

(No Model.)

2 Sheets—Sheet 1.

C. S. GERLACH.
INDICATOR FOR DOORS.

No. 472,787.

Patented Apr. 12, 1892.

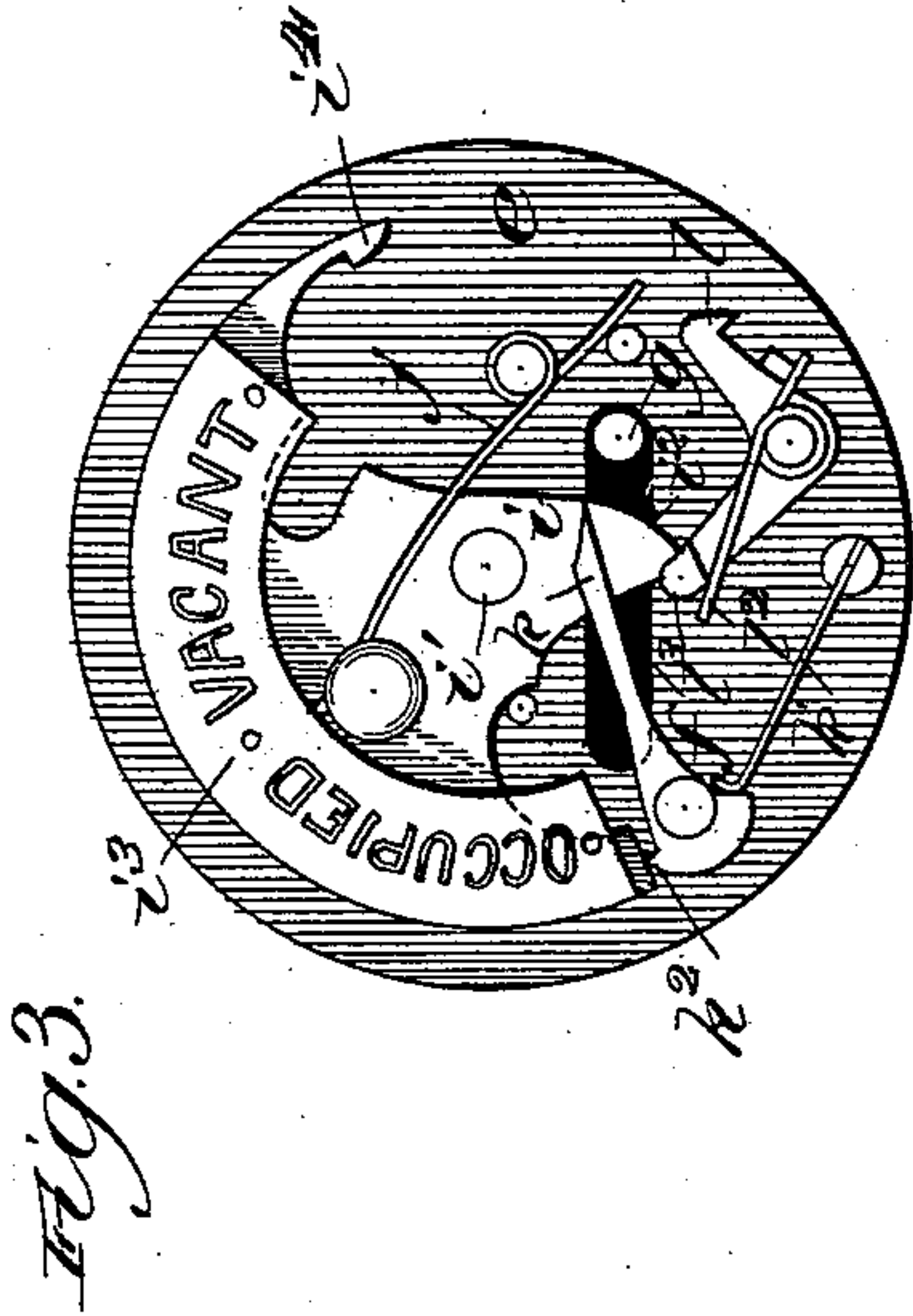
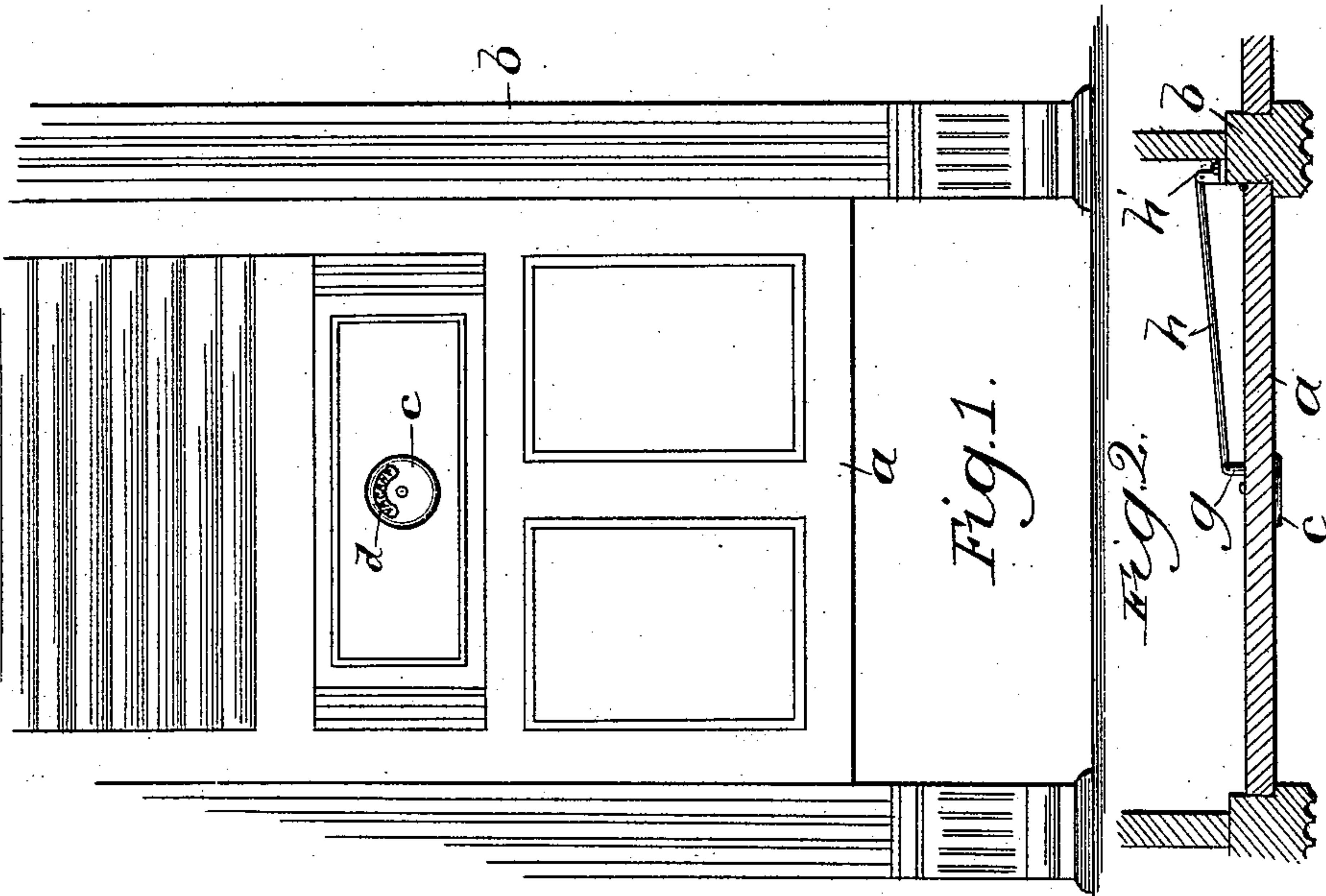
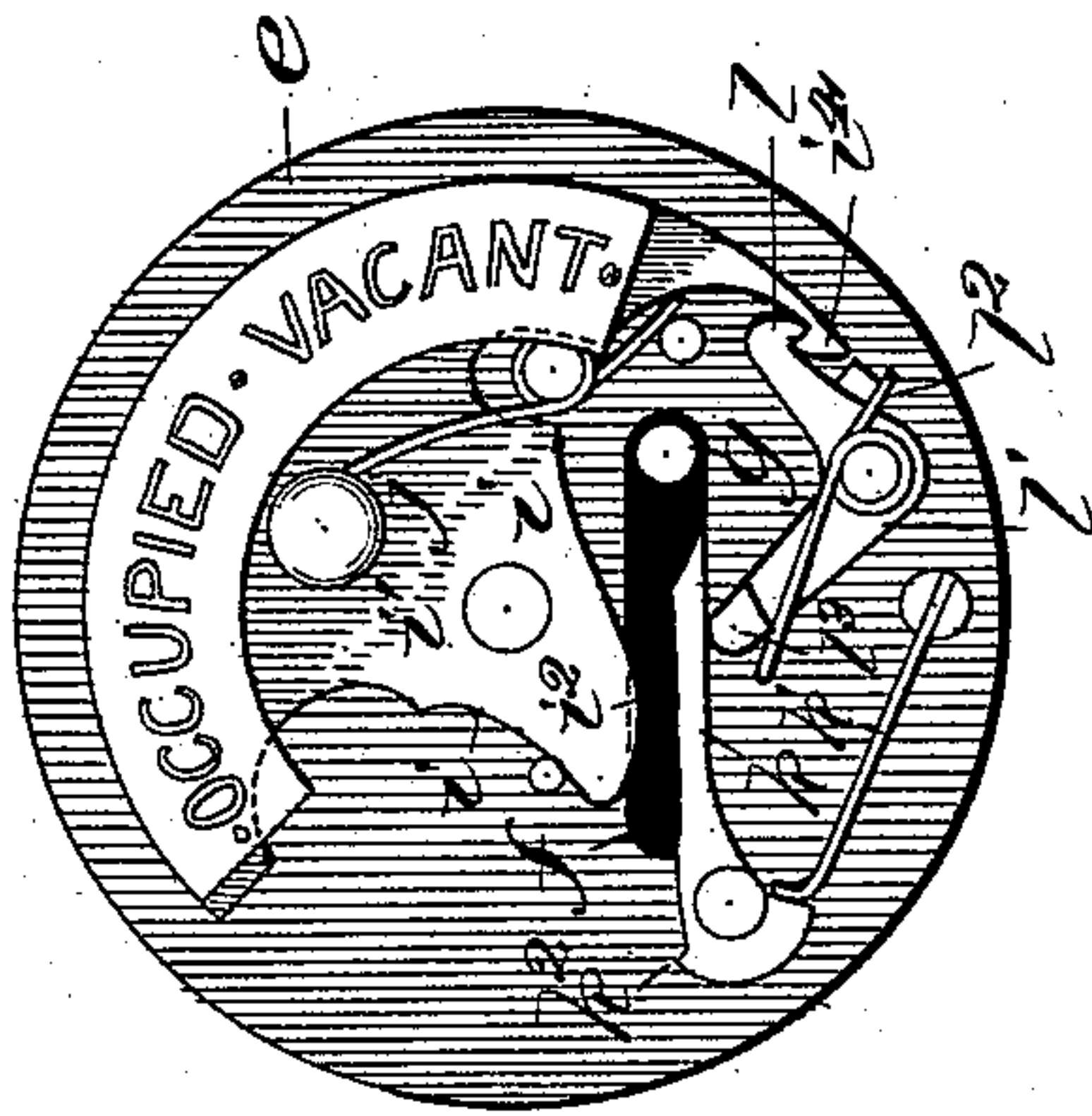


