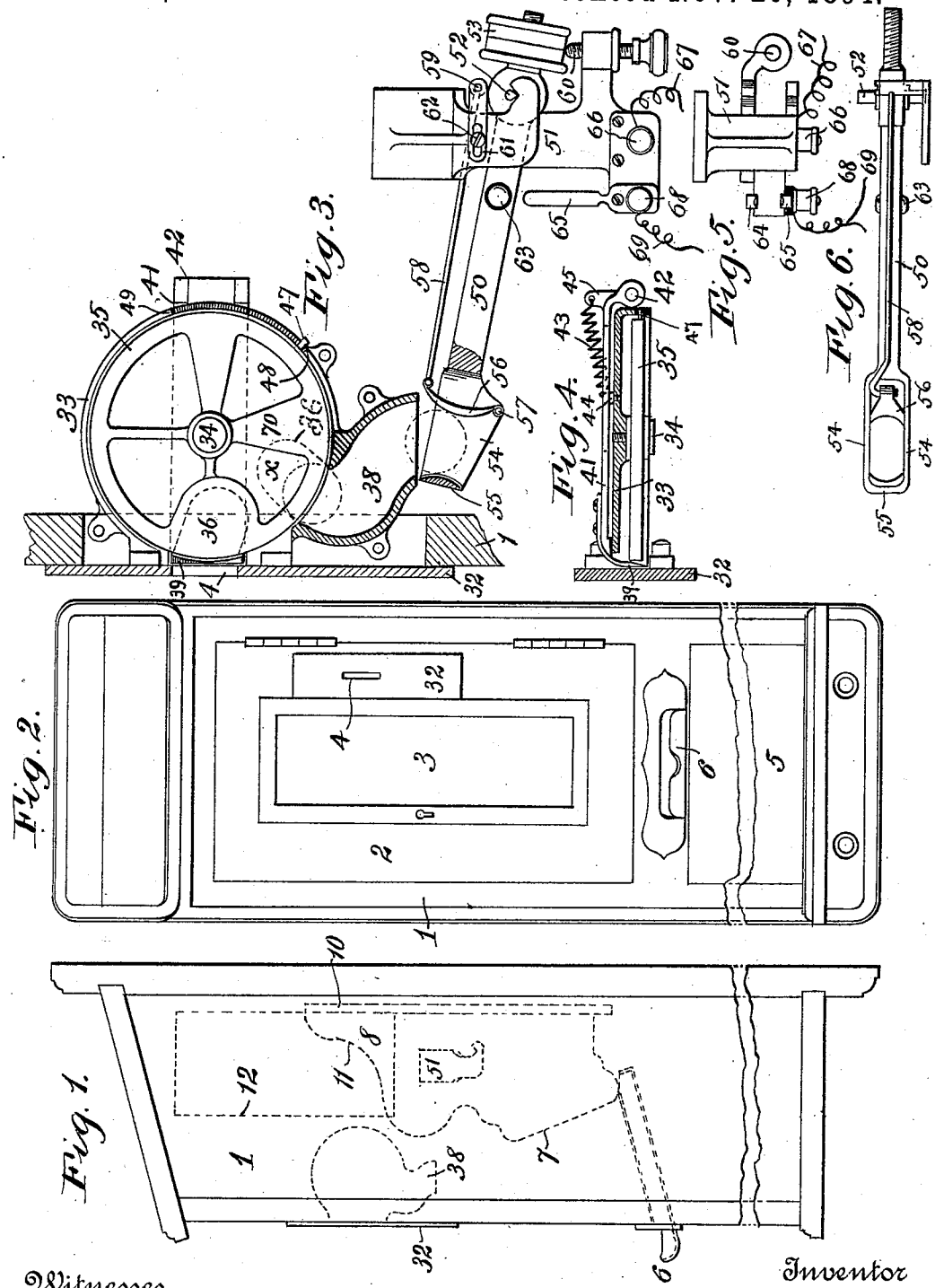
(No Model.) 2 Sheets—Sheet 1.

