(No Model.) 3 Sheets—Sheet 1.

J. C. MAŸRHOFER.

APPARATUS FOR DISPENSING LIQUIDS.

No. 430,079. Patented June 10, 1890.

Fig. 1.

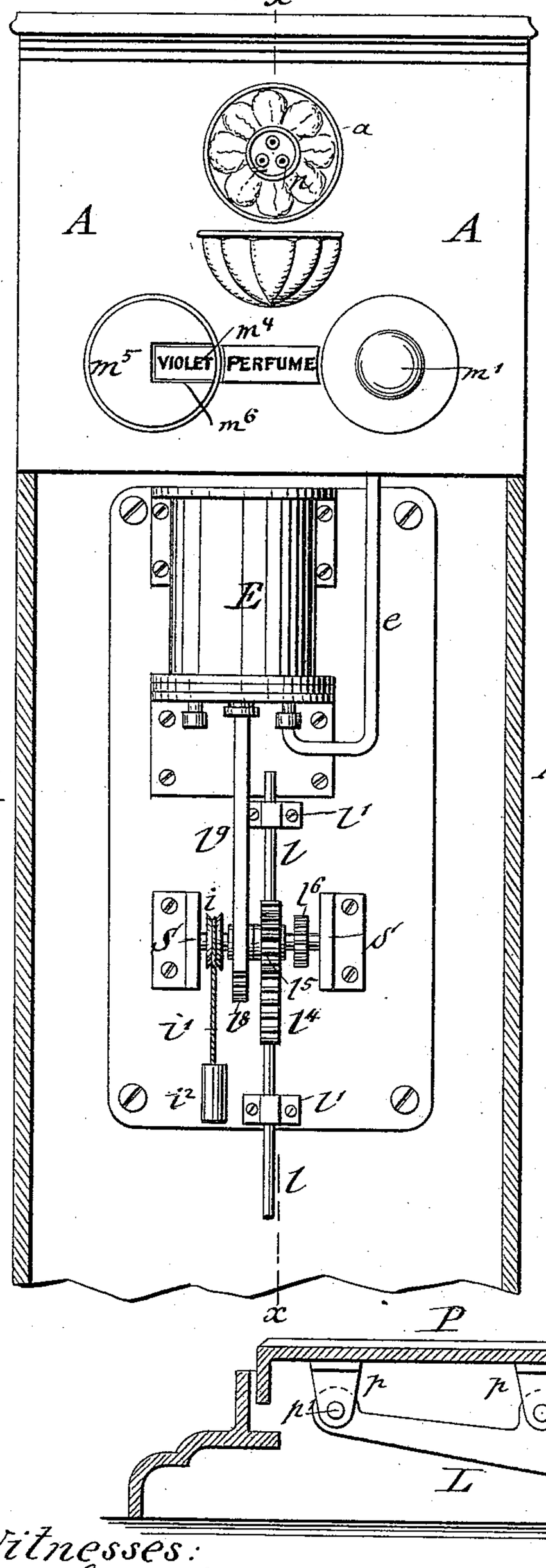
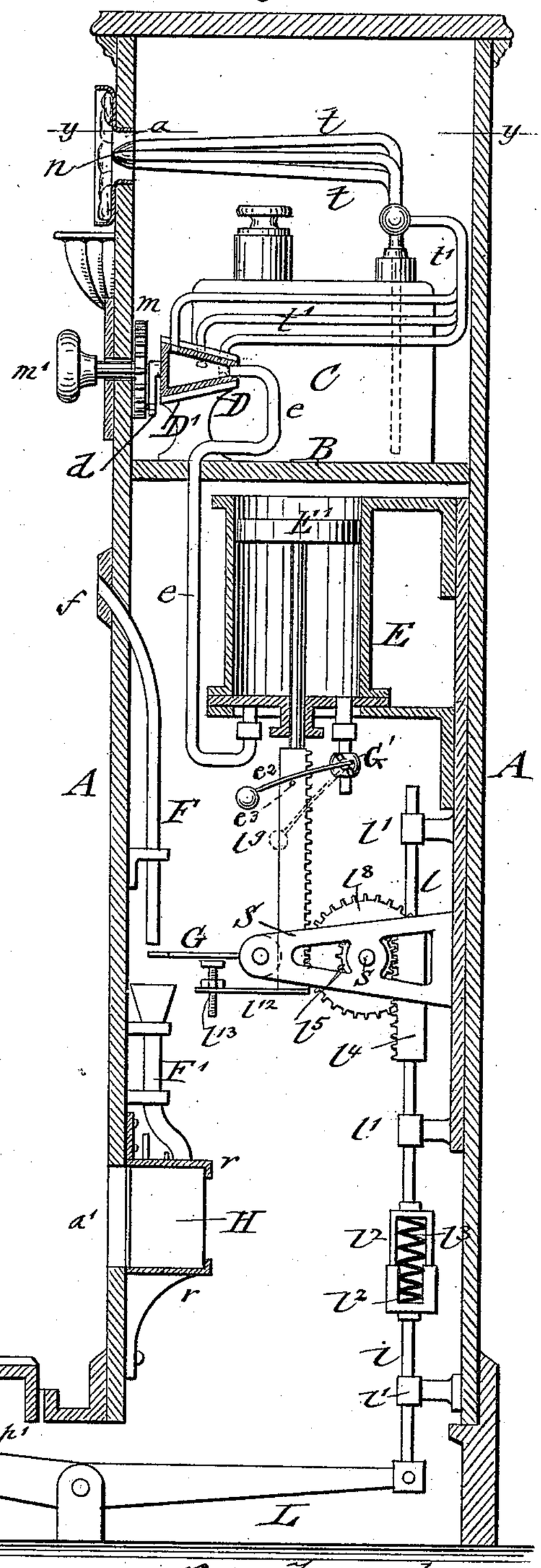


