

J. L. Howard,

Car Ventilator,

N^o 70,216.

Patented Oct. 29, 1867.

Fig. 1.

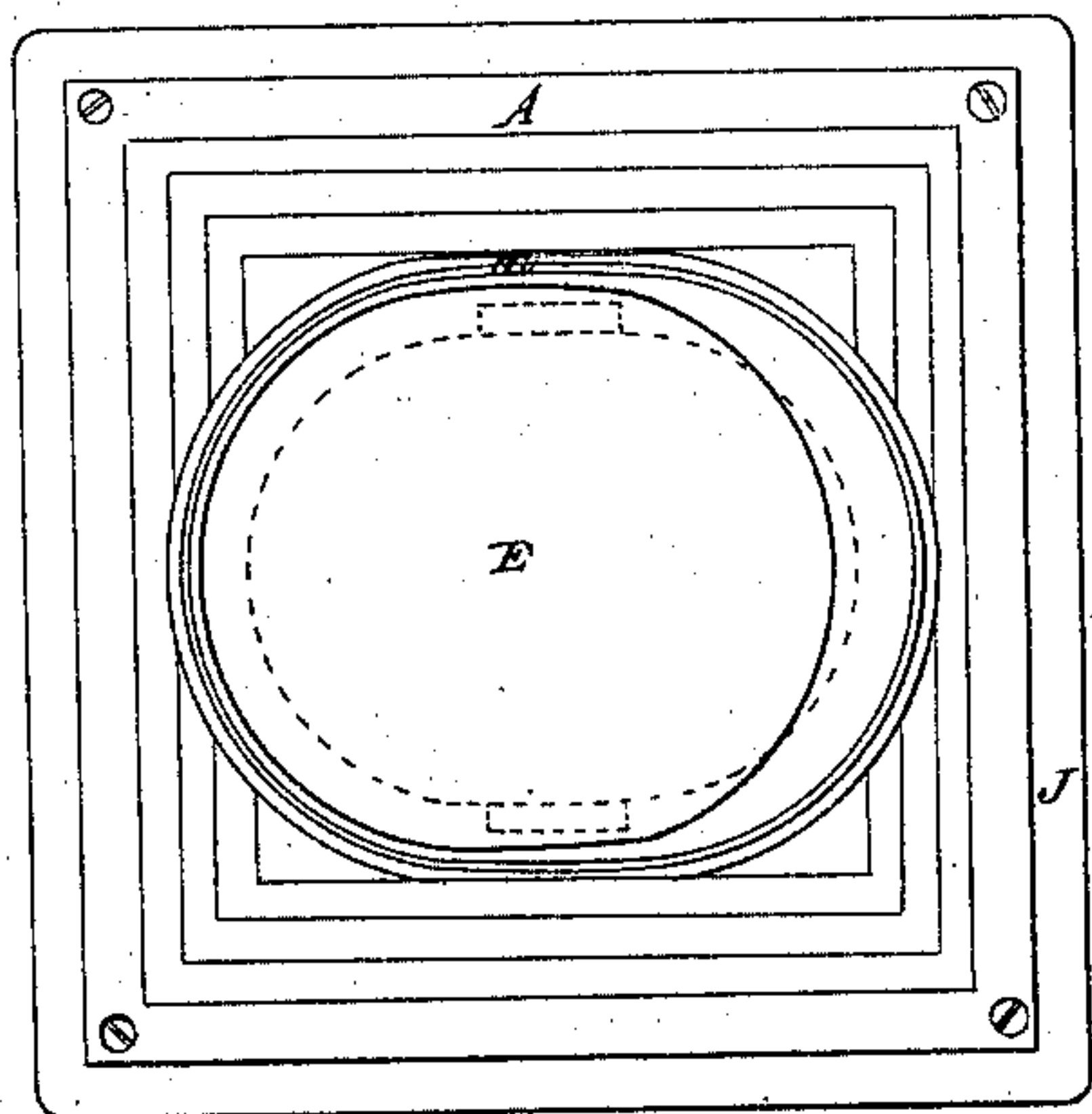


Fig. 2.