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHRISTIAN S. GERLACH, OF ELGIN, ILLINOIS.

INDICATOR FOR DOORS.

SPECIFICATION forming part of Letters Patent No. 472,787, dated April 12, 1892.

Application filed June 29, 1891. Serial No. 397,875. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN S. GERLACH, of Elgin, in the county of Kane and State of Illinois, have invented certain new and useful

5 Improvements in Indicators for Water-Closet and other Doors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a front elevation of a door, showing my improved device applied thereto. Fig. 2 is a sectional plan view thereof. Fig. 3 is a face view of the rear plate of the case of my improved device, showing the operating mechanism attached thereto, the front plate being removed. Fig. 4 is a like view showing said parts in a reverse position. Fig. 5 is a like view showing a modified construction, the parts being represented in normal positions, respectively. Fig. 6 is a like view showing said parts as they would appear when the door to which said device is attached is first opened. Fig. 7 is a like view showing said parts in the respective positions which they would assume after the first double movement of opening and closing the door. Fig. 8 is a face view of the sliding frame employed in said modified construction, the outer slotted plate being indicated in dotted lines. Fig. 9 is a transverse sectional view in detail, taken upon the line *z*, Fig. 6, viewed in the direction of the arrow there shown; and Fig. 10 is a rear perspective view in detail of said sliding plate as it appears when detached.

35 Like letters of reference in the different figures indicate corresponding parts.

The object of my invention is to provide an indicating device to be applied more especially to the doors of water-closets or restaurant-stalls to indicate whether or not the room to the door of which it is applied is occupied or vacant.

