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(54) **Coin chutes**

(57) In a coin chute a blocking member (24) is biased by a spring mechanism 22 such that it pivots to obstruct the chute. A coin inserted in the chute will cause the member (24) to pivot by virtue of the weight of the coin so that the coin may pass after which the member (24) returns to the blocking position to prevent an inserted coin being pulled back towards the insertion point. The member (24) is so arranged that any attempt to pull a coin back will cause the member to close the chute more firmly.

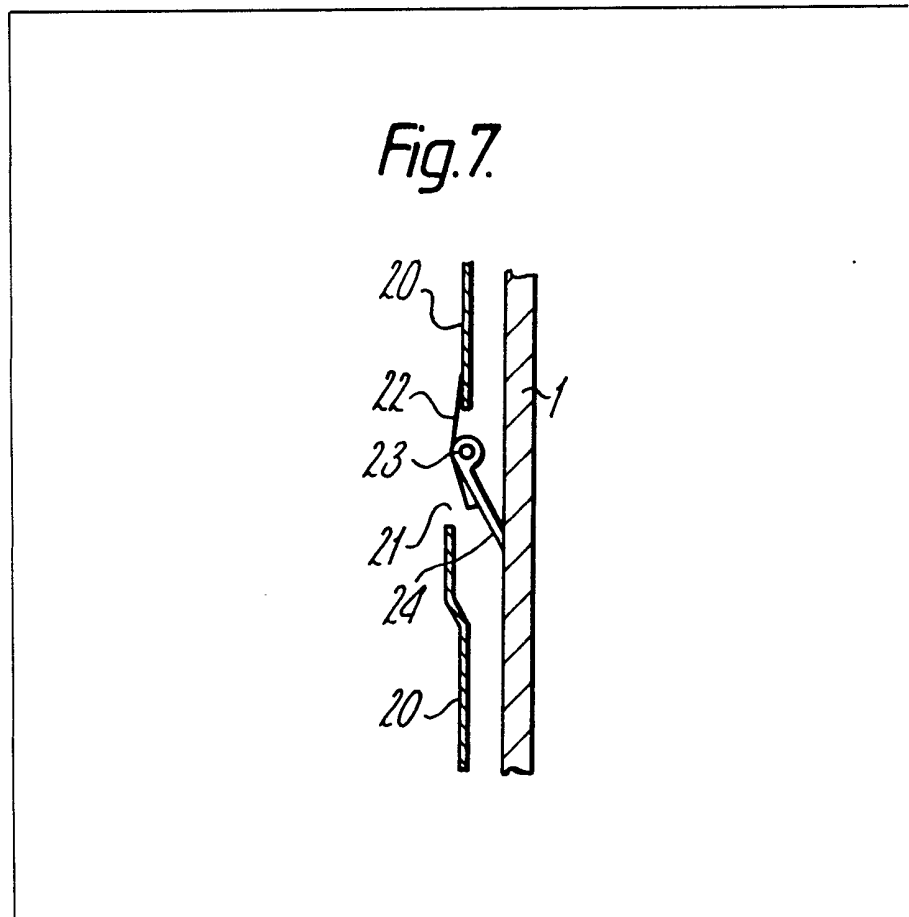


Fig.1.