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

J. C. MAŸRHOFER.

APPARATUS FOR DISPENSING LIQUIDS.

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Fig: 3.

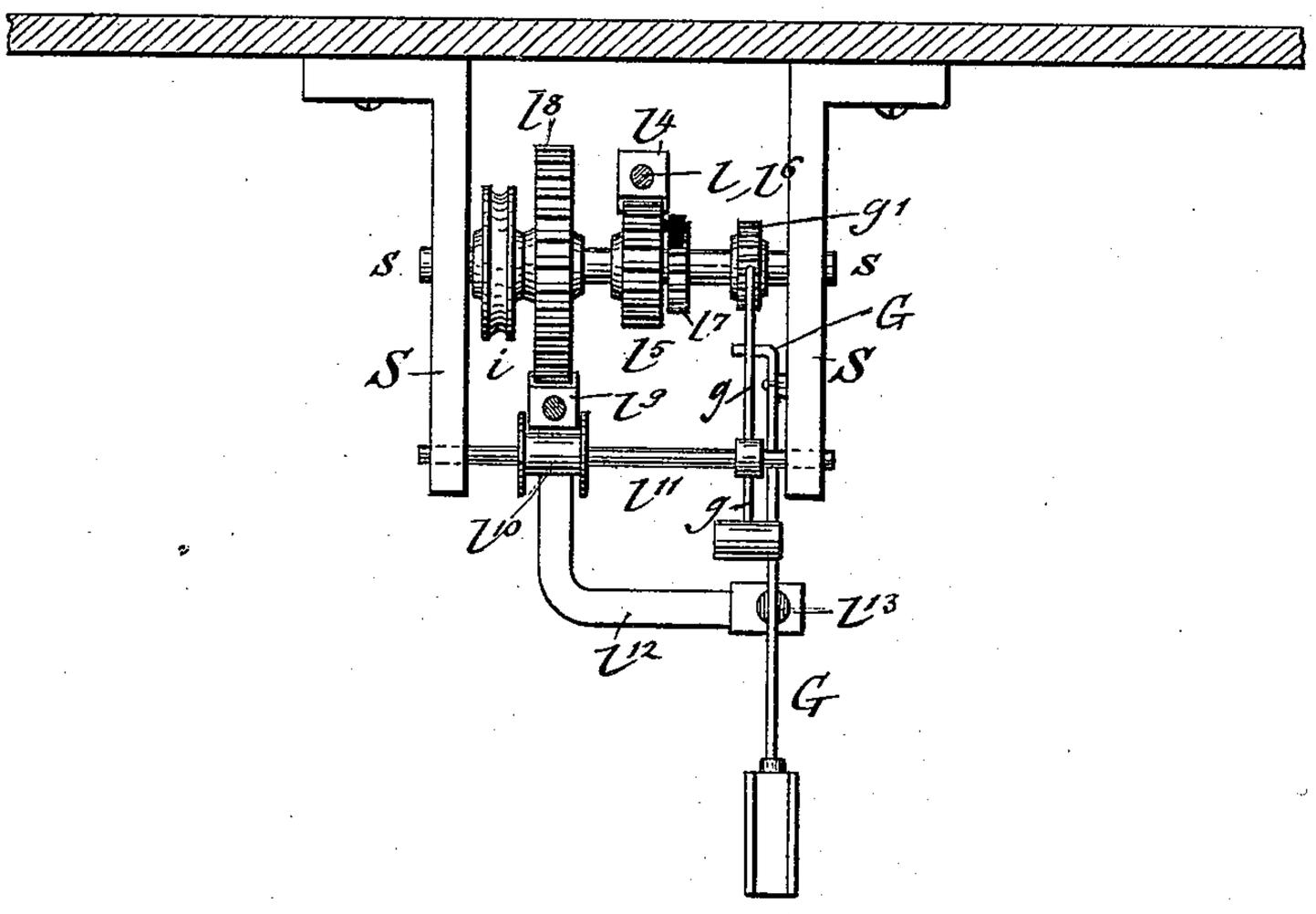
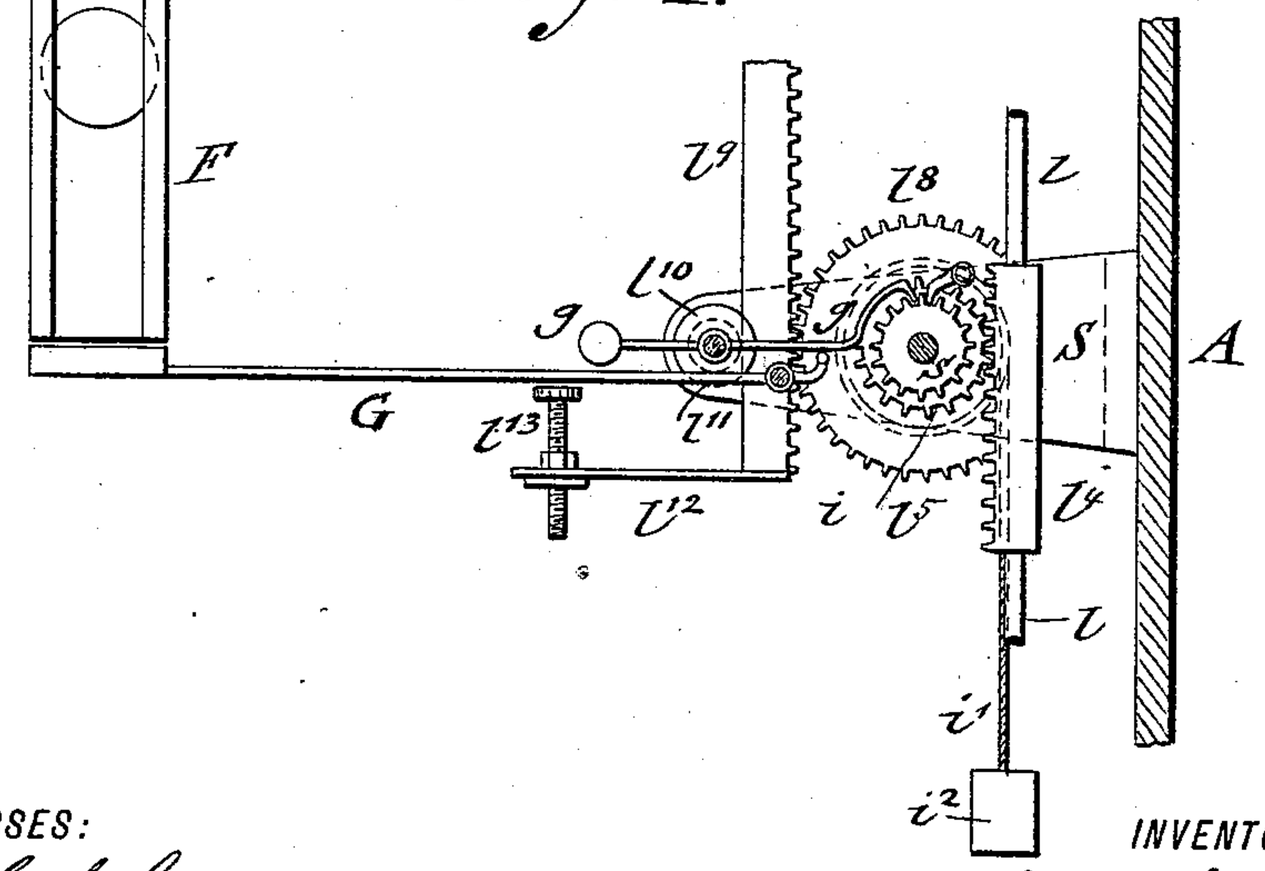


Fig: 4.



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(No Model.) 3 Sheets—Sheet 3.

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APPARATUS FOR DISPENSING LIQUIDS.

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Fig. 5.

