Oct. 1, 1929. L. GILES 1,730,339

SLUG ELIMINATOR

Filed May 17, 1926

Fig. 2.

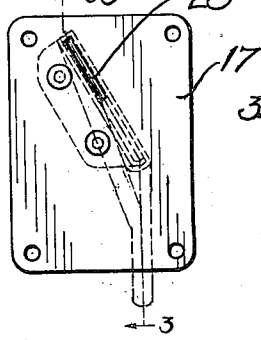


Fig. 1.

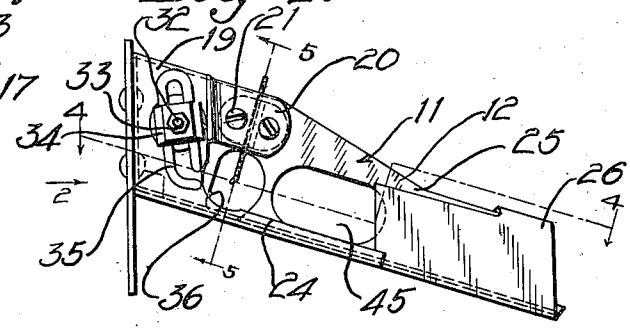


Fig. 3.

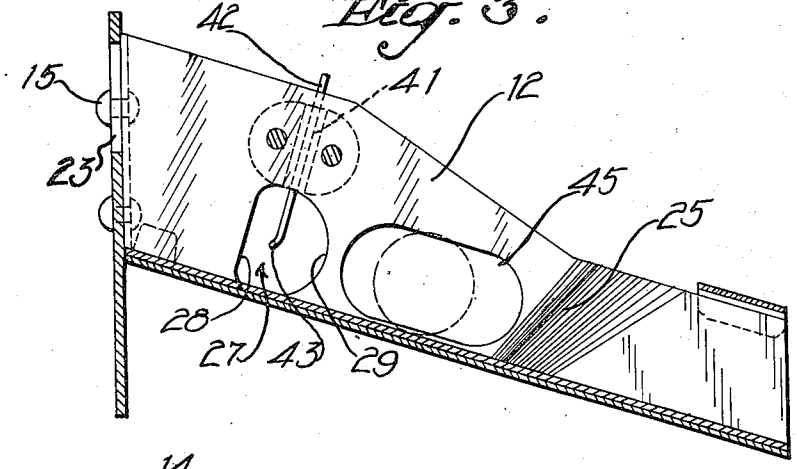


Fig. 4.

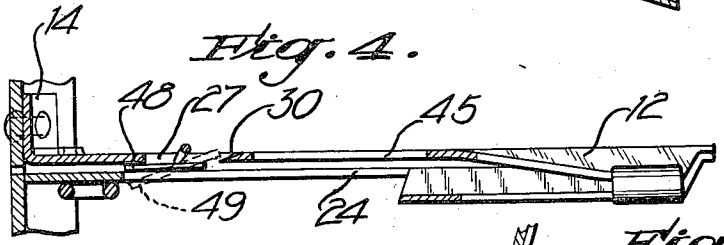
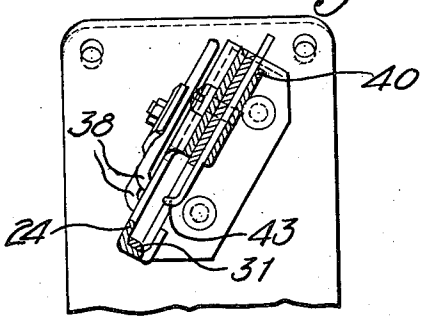


Fig. 5.



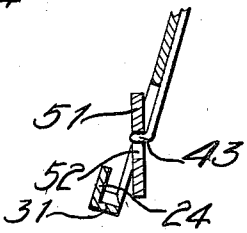
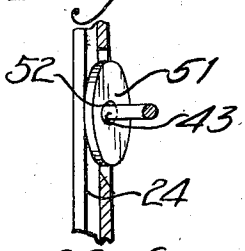


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE

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SLUG ELIMINATOR

Application filed May 17, 1926. Serial No. 109,631.

