J. A. RUTH.

AUTOMATICALLY LOCKED METERING DOOR AND GATE DEVICE.

APPLICATION FILED APR. 26, 1919.

1,390,725. **Patented Sept. 13, 1921.**

3 SHEETS—SHEET 1.

Fig. 1.

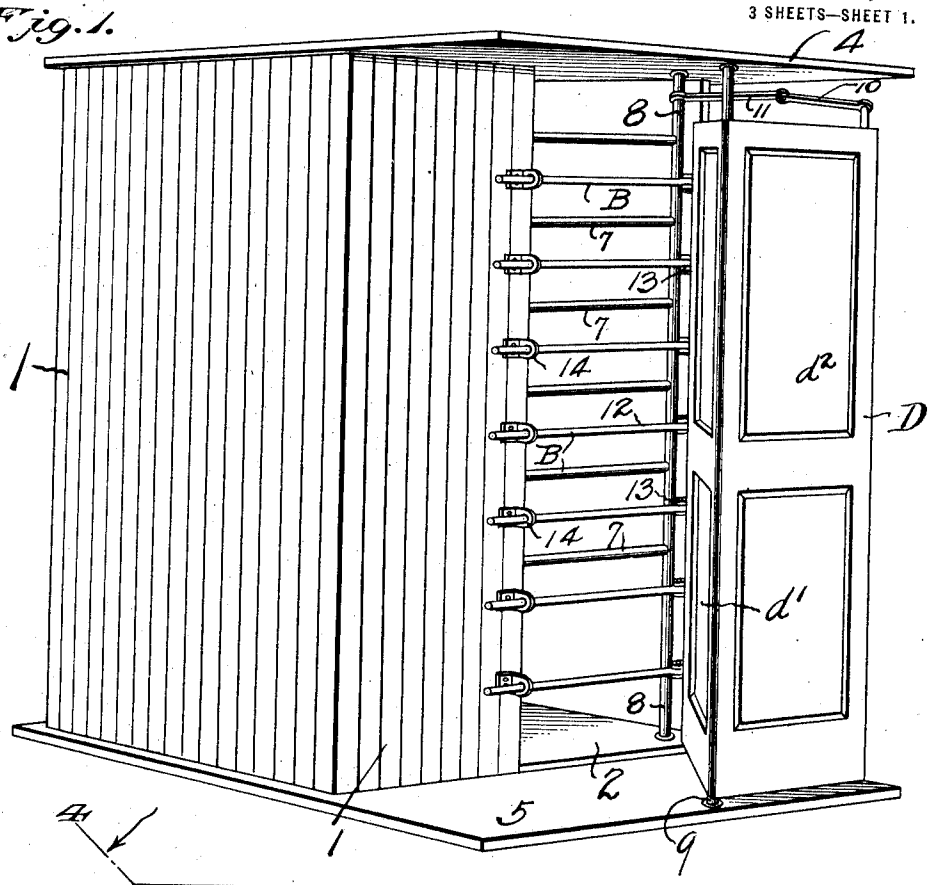
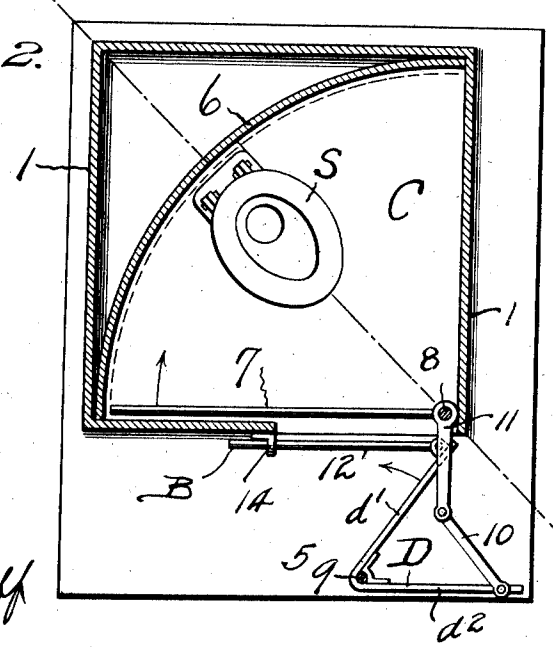


Fig. 2.



