

(No Model.)

2 Sheets—Sheet 1.

W. M. DYAS.  
HOT AIR REGISTER.

No. 504,469.

Patented Sept. 5, 1893.

Fig. 1.

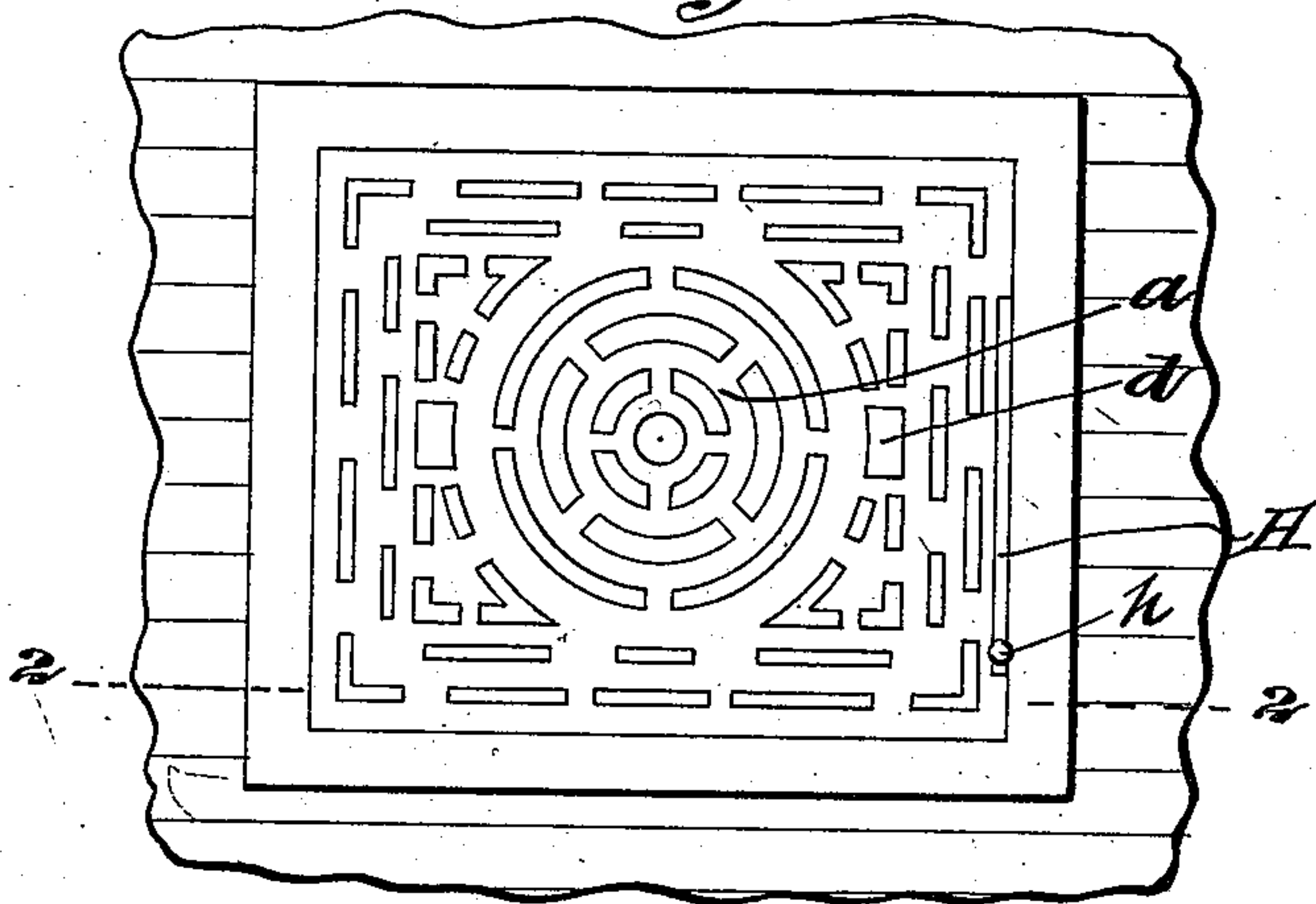


Fig. 2.