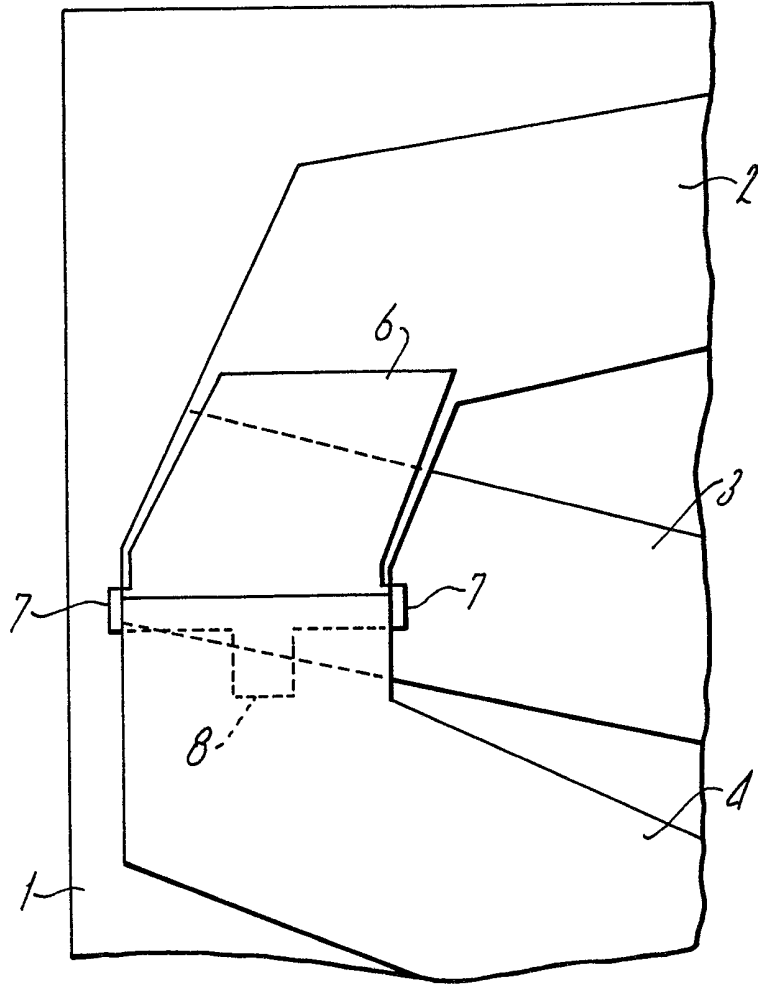


Fig.2.

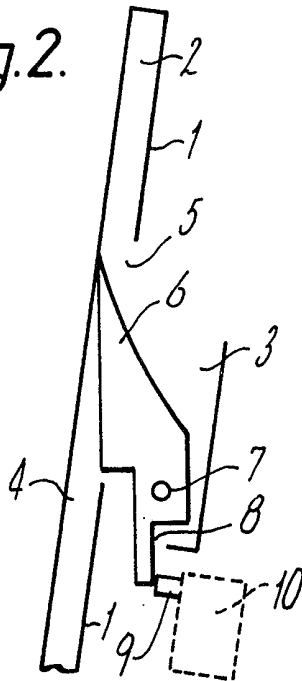


Fig.3.

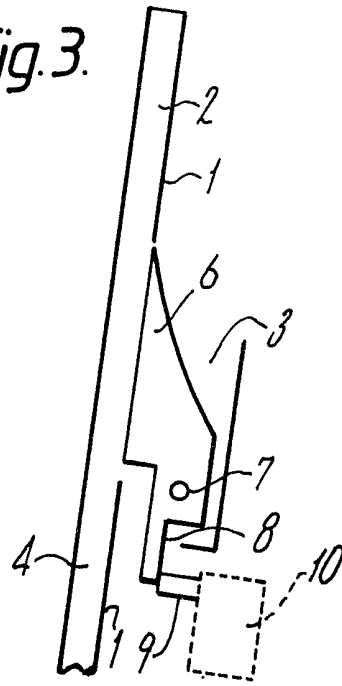


Fig. 4.