F. LAMPLOUGH.

VENDING MACHINE.

No. 529,655. Patented Nov. 20, 1894.



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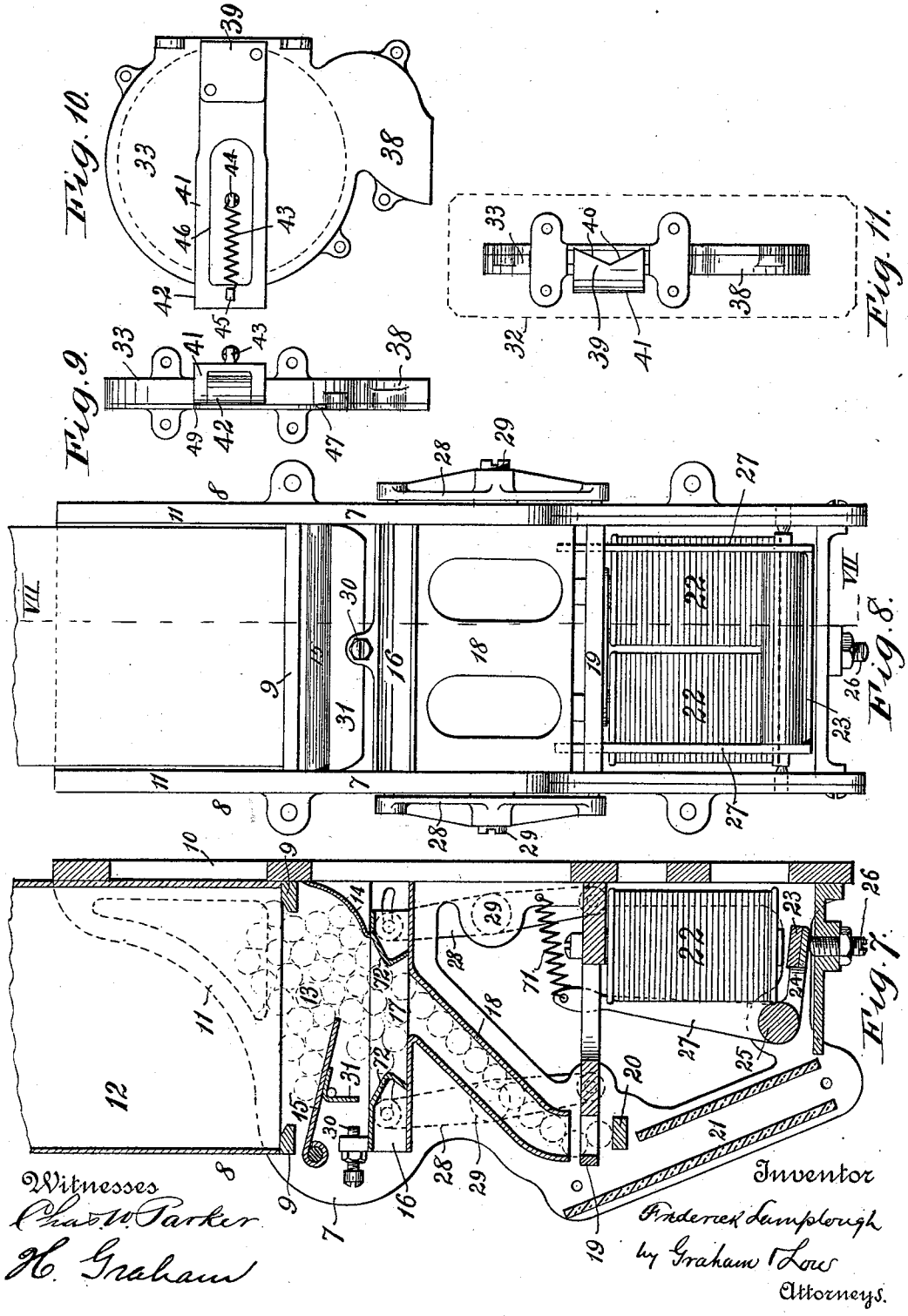

UNITED STATES PATENT OFFICE.