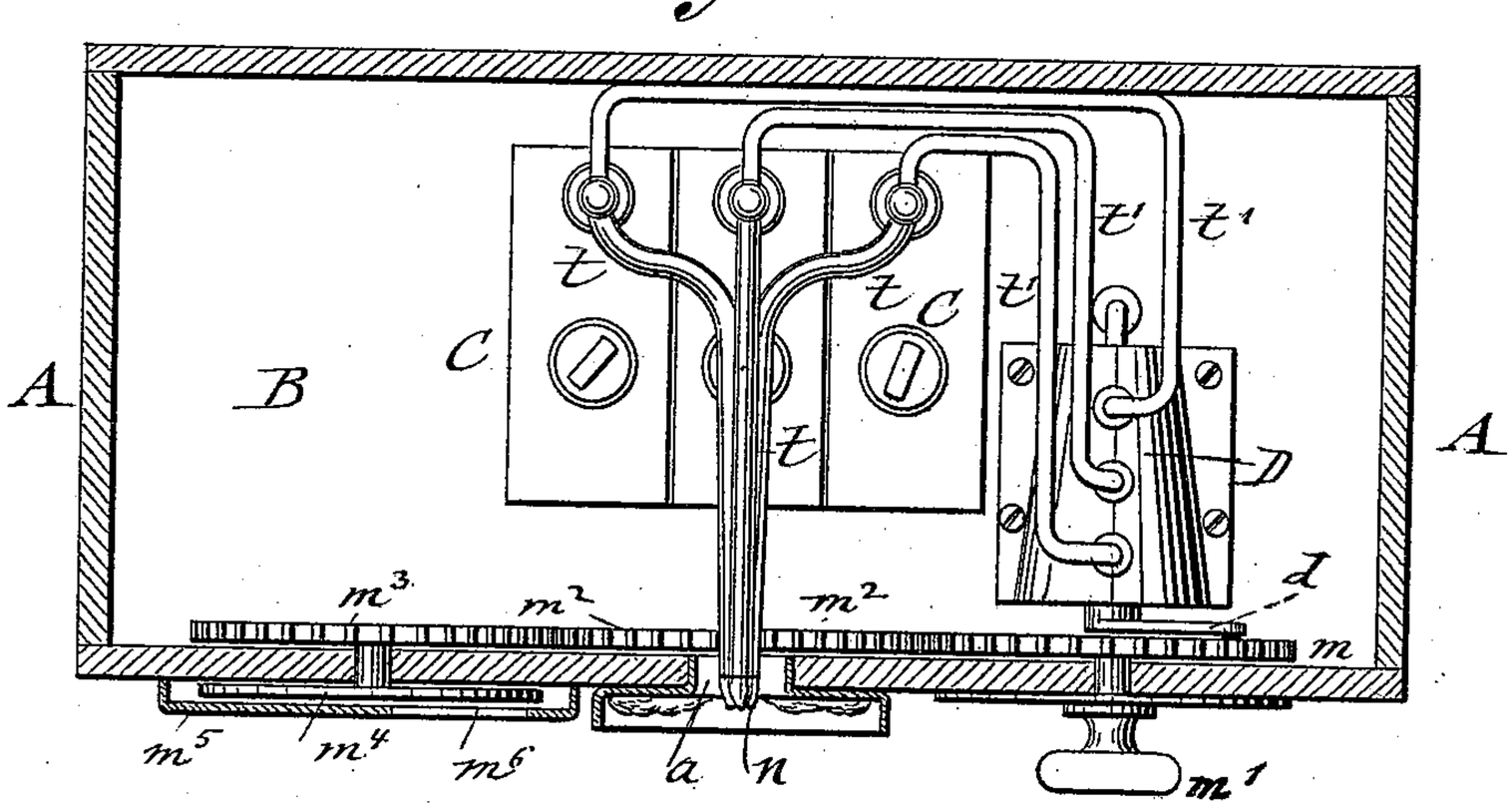


Fig. 6.

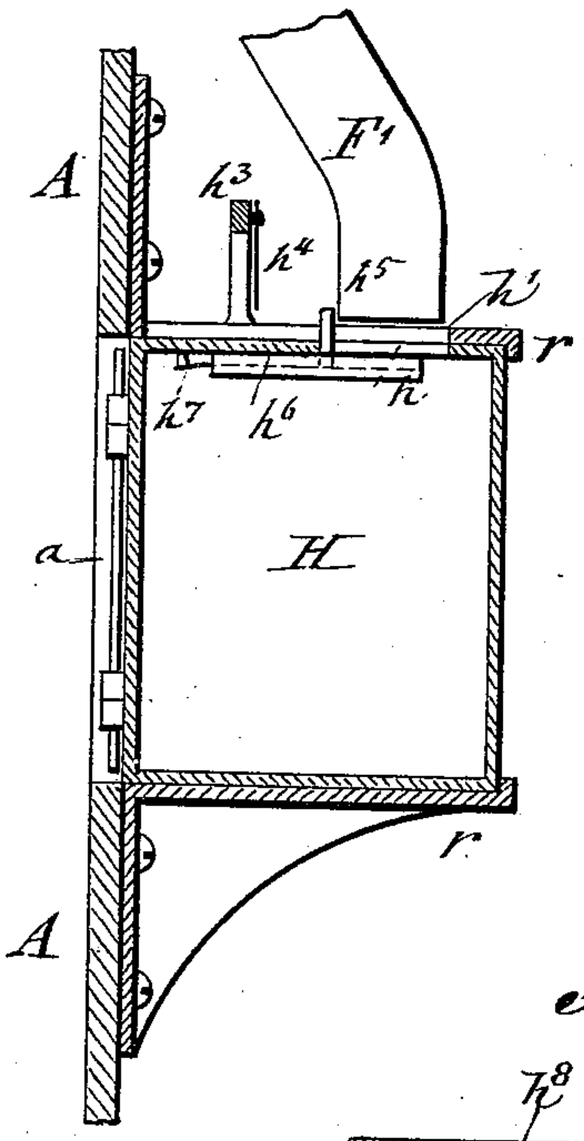


Fig. 7.

