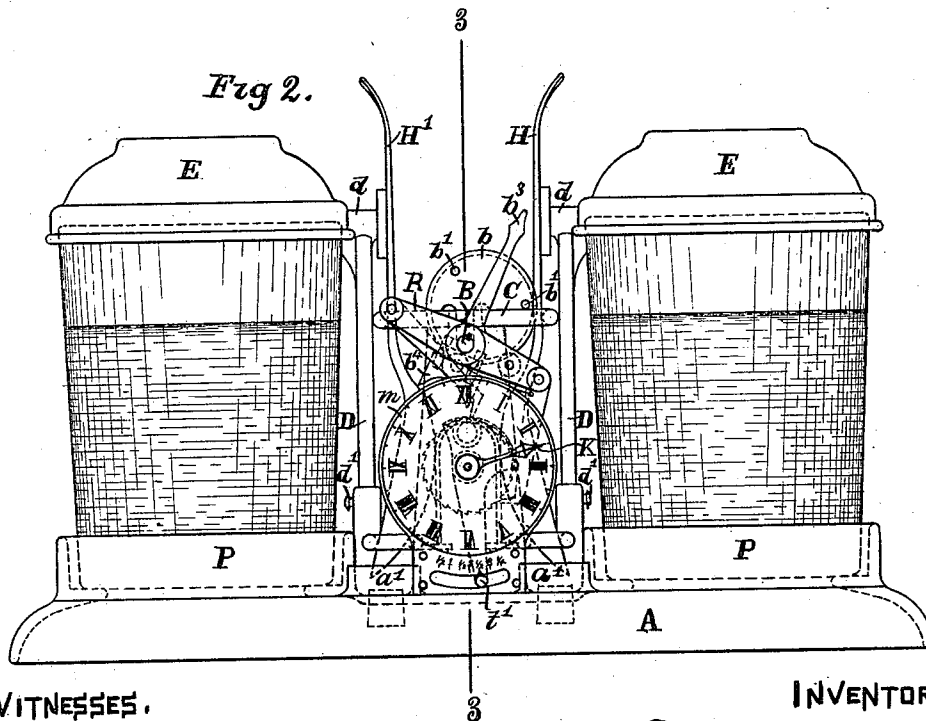
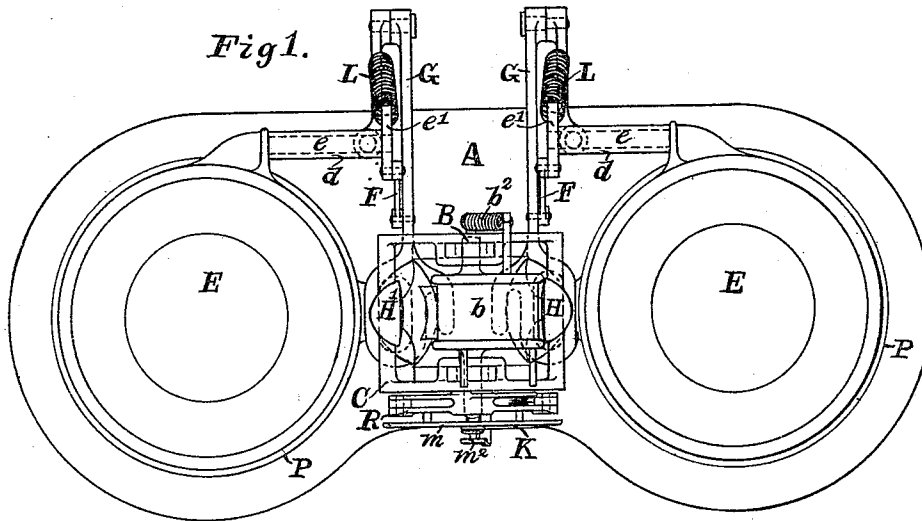


(No Model.)

2 Sheets—Sheet 1.

E. P. ROBERTS.
APPARATUS FOR DIRECTING THE PROPER ADMINISTRATION OF MEDICINE.
No. 463,409. Patented Nov. 17, 1891.



WITNESSES.