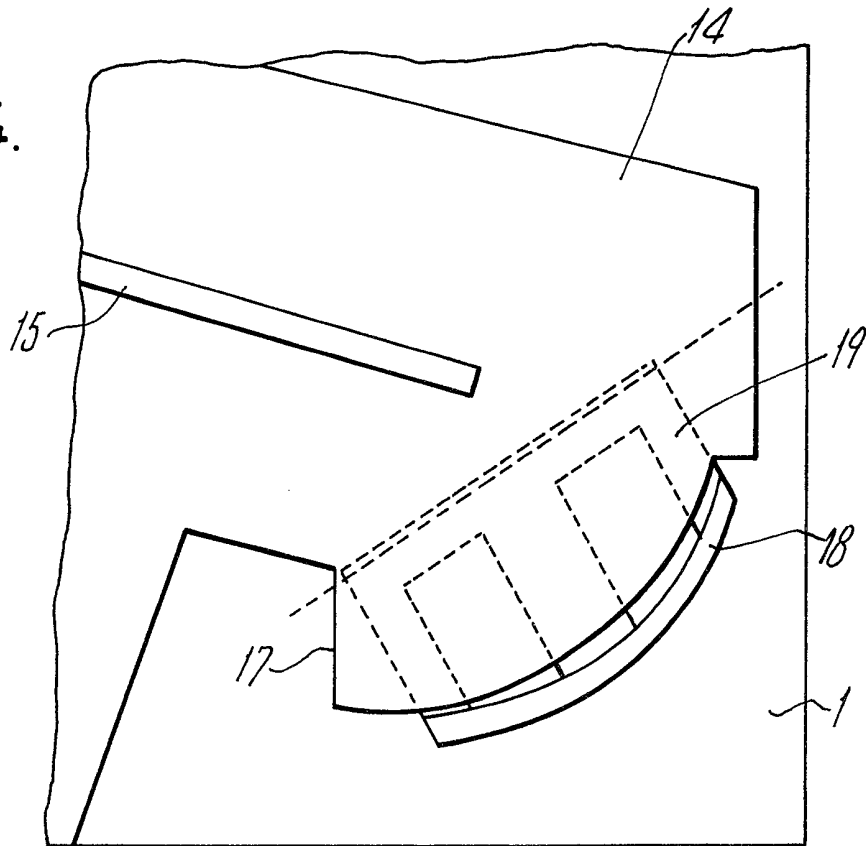


Fig. 5.

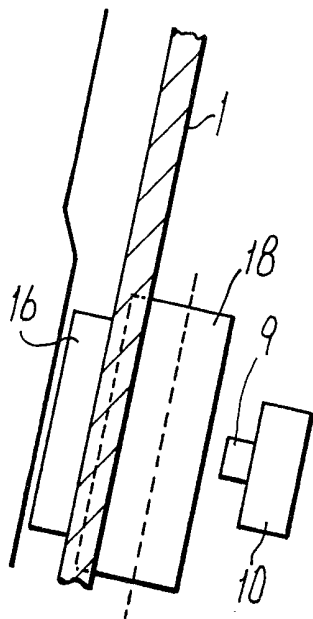


Fig. 6.

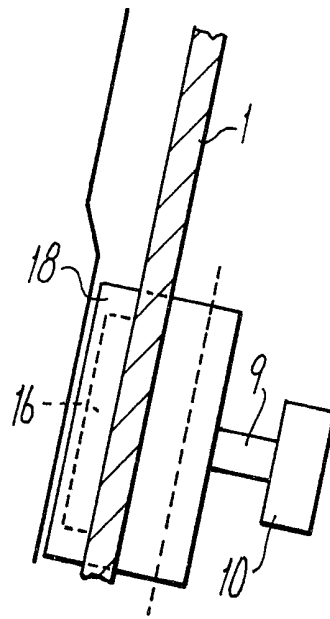
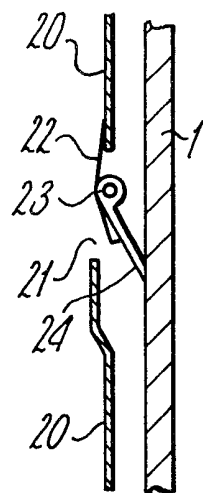


Fig. 7.



SPECIFICATION

Coin chutes

5 The present invention relates to coin chutes and more particularly, but not exclusively, to features of such chutes for use in coin collecting telephone apparatus.

10 According to one aspect of the present invention in a coin chute having an entry and an exit, a pivotally mounted member is arranged to obstruct the coin chute at a point between the entry and the exit, said member being arranged to be moved by the weight of
15 an inserted coin such that the chute is sufficiently unobstructed to allow such a coin to pass towards the exit of the chute and said member is biased to re-obstruct the chute once an inserted coin has passed so as to prevent an inserted coin being attracted or
20 pulled towards the entry of the chute.

25 Preferably the member is pivotally mounted adjacent one side of the chute and is biased by a spring arrangement towards the opposed side of the chute.

30 According to a second aspect of the present invention a coin path selection mechanism for use in a coin collecting mechanism in which a first coin chute has its exit arranged such that an inserted coin leaving the first chute may selectively enter either a second chute or a third chute, a pivotally-mounted deflection member is operable between a first position in which one face of the deflection member
35 provides a path over which an inserted coin may pass to the second chute whilst the deflection member closes the entry of the third chute and a second position in which an inserted coin may pass to the third chute
40 whilst the deflection member closes the entry of the second chute, the deflection member being arranged such that the entry to the non-selected chute is positively closed to prevent accidental entry of an inserted coin thereto.

45 Preferably said deflection member is electro-mechanically operable and is arranged to return from its operated to its non-operated position under gravitational influence.