To this end my invention consists in an automatic device, which may be attached to the door of a closet or other room and so connected by means of a hinged rod with the door-frame or other stationary point, that upon opening and closing the door said device may be so operated as to cause a sign to be displayed through an opening in the door indicating that the room is "Occupied," while

upon opening and closing said door a second time the word "Vacant" may be substituted for the former, said signs being alternately displayed for each alternate double movement made by opening and closing the door, all of which is hereinafter more particularly described and claimed.

Referring to the drawings, *a*, Figs. 1 and 2, indicates a door hinged in the usual manner to a frame *b*. An opening is formed in the door, in which is secured a case *c*, in the front of which is a slot *d*, Figs. 1 and 8, through which the words desired to be used may be alternately displayed, as hereinafter specified. The rear plate *e*, to which the operative mechanism is attached, is flush with the rear face of the door and is provided with a horizontal slot *f*, in which is loosely inserted a wrist-pin *g*. Shoulders *g' g'*, Fig. 9, are formed upon said wrist-pin upon opposite sides of said plate, which serve to hold it loosely in place. Pivotaly attached to said wrist-pin (see Figs. 2 and 9) is a rod *h*, which is in turn hinged to a bracket *h'* upon the door-frame *b*. It will thus be seen that as the door *a* is opened and closed the rod *h* causes the wrist-pin *g* to reciprocate in the slot *f*. In Figs. 3 and 4 I have shown an oscillatory dog in operative proximity to said wrist-pin *g*, the movement of which serves to display in proper order the desired words, which are placed directly upon an extension or part of said dog and are displayed through a covered slot. In Figs. 5, 6, and 7 mechanism is employed which embodies the same principle and operates in substantially the same way; but instead of displaying said words directly upon an oscillatory dog I place them upon a reciprocating frame which is actuated by the movement of said dog. Although said dog differs in form, it is, in fact, the same in both cases, and I will therefore designate it by the same character throughout. The same rule is manifestly applicable to other equivalent parts.

I will first describe the construction shown in Figs. 3 and 4. In said figures, *i* represents a dog, which is pivoted at *i'* to the plate *e*. The lower portion *i²* of said dog is intended to be of sufficient length to project below the slot *f*, and to be in contact with the pin *g* as

it is moved back and forth in the slot, the movement of the pin causing the dog to oscillate upon its pivot. The upper portion i^3 of said dog is enlarged sufficiently to permit the words "Occupied" and "Vacant" to be displayed thereon. The part i is held in a normal position by means of a spring j . A latch k is loosely pivoted to said plate, and is held in a normal position, as shown in Fig. 3, by means of a spring k' , said latch being intended to release the part upon which the sign is displayed with each alternate double movement of the door, as hereinafter set forth. Upon the part i^3 is formed a hook or detent i^4 , which is adapted to be engaged by a corresponding detent l upon a dog l' , which is pivotally attached to said plate e and held in a normal position by means of a spring l^2 . When the part i^3 is in its normal position, it abuts against a shoulder k^2 , and thus raises the latch k against the action of the spring k' to the position shown in Fig. 3.

The operation of said device is as follows: Assuming the parts to be in the position, respectively, as shown in Fig. 3, and the door a to be closed, the opening of the door causes the pin g to move from its normal position to the opposite end of the slot f , thereby engaging with the part i^2 of the dog i and tilting said dog until the detents i^4 and l are engaged, as shown in Fig. 4, said pin sliding beneath the latch k . This movement of the dog i permits the spring k' to act upon the dog k , which throws the latter down against an arm l^3 of the dog l' . The closing of the door causes the pin g to assume its normal position in the slot f , as shown in Fig. 4, while the word "Occupied" remains displayed in front of the opening. Upon again opening the door the pin g is caused to slide back above and in engagement with the latch k , thereby pressing said latch down upon the arm l^3 of the dog l' , which serves to disengage the hook l from the hook or detent i^4 , when the spring j tends to tilt the dog i back to its normal position, which occurs upon closing the door. The latch k being again raised, the pin g is free to slide back and forth beneath said latch without interfering with the action of the dog l' . Thus it is apparent that the first double movement of opening and closing the door serves to display the word "Occupied," while the second like double movement serves to substitute the word "Vacant" therefor.

In Figs. 5, 6, and 7 I have shown a construction in which the words to be displayed, instead of being placed directly upon the part of the oscillating dog i , are placed, as stated, upon a sliding frame arranged to be reciprocated thereby.