This invention relates to a slug eliminator which has utility in any machine which requires the insertion of a coin preliminary to operating it, such as an ordinary vending machine.

Vending machines are often fraudulently operated by valueless slugs which are the same size as the coin by which the machines are supposed to be operated, and many inventors have sought to devise means to render the machines inoperative when such slugs are used.

Vending machines are sometimes beaten by coins which are smaller than those coins by which the machines are intended to be operated, and it is an object of my invention to provide means for diverting such undersized coins from the machine.

Malpractisers very often use slugs which are made of iron, and it is accordingly one of the objects of this invention to provide a slug eliminator which will eliminate iron slugs. My invention has a magnetic means for acting upon all slugs susceptible to magnetic influence in such a manner that they will be eliminated; that is, side-tracked so that they will not pass to the mechanism of the vending machine on which my invention is employed.

It is against the law to make slugs of the same size as a coin, but it is lawful to make slugs of the same size as a coin with holes formed therein. It is entirely legal and it is the practice of railway companies and others to make slugs of the same dimensions as a coin with holes in them for use in place of coins. Very often these slugs having holes in them are fraudulently used to operate vending machines.

It is another object of this invention to provide a slug eliminator which will successfully eliminate slugs having holes formed therein.

Other objects and advantages of the invention will be made evident hereinafter.

Referring to the drawing in which I illustrate a preferred form of my invention,

Fig. 1 is a side elevation of the slug eliminator of my invention.

Fig. 2 is a front view taken as indicated by the arrow 2 of Fig. 1.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is a section taken on the line 4—4 of Fig. 1.

Fig. 5 is a section taken on the line 5—5 of Fig. 1.

Figs. 6 and 7 are diagrams illustrating the manner in which slugs having holes are eliminated.

Referring in particular to the drawing, the numeral 11 represents a coin channel through which coins pass. The channel 11 is slanted as illustrated in Figs. 2 and 3 so that the coin will move by gravity from the left to the right end thereof. The coin channel 11 includes a side wall 12 which is inclined from vertical extension as illustrated best in Figs. 2 and 3, so that a coin passing through the channel 11 will at all times engage the side wall 12. At the left end of the channel 11 there is formed a flange 14. Rivets 15 extend through the flange 14 for securing the coin channel 11 to a front plate 17. At the left end of the coin channel 11 there is a wall 19 which extends upwardly parallel to the side wall 12. Extending rightwardly from the upper part of the wall 19 is an ear 20 which is attached to the side wall 12 by screws 21. An opening 23 is formed in the plate 17 at the upper part of the left end of the side wall 12 and at the upper part of the wall 19. This opening 23 permits a coin to be extended into the coin channel 11. The opening is just large enough to allow the proper coin to be passed therethrough and for this reason no coin which is larger than the coin which is intended for operating the vending machine, on which my invention is used, can be extended into the coin channel. The wall 19 is provided so that a coin passed

through the opening 23 will be sure to drop so that it will roll down the coin channel 11. A lip 24 which is quite narrow extends from the wall 19 to the right end of the coin channel 11 and prevents a coin from slipping from the coin channel 11. The right end of the wall 12 is bent at 25 so that the extreme right end thereof extends vertically. This is done since most vending machines are constructed so that the coin will drop into the mechanism thereof only when it is in a vertical position. A wall 26 extends upwardly parallel to the right end of the wall 12 so that the coin will not fall from the coin channel 11 when it is in vertical position.

Adjacent to the left end of the coin channel 11 there is provided an ejecting opening 27. The left side 28 of the opening 27 is straight, whereas the right side 29 thereof is semi-cylindrical. The height of the ejecting opening 27 is more than the diameter of the coin which is to be used in the vending machine but the width is less. The right edge 29 of the ejecting opening is beveled as indicated at 30 so that it will be in the form of a knife edge, the purpose of which will be pointed out hereinafter. A lower edge 31 of the ejecting opening 27 is also beveled as will be seen in Fig. 5.

