are provided for disconnecting the cam shaft from the operating portion of the cigarette merchandising machine in event it is desired not to give free matches with the purchase of a package of cigarettes.

More particularly referring now to the drawings, the cigarette merchandising machine may be of any suitable type and be provided with containers for the cigarettes, as well as shift columns for providing additional capacity of cigarettes as shown in my Patent 2,254,841, dated September 2, 1941. The cigarette merchandising machine per se forms no part of the instant invention. My match vending assembly, however, is peculiarly adapted for use with cigarette vending machines.

In Figure 2 the containers **10**, **12**, **14**, **16**, **18**, **20**, **22**, and **24** are adapted to hold cigarettes which may be of a plurality of different brands as is well known in the art. The containers **23**, **25**, **27**, and **29** behind containers **24**, **22**, **20**, and **18**, respectively, are adapted to hold cigarettes and to be shifted as shown in my Patent 2,254,841 when the main columns become depleted of cigarettes. The shaft **26** is adapted to operate the shift columns in a manner which forms no part of the instant invention and which is described in patent above referred to.

It will be noted that the containers **10**, **12**, **14**, and **16** are not provided with shift columns. Instead columns **28**, **30**, **32**, and **34**, adapted to hold booklets of matches stacked one on the other, are provided. A shaft **36** is mounted for rotation in the frame **38** of the cigarette merchandising machine. This shaft is positioned coaxially with the shaft **26**. A coupling member **40** is adapted releasably to secure shaft **36** to shaft **26** for rotation therewith. Any appropriate coupling means which may be readily uncoupled can be employed. In Figure 2 the coupling member is connected to shaft **26** and arranged to slide on it. A set screw **42** may be tightened to secure the shaft **36** to the coupling **40** and thus couple the shafts **26** and **36** together.

The outer end of shaft **36** carries a disc **44** secured thereto for rotation therewith. The disc is provided with a plurality of pins **46**. The outer end of shaft **26** carries a disc **48** and is provided with pins **50**. The members **52** carried by the shaft **26** are adapted to operate the shift columns and form no part of the instant invention. The shaft **36** carries a plurality of cams **54**, **56**, **58**, and **60**, angularly displaced from each other 90°. The cams are adapted to operate the ejector mechanism for the match booklets stacked in the columns **28**, **30**, **32**, and **34**, which will be described more fully hereinafter.

Referring now to Figure 5, the frame **38** carries the plurality of brackets **62** on each of which I pivotly mount an ejector **64** by means of hinge pins **66**. Each ejector is formed adjacent its upper end with a pair of fingers **68** adapted to travel through slots **70** formed at the bottom of the match containers. In Figure 5,

as the ejector rotates in a counterclockwise direction, it will slip by the bottommost booklet of matches **72**, lifting the column of matches upwardly in this motion. The limit of motion will bring the fingers **68** behind the bottommost booklet of matches. On the return movement of the ejector, as it swings in a clockwise direction, the bottommost booklet of matches will be carried to the right and fall through the chute **74** into the chute **76** for delivery to the customers. Each pivoted ejector **64** carries a bracket **78**, which is attached to the ejector by means of a positioning pin **80** and a spring **82**. A stud **84** is carried by the ejector **64**. The bracket **78** is positioned by means of the pin **80** as shown in Figure 5. The washer **86** is then placed over the hole **88** formed in the bracket. The spring **82** is then positioned on top of the washer and a second washer **90** is placed on top of the pin. The spring is then compressed, and the cotter pin **92** is passed through an opening formed in the end of the stud **84**. In this manner the bracket is yieldably secured to the ejector plate **64**.

The shaft **36** as shown in Figure 5 is adapted to rotate in a counterclockwise direction. It will be remembered that there are four cams spaced 90° apart, each cam being adapted to operate one of the four ejector plates. The first two 90° steps will rotate the ejector plate to its extreme limit of counterclockwise motion. The end **94** of the cam coacts with the surface **96** of the ejector plate to accomplish this movement. The next two 90° steps of the cam **60** will rotate the ejector plate **64** in a clockwise direction and in this movement will eject the booklet of matches. The clockwise rotation of the ejector is accomplished by the end of the cam **94** contacting the surface **98** of the bracket **78**. There will always be one ejector in a position to eject a booklet of matches upon a 90° rotation of the shaft **36**. Booklets of matches will thus be ejected successively from successive containers by successive cams.