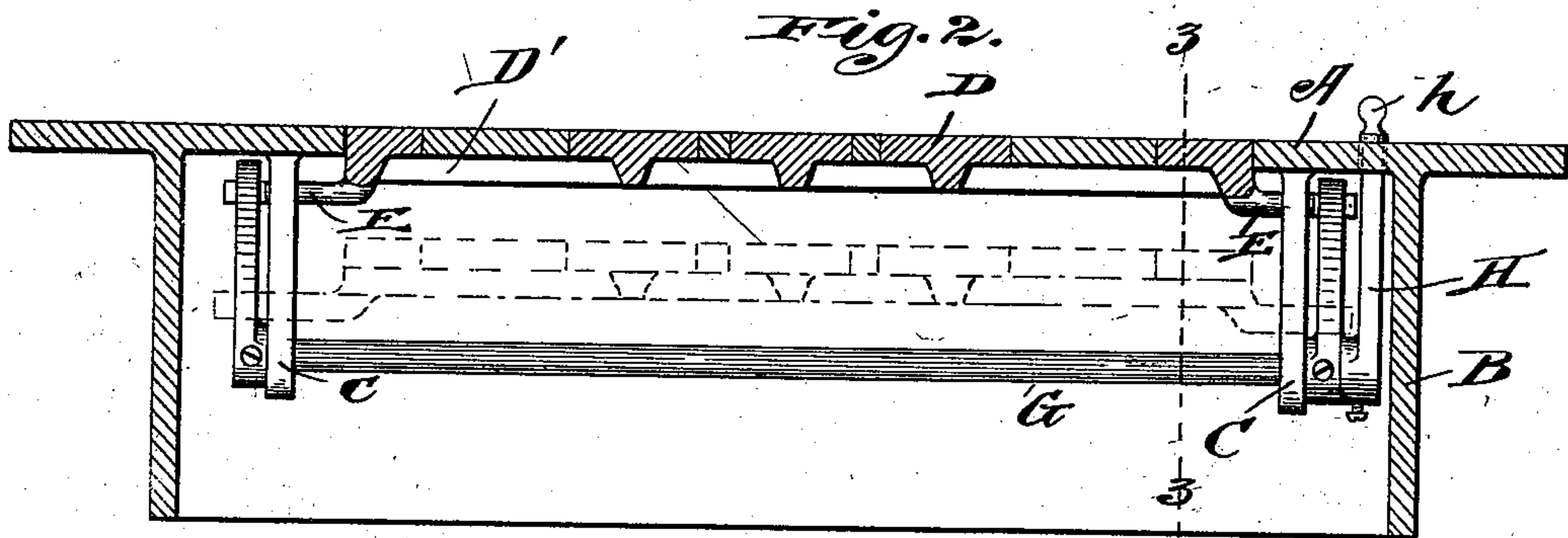
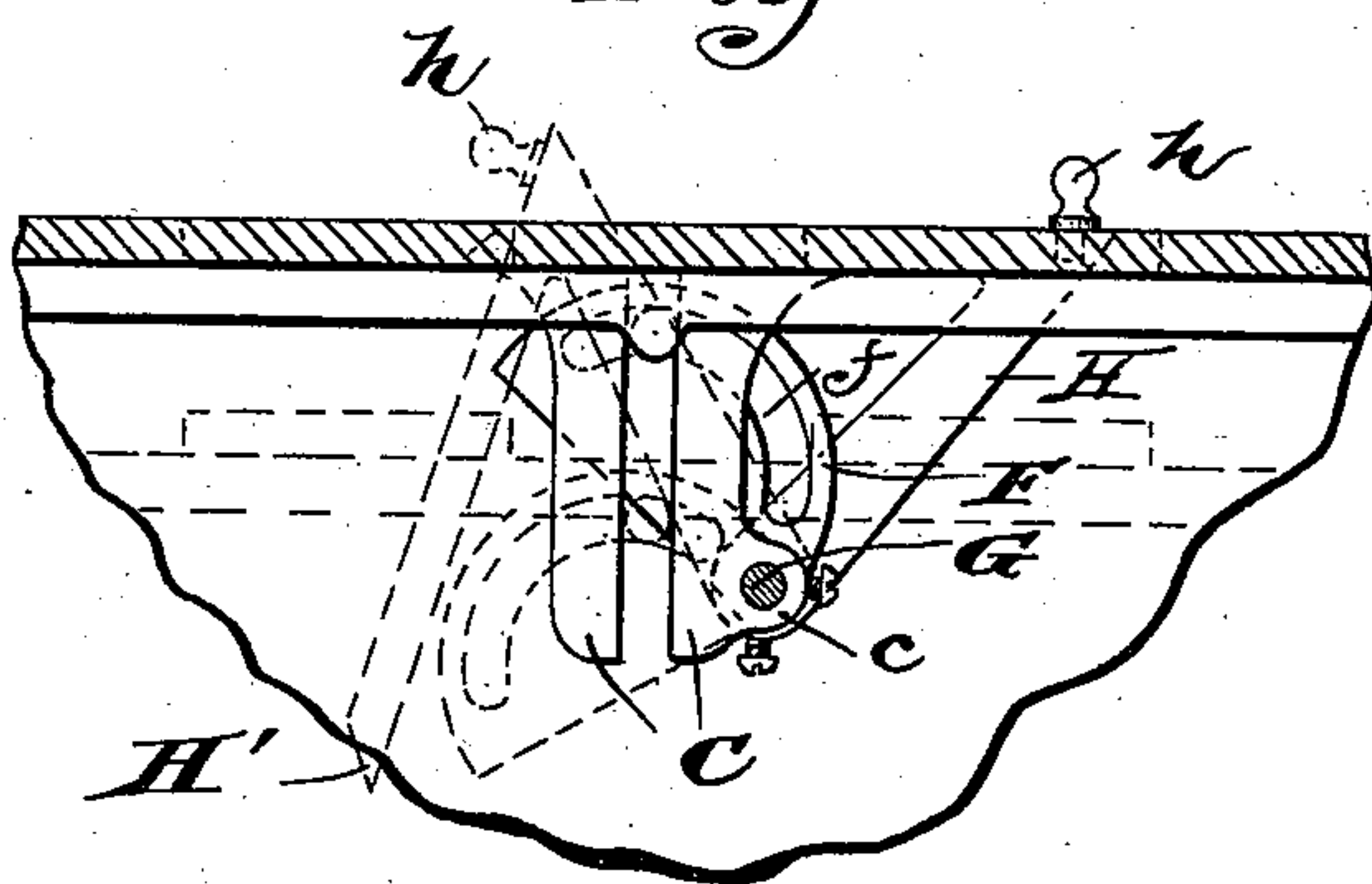