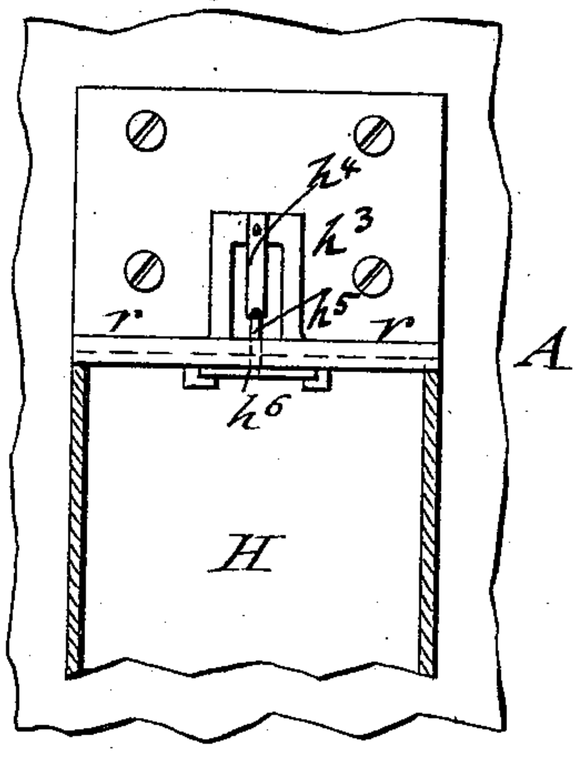


Fig. 8.

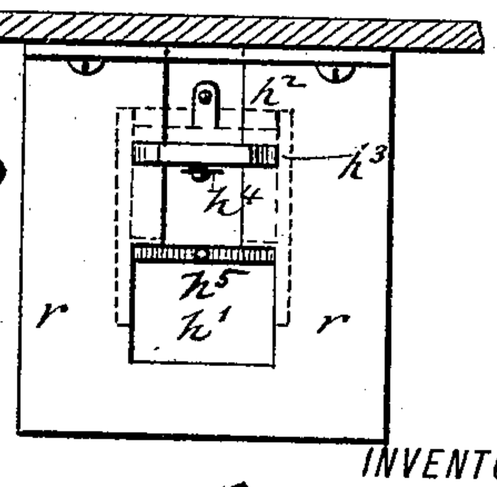
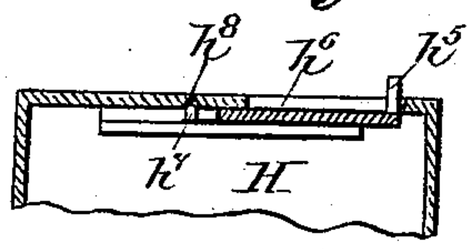


Fig. 8a.



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UNITED STATES PATENT OFFICE.

JOSEPH CARL MAŸRHOFER, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN AUTOMATIC SPRAY PERFUME COMPANY.

APPARATUS FOR DISPENSING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 430,079, dated June 10, 1890.

Application filed May 29, 1889. Serial No. 312,550. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CARL MAŸRHOFER, of the city, county, and State of New York, a citizen of Austria-Hungary, have invented certain new and useful Improvements in Apparatus for Dispensing Liquids, of which the following is a specification.

This invention relates to certain improvements in that class of apparatus in which a person may obtain in exchange for a coin or token a supply of perfumery or other liquid in the form of a spray after releasing a locking mechanism by the dropping of the coin and permitting thereby the working of an air-pump by the lowering of a platform or treadle by the person desirous of obtaining a supply of perfumery.

The invention relates more specifically to certain improvements in the apparatus for dispensing liquids for which Letters Patent were granted to me, No. 405,846, dated June 25, 1889, the improvements being designed with a view of making the operation of the apparatus more reliable and effective, constructing the air-pump and its operating mechanisms in a more durable and permanent manner, and facilitating the return of the piston of the air-pump and of the operating mechanisms to their normal position.