Frank. Miller.

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INVENTOR.

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(No Model.)

2 Sheets—Sheet 2.

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Fig 3.

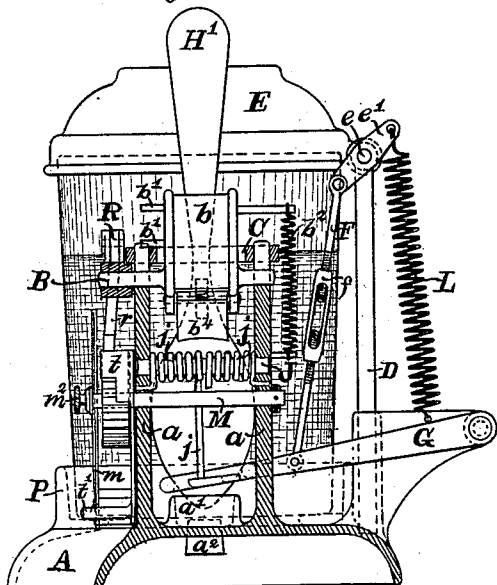


Fig 4.

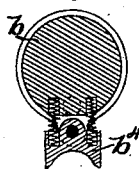


Fig 5.

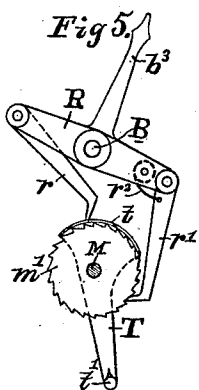
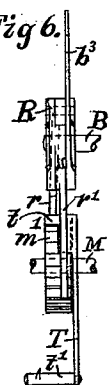


Fig 6.



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UNITED STATES PATENT OFFICE.

EDWARD P. ROBERTS, OF CLEVELAND, OHIO.

APPARATUS FOR DIRECTING THE PROPER ADMINISTRATION OF MEDICINE.

SPECIFICATION forming part of Letters Patent No. 463,409, dated November 17, 1891.

Application filed February 9, 1891. Serial No. 380,781. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. ROBERTS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Apparatuses for Directing the Proper Administration of Medicine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

In treating sick people physicians often prescribe two kinds of medicines, which ordinarily are administered alternately. It frequently happens that owing to the absorbing cares of the sick-room attendants and nurses forget which kind of medicine is next to be administered. Various expedients are employed to prevent mistakes arising from this cause; but the success of the expedients for the most part (and always, as far as I am aware) depends upon the voluntary doing of certain things by the attendant, and if the attendant forgets to do the thing fixed upon—as, for example, the moving of a spoon from one glass to another—the expedient not only fails to assist the correct administering of the medicine, but positively directs and causes a wrong course.

The object of my invention is to provide a device to be used in connection with medicine-receptacles, which is of necessity operated each time the medicine is taken and which automatically indicates which medicine should next be administered.

A further object of my invention is to prevent the administration of the wrong medicine by one who neglects to observe the indicator.

A further object of the invention is to indicate the time at which medicines should next be administered.

My invention therefore consists, essentially, of an indicator device or devices suitably arranged in relation to two medicine-receptacles and mechanism which must itself be moved before medicine can be taken from either receptacle and which by its movement moves the indicator device or devices.

It also consists in the combination of a dial having hours marked thereon and a pointer movable relatively thereto, an indicator de-

vice or devices adapted to indicate from which of the two receptacles medicine should be taken, and mechanism which must be moved before medicine can be taken from either receptacle, whereby said indicator is moved and the relative position of the pointer and dial changed.

It also consists of two movable covers and independent mechanisms, substantially as described, for closing them, holding them closed, and releasing them, and means for preventing the simultaneous operations of said mechanisms, whereby only one cover may be opened at the same time.