Fig. 3.



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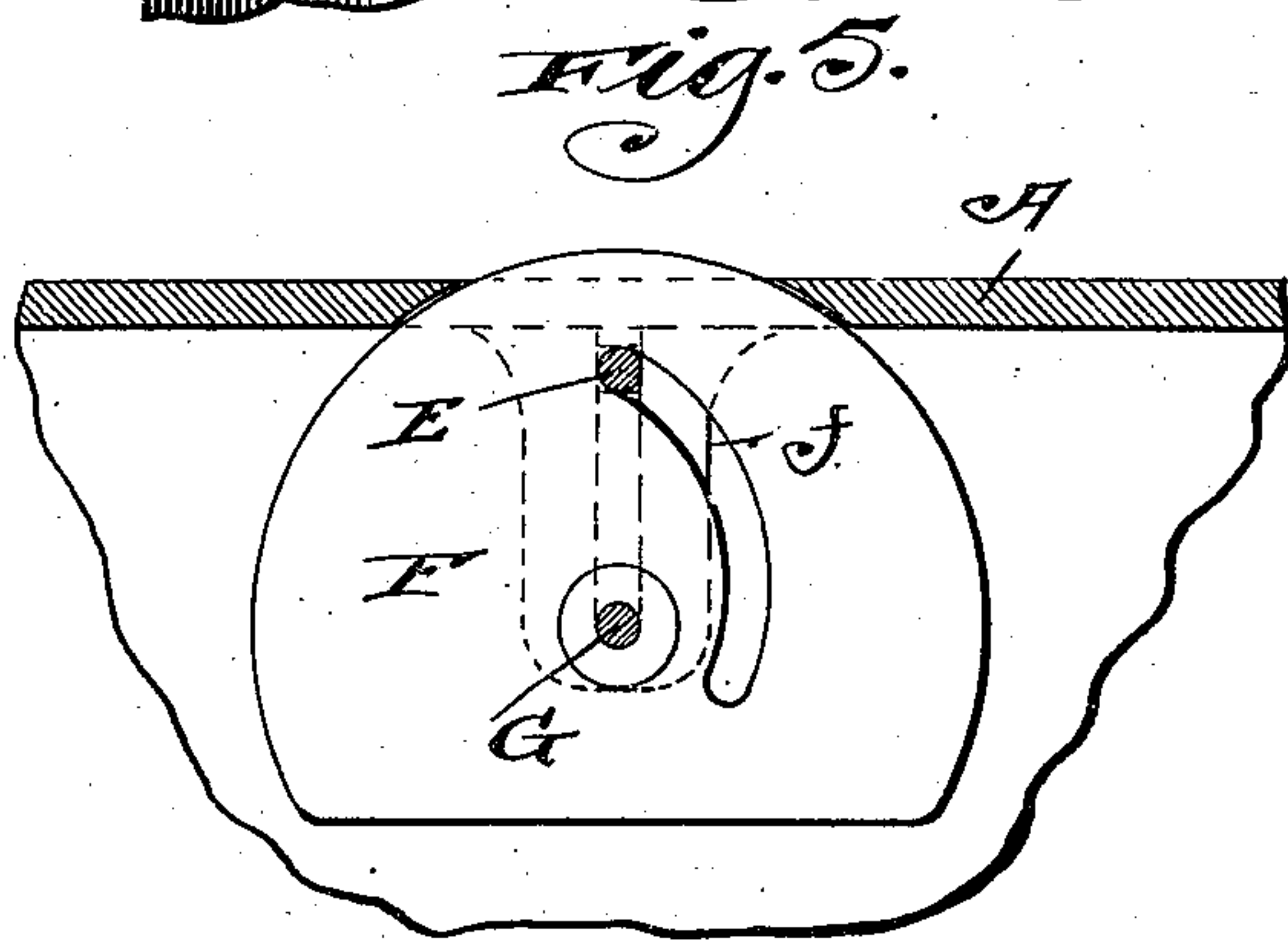
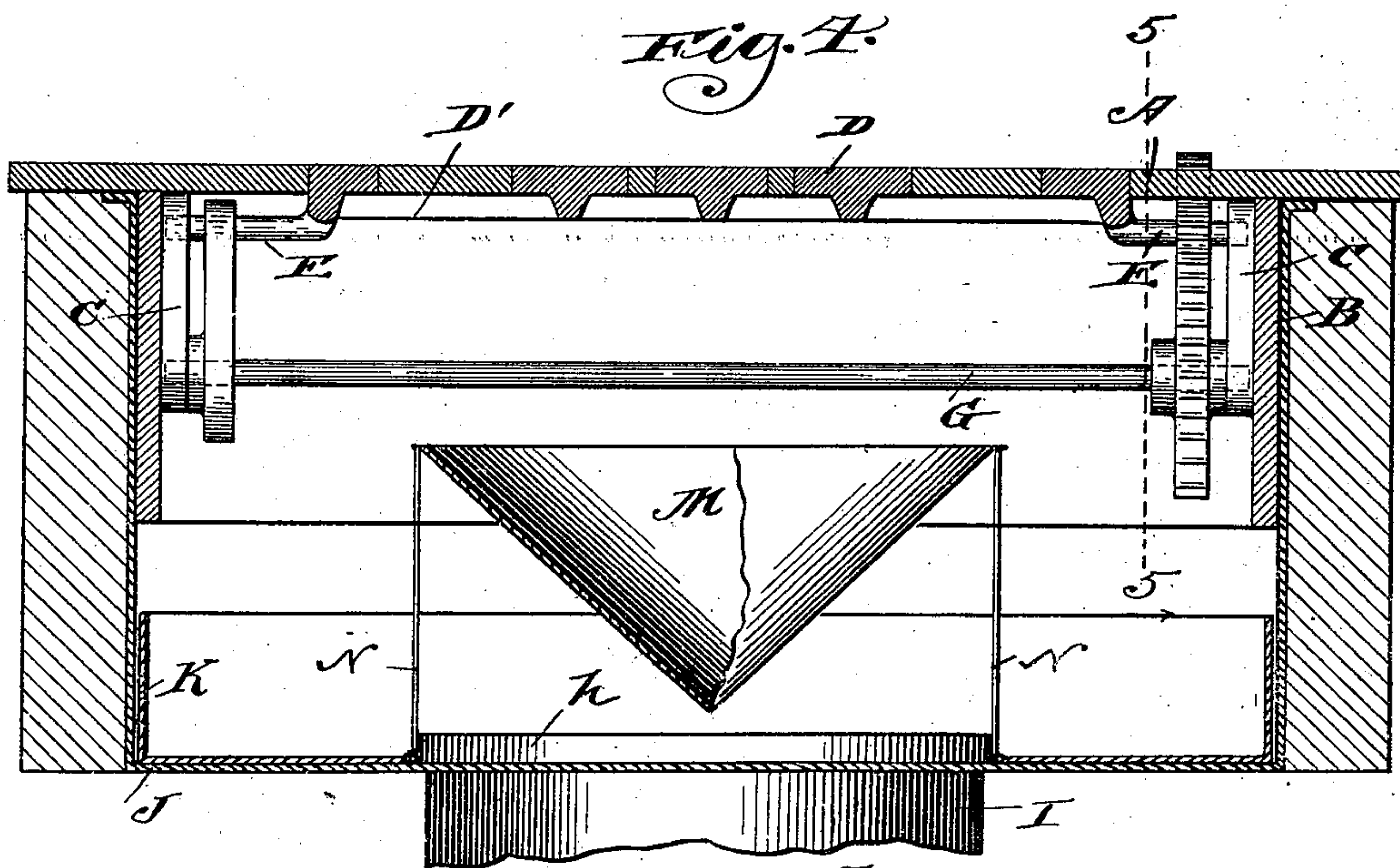
(No Model.)

