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PERFUME VENDING MACHINE

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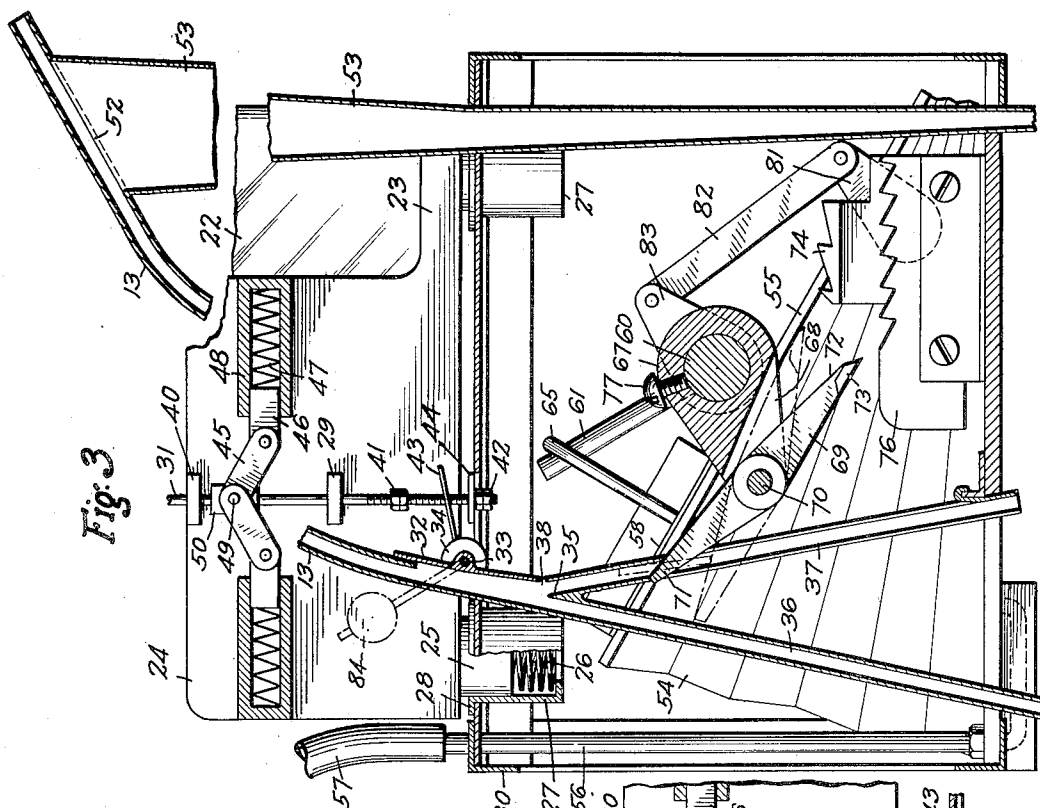


Fig. 3

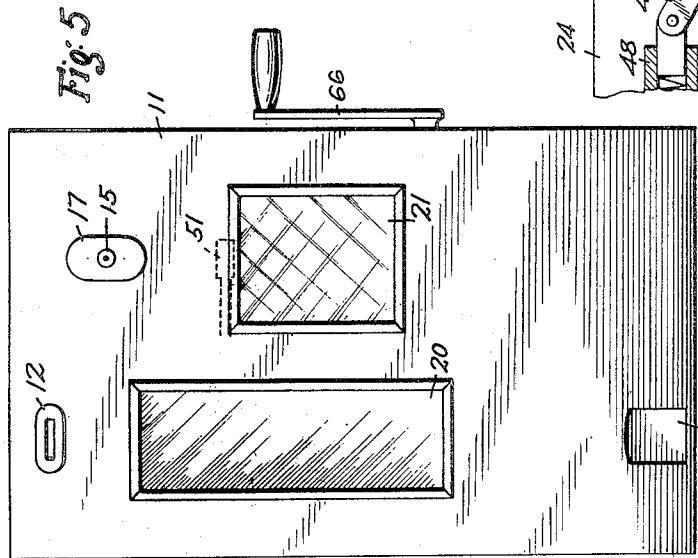


Fig. 5

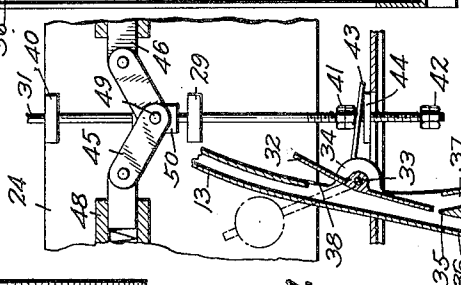


Fig. 4

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PERFUME VENDING MACHINE

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This invention relates to perfume vending machines.