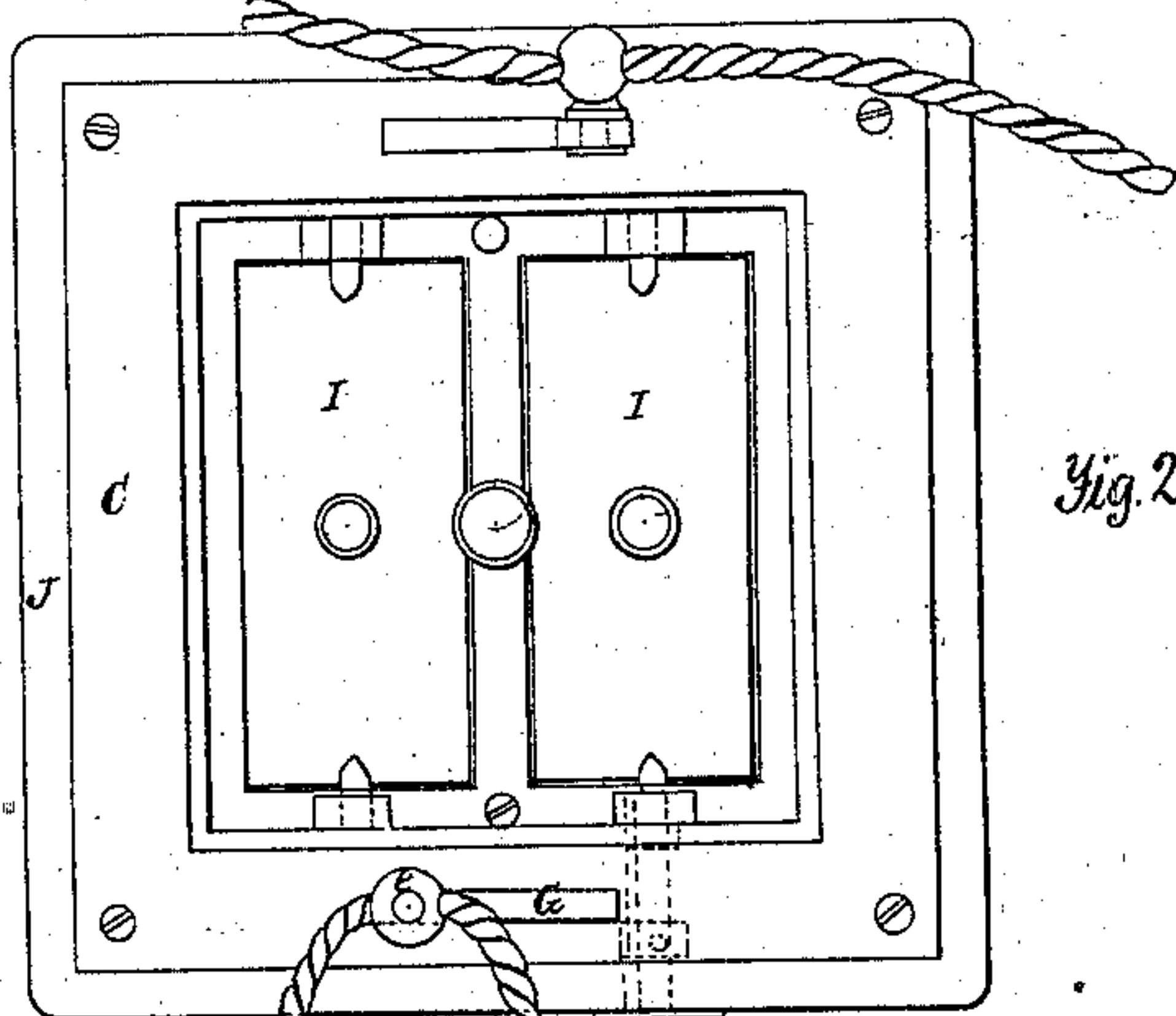


Fig. 3.

