

# United States Patent

[11] 3,542,180

[72] Inventor **David A. Segal**  
 185 Prospect Park, SW, Brooklyn, New  
 York 11218

[21] Appl. No. **715,303**

[22] Filed **March 22, 1968**

[45] Patented **Nov. 24, 1970**

3,211,267 10/1965 Bayha..... 194/4(C)

*Primary Examiner*—Stanley H. Tollberg  
*Attorney*—Kenyon and Kenyon, Reilly, Carr & Chapin

[54] **COIN OR TOKEN ACTUATED VENDING DEVICE  
 AND DISSOLVABLE TOKEN THEREFORE**  
 8 Claims, 3 Drawing Figs.

[52] U.S. Cl..... 194/4

[51] Int. Cl..... G07f 1/06

[50] Field of Search..... 194/4,  
 6-8, 100

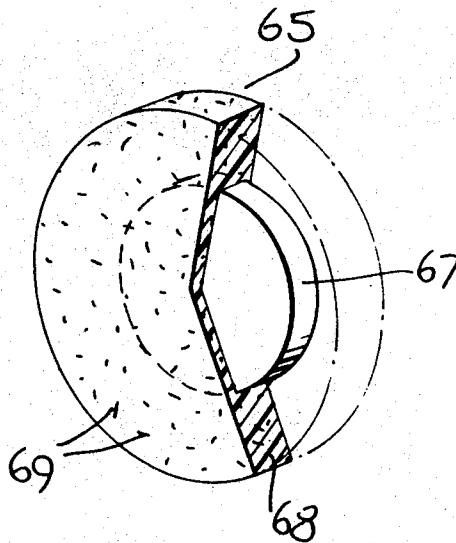
[56] **References Cited**

**UNITED STATES PATENTS**

3,136,402 6/1964 Smith ..... 194/4(E)

3,153,469 10/1964 McPherson ..... 194/4(H)

**ABSTRACT:** A vending device, such as a telephone, and tokens to be used therein are disclosed. The vending device and the tokens are designed to remove any incentive from would-be thieves to steal from the vending device. This is accomplished by making the tokens with a metal core and placing plastic in contact with the metal. A solvent capable of dissolving the plastic is in the vending device. The token is deposited in the vending device and if authentic is conducted to the solvent which dissolves the plastic. With the plastic dissolved the token cannot be used again until additional plastic is placed on the metal core making the metal core of the token by itself of limited value and removing the incentive from stealing it from the vending device. The vending device can operate with regular coins as well as with the tokens having a metal core in contact with a plastic.