My invention contemplates the provision of simple and efficient means, controlled by the weight of the material to be dispensed, for diverting and returning the deposited coin when the machine is practically empty.

My invention further contemplates the provision of simple and efficient coin-controlled locking means controlling the operation of the dispensing mechanism, whereby retraction of the mechanism after partial operation thereof is prevented, and the purchaser cannot cheat himself by dispensing less than the full value for the deposited coin.

The various objects of my invention will be clear from the description which follows, and from the drawings, in which,

Fig. 1 is a front view of my improved machine, the door being shown removed to expose the interior mechanism.

Fig. 2 is a side elevation of the same, the side of the casing having been removed to show the interior structure.

Fig. 3 is a side elevation similar to Fig. 2, and partial vertical section, showing in dotted lines, the positions assumed by certain of the releasable locking parts when a coin has been deposited in the coin chute.

Fig. 4 is a similar view of the mechanism operative to divert and return the coin when the dispenser has been practically emptied, showing the parts in coin-returning position, and

Fig. 5 is a front elevation of the machine showing particularly, the casing therefor.

In that practical embodiment of my invention which I have illustrated by way of example, the casing 10 is preferably formed of sheet metal, and is provided at the front thereof with a suitable door 11. Said door may be hinged or otherwise secured to the casing at one edge or end, and may be provided with a suitable lock (not shown) in a manner well known in the art and hence which need not be shown nor described.

A suitable coin-receiving slot is made in the front or door 11, and covered by a slotted coin plate 12 communicating with the coin chute 13, for the deposit of coins of the proper

denomination. A slot or opening as 14 is also made in the door 11 through which is passed the nozzle 15 of the atomizer 16, the opening being preferably elongated vertically to permit the movement therein of the vertically movable atomizer nozzle. To protect the opening 14, a suitable plate as 17 is carried by said nozzle and is movable therewith. Near the bottom of the door is provided the coin-return opening 18 communicating with the coin-return chute 19. A suitable mirror as 20 is mounted in the door, as well as a transparent panel 21 so that the purchaser may view the perfume bottle 22, and thereby be apprised when the bottle is empty. It will be understood that part of the glass panel 21 may be provided with indicia such as advertising matter, or matter informing the purchaser of the type of perfume used, or that a suitable label or advertisement may be attached to the bottle itself and viewed through the panel 21.

Means are provided for diverting the coin inserted into the coin chute 13, away from the locking mechanism later to be described, when the container 22 is empty. Said means comprises the support, platform or tray 23, one of the upright walls 24 of which is comparatively high to provide supporting means for part of the coin-diverting mechanism.

Extending downwardly from the bottom of the tray are the projections 25, which rest on a series of compression springs 26. Said springs are in turn supported in the flanged hollow casing 27, the flanges 28 of which are supported by the frame 30. It will be understood that the springs 26 are made of such strength, that they are compressed when the filled perfume container 22 rests on the tray, but are operative to raise the tray as the container is emptied and the weight of the perfume to be dispensed is decreased. The tray is guided in its vertical movement under the change in weight of the dispensed or supplied perfume by guide rods 78 passing through the perforated lugs 79 extending from the tray.

Supported by the wall 24, is the rod 31 for operating the coin-diverting shutter or plate 32. Said shutter is pivotally mounted on the shaft 33, which rests in suitable bearings 34, 100

extending from the coin chute 13, and is arranged just above the intersection 35 of the coin-return chute 36 and the coin-retaining chute 37. Said shutter is arranged adjacent to, and serves to close the opening 38 in the right side wall (Fig. 3) of the chute 13, and is adapted to be swung into the chute 13 at the proper time to close the entrance to the chute 37, whereby a coin falling through the coin-receiving chute 13 is diverted by the shutter 32 into the coin-return chute 36.