The mechanism shown in Figs. 3 and 4 is adapted to a door which opens toward the right, while that shown in Figs. 5 to 7 is adapted to a door arranged to swing in a reverse direction. Guides $e'e'$ are formed upon the plate e , between which is loosely placed a

plate m , which is rigidly connected with and forms a part of a sliding frame m' , which projects from and is arranged parallel with the plate e , the operating mechanism being interposed between the part m' and the plate e . An arm or stud m^2 upon said frame bears loosely against the plate e and serves to hold said frame parallel therewith. A slot m^3 is formed in the plate m , through which is projected a stud e^2 , adapted to limit the movement of said frame. Upon a plate m^4 , forming a part of or attached to the plate m' , is displayed the words "Vacant" and "Occupied," respectively, in parallel lines one above the other. The dog l' is provided with a detent l in operative proximity to a corresponding detent n upon the plate m . The spring j bears upon a stud j' upon the plate m , thereby tending normally to slide said plate down. The upper portion of the dog i is also adapted to engage with said stud and slide the frame up. An elbow o is pivoted to the plate e at o' , the long arm of said lever being in operative proximity to a pin p , attached rigidly to the plate m . Said pin and lever are so adjusted that when the sliding frame is down to its full limit the long arm of the lever o is depressed by said pin, while the short arm, engaging with the shoulder k^2 of the latch k , serves to elevate the end of said latch, as shown in Fig. 5, so that the pin g , when reciprocated, is free to pass forward and back thereunder. In operating said modified device, as the door is opened to the left the stud g passes to the right, lifts the dog i , and with it said sliding frame, thereby displaying the word "Occupied" in front of the slot d . The door is then closed, which leaves the respective parts in the positions shown in Fig. 7. As the latch k is then down, a second opening of the door causes the pin g to slide over and depress said latch, which in turn engages with a pin l^3 upon the dog l' , thereby disengaging the tooth l from the catch n , and upon the closing of the door the sliding frame falls to its normal position, as in Fig. 5, the pin k serving, through the lever o , to again raise the latch k , so that the pin g may pass under it with the next opening and closing action of the door. Thus it will be seen that when the sliding frame is down the device will indicate that the room with which it is connected is vacant and when said frame is up that said room is occupied.

My improved indicator may be cheaply constructed, while the advantages of its use in various ways are obvious.

Having thus described my invention, I claim—

1. A registering device for water-closet and other doors, consisting of a sliding pin, a movable dog or plate in operative proximity thereto, a catch for holding said dog or plate in an abnormal position while said pin is being moved forward and back, a sign with suitable words thereon adjusted to be operated by said dog, a latch in operative proximity to said catch, means for depressing the free end

of said latch beneath the path of the operating pin, means for holding the free end of said latch normally above the path of said pin, and means for connecting said operating pin with the stationary point upon the door-frame, substantially as shown and described.

2. The combination, with a door, of a slotted plate through which is displayed a movable disk having different signs or words thereon, a movable pin arranged in a suitable guide and in operative connection with a stationary point upon the door-frame, a movable dog in operative connection with said disk and movable pin, respectively, a catch for holding said disk in an abnormal position, a latch in operative proximity to said catch and movable pin, and means for interposing said latch between said pin and catch with each alternate double movement of said pin, substantially as shown and described.

3. The combination, with a door, of a pin arranged to move in a suitable guide, means for connecting the same with a stationary point, a movable dog interposed in the path of said pin, a sliding frame in operative connection therewith, having different signs or characters thereon arranged to be seen through an opening in the door, means for causing said frame to assume a normal posi-

tion, a catch for holding the same in an abnormal position, a pivoted latch arranged in the path of said sliding pin, means for normally holding the free end of said latch above the path of said pin, and means for abnormally interposing it between said sliding pin and said catch, substantially as shown and described.

4. The combination, with a door, of the stationary plate *e*, slotted, as described, of the pin *g*, means for loosely connecting the same with a stationary point upon the door-frame, a vertically-movable plate having different signs thereon arranged to be alternately displayed before an opening in said door, dogs *i* and *l'* in operative proximity to said sliding frame, latch *h*, means for holding its free end normally above the pin *g*, and means for depressing said latch when said sliding frame is in an elevated position, substantially as shown and described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 19th day of June, 1891.

CHRISTIAN S. GERLACH.

Witnesses:

D. H. FLETCHER,
J. T. GRAVES.