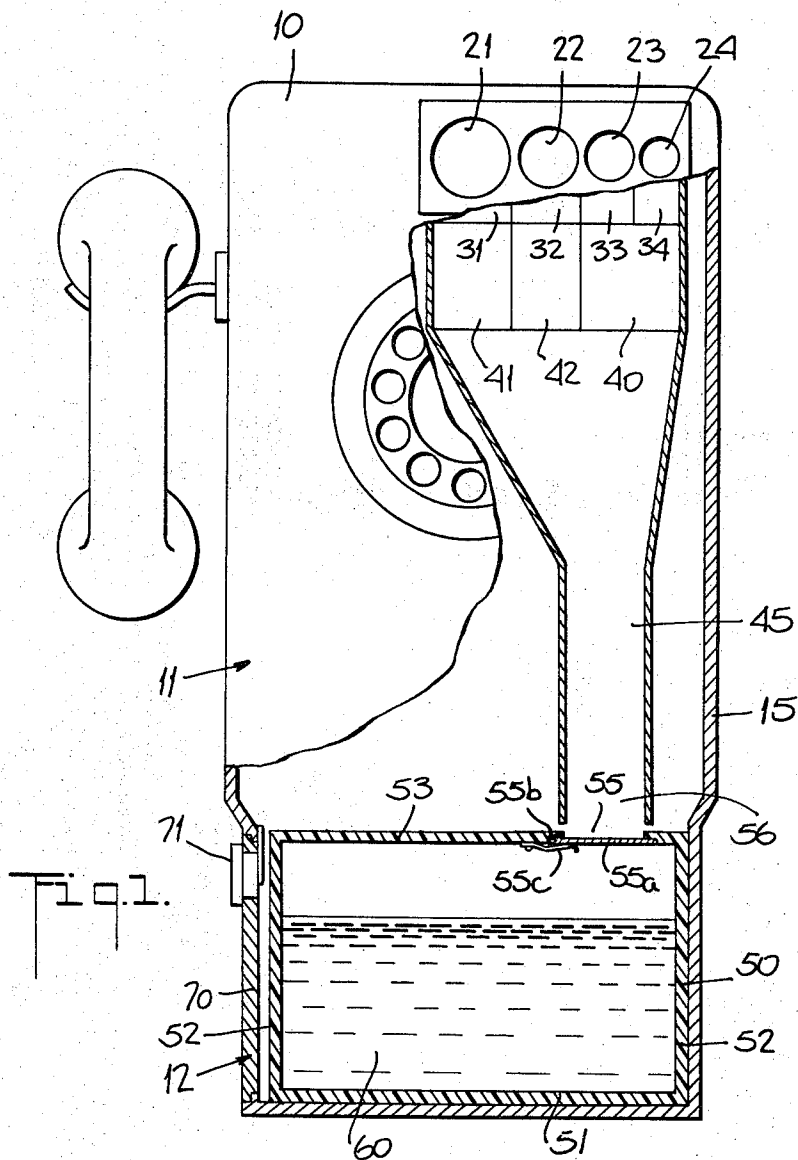


Fig. 1.

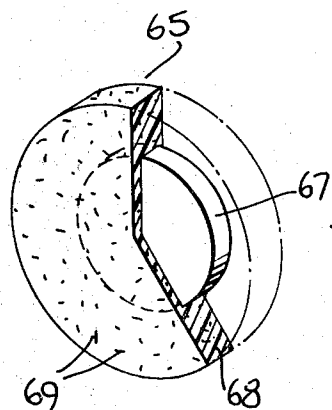


Fig. 2.

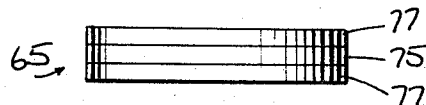


Fig. 3.

INVENTOR.  
DAVID A. SEGAL

BY  
*Kenyon Kenyon*  
ATTORNEYS

## COIN OR TOKEN ACTUATED VENDING DEVICE AND DISSOLVABLE TOKEN THEREFORE

This invention relates generally to coin or token operated vending devices and more particularly to public telephones.

There is a well known problem of theft and vandalism with all types of equipment in which coins or reusable tokens are collected, such as public telephones, cigarette and food vending machines, parking meters, turnstiles and others. Although the loss from an individual robbery might be small, the loss from the cumulative total of such theft is obviously substantial. Nor is the loss limited to the amount stolen, since the theft problem necessitates far more frequent collections from such devices than would be required if they were not subject to robbery.

Moreover making vending machines, public telephones, and similar equipment stronger and more difficult to break into is frequently not a satisfactory solution, since the cost of repairing equipment which is damaged in unsuccessful robbery attempts many times is higher than the loss in cash from a robbery.

Previous devices designed to destroy disposable tokens have generally proven unsatisfactory, since they require either changing each machine so designed completely over to tokens with the inherent public inconvenience and impracticality, or eliminating most of the sophisticated tests now used to screen authentic from counterfeit coins.

It is therefore one of the primary objects of the present invention to substantially reduce the loss from robbery of public telephones and other coin or token operated vending devices by providing the same with means which remove the incentive for robbery.

Another object of the present invention is to substantially reduce the damage to public telephones and other coin or token operated vending devices by providing the same with means which remove the incentive for robbery.

Another object of the instant invention is to help alleviate the present coin shortage by providing public telephones and other coin operated vending devices with means rendering them operable by tokens.

A further object of the instant invention is to provide means rendering public telephones and other coin or token operated vending devices unsuitable for robbery purposes, wherein said means permit such devices to be operated by either coin or token.

Still a further object of the instant invention is to provide means rendering public telephones and other coin or token operated vending devices unsuitable for robbery, wherein said means permit such devices to include sophisticated testing means of the type now utilized, to screen authentic from counterfeit coins or tokens.