50 Said deflection member may include an integral striking plate arranged to co-operate with an operating member of a solenoid which when energized causes the operating member to move to cause said deflection member to move.

55 According to another aspect of the present invention in a coin chute having an entry and an exit, the chute includes an aperture between said entry and said exit through which a coin inserted in the chute may pass under gravitational influence and a blocking member
60 is operable between a first position at which the aperture is open so that an inserted coin may pass through the aperture to leave the chute and a second position at which the
65 aperture is closed by the blocking member

such that an inserted coin will tend to travel towards the exit of the chute.

70 Preferably the blocking member is electro-mechanically operable and may be arranged to return from its operated position to its non-operated position under the influence of gravitational forces

Said blocking member may include an integral striking plate arranged to cooperate with
75 an operating member of a solenoid which when energized causes the operating member to move to cause said blocking member to move.

80 Coin chutes including features in accordance with the invention will now be described by way of example only with reference to the accompanying drawings of which:-

85 *Figure 1* is a schematic front elevation of a part of a coin chute including a coin path selection mechanism in accordance with the second aspect of the invention,

90 *Figures 2 and 3* are schematic side elevations of a part of the coin chute of *Fig. 1* showing a deflection member in the non-operated and operated positions respectively,

95 *Figure 4* is a schematic front elevation of a coin chute in accordance with the third aspect of the invention,

100 *Figures 5 and 6* are schematic side elevations of a part of the coin chute of *Fig. 4* showing a blocking member in the non-operated and operated positions respectively; and

105 *Figure 7* is a schematic side elevation of a part of a coin chute in accordance with the other aspect of the invention.

Referring to *Figs. 1, 2 and 3* of the drawing the coin chute which is mounted on a back plate 1, (only a part of which is shown) has an entry path 2, a refund exit path 3 and a collect path 4. The refund exit path 3 is mounted in a different plane to the entry path 2 and the collect path 4 and is mounted behind the back plate 1.

110 The back plate 1 includes an aperture through which a deflection member 6 may pass between a non-operated position (*Fig. 2*) and an operated position (*Fig. 3*). The deflection member 6 is horizontally pivoted on a pivot 7 which may be attached to the back plate 1 and integral with the deflection member 6 is a striking plate 8.

115 The striking plate 8 is provided so that an operating arm 9 responsive to a solenoid 10 may push the deflection member 6 from the non-operated to the operated position. Thus when an electric current is passed through the solenoid 10 the deflection member 6 is moved into a position in which the aperture 5 in the back plate 1 and hence the refund exit path 3 is blocked. At the same time the front face of the deflection member 6 substantially completes the coin path between the entry path 2 and the collect path 4.

120 Whilst herein the refund exit path 3 and the collect path 4 are so named it will be appreciated

ated that either of the paths may be connected to other coin chutes (such as an es-crow chute) or simply to separate coin trays.

When the solenoid 10 is not energised the operating arm 9 returns to its normal position either under spring tension or by being returned by the weight of the deflection member 6 which is mounted so as to pivot to its non-operated position under the influence of gravity.

In the non-operated position the deflection member 6 blocks the collect path 4 whilst the rear face thereof completes the path between the entry path 2 and the refund exit path 3.

Accordingly the deflection member 6 is wedge-shaped or has a smooth curve at its rear face such that an inserted coin will slide readily into the refund exit path 3.

The coin paths may be formed by chutes of plastics material, the deflection member also being of a plastics material which may be suitably vacuum or pressure moulded.

Referring to Figs. 4, 5 and 6 a coin chute 14 having a terminating coin runway 15 is mounted on the back plate 1. Inserted coins falling from the end of the runway 15 enter a curved section of the chute in which an aperture 16 is provided through which the coins may pass. The chute 14 may be mounted such that coins passing through the aperture 16 fall into a refund cup for example.

Coins which are prevented from passing through the aperture 16 leave the end 17 of the chute 14 and enter either a further chute or a coin collection tray (not shown).

Coins are prevented from passing through the aperture 16 by a blocking member 18 which is arranged to pass through an aperture in the back plate 1 to cover the aperture 16 and provide a runway for inserted coins to pass to the chute exit 17. The blocking member is suspended from a pivot on the back plate 1 by a plate 19 and is arranged to move to its unoperated position under gravity. In this case the solenoid 10 is mounted between the pivot and the blocking member 18, such that the operating member 9 pushes the blocking member through the back plate 1 when the solenoid 10 is energized.