To so swing said shutter when the container 22 is empty or nearly empty, the rod 31 is adapted to move relatively to the wall 24 and the platform, being slidably supported on said wall by suitable perforated lugs 29 and 40. The lower part of said rod 31 is threaded to receive the upper adjustable stop nuts 41 and the lower adjustable nuts 42. Arranged in the path of, and between said nuts 41 and 42, is the arm 43 which is secured to and projects from the shutter shaft 33.

The uppermost position of the rod 31 is determined by the lower nuts 42, the upward movement of which is limited by the stationary stop plate 44.

When the container 22 is full or of maximum weight, the rod 31 is in its highest position, and the tray or platform 23 is in its lowermost position, because of the weight of the filled container 22. The means for moving the rod 31 in a direction opposite to that in which the platform moves as the perfume is dispensed comprises the toggle joint 45, the links of which terminate in the guide members 46, which are in turn spring-pressed by the springs 47 in the spring casing or guides 48 in the proper direction to close the links together. Said toggle joint is in turn connected to the rod 31 as by means of a suitable sleeve 50 and a pivot pin 49 passing through the sleeve and the links.

It will be seen that when the pivot 49 is above the axes of the springs, said springs tend to operate the toggle joint in such a direction as to raise the rod 31 into its highest position, wherein the stop nuts 42 engage the stop 44. However, as the perfume in the container 22 is dispensed, said container with its contents become lighter, enabling the springs 26 to raise the supporting platform and the container. As the platform and thereby, the wall 24 are raised, the outer ends of the toggle links are also raised, thereby lowering the pivot 49 relatively to the springs 47. When the container is empty, the pin 49 reaches a position just below the horizontal line passing through the axes of the springs 47, whereby said springs become effective to operate the toggle joint 45 to carry the pin 49 downwardly and thereby to lower the rod 31, to cause the nuts 41 thereon to engage the arm 43 and thereby to swing the shutter shaft 33 in the proper direction to insert the shutter 32 into the chute 13 and into a position

wherein it obstructs the entrance to the chute 37.

A coin tending to enter the chute 37 is thereby diverted into the coin-return chute 36 (Fig. 4).

It will be seen, therefore, that when the container 22 is empty or substantially empty of vendable material such as perfume, the coin cannot enter the chute 37 but is automatically diverted into the chute 36, and thence into the coin-return chute 19, from which the coin passes through the opening 18 of the door and is returned to the purchaser.

In order to save the purchaser the useless effort of inserting the coin into the coin chute when the container is practically empty, I prefer to provide indicia, preferably carried by the rod 31, for informing the purchaser that the container is empty, so that no perfume can be dispensed by the machine. For this purpose, the rod 31 carries the arm 51 on which the word "Empty" or similar suitable indicia is shown. It being understood that in the uppermost position of the rod 31, the container is full, the arm 51 is arranged above the panel 21 and is therefore concealed when there is sufficient perfume in the container to be dispensed (Fig. 5). When, however, the container is substantially empty, and the shutter 32 has been operated to divert and return coins, then the rod 31 is urged into its lowermost position by the toggle 45, carrying with it the arm 51, and thereby lowering the empty sign into position behind the transparent panel 21, whereby said sign becomes visible to the purchaser.

At the upper or entrance end of the chute 13, means are provided for diverting and returning coins of too small a denomination or too small to operate the locking means for the dispensing mechanism. As shown in Fig. 3, said means consists of an opening 52, at the upper end of the lower wall of the chute 13, said opening being of insufficient width to permit the passage of coins of the proper denomination but of sufficient width to receive smaller coins, which drop therethrough into the coin-discharge chute 53 and thence into the coin-return chute 19. The length of the opening 52 is sufficient to insure that the smaller coins drop into the chute 53.

The coin-controlled dispensing mechanism for dispensing perfume from the container 22 will now be described.