Witness

E. L. Groff

Inventor

J. A. RUTH

By A. M. Wickham

Attorney

J. A. RUTH.

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3 SHEETS—SHEET 2.

Fig. 3.

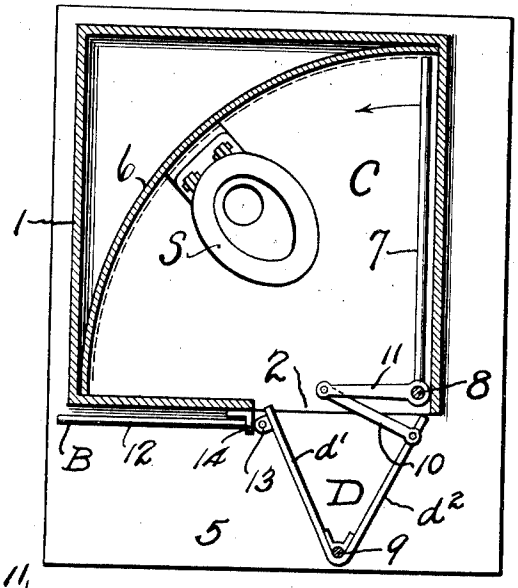
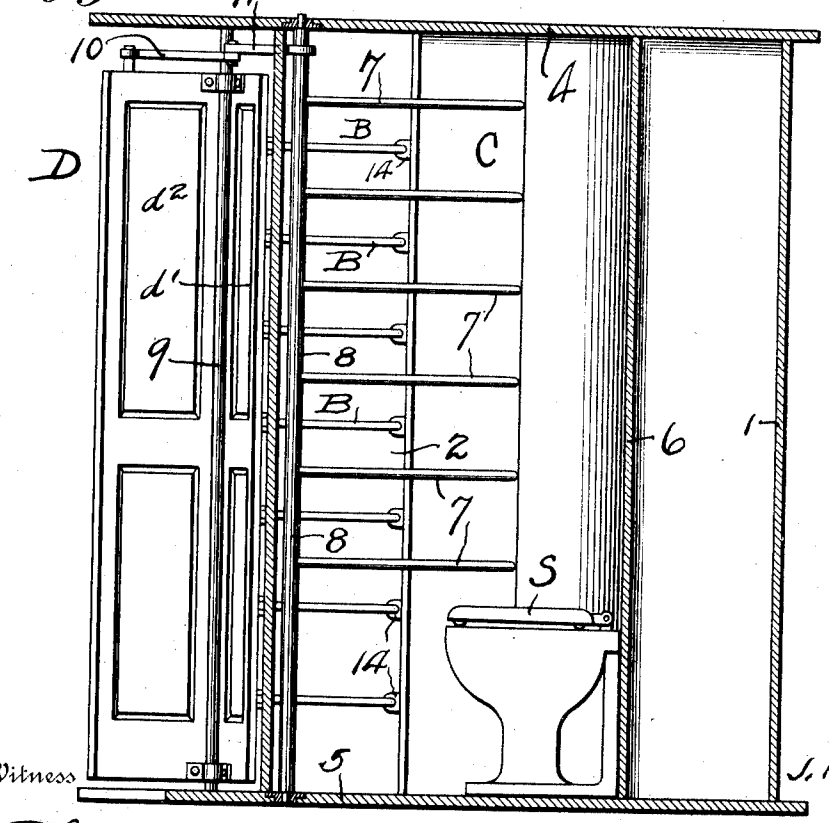


Fig. 4.



Witness

Inventor

J. A. RUTH

By

Attorney

J. A. RUTH.

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3 SHEETS—SHEET 3.

Fig. 5.