The chute 14 and the blocking member 18 may be of plastics material.

It will be appreciated that spring biasing of the blocking member may be provided and that the aperture 16 may lead to a further coin chute if desired. It will also be realised that the aperture 16 may be provided in other than a curved section of the chute, for example in the straight runway 15 such that in the unoperated position of a blocking member coins pass through the aperture to, say, a parallel lower chute whilst in the operated position of the blocking member inserted coins proceed along the runway.

Referring now to Fig. 7 a coin path formed by a chute 20 mounted on the back plate 1

includes an aperture 21. A lever 24 is mounted on a pivot 23 such that it may move between an open position in which a coin may pass along the chute 20 and a closed position in which the lever blocks the chute 20.

The lever 24 is biased towards the closed position by a light spring 22 which permits the lever to move readily to its open position when a coin contacts it.

Once the coin has passed the lever 24 it returns to its closed position such that if a wire or string is attached to the coin and an attempt is made to pull the coin back towards the entry of the chute 20, the string will tend to pull the lever 24 more firmly towards the closed position. In addition to preventing fraudulent removal of coins from the chute 20 the lever 24 in moving more firmly toward the closed position also inhibits repositioning of coins held in the chute. This prevents a coin being more favourably positioned in an es-crow mechanism for example where adjusting the position of a coin could result in double-counting.

CLAIMS

1. A coin chute having an entry and an exit wherein a pivotally mounted member is arranged to obstruct the coin chute at a point between the entry and the exit, said member being arranged to be moved by the weight of an inserted coin so that the chute is sufficiently unobstructed to allow such a coin to pass towards the exit of the chute and said member is biased to reobstruct the chute once an inserted coin has passed so as to prevent an inserted coin being attracted or pulled toward the entry of the chute.

2. A coin chute as claimed in Claim 1 wherein said pivotally-mounted member is pivotally mounted adjacent one side of the chute.

3. A coin chute as claimed in Claim 1 or Claim 2 wherein said pivotally mounted member is biased towards the obstructing position by a spring arrangement.

4. A coin path selection mechanism for use in a coin collecting mechanism of the kind in which a first coin chute has its exit arranged such that an inserted coin leaving the first chute may selectively enter either a second chute or a third chute wherein a pivotally mounted deflection member is operable between a first position in which one face of the deflection member provides a path over which an inserted coin may pass to the second chute whilst the deflection member closes the entry to the third chute and a second position in which an inserted coin may pass to the third chute whilst the deflection member closes the entry to the second chute, the deflection member being arranged such that the entry to the non-selected chute is positively closed to prevent accidental entry of an inserted coin

thereto.

5. A coin path selection mechanism as claimed in Claim 4 wherein said deflection member is moved between one position and the other position by electromechanically operable means.

6. A coin path selection mechanism as claimed in Claim 5 wherein said deflection member is arranged to return from said other position to said one position under gravitational influence.

7. A coin path selection mechanism as claimed in Claim 4, Claim 5 or Claim 6 wherein said deflection member has an integral striking plate arranged to cooperate with an operating member of a solenoid which when energised causes the operating member to move so as to cause said deflection member to move from the first position to the second position.

8. A coin chute having an entry and an exit wherein the chute includes an aperture between said entry and said exit through which a coin inserted in the chute may pass under gravitational influence and a blocking member is operable between a first position at which the aperture is open so that an inserted coin may pass through the aperture to leave the chute and a second position at which the aperture is closed by the blocking member such that an inserted coin will tend to travel towards the exit of the chute.

9. A coin chute as claimed in Claim 8 wherein the blocking member is electromechanically operable.

10. A coin chute as claimed in Claim 9 wherein said blocking member is arranged to return from the operated to the non-operated position under gravitational influence.

11. A coin chute as claimed in Claim 8, Claim 9 or Claim 10 wherein said blocking member has an integral striking plate adapted to cooperate with an operating member of a solenoid which when energised causes the operating member to move to cause said blocking member to move from one position to the other position.

12. A coin chute including a pivotally mounted member substantially as hereinbefore described with reference to Fig. 7 of the accompanying drawings.

13. A coin chute including a coin path selection mechanism substantially as hereinbefore described with reference to Figs. 1, 2 and 3 of the accompanying drawings.

14. A coin chute including an aperture and blocking member arrangement substantially as hereinbefore described with reference to Figs. 4, 5 and 6 of the accompanying drawings.