Extending from the wall 19 is a stud 32 on which a nut 33 is advanced. The nut 33 engages a clamp plate 34 which retains a magnet 35 in the position shown in the drawings. That portion of the wall 19 which is adjacent to the ejecting opening 27 is arcuated as indicated at 36. Poles 38 of the magnet 35 are positioned directly adjacent to the arcuated face 36.

The screws 21 which clamp the ear 20 to the wall 12 also serve to secure a clamp plate 40 to the outer face of the wall 12. This clamp plate 40 has a channel 41 formed therein through which an engager in the form of a rod 42 extends. The lower end 43 of the engager or rod 42 is bent as shown best in Figs. 3 and 5 so that it extends through the ejecting opening 27 and slightly beyond the inner face of the wall 12. The end 43 is located centrally of the ejecting opening 27 in a vertical plane but slightly to the left of the center of the opening 27 with respect to a horizontal plane. In other words, the lower end 43 of the engager rod 42 is not located at the geometric center of the ejecting opening 27 but is located to the side near the front end of the channel on a horizontal plane passing through the geometric center of the ejecting opening.

In the wall 12 to the right of the ejecting opening 27 is an elongated opening 45, the height of which is slightly less than the diameter of the coin to be used in the vending machine and therefore the proper sized coin will not fall therethrough.

It should be understood that in the drawing I have shown only the slug eliminator of my invention, and that this slug eliminator may be incorporated in any type of vending machine which requires the insertion of a coin for it to be operated.

All parts of the slug eliminator, with possibly the exception of the plate 17, are made of brass so that they will not be influenced by the magnet 35 and so that the magnet 35 will retain its strength. A coin is inserted through the opening 23. The coin drops immediately in back of the plate 17 into the lower part of the coin channel 11 and rolls from the left and to the right end thereof. If the proper coin is used, it will roll along the channel and pass from the right end thereof into the mechanism of the vending machine on which the invention is used. If the coin is too large, it cannot be inserted through the opening 23, and if the coin is smaller than the proper coin to be used, it will fall through the opening 45 in the side wall 12.

If an iron slug, that is, a slug susceptible of magnetic influence, is inserted through the opening 23 it will be ejected from the channel 11 in the following manner; the iron slug will fall into the coin channel 11 and begin to roll from the left and to the right end thereof. When it reaches the position as shown by full lines 48 in Fig. 4 the magnet 35 will act thereupon and twist it into the position indicated by dotted lines 49. It should be noted that the slug indicated at 48 tends to pivot on the end 43 of the engager 42 so that the forward part of the coin will move out of the channel 11 and extend into the ejecting opening 27. This twisting of the slug occurs while the slug is moving to the right. The strength of the magnet 35 is not sufficient to stop the slug from moving but is simply enough to twist it as indicated by dotted lines 49. As the coin continues to move to the right, it will fall through the ejecting opening 27 and will not pass along the channel and into the mechanism of the vending machine. The forward edge 29 is provided with a knife edge, as illustrated in Fig. 4, so that it is only necessary to twist a slug but a slight degree for it to be ejected from the coin channel 11. The iron slug 48 is not twisted before it reaches the position shown in full lines in Fig. 4, since it passes between the side wall 12 and the wall 19 which keep it from being twisted even though it is in the influence of the magnet.

Slugs having openings therein are eliminated in the following manner; the slug is dropped through the opening 23 and passes into the coin channel 11 until it reaches the ejecting opening 27. The slug with a hole in it will move into a position similar to that of the slug 48 in Fig. 4. When this slug with a hole, as indicated by the numeral 51 in Figs. 6 and 7, reaches this position a hole

52 thereof moves into alignment with the end 43 of the engager 42; it will fall outward and this end 43 will extend therethrough. It should be noted that as the slug tends to pass by the ejecting opening 27 it is partially supported by the end 43 of the engager 42. This allows the forward part of the slug 51 to swing into the ejecting opening 27 and the slug 51 will occupy a position similar to that indicated by dotted lines 49 in Fig. 4. The hole 52 tends to hang on the end 43 as indicated in Fig. 6, and the entire lower part of this slug moves through the ejecting opening 27. Since the end 43 is declined, the slug will fall therefrom, thus being entirely eliminated from the coin channel 11. Fig. 7 is a plan view of the diagram of Fig. 6 and shows clearly the position of the slug 51 when it is temporarily supported by the end of the engager 42. The lower edge of the ejecting opening 27 is beveled so that the lower part of the coin 51 will readily slide thereby.