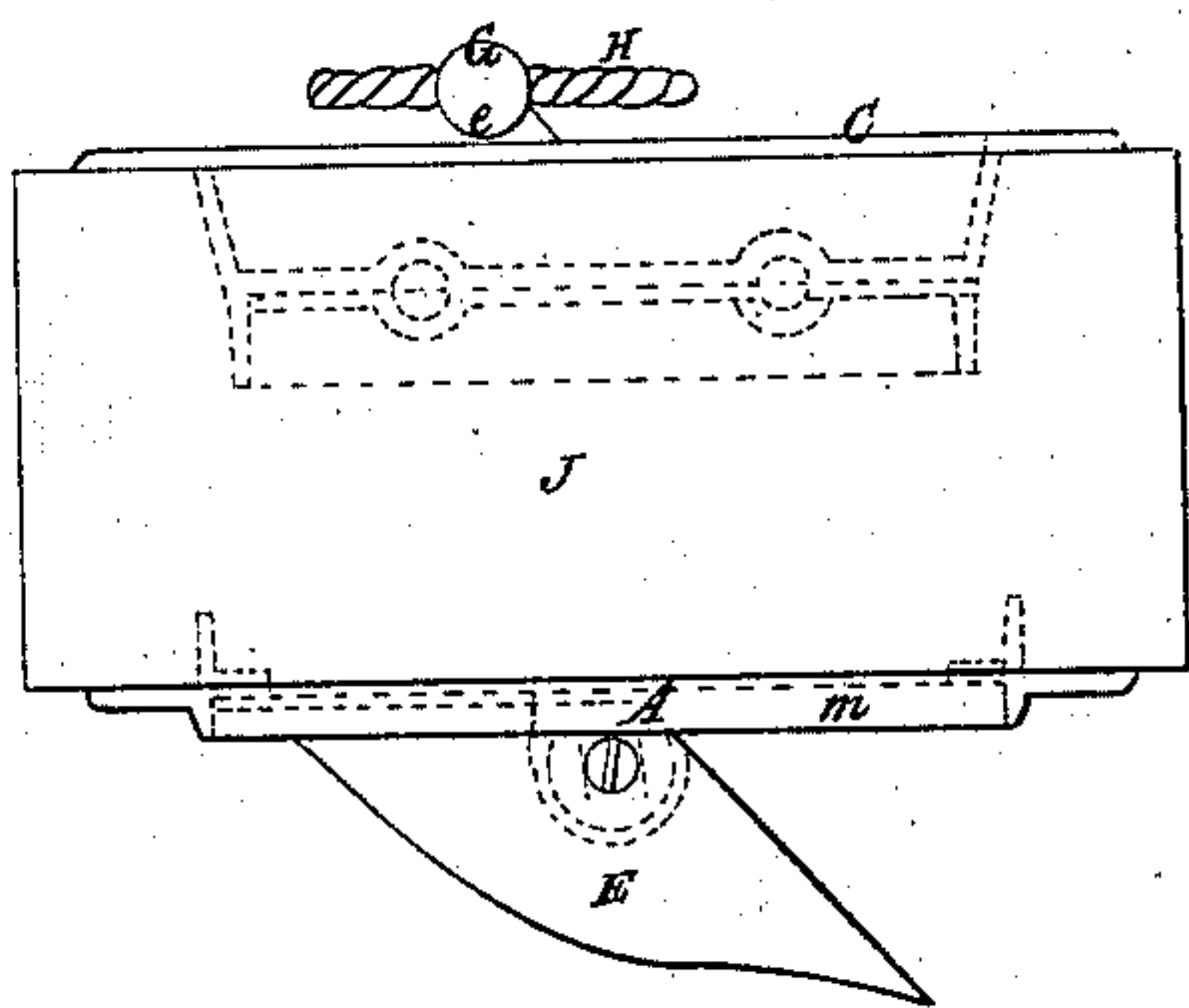


Fig. 4.