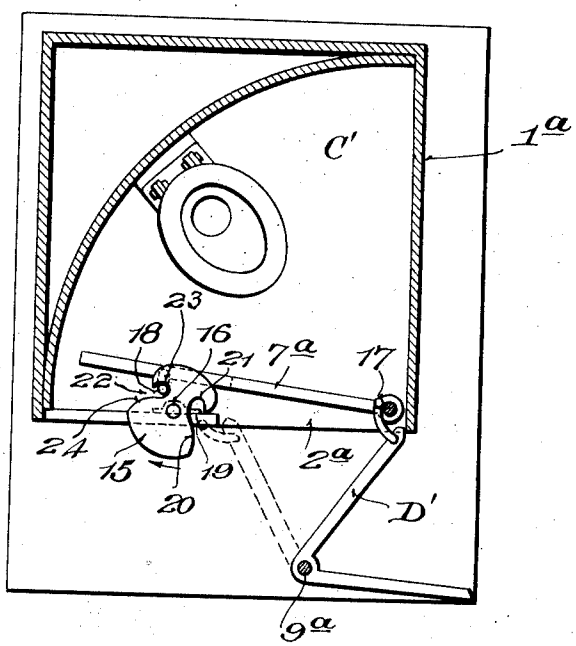


Fig. 6.

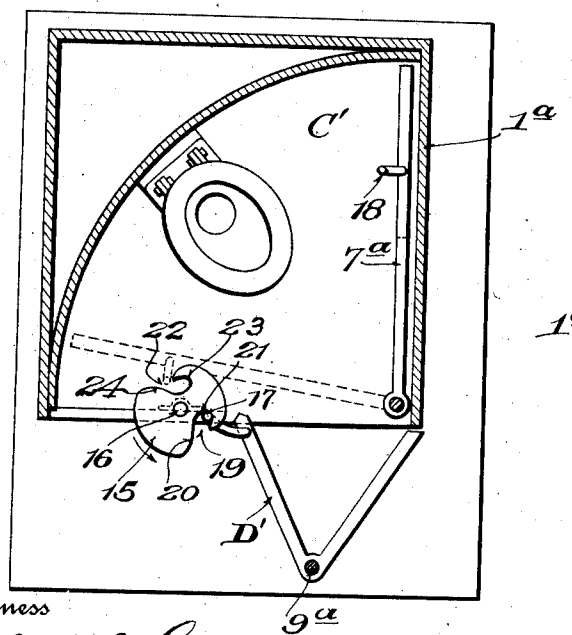
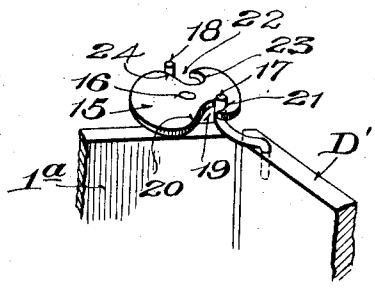


Fig. 7.



Witness

Chas. L. Grisbauer

Inventor

J. A. Ruth,

By

Attorney

UNITED STATES PATENT OFFICE.

JAMES ARTHUR RUTH, OF MARION, NORTH CAROLINA.

AUTOMATICALLY-LOCKED METERING DOOR AND GATE DEVICE.

1,390,725. Specification of Letters Patent. Patented Sept. 13, 1921.

Application filed April 26, 1919. Serial No. 293,036.

To all whom it may concern:

Be it known that I, JAMES A. RUTH, a citizen of the United States, residing at Marion, in the county of McDowell and State of North Carolina, have invented certain new and useful Improvements in Automatically-Locked Metering Door and Gate Devices, of which the following is a specification.

This invention relates to an improvement in gates or doors, and more particularly to a device for preventing the entrance of more than one person at a time into a relatively small inclosure or compartment.

Accordingly, a primary object of the invention is to provide a novel arrangement whereby an unaccompanied individual may freely enter and depart from the inclosure, but while he remains therein it will be impossible for the entrance door to be opened from the outside to permit the entrance of a second person, while on the other hand when he leaves the said door will be thrown to such a position that it will readily indicate that the compartment is unoccupied. That is to say, it is proposed to provide a gate or door which is automatically locked and unlocked by the occupant of the inclosure, room, or the like, without said occupant performing any special act of locking or unlocking, his presence in the inclosure or his entrance or exit therefrom being sufficient to produce the desired results.