The invention consists, primarily, in certain improvements in the operating mechanism of the air-pump for supplying compressed air to the perfumery delivering and atomizing devices; secondly, in the improved construction of the mechanism by which the piston of the air-pump is returned to its normal condition after each discharge of perfume by the delivering devices; thirdly, in an improved device by which the perfume-delivering devices are set for the proper perfume to be discharged, and, lastly, in the improved construction of the coin-receiver, so that the same can be removed from the vending apparatus in locked condition.

The invention consists, further, of certain details in the construction, arrangement, and combination of parts, as will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a front elevation, partly in vertical section, through the casing of my improved apparatus for dispensing liquids. Fig. 2 is a vertical transverse section of the same on line *x x*, Fig. 1. Figs. 3 and 4 are a top view and a side elevation, partly in section, drawn on a larger scale, of the mechanism for operating the air-pump by which the atomizing action on the perfume is produced. Fig. 5 is a horizontal section through the upper part of the apparatus, taken on line *y y*, Fig. 2, showing the supply-cock, the delivering-nozzles, and the device for indicating the perfume to be delivered; and Figs. 6, 7, 8, and 8ª represent, respectively, a detail vertical longitudinal section, a vertical transverse section, and a top view of the coin-receiving box and its connection with the coin-tube, and a vertical section of the closed coin-box detached.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the main frame of my improved apparatus for dispensing liquids. At the upper part of the same is arranged a horizontal partition B, on which are supported one or more—preferably three—receptacles C C for the liquid perfumery. The top part of each receptacle C is provided with an opening having a detachable screw or other plug for conveniently filling the receptacle with suitable perfume. Each receptacle C is further provided with an ordinary atomizing-tube *t*, which is bent forward toward the front part of the apparatus, so that its discharge end communicates with a nozzle *n* in the opening *a* of the front wall of the main frame A of the apparatus. Each atomizing-tube *t* is extended downward to near the bottom of its receptacle C and connected with an air-supply tube *t'*, the lower end of which connects with the casing D of a hollow conical plug D', which is provided with apertures that coincide with the ends of the tubes *t'* when the plug is turned on its axis in different positions in the casing D. The casing D and the plug D' form together a cock, by which the compressed air is supplied by means of an air-pump E, which is located below the horizontal partition B, and which is operated by means of a treadle or platform mechanism

and the weight of the person desirous of obtaining a supply of perfume.

The air-pump E is connected with the hollow plug D′ by a rubber or other tube *e*, which passes through the partition B and enters into the rear end of the plug D′. The closed front end of the same is connected by a crank-arm *d* with a cog-wheel *m*, the shaft of which is supported in bearings of the front wall of the main frame A and provided at the outer end with a button or handle *m′* for turning the air-supply plug D′, as shown in Figs. 2 and 5. An intermediate gear-wheel m^2 meshes with the gear-wheel *m* and with a third gear-wheel m^3, the shaft of which turns in bearings of the front wall of the casing A and carries a disk m^4, on which are placed the names of the different perfumes to be supplied by the apparatus. The disk m^4 is inclosed by a cap m^5, having an opening m^6, in which the name of the perfume selected appears on turning the knob or button *m′*. The setting of the plug D′ to the proper perfume-receptacle and the setting of the indicator-disk m^4 is thereby accomplished at the same time, and thereby any desired perfume delivered by the atomizing devices described.

When the indicator-disk m^4 is set for the desired perfume, the air-pump is unlocked by dropping a coin into the coin-slot *f* at the front wall of the main frame A, said coin passing along a coin-tube F onto a locking-lever G, which is shown in detail in Figs. 3 and 4.

The coin-operated locking-lever G serves for unlocking the connection between the treadle or platform P and the air-pump E, so as to permit the latter to be operated by the pressure of the foot on the treadle or the weight of the person standing on the platform. The platform P is supported by lugs *p* on transverse pivots *p′* of a fulcrumed lever L, the rear end of which is connected to a vertical guide-rod *l*, which is guided in sleeves of suitable brackets at the rear wall of the main frame A, as shown in Fig. 2. The vertical guide-rod *l* is made in two parts, which are connected by telescoping sockets l^2 and an intermediate spiral spring l^3, as shown in Fig. 2, said spring serving as a cushion against the weight of the body of the person on the platform and producing the gradual transmission of the weight to the mechanism for operating the air-pump E. The vertical guide-rod *l* is provided at its upper part with a rack l^4, which meshes with a gear-wheel l^5, that is placed loosely on a shaft *s*. The shaft *s* is supported in bearings of brackets S, which are attached to the rear wall of the main frame A, as shown in Figs. 2 and 3. The rotary motion imparted to the gear-wheel l^5 by the rack l^4 is transmitted by a pawl l^6, pivoted to said wheel, to a ratchet-wheel l^7, which is keyed to the shaft *s*, so that thereby rotary motion is imparted to the shaft *s*. To the shaft *s* is also keyed a larger gear-wheel l^8, which meshes with a rack l^9 on the piston-rod of the air-pump E, so that by the turning of the shaft *s* the rack l^9 and the piston E′ of the air-pump are lowered and the air in the pump-cylinder compressed and supplied to the atomizing and perfume-delivering devices. The rack l^9 is guided by a flanged pulley l^{10} on a transverse pivot-rod l^{11}, which is supported in bearings at the ends of the brackets S. The actuating of the air-pump E, however, can only take place when the locking-lever G is released by a coin delivered from the coin-tube to the pan-shaped front end of the locking-lever G. This lever is pivoted near its rear end to one of the brackets S and provided with a bent rear end that engages a weighted pawl *g*, fulcrumed to the pivot-rod l^{11}, so as to lift the same out of the teeth of a ratchet-wheel *g′* on the shaft *s*, as shown in Fig. 4. As soon as this is accomplished the shaft *s* can be rotated by the transmitting mechanism operated by the treadle or platform P, and the air-pump worked so as to supply the required quantity of air for the discharge of a spray of perfume.