FREDERICK LAMPLOUGH, OF NEW YORK, N. Y.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 529,655, dated November 20, 1894.

Application filed April 13, 1894. Serial No. 507,429. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK LAMPLOUGH, a subject of the Queen of Great Britain, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

It is the object of my invention to provide for the automatic vending and delivery of cigarettes or other articles or packages by which any tampering with the machine by thrusting wires into the coin passageway is more effectually prevented, which permits the operation of the machine only upon the payment into it of a coin of both the predetermined size and weight, which will require upon the part of the purchaser no manipulation excepting the payment of the required coin, which will hold in position, filled with cigarettes, the original revenue-stamped package in which they are put on the market and will gradually receive and deliver from such package the individual cigarettes until it is exhausted, and by which the cigarettes are prevented from becoming wedged or clogged in the process of their delivery.

With such objects in view my invention consists in the parts and combinations thereof hereinafter more particularly set forth.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying it into practical effect, without limiting my improvements in their useful applications to the particular construction, which, for the sake of illustration, I have delineated.

In said drawings:—Figure 1 is a side view, having a portion of the device broken away, of a vending machine embodying my improvements. Fig. 2 is a front view of the same. Fig. 3 is a sectional view, on a larger scale, of the coin receiving mechanism. Fig. 4 is a plan view of the coin-receiving wheel, showing in section its inclosing case. Fig. 5 is a plan view of the support of the coin lever. Fig. 6 is a plan view of the lever. Fig. 7 is a vertical sectional view on line VII—VII, Fig. 8, of the delivering portion of the apparatus. Fig. 8 is a front view of the same. Fig. 9 is a rear view of the coin receiving device. Fig. 10 is an elevation of the same on the side opposite to that shown in Fig. 3. Fig. 11 is a front view of the same.

Referring to the drawings, 1 is a box, casing or cabinet inclosing the cigarettes, or other articles or packages, and the mechanism for delivering the same and for receiving the coins.

2 is the door of the cabinet by which the articles to be sold are introduced, and which may have a glass pane 3, through which the package or packages may be inspected.

4 is the orifice through which the coin is introduced.

5 is the coin drawer, and 6 is the orifice or chute by which the cigarette is delivered.

The delivery mechanism.—I will first describe the means by which the articles to be sold are held and delivered, with the preliminary observation that while the apparatus may be employed for the sale of confectionery, gum, or other articles, I have illustrated and shall hereinafter describe it as especially designed for the vending of individual cigarettes from their original revenue-stamped package.

7 is a frame supported within the cabinet 1, and having at its upper end a holder 8 for the cigarette box or package. This holder consists in the construction illustrated of horizontal transverse supporting bars 9, a rear bracket 10 and side brackets 11, in which the cigarette box 12 is securely held as seen in Figs. 1, 7 and 8. Before the box is thus placed in the machine its lower end is removed as seen in Fig. 7 to permit the exit of the cigarettes into the delivery apparatus. The cigarettes, lying parallel with the front of the cabinet 1, first enter into a space 13 between the side plates of the frame 7 and back plate 14, the front of said space being occupied by an oscillating plate 15, which is adapted, when agitated to shake up and loosen the superimposed cigarettes. The lower portion of the space 13 is occupied by a slide 16 having a central opening 17 through which the cigarettes pass downward into and through a chute or guide 18. The forward and backward reciprocation of the slide 16 serves to change the positions of the cigarettes at and over the mouth of the chute 18 and to prevent the latter from becoming choked at that

point. At the lower end of the chute 18, is the delivery slide 19, adapted to contain a single cigarette, which latter will then be supported by a fixed bar, 20. At each forward movement of the slide 19 said cigarette will be carried off from the bar 20 and will be free to drop into the chute 21 and to pass thence by the chute 6 (Fig. 1) to the exterior of the machine where it may be picked up by the purchaser.