This invention contemplates, as a still further object thereof, that present public telephones and other coin or token operated vending devices can be modified to employ the present invention in order to render the same unsuitable for robbery.

The instant invention contemplates the use of tokens having a metallic core in contact with a plastic coating having means disposed therein to render the token electrically conductive. The dimensions of the core and the metals used for the core and fragments can be suitably chosen to determine the weight, diameter, thickness and electrical or magnetic properties of the token in accordance with whatever testing means are employed to differentiate authentic from counterfeit coins or tokens.

When a telephone or similar vending device is modified in accordance with the invention, the normal coin receptacle is replaced by a receptacle containing a solvent. The tokens are deposited in the device and pass through the testing means into the solvent which dissolves the plastic coating rendering the token nonreusable.

The solvent is chosen to leave the metallic cores of the tokens unaffected, enabling the cores to be recoated with plastic after periodic collections from the receptacles. Similarly the solvent would not affect ordinary coins, if a device were designed to operate with either coins or tokens.

As an example of the invention, therefore, a public telephone may have an additional slot for depositing tokens which have a different diameter or thickness from any coin. The metals and plastic covering used in the token and the dimensions of the metallic core are chosen to make the token similar to any particular coin in all properties except diameter or thickness, so that the token, once deposited in a receiving slot of its own diameter or thickness could pass through the remaining testing means designed for the coin. All coins and tokens would then pass into the container of solvent where the plastic coating of the tokens is dissolved.

As the distribution of tokens is increased and the use of such tokens in public telephones correspondingly increased, the amount of cash deposited in public telephones would be substantially reduced, thus curtailing the incentive for robbery. Moreover, the decreased use of coins and the decreased need to carry them could greatly help alleviate the present coin shortage.

The required modification of telephones to employ this invention is relatively simple, and since it is unnecessary to convert present coin operated telephones to exclusive token operation, there would be little public inconvenience with the introduction of the present invention.

A better appreciation of this and other embodiments, advantages and objects of the invention can be obtained from the following specification when read in connection with the annexed drawing in which:

FIG. 1 is a front elevational view of a telephone utilizing the invention.

FIG. 2 is a perspective view of a token constructed in accordance with the invention.

FIG. 3 illustrates in cross section a second token constructed in accordance with the present invention.

For purposes of description only, the example of a public telephone modified in accordance with the invention has been chosen, although it should be clear that the invention can be adapted to other coin or token operated vending devices.

FIG. 1 depicts a public telephone indicated generally at 10. No attempt has been made to illustrate parts of the telephone which are not material to the instant invention. For purposes of this invention the telephone can be described as having an upper section 11 containing the electrical apparatus of the telephone itself and a lower section 12 where coins and tokens are collected. Both sections are enclosed by a housing 15.

Coins or tokens are deposited in the telephone through slots 21, 22, 23, 24 disposed in the front of the housing 15 near the top of the telephones; slots 21, 22, 23 being of the diameter of a quarter, nickel and dime respectively and slot 24, the diameter of a token, which in this embodiment has been chosen slightly smaller than the diameter of a dime.

Each coin or token then passes through suitable means for testing its diameter 31, 32, 33 and 34, shown only schematically since they are not material to the invention. The diameter testing means 31, 32, 33, 34 are, of course, designed to send an appropriate reject signal to the means for registering money deposited, not shown, if the coin or token is not of the right diameter.

As will be explained more clearly below, the tokens in this example of the invention have been designed to have the same properties as a dime except for diameter. Consequently, both dimes and tokens pass from the diameter testing means 33 and 34 respectively to the same further testing means shown generally at 40 which are designed to test other properties of a dime, such as weight, thickness, conductivity, and ferromagnetism. Analogous further testing means 41, 42 are provided for the quarter and nickel respectively, again shown only generally. A counterfeit coin or token which fails any of these further testing means will trigger an appropriate reject signal to the means for registering the money deposited, not shown.