Said mechanism comprises the bellows 54 having a movable upper member 55, and connected as by means of the pipes 56 and 57 to the atomizer 16, the pipe 57 being flexible to compensate for the movement of the container and being inserted into the container 22 in the usual manner. For collapsing the bellows and thereby to discharge a spray of perfume through the atomizer nozzle 15, the shaft 60 carries the arm 61, which on the

rotation of the shaft in a counter-clockwise direction (Fig. 3), engages the wear plate 58 on the upper wall 55 of the bellows and compresses the bellows the required amount to inject a stream of air under the desired pressure into the atomizer and thereby to discharge the atomized spray of perfume.

The shaft 60 is normally urged toward its initial position by means of the coin spring 62 wound thereabout and secured at one end to the pin 63 and at its other end, to the bearing 64 for said shaft. In said initial position, the arm 61 engages the top of the stop yoke 65 secured to the upper wall of the bellows, whereby said upper wall is brought back to its initial position on the return movement of the shaft 60 under the influence of its spring 62.

Means are provided for operating the shaft 60 through a predetermined angle of rotation, sufficient to vend the desired amount of perfume. A suitable crank as 66 passing through an opening in the side wall of the casing 10 is secured to the end of the shaft 60, whereby the purchaser may rotate said shaft, when the shaft is released by the coin-controlled locking means therefor. Said locking means includes the supporting member 67 for the locking lever, mounted near the left end of the shaft 60 as viewed in Fig. 1, and provided with a slot as 68, between the side walls of which is pivotally mounted the coin-actuated locking lever 69, as by means of the pin 70. A suitable set screw as 77 serves to maintain the member 67 in its proper position on the shaft. The locking lever 69 is weighted at its right end 72 by the pawl tooth 73, and is thereby maintained normally with the left end 71 raised and the other end lowered. The end 71 of the lever passes into the operating coin chute 37 through a slot therein, while the other end 72 of said lever terminates in the pawl tooth 73, which extends laterally and horizontally therefrom, and is provided with suitably shaped rack-engaging edges. The pawl tooth is thereby normally arranged adjacent the lower ratchet rack 76, whereby attempted operation of the crank 66 before the locking lever is released by a coin, is prevented by the engagement of the pawl tooth 73 with the upright edges of the teeth of the ratchet rack 76.

It will be understood that the parts being in their initial positions shown in Figs. 1, 2 and 3, wherein the shutter 33 under the influence of its weight 84 opens the entrance to the chute 37, and when there is sufficient material in the machine to be dispensed, a coin dropping through the chute 13 strikes the intersection 35 at the point of bifurcation of the chute 13, and is directed into the coin-retaining chute 37. The coin falls down the chute 37 on to the end 71 of the lever 69, and due to its weight, rotates said lever in a counter-clockwise direction into the

dotted line position thereof shown in Fig. 3.

In this position, the pawl tooth 73 is raised above the toothed ratchet racks 74 and 76, whereby the crank 66 may now be rotated to rotate the shaft 60. Such rotation of the shaft swings the lever supporting member 67 in a counter-clockwise direction and carries the pawl tooth 73 over the rack teeth 74. At the same time, the arm 61 operates the bellows to discharge a spray of perfume. Rotation of the shaft 60 must be continued until the pawl tooth 73 passes the right end of the rack 74, since the teeth of said rack are inclined in a direction effective to engage the pawl tooth and prevent retractive movement thereof.

It will be noted that during the movement of the tooth 73 over the rack 74, the end 71 of the lever is withdrawn from the chute 37, and the coin is freed to drop through the remainder of the chute 37 and into the coin receptacle 75 provided therefor. The locking lever 69 having been relieved of the weight of the coin, the pawl tooth end thereof may drop on to the rack 74 to insure operative movement only of the shaft 60 and to prevent retraction thereof. When the pawl tooth passes the right end of the rack 74, it is free to drop into engagement with the lower ratchet rack 76, the teeth of which are inclined in the proper direction to prevent further operative rotation of the crank 66, the inclination of the teeth being opposite to those of the rack 74. On release of the crank handle, therefore, the spring 63 returns the parts to their initial positions wherein the lever end 71 is reinserted into the chute 37, the arm 61 is in contact with the upper part of the yoke 65, and the crank is again in upright position, ready for the repetition of the operation.