It also consists in the combinations and details of construction of the various parts of the device hereinafter described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a plan view of the most complete embodiment of my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical sectional view on the line 3 3 in Fig. 2. Fig. 4 is a vertical sectional view of the rock-shaft, its operating-arm, and the guard pivoted thereto. Fig. 5 is a detached front view of the mechanism for operating the time-indicating device, and Fig. 6 is a side view of said mechanism.

Referring to the part by letter, A represents a base upon which all of the parts are supported. At the sides of the base are sockets in which rest the medicine-receptacles P P. Rising from the base A between the two sockets are the two standards *aa*, which support some of the movable parts of the device, as hereinafter described. In the upper ends of the standards a rock-shaft B is journaled, and an arm *b* is secured to said shaft at a point midway between the standards, and said arm lies at all times above the center of the shaft. In the construction shown the upper ends of the standards *aa* are vertically slotted, and the shaft B is readily placed in these slots and is held therein by the frame C, which is secured to the tops of the standards. The arm *b* is made large and heavy, thus bringing its center of gravity above the axis of the shaft, whereby when it is moved past the center its weight tends to carry it to the full limit of its motion in that direction. A contractile coil-spring *b*² may also be pro-

vided to assist gravity in producing this result. The projections or pins $b'b'$ on the arm engage with the frame C, and thus the arm has a definite path through which it travels 5 each time it is moved. In the preferred form, as shown, the arm b is in the form of an eccentric, of which the edge is grooved. On the end of the shaft B is an arm b^3 , which is always inclined toward one or the other of the 10 two glasses, and thus points toward or indicates the glass from which the medicine should be next taken.

Two spoons H H' are employed, one for each kind of medicine. These spoons are 15 passed down between the frame C and the arm b . When the handle of the spoon H, for example, lies in the groove in the edge of the arm b and between it and the frame C, the pointer b^3 is inclined toward the glass nearest 20 the spoon H, indicating that said spoon is next to be withdrawn and medicine administered from the nearest glass. In withdrawing the spoon the bowl thereof engages with the arm b , thereby rocking the shaft and causing 25 the arm b to move over against the other spoon-handle, the pointer b^3 at the same time shifting its position. The returning of the spoon H to its position, as shown, does not interfere with or change the position of the rock-shaft B or its connected arms b or b^3 . 30

The mechanism above described constitutes an operative device and in a very simple form.

Pivotaly connected with the rock-shaft B is a guard b^4 , having a limited motion, but 35 normally held centrally by a light spring or springs, as shown most clearly in Fig. 4. This guard, it will be noticed in Fig. 2, is in a position to engage with the bowl of the spoon H', and thus prevent the withdrawal of said 40 spoon so long as the pointer directs by its position the use of the other spoon H and its associated glass of medicine; but when spoon H' has already been withdrawn and the parts are in position shown said spoon may 45 be readily inserted without changing the position of the rock-shaft, the guard b^4 being swung on its pivot out of the way by the spoon.

Additional security against the improper administration of the medicine is secured by 50 providing covers for the glasses and mechanism which prevents the lifting of the wrong cover.

D D represent two posts secured to the base, preferably adjustably, as I will presently explain. To the top of each post is secured a horizontal sleeve d , which forms the bearing in which the pintle e , to which the cover E is rigidly secured, is mounted. To 55 one end of the pintle e a lever e' is rigidly secured. To one arm of the lever e' a contractile coil-spring L is attached, which exerts a continuous force tending to swing the cover up. A link F connects the other arm of the lever e' with a pivoted lever G, whereby when 60 the lever G is swung downward the cover is pulled down and is held down (closed) so long as the lever is held down. The free end of

the lever G is so arranged that the spoon strikes it in its downward movement. The end of the spoon preferably enters a slot in 70 said lever, whereby the certainty of the described action is assured, and for the further reason that the liquid may thereby drip from the end of the spoon into a drip-cup a' , which is formed beneath it in the base A. A stop- 75 per a^2 , insertible from the bottom, may be removed to drain the drip-cup. A bar J extends from one standard a to the other, and two springs $j j$ are secured to and coiled around this pin. The lower end of each 80 spring is adapted to engage above a part of the lever G. When the spoon is pressed down, it forces the lever G down. The bowl of the spoon engages with the spring j , and when 85 the lever G is completely down forces the spring j over a part of the lever, and when in this position the spring j holds the lever down. When the spoon is withdrawn, the spring j , being left free, withdraws itself from 90 its position above the lever G, and the spring L lifts the lever and cover with which it is associated.