A further and more specific object of the invention is to provide a simple, practical, and reliable construction for carrying out the foregoing object, and which may be readily installed and maintained at a minimum expense.

With the above and other objects in view, which will more readily appear as the nature of the invention is more understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a perspective view of an inclosure having the present device fitted thereto.

Fig. 2 is a horizontal sectional view thereof showing the exterior door open to receive an individual, as also shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the exterior door in register with the passage-way of the inclosure, and the interior gate which sweeps the interior of the inclosure, pushed back out-of-the-way to permit the occupancy of the compartment.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2 looking in the direction of the arrow.

Fig. 5 is a diagram of a modified arrangement.

Fig. 6 is a view similar to Fig. 5 showing a different position of parts.

Fig. 7 is a detail perspective view of a locking device employed in one form of the invention.

Similar reference numerals designate corresponding parts throughout the several figures of the drawings.

As previously pointed out the present invention is particularly intended for use in connection with relatively small inclosures or compartments, for accommodating only one person at a time, and to this end it is proposed to apply the invention to a structure of the character set forth in the drawings, although it will of course be understood that its application is not wholly restricted to this particular use. However, the invention is especially adapted to the character of the inclosures illustrated which are designed for the concealment of a seat or stool designated generally as S and to this end it is proposed to employ a suitable casing or inclosure 1 having an entrance passage-way 2, and if located in the open provided with a roof 4 and floor 5. This inclosure is purposely provided with an interior curved wall 6 as shown in Figs. 2 and 3 of the drawings to thus provide a quadrant shaped compartment C which is accessible only by way of the passage-way 2.

As shown, the said compartment or chamber C has therein the stool S previously referred to and is swept by a reciprocating interior baffle element preferably in the form of a barred gate 7 which includes a plurality of horizontal arms substantially equal to the radius of the quadrant and arranged to sweep the entire interior of the chamber above the stool position, as will be clear from Fig. 4. The said horizontal arms of the gate 7 are carried by a vertical pivot post 8 which may be conveniently mounted within the compartment C, adjacent one edge of the entrance passageway 2, and is

preferably connected in any suitable manner with an exterior baffle or door in such a manner that manual actuation of the latter will cause the gate 7 to swing on its pivot, while on the other hand, the said interior gate under certain conditions constitutes means for preventing the actuation of the exterior door, as will presently appear.

The said exterior door is designated generally as D, and as shown is of substantially V-shaped cross section, the space within the angle of the V being sufficient to accommodate only one person and the mouth of the same being adapted to register with the passage-way 2, while the apex has fitted thereto a suitable vertical pivot 9 which is located in a plane bisecting the passage-way 2 at right angles, and a sufficient distance offset therefrom to provide the necessary clearance when the door is turned on its said pivot 9. Thus it will be apparent that the door D is of such a construction as to measure or regulate the capacity of the compartment C, and when in the position shown in Figs. 1 and 2, is adapted to receive therein an individual, so that when he pushes on the leaf d' of the door in the direction shown by the arrow in Fig. 2 the door will be shifted into position shown in Fig. 3, that is, in registry with the passage-way 2 to permit access to the chamber C, while at the same time entirely closing the passage-way 2 since the other leaf d^2 of the door will register with the opposite edge of the passage-way as shown.

For the purpose of controlling the movement of the interior gate to properly cooperate with the exterior door, the latter is preferably connected by a suitable toggle element 10 with the crank arm 11 rigidly carried by the post 8, and since both the interior gate 7 and exterior door D are mounted to swing on vertical pivots, it will be clear that owing to the crank and toggle arrangement described the direction of rotary movement of the door D, will always be opposite to that of the interior gate 7. The door D is provided in addition to the V-shaped body thereof with a suitable horizontal sliding portion 12, which may be in the form of a plurality of guard bars pivotally carried as at 13 by the outer edge of the leaf d' of the door and guided in the perforated eyes 14 secured in a fixed position on the inclosure 1 along one edge of the passage-way 2. The purpose of providing this horizontal sliding portion of the door D is to prevent entrance to the compartment C when the same is unoccupied and the door D is open as shown by Figs. 1 and 2. If it were not for the provision of these bars or their equivalent which are drawn across the passage-way when the door is open, it would obviously be possible for a person to enter the compartment by pushing the gate 7 from its obstructing position across the passage-way, and thus defeat the purpose of the present device. Therefore, it will be apparent that this feature of the door D is of much practical importance since it renders the operation of the invention entirely foolproof and prevents prohibited manipuation and use of the inclosure which is intended to be regulated through the provision of the door D and gate 7.