While the delivery slide may, consistently with many features of my invention, be merely unlocked by the coin mechanism so that the purchaser may actuate the slide, together with the agitating devices already referred to, I prefer to actuate said slide and devices automatically. To this end I fix in the cabinet 1, preferably supported by the frame 7, an electro-magnet or other electro-motor 22 of the proper strength, adapted to be energized by a battery not shown through a circuit controlled by the coin receiving devices as hereinafter explained. 23 is the armature of such magnet connected by an arm 24 with a rock-shaft 25 pivoted in the frame 7. The maximum distance of the armature from the magnet poles is controlled by a set screw 26.

27 indicates arms carried by the rock shaft and engaging projections on or apertures in the slide 19 so that the energization of the magnet will cause the forward delivering movement of the slide.

28 denotes levers, preferably two pairs, pivoted at 29, on the frame 7, connected at their lower ends with and actuated by the slide 19 and connected at their upper ends with and actuating the slide 16.

30 is a projection, such as an adjustable screw, on the slide 16 and adapted upon the inward movement of the latter to encounter the agitating plate 15, or an arm 31 thereof, with the effect already mentioned.

The coin mechanism.—32 is a plate secured to the front or other convenient part of the cabinet 1 and having the coin-receiving orifice 4. At the rear of the plate 32 is attached a casing 33 in which is mounted on an axis 34 a wheel 35 having a coin recess or pocket 36. In line with the path of the said pocket is formed on the casing 33 a chute 38 into which a coin in the pocket 36 is adapted to be delivered, upon the partial rotation of the wheel. The size of the pocket as well as the width of the chute 38 will determine the maximum diameter of coin which can be introduced into the machine, and the pocket being adapted to register with the chute only after being turned entirely away from the orifice 4, no wire or similar instrument can be introduced from said orifice into the chute to tamper with the machine. I further provide a safeguard against the introduction of pasteboard, lead or other disks of soft material, consisting in a guard 39 situated between the orifice 4 and the said pocket and adapted to move out from between said parts upon the insertion of the coin. To permit its displacement by the coin it is provided with inclined knife edges 40 as seen in Fig. 11, which will allow a hard substance such as a coin to slide over them and deflect the guard, but which will, when it is attempted to introduce a disk of soft material such as lead or pasteboard, cut into the substance of such disks and remain immovable. Said guard is carried by an arm 41 hinged on the casing 33 at 42 and held normally in position before the pocket 36 by a spring 43 which is attached at one end to a stud 44 on said casing and at the other end to an arm 45 projecting from the arm 41. The latter is preferably slotted as at 46 to accommodate the spring. See Fig. 10. The oscillation of the wheel 35 is limited by a pin 47 carried by said wheel and engaging projections or shoulders 48, 49, formed on the casing 33, the former of which is adapted to arrest the wheel with its pocket in front of the orifice 4, and the latter to arrest it when the pocket is over the chute 38, as shown in dotted lines at *x* in Fig. 3, with a coin in the act of passing from the pocket into the chute. When not overbalanced by a coin of proper weight the wheel will be kept in the former position, with its pocket ready to receive a coin from the orifice 4, by a weight attached to or by a weighted portion 70 of the wheel.

As the coin is delivered from the chute 38 it is received by a weighing lever 50, pivoted upon a bracket 51, by knife edges 52 and having adjustable weights 53 by which the balance of the lever may be so regulated that it will respond only to a coin of sufficient weight. The coin receiver and holder of the lever 50 comprises preferably side bars 54 adapted to support the sides of the coin, a front bar 55 which will engage its front edge, and a movable support 56 on which will rest the rear edge of the coin. Below the point at which the coin will normally engage the support 56 the latter is pivoted, at 57, to the lever 50, and is connected by a link 58 with a stationary pivot or stud 59. The pivot 59 being eccentric to the pivots 52 on which the lever 50 turns, the downward movement of the lever under the weight of a coin in its coin-holder will be accompanied by a rocking of the support 56 away from the front bar 55 so that when the lever has dropped sufficiently the coin will cease to be supported and will fall into the cash receptacle at 5 or other convenient place. Thereupon the lever will rise to its normal position, shown in Fig. 3, where it will be arrested by an adjustable stop 60. By the adjustment of this stop the initial size of the opening in the coin holder, between the parts 55 and 56, may be regulated so as to determine what diameter of coin shall depress the lever 50, and what shall pass freely through its holder without actuating it.