Referring now to Figure 4, the bell crank **100** represents an element of the cigarette merchandising machine which is adapted to oscillate around the pivot **102** during each operation of the cigarette merchandising machine as is well known in the art. A link **104** is pivotly secured to one arm of the bell crank by pin **106**. The upper end of the link is provided with a re-entrant or notched portion **106** adapted to coact with the pins **50** carried by the disc **48**. Each reciprocatory motion of the link **104** is adapted to rotate the disc 90°. In this manner it will become readily apparent that upon each operation of the cigarette merchandising machine, the shaft **26** to which the disc **48** is secured will rotate 90°. If the coupling member **40** is not secured to the shaft **36**, the shaft **26** will only perform its function with respect to the action of the shift columns. If, however, the shaft **26** is coupled to the shaft **36**, the shaft **36** will be rotated along with shaft **26** through the action of the cigarette merchandising machine. The rotation of the shaft **36**, we have seen, will operate the cigarette booklet ejectors in the manner described hereinabove. When it is desired not to give free matches with each operation of the cigarette mechandising machine, the shaft **36** is uncoupled from the shaft **26**.

Referring now to Figure 3, the cabinet **108** in which both the cigarette mechandising machine and my vending assembly are housed is shown with a part broken away. A coin deposited in the coin insert opening **110** falls through coin chute **112** by gravity and is adapted to be positioned on a lug **114** carried by the reciprocating member **116**. The member **118**, accessible on the outside of the machine, is adapted to be pulled downwardly to operate the match dispensing assembly. This member is provided with a lug **120** spaced laterally from the lug **114**. When a coin **122** is in position between lugs **114** and **120**, movement of the member **118** downwardly will move the member **116** downwardly against the action of spring **120**. Any suitable coin mechanism may be employed. The coin mechanism as shown in Figure 3 is described in greater detail in my copending application, Serial No. 129,581, filed November 26, 1949, now abandoned. The lower end of member **116** is provided with two re-entrant portions or notches **124** and **126** adapted successively to engage pins **46** carried by the disc **44**, which is secured to the shaft **36**. There are four pins so that upon each translation downwardly of the member **116**, the disc **44** and hence the shaft **36** will be rotated 180°. This will operate two successive ejectors to eject two booklets of matches in succession. In this manner the booklets of matches are vended by the coin controlled mechanism.

If the shaft **26** is uncoupled from the shaft **36**, the rotation of the shaft **26** will be an idling movement, as the operation of the shift columns is dependent upon the cigarettes in the main column being depleted.

It is to be especially noted that my cigarette booklet ejector is positively driven by the cam through its complete cycle of movement. The match ejectors of the prior art depended on springs. No springs are employed in my assembly, which is essentially a pivoted member and a cam.

If for any reason the lowermost booklet of a column becomes jammed so that the ejector cannot readily move in a clockwise direction, the cam **60**, acting against the bracket **78**, will simply pivot the bracket with respect to the ejector plate **64**, the spring **82** yielding to permit this motion. Until the jam is cleared, the jammed ejector will not function to deliver matches. This, however, will not interfere with the operation of the remaining ejectors. In the match dispensing assembly of prior art, a jam in any part of the ejector mechanism rendered the entire match dispensing assembly inoperative.

It will be seen that I have accomplished the objects of my invention. I have provided a match vending assembly for use with cigarette merchandising machines which will give one packet of matches with each package of cigarettes and in which, if additional matches are required, they may be obtained in response to the deposit of a coin independently of the purchase of a package of cigarettes. The owner of the machine may conveniently and expeditiously set the machine to give free matches or not without disturbing the obtaining of matches by the coin controlled mechanism. My match dispensing assembly is simple in design and inexpensive in construction, having virtually only two moving parts. In event the match ejecting assembly becomes jammed, the operation of the vending machine or the operation of other parts of the match ejecting assembly will not be locked.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of my claim. It is further obvious that various changes may be made in detail within the scope of my claim without departing from the spirit of my invention. It is therefore to be understood that my invention is not to be limited to the specific details shown and described.

Having thus described my invention, what I claim is:

In a merchandising machine, a vertically positioned housing for holding a stack of articles to be vended, pivoted ejector for engaging and removing the bottommost article in the stack, means for mounting the ejector for oscillatory movement adjacent the bottom of the housing, a bracket, means for securing the bracket to the ejector for movement therewith, a shaft mounted for rotation between the ejector and the bracket, a cam mounted on the shaft for rotation therewith, said cam being constructed and arranged to contact both the ejector and the bracket whereby rotation of the shaft will oscillate the ejector, and means for rotating the shaft, said means for securing

the bracket to the ejector including a spring whereby the bracket will yield with respect to the ejector under the influence of said cam when the ejector encounters a predetermined resistance.

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