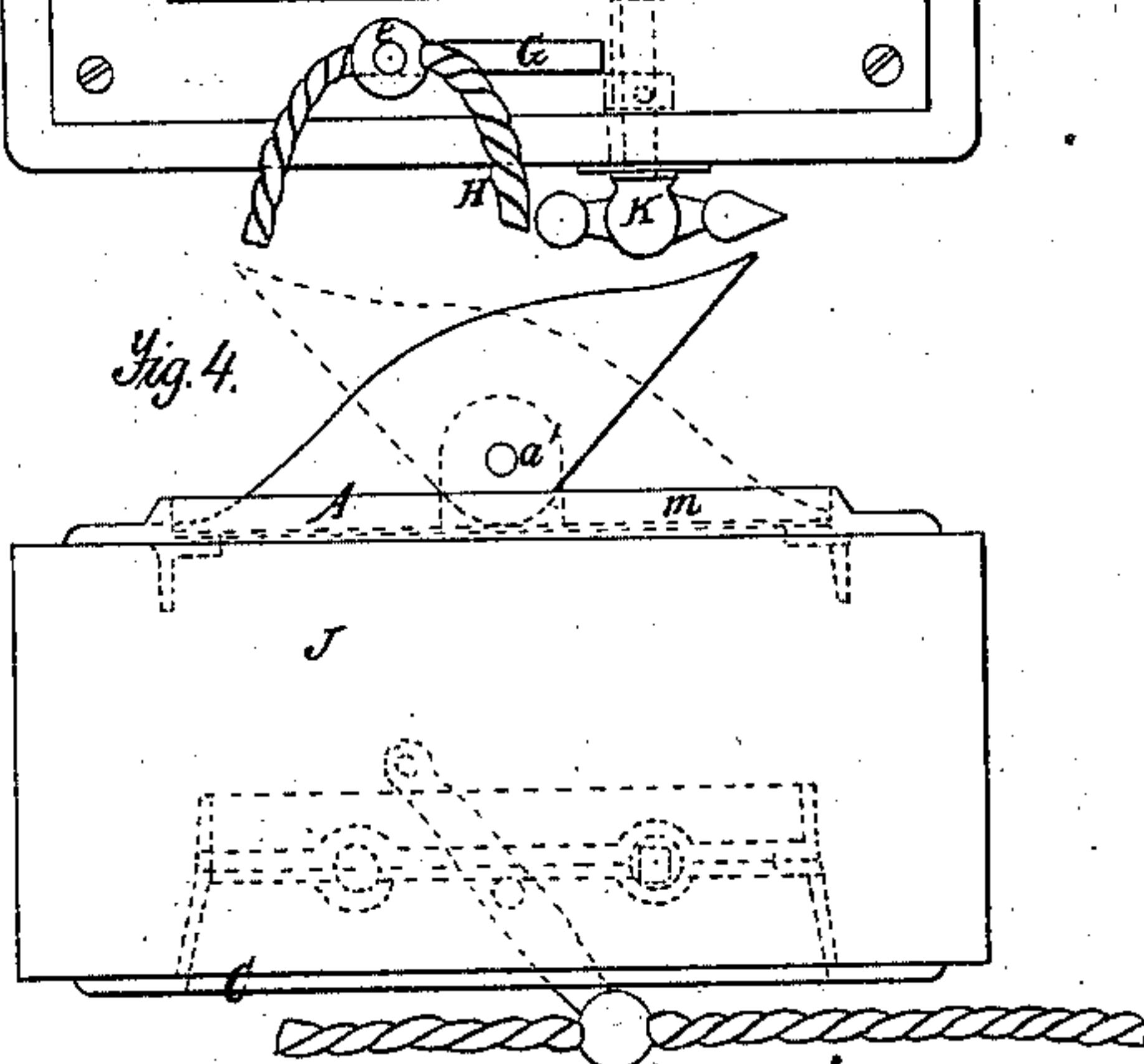


Fig. 5.