The distance to which the support 56 will

move from the bar 55 may be determined by an adjustment of the pivot 59. This I effect by mounting the latter on a slotted arm 61 held adjustably on the bracket 51 by a clamp-screw 62.

When or as the lever 50 is depressed as aforesaid the circuit through the magnet 22 is completed and the latter energized to operate the armature 23 and the delivery devices as already described. Various forms of electric contacts will serve this purpose, but I prefer that illustrated, in which 63 is a conducting contact carried by and insulated from the lever 50 and adapted to encounter, when or as the lever 50 is depressed, spring contacts 64, 65, fixed on the lower part of the bracket 51, and electrically connect them. The spring 64 is in electrical contact with said bracket, and the latter has a binding post 66 adapted to receive a conductor 67 which is a part of the electro-motor circuit. The spring 65 is insulated from the bracket 51, and is in contact with a binding post 68 which receives a conductor 69 also in the said circuit. The contact 63 when in engagement with said springs serves to complete said circuit, with the result already described of delivering a cigarette from the chute 6.

The armature and delivery devices are after each operation returned to their normal position by a spring or springs applied at any desired point, for instance, as shown at 71.

Besides its function as a mere agitator, the slide 16 serves to lay the cigarettes in proper parallel position in case any of them should be out of line. This action is made more effectual by forming the opening 17 of the slide with inclined faces 72 situated at front and back of the same, as seen in Fig. 7.

I claim—

1. In the coin receiving mechanism of a vending machine, a vertical wheel adapted to turn on a horizontal axis and having a coin pocket, and a guide and lever below said pocket for maintaining and receiving the coin on edge, substantially as set forth.

2. In a coin mechanism a wheel having a coin pocket, having a cutting edge lying at an angle across the coin opening and an oscillatory guard in front of said pocket, substantially as set forth.

3. The combination of a casing 33, a wheel 35 having a coin pocket, an arm pivoted on said casing and having a guard 39, with sharp edges 40, arranged at an angle to each other and a spring 43, substantially as set forth.

4. The combination with a casing having a coin orifice, of a coin chute, to guide the coin on edge a vertical wheel having a coin pocket and acting to transfer a coin from the orifice to the chute, and a lever having a coin holder with an opening through its bottom to receive the coin on edge from the chute, substantially as set forth.

5. The combination with a casing having a coin orifice, of a coin chute, a vertical wheel operating as described, and a lever having a coin holder, for receiving the coin on edge a portion of which holder is movable to hold or release the coin, substantially as set forth.

6. In a coin mechanism a lever provided with a coin holder having a space open at its bottom to receive the coin on edge, and at one end of said space adapted to be engaged by the edge of the coin a portion movable to release the coin, and means for moving said portion by the oscillation of the lever, substantially as set forth.

7. The combination with a lever having a coin holder with a space to receive the coin on edge and comprising the support 56 at one end of said space, of the link 58, and adjustable pivot 59, substantially as set forth.

8. In a vending machine the combination of a delivery slide, a lever connected therewith, a retracting spring, an armature on said lever, a magnet for actuating the armature, and a coin mechanism controlling the electric circuit of the magnet, substantially as set forth.

9. In the delivery mechanism of a vending machine, the combination of a transverse slide having the adjustable projection 30 and an oscillating agitator 15, operated by the said projection, substantially as set forth.

10. The combination with the delivery slide, of an agitating slide above the former, levers mounted on intermediate pivots and connected with the said slides, an armature connected with one of said slides, and a magnet for actuating the armature and slides substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two witnesses.

FREDERICK LAMPLOUGH.

Witnesses:

H. N. LOW,

THOS. P. BORDEN.