To the lower end of the rack l^9, attached to the piston-rod of the air-pump E, is applied a bent arm l^{12}, which carries a set-screw l^{13}, the head of which is normally at such a distance below the lever G that the latter, on the dropping of a coin, will be tilted sufficiently to release the weighted pawl *g* from the ratchet-wheel *g′*, but prevented from dropping the coin from the front end of the lever G until the piston of the air-pump is moved in downward direction. When this takes place, the locking-lever G by the weight of the coin on its pan-shaped front end is gradually lowered until the coin is discharged into the hopper-shaped upper end of a second coin-tube F′, which conducts it into the coin-receiving box H. The locking-lever G remains in its lowered position until by the upstroke of the piston the set-screw l^{13} lifts the lever G and returns the balanced pawl *g* into engagement with the ratchet-wheel *g′*, so as to lock thereby the pump-operating mechanism and prevent it from being operated until another coin is dropped into the coin-tube F. For returning the piston of the air-pump into its normally-raised position, a pulley *i*, that is actuated by a weighted cord *i′*, is arranged on the shaft S. The cord *i′* is wound up on the pulley *i* during the downward motion of the piston, and thereby the weight raised or the spring set to tension. As soon as the pressure is removed from the treadle or platform, the weight i^2 produces the turning of the shaft *s* and the lifting of the piston, which takes place easily as the pump-cylinder is open at the top and the air is drawn in through an air-inlet valve G′ in the bottom of the pump-cylinder. By the return motion imparted to the piston the locking-lever G and pawl *g* are returned into their normal positions ready to be operated by the next dropping of the coin and the depressing of the treadle or platform. The resetting of the

locking-lever prevents the discharge of an additional spray without the insertion of another coin into the apparatus.

For preventing the repeated spraying of the apparatus by successively depressing the treadle or platform P before the piston and its actuating parts have returned to their initial positions, the plug of the air-inlet valve G′ is provided with a weighted lever e^2, which rests on a pin e^3 of a rack l^9 on the piston-rod. The air-inlet valve G′ is kept open during a part of the downstroke of the piston and closed when the lever e^2 arrives in the position shown in dotted lines in Fig. 2. The valve G′ remains closed during the remaining part of the downstroke of the piston, so that the full force of the compressed air in the pump-cylinder is utilized for the spraying operation. On the return of this piston a partial vacuum is formed in the pump-cylinder, and thereby the upward movement of the piston retarded. The repeated lowering of the piston by pressing on the treadle or platform P without depositing a coin would therefore not supply any spray. The rack l^9 is raised slowly by the return mechanism of the piston, as some air is drawn in through the atomizing-tube and air-cock. Then the rack l^9 is raised far enough that its pin e^3 re-engages the weighted lever e^2. The air-inlet valve G′ is opened, and thereby the piston returned quickly into its normal position. The weighted lever of the air-inlet valve acts thus in connection with the pin on the rack of the piston-rod as a safeguard against tampering with the apparatus and spraying the contents of the perfume-receptacles without the required equivalent in coin.

My improved perfume-delivery device may also be used with an automatic coin-operated weighing-machine, in which case only one perfume-receptacle is used, which is connected directly to the air-pump, so that the air-supply cock and the perfume-setting device can be dispensed with.