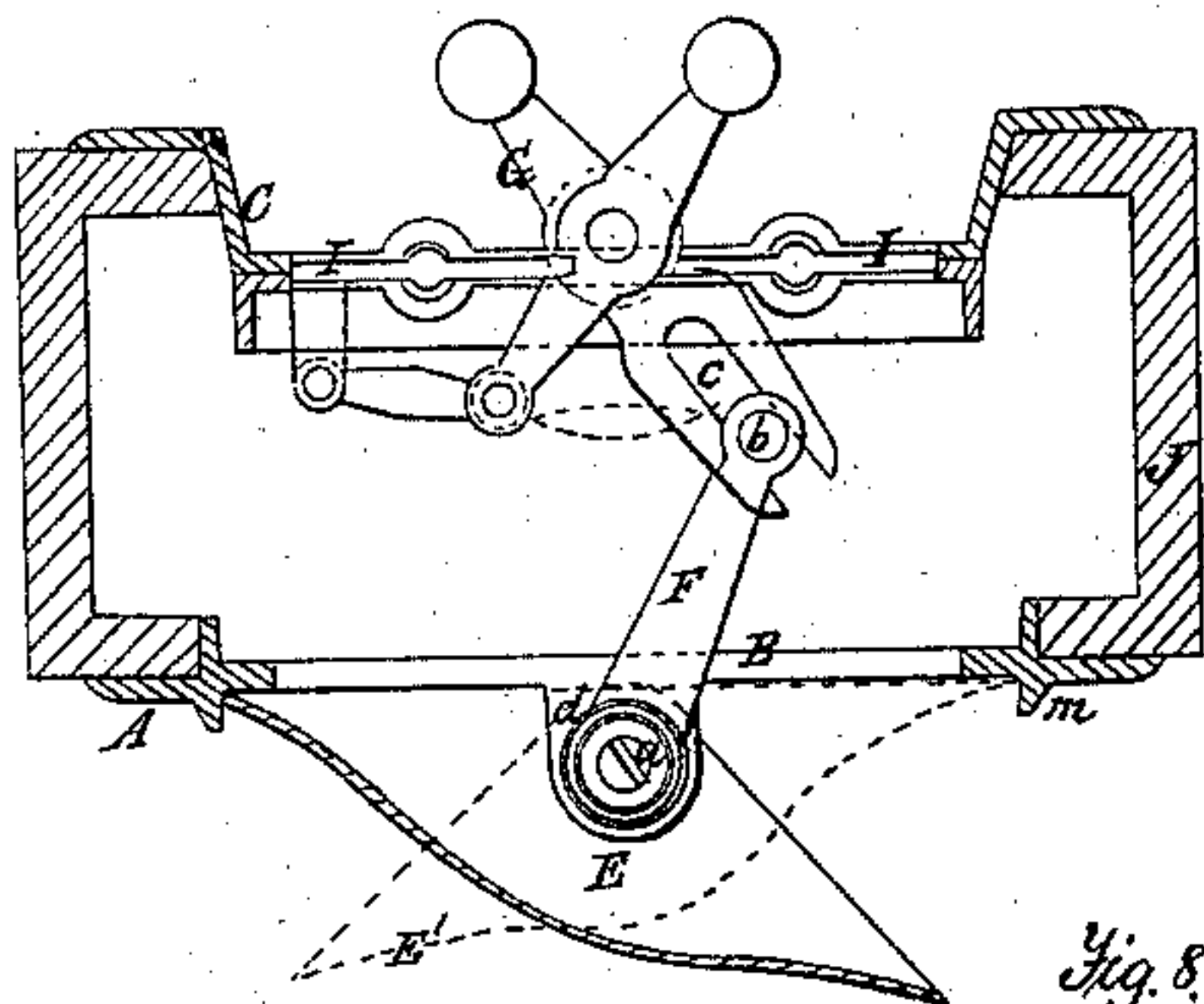


Fig. 6.