If a coin or token has passed all testing means 31, 32, 33 or 34 and 40, 41 and 42 without triggering a reject signal, the registering means, not shown, triggers the dial tone or otherwise connects the call by means commonly known and used in present telephones, but not material or described herein.

The coin or token then passed through a vertical chute 45 disposed within the upper section 11. The exact position of the chute 45 within the upper section 11 is not material to the invention and may be placed in accordance with the design of other elements of the telephone itself within the upper section 11.

The lower section 12 has a container 50 which in this example is shown constructed in a rectangular box shape with a bottom wall 51, side walls 52, and a top wall 53. An opening 55 in the top wall 53 is disposed immediately below an opening 56 in the lower extremity of the chute 45. A trap door 55a is pivotally joined by pin 55b to wall 53 and is coextensive with opening 55. A light spring 55c biases trap door 55a to the position seen in FIG. 1. Spring 55c is light enough so that a token or coin that hits the trap door from chute 45 will pass into container 50 after rotating the trap door in a counterclockwise direction and compressing the spring. The trap door by being biased by spring 55c to the closed position seen in FIG. 1 prevents solvent from splashing out of container 50 on removal of the container from the telephone. Obviously, any other means that permits the coins and tokens to enter container 50 while preventing solvent from splashing from the container when the container is removed could also be used. The container 50 contains a solvent solution 60. The coin or token falls downwardly in chute 45 through opening 56 past trap door 55a through opening 55 into solvent 60.

A removable panel 70 with a lock 71 is disposed in the housing 15 adjacent one side wall 52 of the container 50.

Referring to FIG. 2, the disk-shaped token indicated generally at 65 is constructed of a disk-shaped metallic core 67 surrounded by a plastic coating 68. The plastic coating is impregnated with metallic fragments 69. As discussed above, the diameter of the token 65 in this example of the invention is chosen slightly less than the diameter of a dime, and the thickness the same as a dime. It is clear that these requirements determine only the exterior dimensions of the plastic coating 68. Within the coating 68, the dimensions of the metal core 67 can be designed to make the weight of the entire token 65, the weight of a dime. It is clear that a metal of higher density of a dime must be used for the core 67 since the volume of the token 65 is less than that of a dime, and the density of the plastic coating 68 will probably be less than the density of a dime. The metal used for the core 67 must also be chosen with similar electrical conductivity and ferromagnetic properties to those of a dime.

Since most plastics have relatively poor conductivity, the small metal fragments 69 which are made of metal of high conductivity are disposed within the plastic coating 68. Sufficient fragments 69 are used to render the plastic coating 68 conductive.

The plastic for the plastic coating 68 is chosen along with the solvent 60 to dissolve the plastic coating 68. Some plastics and their solvents that could be used are polystyrene which dissolves in chloroethene, polyethylene cellulose nitrate with a solvent of dipropylene glycol, or cellulose which is soluble in diethylene glycol. Still other plastics and solvents which would be acceptable are vinyl butyral, soluble in secun-decylalcohol, ethylcellulose, soluble in sec-amyl alcohol, cellulose acetate, soluble in furfuryl alcohol or acetonitrile, vinyl chloride acetate, soluble in di-isobutyl ketone, and cellulose nitrate, vinyl acetate or cellulose acetate-butyrate, all soluble in acetonitrile.

In operation, the token 65 is deposited in the slot 24, passes through the testing means 34 and 40, as described above. It then falls downwardly through the chute 45 and the openings 56 and 55, the latter after rotating trap door 55a into container 50 where the plastic covering 68 is dissolved by solvent 60, rendering the token 65 nonreusable.

The solvent 60 is chosen to leave the metal core 67, as well as ordinary coins unaffected. Periodically a collector removes the container 50 by unlocking and removing the panel 70, and replaces the container 50 with another container containing fresh solvent. The coins and metal cores of tokens are col-

lected at a central point and the container 50 replaced with fresh solvent. The metal cores can then be recovered with plastic for reuse.

Of course the token can be a laminate as seen in FIG. 3 with metal core 75 surrounded on top and bottom by impregnated plastic 77. The token of FIG. 3 will have the same diameter throughout its thickness. The thickness of the plastic can be varied to represent different values of the tokens. The token disclosed in conjunction with FIG. 3 will work in an analogous manner as the token disclosed in FIG. 2 with the plastic on each side of core 75 dissolving as the token enters the solvent.