It will be understood that any attempt to operate the crank 66 when no coin has been inserted into the machine, will permit rotation of the shaft 60 only to that small extent necessary to carry the pawl tooth 73 into engagement with the teeth of the rack 76, when further movement is prevented. The bellows therefore cannot be operated since the pin 61 moves an insufficient distance to engage the wear plate 58. It is only, therefore, when the end 71 of the lever 69 has been depressed by the weight of a coin that the bellows can be operated and perfume dispensed.

It will further be seen that the left edge of the pawl tooth 73 will engage the teeth of the rack 74 after said tooth 73 has been raised by the insertion of a coin into the chute whereby the user is compelled to rotate the crank through a complete stroke to give him the full value for which he pays, since the teeth 74 prevent the return of the parts to their initial positions after a partial stroke of the crank.

A suitable register as 80 may be provided for registering the number of coins deposited in the machine, by registering the number of complete strokes of the crank 66. Said register is provided with an operating arm 81 which is in turn connected by the link 82 to the arm 83 on the shaft 60, whereby operation of the shaft operates the arm 81 of the register to record the stroke of the crank.

It will be seen that I have provided simple and efficient means for insuring the return of a coin to the purchaser when the amount of vendable material falls below a predetermined limit; that I have further provided means for insuring a full stroke of the machine and the delivery of a predetermined quantity of material for each coin deposited; and that I have provided a coin-controlled machine well adapted to meet the severe requirements of practical use.

While I have shown and described certain specific embodiments of my invention, it will be understood that I do not intend to limit myself thereto, but desire to claim my invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. In a coin-controlled vending machine, a coin-receiving chute bifurcated to provide a coin-return chute and a coin-retaining chute, a shutter in the coin-receiving chute above the other chutes, said shutter being normally arranged out of the path of the coin to permit the coin to enter the coin-retaining chute, and means for operating the shutter to direct a coin into the coin-return chute when substantially all of the vendable material has been dispensed, comprising a spring-pressed supporting member for the material, adapted to move upwardly as the material is dispensed, and means for operatively connecting said member to the shutter to swing said shutter to obstruct the coin-retaining chute.

2. In a coin-controlled vending machine, coin-diverting means, and spring-pressed means responsive to a decrease in the weight of vendable material in the machine for operating the coin-diverting means to return a coin deposited in the machine including a vertically movable platform normally urged upwardly against the weight of said material, a vertically movable rod movable to a predetermined extent independently of the platform and of the coin-diverting means, means carried by the platform to move the rod, and means on the rod adapted to engage the coin-diverting means for moving the coin-diverting means into diverting position.

3. In a coin-controlled vending machine, a stationary coin chute having an opening therein, movable means arranged adjacent the opening for diverting and returning a coin deposited in said chute when substantially all of the vendable material has been

dispensed, said means changing the direction of movement of the coin but permitting continuous, uninterrupted movement thereof, and means responsive to changes in the weight of said material for operating said coin diverting means.

4. In a coin-controlled vending machine, a vertically movable support for vendable material, a spring urging the support upwardly against the weight of the material, and means operatively connected to said support and pivotally mounted independently thereof for diverting a coin deposited in the machine to return the coin when the weight of the material on the support has decreased past a predetermined limit comprising a normally inoperative shutter plate, a rod mounted for vertical movement independently of the plate and of the support for a predetermined distance, means on the support for moving the rod only when said weight has so decreased, and means on the rod to move the plate.

5. In a coin-controlled vending machine, means for preventing operation of the machine by a coin when a predetermined part of the vendable material has been dispensed, comprising a coin chute, a movable support for the material, coin diverting means in the chute, and means for operatively connecting the support and the coin diverting means, comprising a rod normally movable independently of the support and of the diverting means, means on the support for moving the rod when said part has been dispensed, and means on the rod for moving the coin diverting means.

6. In a coin-controlled vending machine, a stationary coin chute, means for preventing operation of the machine when the machine is substantially empty of vendable material comprising a vertically movable support for said material, spring means for moving said support bodily upwardly as the material is dispensed, means for diverting a moving coin deposited in the chute away from its operating position in the chute but normally permitting movement of the coin toward its operating position when sufficient vendable material remains in the machine, and means for operatively connecting the support to the coin diverting means.