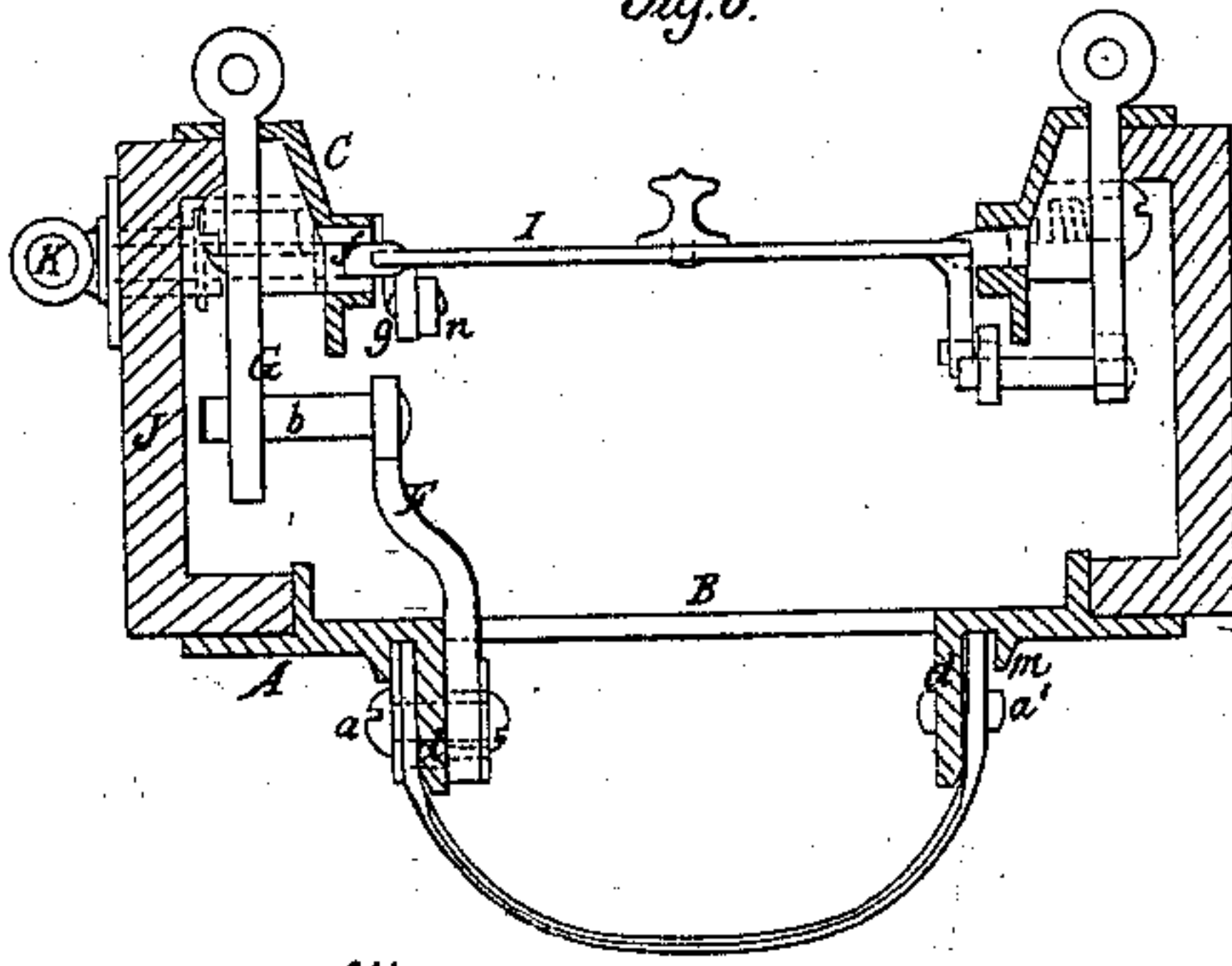


Fig. 9.

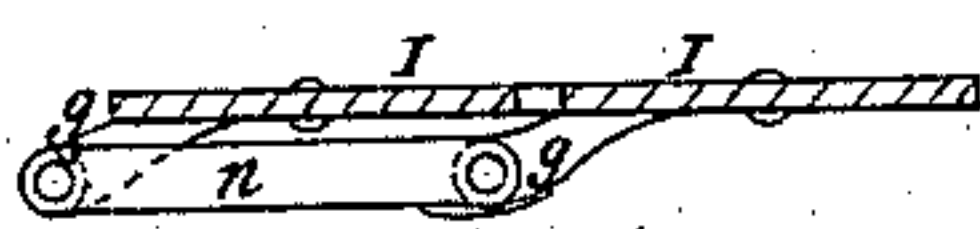


Fig. 8.