By reference to the manner of operation of the present invention it will be apparent that when the door D is in the position shown in Figs. 1 and 2, the passage-way 2 is obstructed by the bars D of the horizontal sliding portion of the door, and furthermore the interior locking gate 7 which sweeps the interior of the quadrant shaped chamber is also in an obstructing relation to the passageway. When the door D is turned on its pivot 9 by a single person, which is all that it will conveniently accommodate, in the direction of the arrow on Fig. 2 of the drawing to bring the mouth thereof in registry with the passage-way 2, the bars B of the horizontal sliding portion of the door will be shifted through the guide eyes 14 along one side of the inclosure while the locking gate 7 will be shifted 90 degrees to the outer side of the compartment C to uncover the stool S. While the compartment C is occupied by the individual who has just entered his person will constitute an abutment or lock which will prevent the rotation of the interior locking gate 7 in the direction of the arrow shown in Fig. 3, and thus the door D which is automatically closed by the entrance of the individual into the compartment will be held shut through the medium of the toggle and crank arrangement 10 and 11 already described in detail. When the occupant of the compartment C desires to leave, he may readily do so through the passage-way 2. That is to say, he may cross the threshold of the latter and pass into V-shaped door D, and upon pushing on the leaf d^2 thereof he will rotate the door on its axis 9 to thus swing the interior locking gate 7 into obstructing relation to the passage-way, and simultaneously shift the guard bars B into position to prevent access to the compartment C, while the door D is in its open position.

Further means for carrying the present invention into effect is also shown in Figs. 5 and 6 of the drawings. In this construction it is proposed to utilize all of the essential structural features of the invention shown in Figs. 1 to 4 inclusive, namely the inclosure 1^a forming the compartment C', and having the passage-way 2^a which is normally obstructed by the gate 7^a except when the metering door D' is brought into registering relation with the passage-way 2^a.

In this embodiment of the invention the

operative connection between the metering door and entrace gate consists of an automatic locking and releasing device 15, preferably in the form of a plate pivotally supported as at 16 in a horizontal plane at the upper corner of the passage-way 2 opposite the point where the entrance gate 7^a is hinged. As shown in the drawings this plate 15 may be formed with suitable notches, whereby abutments 17 and 18 respectively carried by the door D′ and the gate 7^a may alternately cause the said locking plate to be shifted to lock the door in registry with the passage-way and release the gate, or vice versa. The abutment 17 carried by the door D′ is adapted to coöperate with the notch 19 in the said plate and shifts the same on its pivot by engaging the wall 20 of the said notch. As the said door abutment shifts the plate it rides into the enlarged keeper portion 21 thereof and so positions the plate that the gate abutment 18 may move without hindrance from the other notch 22 of the plate. That is to say, the gate abutment 18 which rests in the keeper portion 23 of the notch 22 and holds the gate locked when the door is free, is released when the door reaches the end of its inward movement, and like the abutment 17 the abutment 18 may also shift the plate 15 by engaging with the wall 24 of the said notch 22 and thus release the door abutment 17 from the keeper notch 21. That is, the shifting of the plate 15 by the abutment 18 striking the wall 24 permits the door abutment 17 to become free of the keeper portion 21 of the notch 19. Thus it will be apparent that the locking plate 15 is shifted in opposite directions alternately, or oscillated to first lock the gate and then the door and vice versa.