The coin-box H is located in an opening a' in the lower front wall of the main frame A, and supported by horizontal bracket-plates r, having flanges at their rear ends. The coin-box H is provided with a hinged and locked door and with a top opening h, which registers with an opening h' in the upper bracket-plate and with the lower end of the coin-tube F′, as shown in Fig. 6. The opening h' of the top plate r is contracted into a slot h^2, which extends to the front edge of the top plate r. A yoke-shaped standard h^3, having a downwardly-extending spring-tongue h^4 is attached to the top plate r transversely across the slot h^2, said spring serving for the purpose of producing the closing of the top opening h of the coin-box H whenever the same is removed from the apparatus by engaging a lug or pin h^5 of a slide-plate h^6, which is guided in ways at the under side of the top of the coin-box and moved into closed position. The pin h^5 of the slide-plate h^6 projects through the opening h in the top of the coin-box H and the slotted opening h' of the bracket-plate r, so as to be engaged by the spring h^4 when the coin-box is removed from the bracket-plates r. When the slide-plate h^6 is closed, a spring-catch h^7 at its front end engages a notch or depression h^8 at the under side of the top plate of the coin-box H, as shown in Fig. 8ª. The coin-box H is opened at the office, the coins in the same removed, and the catch of the slide-plate h^6 released, so that the latter can be moved into its forward position, as shown in Fig. 6, in which position the box is returned to the apparatus and reinserted into position therein. When the coin-box H is moved into its position between the bracket-plates r, the pin h^5 presses the spring h^4 back and passes beyond the same without changing the position of the slide-plate, while when the coin-box is removed the slide-plate is closed by the contact of the pin h^5 with the spring h^4 and locked by the spring-catch h^7, so that none of the coins can be abstracted from the box until the same is opened at the office. The attendant in charge of the coin-boxes has no access to the same, as he simply removes a filled and closed coin-box and replaces the same with an empty one, the slide-plate of which is in open position ready to receive the coins deposited in the apparatus in return for a spray of perfume.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with one or more liquid-receptacles, of an atomizing tube or tubes connected with said receptacles, an air-supply cock, tubes connecting said air-cock with the atomizing tube or tubes, an air-pump, a tube connecting the air-pump with the air-supply cock, a turning device for said air-cock, an indicator-disk, and gear-wheels between the shaft of said disk and the device for setting the air-cock so as to set the atomizing devices and the indicator-disk simultaneously for the desired perfume, substantially as set forth.

2. In an apparatus for dispensing liquids, the combination, with an air-pump and atomizing devices connected thereto, of a rack on the piston-rod of the air-pump, a gear-wheel meshing with said rack, an actuating-lever having a treadle or platform, a vertically-guided rod having a rack, a gear-wheel meshing with said rack, a pawl pivoted to said gear-wheel, a ratchet-wheel on the shaft of the piston-operating gear-wheel, a second ratchet-wheel on said shaft, a locking-lever and pawl engaging said ratchet-wheel, and a coin-tube terminating above the front end of the locking-lever, substantially as set forth.

3. In an apparatus for dispensing liquids, the combination, with an air-pump and atomizing devices connected therewith, of a piston having a piston-rod, a rack on said piston-rod mechanism, substantially as described, for

actuating the piston of the air-pump, a coin-tube, a coin-operated locking-lever adapted to release the actuating mechanism of the air-pump, an arm attached to the lower end of the rack on the piston-rod, and a set-screw on said arm located below the locking-lever, so as to permit the dropping of the coin when the piston of the air-pump descends, substantially as set forth.

4. In an apparatus for dispensing liquids, the combination of an air-pump and atomizing devices, the piston-rod of the same having a rack-extension, mechanism, substantially as described, for actuating the piston of the air-pump, a coin-operated locking-lever engaging the actuating mechanism, a treadle or platform lever, a vertically-guided rod having a rack, a gear-wheel meshing with the rack, a pawl-and-ratchet mechanism operated by said gear-wheel, a pulley on the shaft of said gear-wheel, and a weighted cord attached to said pulley, substantially as set forth.

5. The combination, with an air-pump and atomizing devices connected therewith, of a treadle or platform lever actuating mechanism, substantially as set forth, between the piston of the air-pump and said lever, an inlet-valve for said pump, a weighted lever on the plug of said inlet-valve, and a pin on the piston-rod of the pump, said pin releasing the weighted lever on the downstroke of the piston and engaging the same on the upstroke of the piston, so as to cause the closing of the opening of the air-inlet valve, substantially as set forth.

6. The combination of the main frame of a liquid-dispensing apparatus, said frame having an opening, bracket-plates attached to the inside of said frame above and below said opening, the upper bracket-plate having a slotted opening, a spring-stop on said top bracket-plate, a detachable coin-box having a top opening, and a slide-plate having a pin in line with the spring top and an interior locking device, substantially as set forth.

7. In a liquid-dispensing apparatus, the combination, with the main frame having an opening and fixed interior bracket-plates, of a detachable coin-box having an opening in its top registering with an opening of the top bracket-plate, a coin-dropping tube, the lower end of which is above the opening in the top of the coin-box, a slide-plate guided at the under side of the top of the coin-box, and means for producing the closing of the slide-plate when the coin-box is removed, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH CARL MAŸRHOFER.

Witnesses:

PAUL GOEPEL,

MARTIN PETRY.