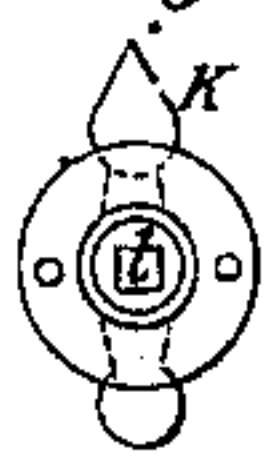
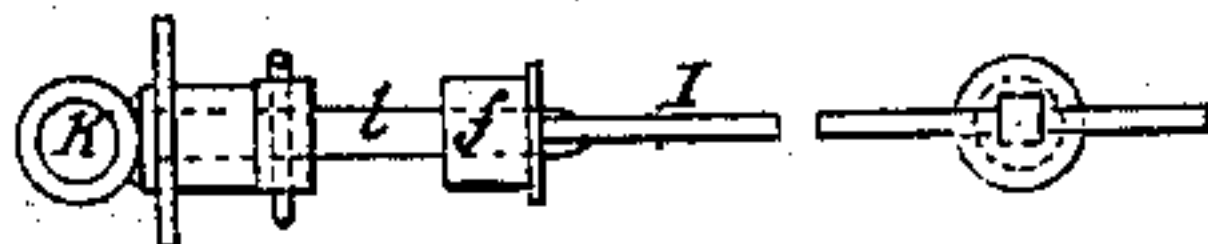


Fig. 7.



Witnesses:

Richard J. Cunningham.
Chas. H. Leonard

Inventor:

Jas. L. Howard.
by his attorney
C. S. Kenwick

UNITED STATES PATENT OFFICE.

JAMES L. HOWARD, OF HARTFORD, CONNECTICUT.

RAILROAD-CAR VENTILATORS.

Specification forming part of Letters Patent No. 70,216, dated October 29, 1867.

To all whom it may concern:

Be it known that I, JAMES L. HOWARD, of the city and county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Ventilators for Railroad-Cars and for other purposes to which they may be applicable, and that the following is a full, clear, and exact description and specification of my invention.

My invention is divided into several parts, some of which may be used without others; and the object of the first part of my invention is to enable the direction in which air from the ventilating-aperture is discharged to be readily changed. To this end this part of my invention consists of the combination of the frame of the ventilating-aperture with a double-mouthed hood, arranged to turn upon an axis that is transverse both to the hood and to the ventilating-aperture, so that by turning said hood upon said axis either mouth of the hood may be opened, while the other mouth is simultaneously closed.

My invention consists further of the combination of the frame of the ventilating-aperture and double-mouthed hood, as aforesaid, with arms or their equivalent, connected with said hood and extending inward, so that the double-mouthed hood, although at the outer side of the said frame, may be readily operated by a force applied at the inner side of the frame.

My invention consists further of the combination of the frame, double-mouthed hood, and arm, as aforesaid, with a horizontal connection, by means of which the double-mouthed hoods of two or more ventilating-apertures are connected, so that all of such connected double-mouthed hoods may be moved simultaneously. This combination enables the entire row of double-mouthed hoods at the side of a railroad-car to be shifted simultaneously, thereby lessening the time required to shift the hoods when the direction in which the car runs is reversed.

My invention consists further of the combination of the frame of a ventilating-aperture that is provided with a hood or external deflector, with a register-valve for regulating the passage of air through the aperture, and with a spindle (for operating the valve) ar-

ranged transversely to the ventilating-aperture, so that when this combination is applied to the roof of a monitor railroad-car, the lower end of the spindle projects downward through the roof over the seats, and the handle applied to said spindle is within the reach of a passenger when standing up. This combination obviates the necessity of standing up upon the seat of the car in order to get at the register, and the hood or deflector used in this combination may be either a double-mouthed hood or a single-mouthed hood or a plain deflector, as found expedient.