7. In a coin-controlled liquid perfume vending machine, means automatically responsive to a predetermined decrease in the weight of the vendable perfume for engaging and diverting a moving coin deposited in the machine away from its operative position including a coin-diverting shutter interposed in the path of the coin to change the direction of its movement, and means operatively connected to the shutter but mounted independently thereof and operated by said weight to move the shutter.

8. In a coin-controlled vending machine, means for preventing operation of the ma-

chine through the action of a coin when the machine is substantially empty of vendable material, comprising a support for the material, springs urging said support upwardly against the weight of the material, a coin chute normally directing the coin into position wherein the machine is rendered operable through the action of the coin, means adapted to be interposed in the coin chute for diverting the coin away from said position, and means operatively connecting the support to the coin diverting means for interposing said coin diverting means in the chute to divert the coin when the weight on the support is decreased and the support is raised by the springs a sufficient amount.

9. In a coin-controlled vending machine, a movable support for vendable material, springs urging said support upwardly against the weight of said material, a spring-pressed toggle joint carried by said support, a rod movable by said joint in a direction opposite to the movement of the support, a coin chute, a coin-diverting member, and means on the rod for moving said member into coin-diverting position in the chute when the support has been raised by the springs a sufficient distance.

10. In a coin-controlled vending machine, a platform for supporting vendable material, springs urging said platform upwardly against the weight of said material, a spring-pressed toggle joint including a pair of links pivoted together and carried by said platform, a rod connected to the pivot of said links and movable by the joint relatively to the platform, an adjustable operating member on the rod, an indicia-carrying arm connected to the rod, a coin chute having an opening therein, a shutter adjacent the opening, a shaft supporting said shutter, and an arm on said shaft interposed in the path of the operating member and adapted to swing said shaft and said shutter through the opening and into coin-diverting position in the chute when the platform has been raised sufficiently by said springs.

11. In a coin-controlled vending machine, a spring-pressed support for vendable material normally maintained in its lowermost position by said material, a coin chute having an opening therein, a swingable shutter arranged adjacent the opening and adapted to be swung into the chute to divert a coin deposited in the chute, and means operatively connecting the support to the shutter for swinging said shutter when the weight of the material has been sufficiently decreased, including a toggle joint.

12. In a coin-controlled vending machine, a support for vendable material, springs urging said support upwardly against the weight of said material, coin-diverting means, and means operatively connecting the support and the coin-diverting means including a toggle

joint carried by the support and operatively connected to the coin-diverting means.

13. In a coin-controlled vending machine, a spring-pressed support for vendable material, said support being movable when the weight of said material is changed, and normally inoperative coin return means responsive to the movement of the support under a decrease in the weight of said material and operatively connected to said support, including a stationary return chute, a stationary coin-receiving chute shaped to normally prevent entrance of the coin into the return chute, and a coin-diverting member arranged to enter the receiving chute to direct the coin dropped into the receiving chute into the return chute without interruption of the movement of the coin when the weight of said material reaches a predetermined minimum.

14. In a machine for dispensing liquid perfume, a movable support for the perfume, means for raising the support as the perfume is dispensed and the weight thereof decreased, a stationary coin-receiving chute bifurcated at its lower portion and having an opening above the bifurcation, a shutter pivoted on the opening, and means for automatically swinging the shutter to obstruct one of the bifurcations of the chute and to divert the coin dropped into the chute into the other bifurcation when the weight of the perfume has decreased to a predetermined limit including a member normally movable relatively to the chute and to the shutter, and means on the member adapted to engage and move the shutter at a predetermined point in the movement of the member.

15. In a machine for dispensing liquid perfume, a stationary coin chute bifurcated at its lower part, and means for automatically diverting a coin from one of the bifurcations to the other when the machine is substantially empty of perfume, comprising a support for the perfume mounted for upward bodily movement as the weight of the perfume decreases, a shutter in the chute above the bifurcation and means interposed between the support and the shutter for suddenly and automatically swinging the shutter into diverting position when the support reaches a predetermined point in its upward path.

16. In a coin-controlled vending machine, a support for vendable material, means for moving the support upwardly and bodily in a vertical path as the weight of the material thereon decreases, a stationary coin chute, a coin-diverting member, and means movable relatively to the support and the member and adapted to move into operative engagement with the member to swing the member into coin-diverting position when the support passes a predetermined point in its upward movement.

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