With a device constructed substantially as above described the pointer b^3 indicates which 95 medicine should be taken. It is impossible to lift the cover of either glass until a spoon is withdrawn, and it is only possible to withdraw the proper spoon—i. e., the one indicated by the pointer—and in the act of withdrawing the proper spoon the position of the 100 parts is automatically shifted, so that they indicate that the other glass should be next used, and when the spoon in use is replaced the parts resume a position substantially as shown, in which it is impossible to pursue any 105 other course than that indicated.

In order that the device may be used with receptacles of different sizes, the covers are made vertically adjustable by the following 110 mechanism, to wit: The posts D D rest in sockets, within which they are movable up and down, and they are secured at any desired height by the set-screws $d' d'$. The length of the links F must at the same time be varied, and this result is secured by making each 115 link of two oppositely-threaded rods which are connected by a turn-buckle f .

Another cause of more or less important mistakes is forgetting the time at which medicine should be administered. To prevent 120 such errors I provide a time-indicating device, consisting of a relatively movable pointer and dial on which are marked the hours and connect the movable member by appropriate 125 mechanism with some of the movable parts, preferably the rock-shaft, whereby when the other parts are moved as above described the relative position of the dial and pointer will also be changed and show the time at which the medicine indicated should next be taken. 130 A pointer K is adjustably fixed on the end of a revoluble shaft M, which is journaled in the standards $a a$ and projects centrally through a fixed dial m , on which are marked the

hours. Fixed at its middle to the rock-shaft B is a lever R, and to the opposite ends of this lever are pivoted the pawls r r' , which engage with the ratchet-wheel m' , fixed to the shaft M. The pawl r will remain in engagement with the ratchet-wheel through gravity; but as arranged a spring r^2 is necessary to hold the pawl r' in engagement therewith. The two pawls are arranged to engage with the ratchet-wheel in different vertical planes, as shown in Fig. 6, whereby the guard, hereinafter described, for one pawl does not interfere with the action of the other pawl. An arm T is pivoted on the shaft M. Its lower extension has a pin t' , which projects through a curved slot in the dial m , thereby affording a means for moving said arm. On the upper end of the arm T is a flange t , which lies over and extends partly around the ratchet-wheel m' and forms a guard upon which during a part of their movements the pawls r r' ride, being thereby lifted and held away from the ratchet-wheel. This flange is cut away, so as to permit the pawls to engage with the ratchet-wheel during a part of their movements. The position of this flange relatively to the paths in which the pawls move during each complete movement determines the part of that movement during which the pawls shall be in engagement with the ratchet. Therefore by varying the position of this flange I vary the amount of movement of the pointer during each complete movement of the other parts. The dial m , adjacent to the curved slot through which the pin t' projects, is graduated, as shown, and by moving the pin t' to any desired point the guard t assumes a position which causes the pawls to move the pointer around on the dial a distance indicated by a mark adjacent to the pin t' . The pointer is adjustably secured to the shaft by a thumb-nut m^2 . Therefore if the pointer be moved to indicate the time when the medicine is first to be taken it will, when the mechanism is adjusted as above described, always point to the time when the medicine should be next taken.

Having thus described my invention, I claim—

1. In an automatic medicine-indicator, a base adapted to receive two medicine-receptacles, and standards secured to said base intermediate of said receptacles, combined with a pointer movable back and forth between two positions—viz., one in which it inclines toward one receptacle and one in which it inclines toward the other receptacle—a rock-shaft to which said pointer is secured, journaled in said standards, and means for oscillating said shaft, substantially as and for the purpose specified.