2 Sheets—Sheet 2.

W. M. DYAS.  
HOT AIR REGISTER.

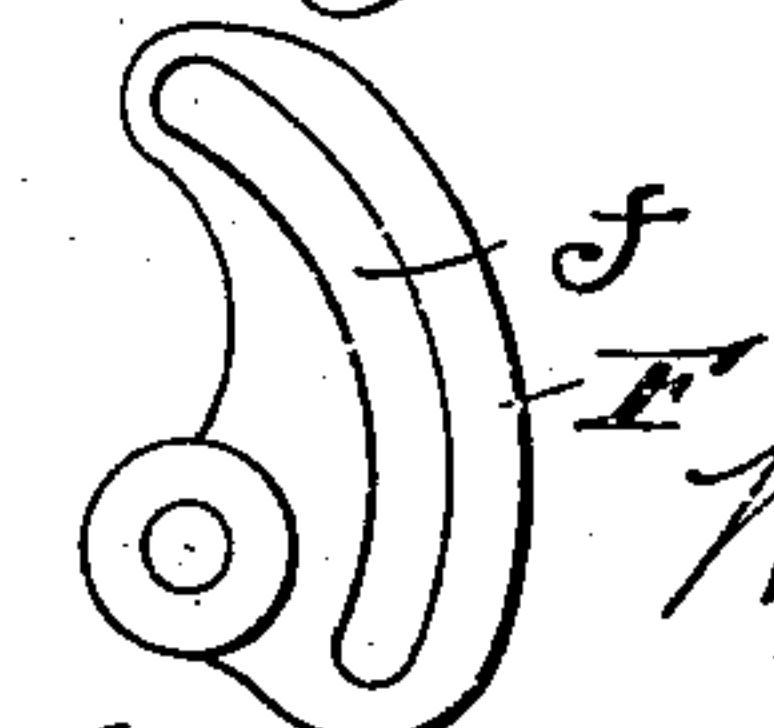
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*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