By reference to Fig. 5 the usual position of parts may be observed, that is when the inclosure 1^a is vacant. In this condition the V-shaped metering door D′ is in position to receive an individual, while the entrance gate 7^a is located in obstructing relation across the passage-way 2^a, by reason of the abutment 18 thereof being engaged in the keeper portion 23 of the notch 22. As the V-shaped metering door D′ is shifted on its pivot 9^a to the dotted line position shown in Fig. 5, the abutment 17 thereon will engage with the wall 20 of the notch 19 in the locking plate to thereby shift the same in the direction of the arrow and release the gate abutment 18 from the keeper portion 23 of the notch 22, whereby the entrance gate 7^a may be swung into the inclosure. As long as the entrance gate 7^a remains in its swung inward position it will be impossible for the V-shaped door to be moved out of registry with the entrance passage 2^a, because the door abutment 18 is placed in the keeper portion 21 of the notch 19. Thus, when the occupant of the inclosure desires to leave it is necessary for him to first completely close the gate 7^a which will shift the locking plate 15 to release the door abutment 17 on the door D′ from the keeper portion 21 of the notch 19. Thus, when the gate 7^a is closed it automatically releases the outer door D′ so that it can be swung out of registry with the passage-way.

From the foregoing it will be apparent that the gate 7^a and door D′ are absolutely dependent upon each other for their operation. That is to say, when the metering door D′ is in a position to receive the person of an individual, the gate 7^a is located in obstructing position across the passage-way 2^a and cannot be released until the open side of the door D′ registers with said passage-way. Thus, the shifting of the door D′ is necessary to release the gate 7^a for swinging on its hinges, and on the other hand the gate 7^a must be in its obstructing relation across the passage-way before the door D′ can be operated.

Without further description it is thought that the features and advantages of the invention will be readily apparent, and it will also be understood that minor changes in form, proportion and details of construction may be resorted to without departing from the spirit or scope of the appended claims.

I claim:

1. In an apparatus of the class described the combination with a booth or compartment adapted to be occupied by one person and having a passage-way, of a gate hinged at one side of the passage-way and extending across the interior of the booth, a door pivotally supported in front of the passage-way adapted to be engaged by an entering individual, connections between the door and gate to shift the gate to open position upon the closing of the door, the occupant preventing the return of the gate.

2. In an apparatus of the class described, the combination with a booth or compartment adapted to be occupied by one person and having a passage-way, of a gate hinged at one side of said passage-way and extending across the interior of the booth, a door pivotally supported in front of the passage-way adapted to be engaged by an entering individual, said door being normally out of registry with the passage-way, and connections between the door and gate to shift the gate to open position upon the closing of the door, the occupant preventing the return of the gate.

3. In a device of the class described, the combination with a booth or compartment having a passage-way of a gate extending across the interior of the booth, a door arranged at the entrance side of the passage-

way and adapted to be shifted by an individual entering or leaving the booth, and connections between the door and gate to shift the gate to open position upon the closing of the door, the occupant preventing the return of the gate while in the booth, and causing the operation of the said connections upon his exit to return the gate.

4. In an apparatus of the class described the combination with a booth or compartment adapted to be occupied by one person and having a single passage-way, of a door mounted to swing adjacent the passage-way and adapted to receive the person of a single individual whereby his movements may shift the same, a relatively horizontally sliding barricade element connected with the door and adapted to be shifted across said passage-way thereby, and an interior gate pivotally supported adjacent the passage-way and arranged to sweep the compartment the said gate being operatively connected with the door.

5. In an apparatus of the class described the combination with a booth or compartment adapted to be occupied by one person and having a single passage-way, of a door consisting of a portion for receiving the person of an individual and relatively horizontally sliding portion adapted to be alternately brought into obstructing relation to said passage-way, and an interior locking gate operatively connected with said door and also arranged that the person of a body of the individual within the booth will hold the gate locked when in a position at substantially right angles to the passage-way.

6. A manually controlled gate device for inclosures having a passage-way and adapted to be occupied by a single person including a V-shaped door pivotally mounted at its apex in such a manner that the open end thereof may be shifted into and out of registry with said passage-way, a horizontal sliding portion pivotally connected with one leaf of said door and adapted to be shifted across said passage-way when said door is opened, and an interior gate pivotally supported within the compartment and operatively connected with said V-shaped door.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JAMES ARTHUR RUTH.

Witnesses:
W. M. Goodson,
B. F. Ruth.