2. The combination of a base adapted to receive two medicine-receptacles, standards secured to said base intermediate of said receptacles, a rock-shaft journaled in said standards, a pointer secured to said rock-shaft and

adapted to incline toward one or the other of said receptacles, and an operating-arm on said rock-shaft, with a frame lying on both sides of the rock-shaft, which forms on both sides thereof spaces adapted to support spoons, and an arm on the rock-shaft adapted to be engaged by the spoon adjacent to the indicated receptacle when said spoon is withdrawn, substantially as and for the purpose specified.

3. The combination of a base adapted to support two medicine-receptacles, a movable indicator device supported from said base and adapted to indicate by its position which of the two receptacles medicine should next be taken from, two movable covers for said receptacles, and mechanism for closing, holding closed, and automatically opening said covers, with two spoon-receptacles arranged, substantially as described, with reference to said indicator device, and cover-controlling mechanism whereby the withdrawal of the spoon adjacent to the indicated receptacle shifts the indicator device and releases the cover of the indicated receptacle, substantially as and for the purpose specified.

4. The combination of a rock-shaft suitably arranged with reference to two medicine-receptacles, an operating-arm secured thereto, and a pointer, with a frame on both sides of said rock-shaft, whereby two spaces adjacent to said receptacles are formed for the reception of two spoons, and a guard which engages with and prevents the removal of one spoon when the pointer points in the direction of the other spoon, substantially as and for the purpose specified.

5. The combination of a rock-shaft having secured thereto an operating-arm, and a pointer adapted to point to one or the other of two receptacles, and a frame suitably arranged with reference to the operating-arm, combined with two pivoted covers, levers for operating said covers, arranged in position to be actuated by spoons introduced between said frame and operating-arm, and means for independently locking and releasing said levers, substantially as and for the purpose specified.

6. The combination of a pivoted cover suitably arranged in relation to a medicine-receptacle, and a lever adapted to operate said cover, with a frame into which a spoon may be inserted, and a lock for said lever, said lever and lock being arranged in the path of travel of said spoon, whereby the lever is operated to close the cover and is locked by the spoon in moving to its intended resting-place, substantially as and for the purpose specified.

7. The combination of a base adapted to support two medicine-receptacles, and suitable supporting-standards secured to said base, a movable device adapted to indicate the receptacle medicine should next be taken from, combined with a relatively-movable time-dial and pointer, and mechanism connecting said indicator device and movable

member of the time-indicating device, whereby both are moved simultaneously, substantially as and for the purpose specified.

8. The combination of a rock-shaft, an indicator device, a rocking lever R, two pawls pivoted thereto, and a ratchet-wheel, with an adjustable guard t, whereby the ratchet-wheel may be moved a variable distance by any equal movement of said indicating device and lever, substantially as and for the purpose specified.

9. The combination of a base adapted to contain two medicine-receptacles, suitable supporting-standards secured to said base, with a movable device adapted to indicate the receptacle from which medicine should be taken, movable covers to said receptacles, a time-indicating device, and suitable mechanism, substantially as described, whereby the movement of the indicator device is accompanied by a movement of the time-indicating device and of one and only one of said covers, substantially as and for the purpose specified.

10. A base adapted to support two medi-

cine-receptacles and having two drip-cups, with means secured to the base for supporting two spoons above said drip-cups, a movable device adapted to indicate the receptacle from which medicine should next be taken, said device being arranged substantially as described, whereby the withdrawal of one spoon moves the indicator device, for the purpose specified.

11. The combination of a base adapted to support two medicine-receptacles, and means for supporting two spoons adjacent thereto, with a movable device adapted to indicate which of said receptacles and its associated spoon should next be used, and a guard adapted to engage with the other spoon and to prevent its withdrawal, said indicator device being arranged substantially as described, whereby the withdrawal of the indicated spoon moves the indicator device.

EDWARD P. ROBERTS.

Witnesses:

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E. L. THURSTON.