WEBSTER M. DYAS, OF ARLINGTON HEIGHTS, ILLINOIS.

## HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 504,469, dated September 5, 1893.

Application filed March 25, 1893. Serial No. 467,538. (No model.)

*To all whom it may concern:*

Be it known that I, WEBSTER M. DYAS, a citizen of the United States, residing at Arlington Heights, Cook county, Illinois, have  
5 invented certain new and useful Improvements in Hot-Air Registers, of which the following is a specification.

This invention relates to the construction of registers which are employed in connection with hot air heating systems and are usually arranged in the floors or walls of apartments to regulate the admission of hot air to the apartments, although the same devices are frequently used to control a ventila-  
15 ting duct.

The object of the invention is to construct a register in such manner that the movable portion thereof can be raised so that its upper surface shall be flush with the surface of the  
20 fixed portion thereby closing the apertures thereof and presenting a smooth surface which can be swept off or cleaned. Registers in most common use have a fixed perforated plate formed integrally with a skeleton  
25 frame and having a series of movable plates pivoted to the lower margins of the frame, the space between the lower surface of the fixed perforated plate and the hinge being such that the plates may be turned up edge-  
30 wise to permit the passage of air. In this construction there is no means for closing the apertures or perforations in the fixed plate and dust or other refuse which falls through the openings either passes between the hinged  
35 plates if in the open position, or is dumped therefrom when turned to such position.

My improved hot air register comprises a fixed top plate having suitable apertures or perforations for the passage of air and a mov-  
40 able plate having solid portions which register with the apertures and the apertures of which register with the solid portions of the top plate. This movable plate has connected therewith suitable means for moving and  
45 guiding it and the preferred means comprises a rock shaft having segmental plates or pieces secured and adapted to rock therewith, said segments having curved cam slots therein which receive pintles connected with the mov-  
50 able plate, said pintles traveling in guide-ways so that when the shaft is rocked the movable plate will be moved to or from the

fixed plate depending upon the direction in which the shaft is rocked, the guides causing the plate to move at right angles and the  
55 cam slots operating to carry it to or from said fixed plate.

In the accompanying drawings, Figure 1 is a plan view showing the register applied to a wall or floor and in the closed condition. Fig. 60 2 is an enlarged section on line 2—2 of Fig. 1, the dotted line showing a secondary position of the movable plate. Fig. 3 is a sectional detail on the line 3—3 of Fig. 2. Figs. 4, 5 and 6 show a slightly modified construc- 65 tion, Fig. 4 being a view similar to that shown in Fig. 2; Fig. 5 a detail on line 5—5 of Fig. 4, and Fig. 6 a detail view of one of the segment plates.

In the drawings, A represents a perforated 70 fixed top plate, the perforations being arranged to form any desired design. As shown in Figs. 1, 2 and 3, this top plate is cast integrally with the frame B, which is open at its bottom. Depending from the lower side 75 of this top plate are the slotted guides C, formed integrally therewith.