It is clear that the particular construction of the token described herein is only one illustration of the principles of the present invention. The only limiting requirements of the token are that the properties and dimensions of the metal core and plastic be chosen in accordance with whatever screening tests the token must pass. In some adaptations of the invention, only a weight and diameter or thickness test may be employed, thus removing the conductivity and ferromagnetic property restrictions on materials used in the token. The example of a token to be used with telephones employing the most sophisticated screening tests has been described only because it better illustrates the variety of possible screening tests and the methods of designing a token in accordance with the present invention to pass such tests.

More specifically with respect to conductivity properties, the metal fragments in the plastic covering can be replaced by other means to make the plastic conductive; such as a wire or metal coating around the circumference of the token, or on opposite sides thereof.

The invention herein described can easily be applied to other types of vending devices by one skilled in the art. Moreover, many refinements and modifications, such as materials other than plastic for the plastic coating, tokens of different denominations or different shapes, wires to replace the metal fragments in the coatings will be obvious to those skilled in the art. It is to be understood that the above description is offered by way of example only.

I claim:

1. A token actuated device having a hollow housing a substantially hollow container disposed inside said housing, token receiving means disposed in the housing for receiving tokens from outside the housing, conducting means connected to said token receiving means for conducting said tokens from said token receiving means to said container, testing means disposed within said conducting means between the token receiving means and the container for distinguishing counterfeit and authentic tokens, a solvent solution disposed within said container for dissolving a portion of each authentic token received therein, said token having a metal core in contact with a plastic covering and having means therein to render the token electrically conductive.

2. A token actuated device in accordance with claim 1 wherein said housing includes a front wall, a pair of opposed sidewalls, a back wall, top wall and bottom wall, said front, side, back, top and bottom walls defining a hollow compartment within the housing, said token receiving means including a token receiving slot extending transversely through a wall of the housing, said testing means juxtaposed relative to said token receiving slot, said container disposed within said hollow compartment and supported on said bottom wall, said conducting means including an elongated chute having opposed open ends, one end juxtaposed relative to said means testing the other end connected with said container to deliver tokens thereto, said token having a plurality of metal fragments disposed within said covering.

3. A coin and token actuated device having a housing including a plurality of walls, said walls defining a substantially hollow compartment within the housing, a plurality of coin and token receiving slots extending transversely through one of said walls of said housing, testing means for testing each coin and token deposited in an individual slot and for testing one or more properties of the coin and token independently of

5

6

the coin or token in at least one of the other of said slots, device actuating means connected to said testing means, said testing means signalling said actuating means if a coin or token received within the testing means has one or more properties, said actuating means actuating the device only if so signalled, a hollow container disposed within said compartment and supported on one of said walls, an elongated chute having opposed open ends, one end juxtaposed relative to said testing means to receive coins or tokens therefrom and the other end connected with said container to deliver coins or tokens thereto, and a solvent disposed in said container to dissolve a portion of each token received therein, a token for use with said coin and token actuated including a metal core, a plastic covering in contact with said core, and a plurality of metal fragments disposed within said covering, said metal fragments being of sufficient size and number relative the volume of the plastic covering to render the plastic covering electrically conductive.

4. A token in accordance with claim 3 wherein said plastic covering surrounds all surfaces of said metal core.

5. A token in accordance with claim 3 wherein said plastic covering is in contact with opposite surfaces of said metal core.

6. A token for use in combination with a coin or token operated device comprising a metal core, a plastic covering in contact with said core, said plastic covering dissolvable in a solvent, a sufficient plurality of metal fragments disposed within said plastic covering so as to render said plastic covering electrically conductive and said plastic covering in contact with opposite sides of said metal core.

7. A token in accordance with claim 6 wherein said plastic covering surrounds all surfaces of said metal core.

8. A token in accordance with claim 6 wherein said plastic covering is in contact only with opposite surfaces of said metal core and has the same cross-sectional area as said metal core.

20

25

30

35

40

45

50

55

60

65

70

75