From the foregoing description it will be evident that my invention takes care of the elimination of all slugs. Slugs or coins which are too large cannot be inserted through the opening 23; slugs or coins which are too small will drop through the opening 48; iron slugs which are the proper size will be influenced by the magnet 35 and twisted in such a manner that they will fall through the ejecting opening 27; slugs having holes in them will also be ejected through the ejection opening 27, as previously explained. The important part of the invention resides in the means for magnetically eliminating iron slugs, that is, for twisting the iron slugs by magnetism so that they will fall through the ejecting opening 27, and also resides in the means whereby slugs having holes are eliminated.

I claim as my invention:

1. A slug eliminator comprising: walls forming a coin channel, said walls having an ejecting opening formed therein; and magnetic means placed on the side of said channel opposite said ejecting opening for exerting an influence on slugs susceptible to magnetic influence so that they will be diverted through said ejecting opening and thus be removed from said coin channel.

2. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; and magnetic means placed on the side of said channel opposite said ejecting opening for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs into planes at angles with the plane of said coin channel so that they will fall from said coin channel through said ejecting opening.

3. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein, the forward wall of said ejecting opening being provided with a knife edge; and magnetic means placed on the side of said channel opposite said ejecting opening for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs into planes at angles with the plane of said coin channel so that they will fall from said coin channel through said ejecting opening, said slugs passing said knife edge.

4. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; an engager extending into said ejecting opening, said engager being adapted to project into a hole in a slug having a hole therein and passing said ejecting opening, said engager engaging said slug having said hole in such a manner as to twist it so that it will fall through said ejecting opening; and magnetic means for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs so that they will fulcrum on said engager and fall from said coin channel through said ejecting opening.

5. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein, the forward wall of said ejecting opening being provided with a knife edge; an engager extending into said ejecting opening, said engager being adapted to project into a hole in a slug having a hole therein and passing said ejecting opening, said engager engaging said slug having said hole, in such a manner as to twist it so that it will fall through said ejecting opening; and magnetic means for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs so that they will fulcrum on said engager and fall from said coin channel through said ejecting opening, said slugs passing said knife edge.

6. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against

said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; and an engager extending into said ejecting opening near the geometric center thereof, said engager being adapted to project into a hole in a slug having a hole therein and passing said ejecting opening, said engager engaging said slug having said hole in such a manner as to twist it so that it will fall through said ejecting opening.

7. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; and a stationary engager extending through said ejecting opening, said engager being adapted to project into a hole in a slug having a hole therein and passing said ejecting opening, said engager engaging said slug having said hole in such a manner as to twist it so that it will fall through said ejecting opening.

8. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; an engager extending into said ejecting opening, said engager being adapted to project into a hole in a slug having a hole therein and passing said ejecting opening, said engager engaging said slug having said hole in such a manner as to twist it so that it will fall through said ejecting opening; and magnetic means for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs around said engager so that they will fall from said coin channel through said ejecting opening.

9. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein; an engager extending into said ejecting opening; and magnetic means for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs so that they will fulcrum on said engager and fall from said coin channel through said ejecting opening.

10. A slug eliminator comprising: walls forming a coin channel, one of said walls being disposed non-vertical so that a coin passing through said coin channel will rest against said non-vertical wall, said non-vertical wall having an ejecting opening formed therein, the forward wall of said ejecting opening being provided with a knife edge; an engager extending into said ejecting opening; and magnetic means for exerting a magnetic influence on slugs susceptible to magnetic influence and passing through said coin channel, in such a manner as to twist said slugs so that they will fulcrum on said engager and fall from said coin channel through said ejecting opening, said slugs passing said knife edge.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 11th day of May, 1926.

LLOYD GILES.