D represents the movable plate which has the solid portions *d* adapted to register with the perforations of the top plate and perfora- 80 tions adapted to register with the solid portions *a* of said top plate. The movable part is provided at opposite sides with the outwardly extending lugs or pintles E which project through the slots of the guides C and 85 traverse cam slots *f* in the segment plates F secured to a rock shaft G which is journaled in bearings or lugs *c* formed on the slotted guides C. An operating lever H is secured to one end of the rock shaft, the upper end of 90 said lever terminating in a knob *h* and the lever H has integrally formed therewith an arm or member H' which in the closed position of the register fills the slot in the top plate through which the operating lever works. 95

By reference to Fig. 3 the manner of operation will be understood. When the top plate and operating lever are in the position shown by the full lines, then the register is closed. By swinging the operating lever H 100 to the position shown by the dotted lines, the movable plate will be withdrawn its pintles traversing the guide slots by reason of the action of the cams thereon, thus moving the



movable plate at right angles to the fixed plate.

The construction above described is particularly intended for use in walls and will be arranged to stand in a vertical plane.

The construction shown in Figs. 4, 5 and 6 is slightly modified as to the operating means and is particularly intended for use in floors. In the said figure the same reference letters apply to corresponding parts, but the rock shaft in this case has its bearing in the lower ends of the slot of the guides, such ends being closed. The segments having the cam slots are also slightly modified. As shown in Figs. 4 and 5, one of said segments is made of such diameter that its edge projects through a slot in the top plate and such edge is preferably milled or roughened to adapt it to be operated by the foot. In this case also, the guides are formed upon the walls of the frame B and the latter are preferably made separately from the top plate. The pintles and the rock shaft in this construction are in line, but obviously the operation will be substantially the same as that previously described. The movable plate has ribs or webs D' which are cut integral with the solid portions thereof, and the arrangement of these webs will vary with variations of the design.

The advantages of this register will be apparent. When it is desired to close the register, the lever or operating segment, as the case may be, is moved and the movable plate will be carried into the plane of the fixed plate, the perforate portions of the one receiving the imperforate portions of the other so that all of the apertures are closed and there is presented a uniformly smooth surface which can be cleaned. Any dust or refuse which falls through the perforations upon the movable plate will be returned by the closing of the plate into position to be removed.

In Fig. 4 I have shown a removable dust pan which may be applied not only to the particular register shown but to others as well. In said figure I represents the hot air pipe which delivers into the usual box J. K represents the pan which is apertured at its middle above the open end of pipe I. h is a flanged collar surrounding the aperture. This pan can be removed by withdrawing the register from its seat. In order to prevent dust from passing into the pipe I, the conical receiver M is employed which has legs N em-

bracing the collar h. By this means any dust which passes through the register may be caught and removed thus obviating the danger of conflagration and rendering the device capable of cleaning.

I claim—

1. In a register of the class described, the combination with two perforated plates one of which is movable into the plane of the other and the solid portions of one being adapted to register with and close the perforations of the other, and means for moving one of said plates, substantially as described.

2. In a register of the class described, the combination with two perforated plates, one of which is movable with reference to the other and the perforations and solid portions of the plates being so disposed that the solid portions of one may enter the perforations or apertures of the other and means for moving one of said plates, said means comprising pintles secured on the movable member, guides in which said pintles move, a rock shaft having an operating lever and segments secured on the rock shaft and having cam slots to receive the pintles, substantially as described.

3. In a register of the class described, the combination with two perforated plates one of which is secured with the register frame, and the other of which is movable in relation thereto, the movable member being provided with pintles, fixed guides for said pintles, a rock shaft secured in bearings in the lower ends of said guides, operating segments secured on the rock shaft, said segments having cam slots to receive the ends of the pintles and an operating lever secured to the rock shaft and working through a slot in the fixed plate, said operating lever being constructed to close said slot when the register is in a closed position, substantially as described.

4. The combination with a register box of a removable dust pan adapted to be placed within said box and having a central aperture surrounded by a flanged collar and adapted to be fitted over the end of the hot air delivery pipe, and a conical receiver having supporting legs and arranged within the dust pan over the aperture thereof, substantially as and for the purpose described.

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