My invention consists further of the combination of the first, second, and third combinations, before recited, respectively, with a register-valve for regulating the passage of air through the said aperture.

My invention consists further of the combination of the first, second, and third combinations, before recited, respectively, with a register-valve and transverse spindle for the same.

All parts of my invention are embodied in the ventilating apparatus represented in the accompanying drawing—

Figure 1 representing the exterior of the apparatus; Fig. 2, the interior of the same; Figs. 3 and 4, top views of the same. Fig. 5 representing a horizontal section of the apparatus; Fig. 6, a vertical section of the same, and Figs. 7, 8, and 9 representing views of parts of the apparatus.

In the said apparatus the frame A of the ventilating-aperture B is constructed to be secured to the outer side of the car-body, and the register-frame C is constructed to be secured to the inner side of said body. The frame A of the aperture is provided with lugs *d d* or brackets, with which the double-mouthed hood E is connected by pivots *a a'*, whose central lines form the axis on which the hood turns; and as these pivots extend transversely to the aperture and to the double-mouthed hood, the axis on which the latter turns is transverse to the aperture and to the hood. Hence, the direction in which the current of air passes may be changed by simply moving the hood upon said transverse axis from the position in which it is drawn in Fig. 5 to that represented by the dotted lines *E'*; and by

such movement one mouth of the hood is opened, while the other is closed by the movement of its lip against the frame of the aperture, which is provided with a rim, *m*, that overlaps the lip of the closed mouth of the hood. The double-mouthed hood *E*, thus combined with the frame *A*, is connected with an arm, *F*, that extends inward, so that the force used to change the position of the hood may be applied at the inner side of the frame of the ventilating-aperture.

The connection between the arm *F* and the double-mouthed hood is made by means of one of the pivots *a*, which is fitted to turn in the lug *d* of the frame, but is secured to the hood and to the arm.

In order that the arm *F* may be conveniently operated by force applied at the inner side of the car-body, the inner end of the arm *F* is provided with a pin, *b*, which is received in a slot, *c*, formed in a lever, *G*, which is connected by a pivot with the frame *C* of the register, and extends into the car-body; and in order that two or more hoods may be moved simultaneously, a connection, consisting of a cord, *H*, is secured to the operating-lever *G* by means of a swivel, *e*, which, although not essential, is advantageous.

In practice, this cord is extended horizontally along the side or roof of the car-body, and connects with the hoods of all the ventilating-apertures through their operating-levers *G* and arms *F*.

At each end of the car the cord may be passed downward over a pulley, so that by pulling one end or the other of the cord all the hoods may be turned simultaneously.

The register in the present example consists of two valves, *I I*, arranged to turn upon central pivots at their upper and lower ends, the pivots being fast to the valves, and received in sockets in the register-frame *C*. The register-frame *C* is connected with the frame *A* of the ventilating-aperture by the wood-work *J* and by the operating-lever *G* and arm *F*, so that the register is combined with the double-mouthed hood *E* and ventilating-aperture *B*, and regulates the passage of air through it by being opened to a greater or less extent by the turning of the valves *I I* upon their pivots.

The two valves are connected by a link, *n*, which is jointed to them by pivots passing through lugs *g g*, so that when one valve is turned the other is necessarily turned to the same extent; and in order that the register may be operated from beneath it one of the valves *I* is connected with a spindle, *l*, which extends transversely through an aperture in the frame of the register a sufficient distance to permit a handle, *K*, to be applied to it at the inner side of the ceiling of the car, where it may be conveniently reached by a passenger.

The connection with the spindle in the present case is effected by squaring one of the pivots of the valve, and fitting it in a square socket in a sleeve, *f*, which is fitted to turn in

the register-frame. The end of the spindle is also squared and fitted into the opposite end of the same socket of the sleeve *f*, and the handle *K* is secured to the spindle *l* by a pin, in manner similar to that in which a door-knob is secured to its spindle.

The apparatus thus described contains the frame of the ventilating-aperture, double-mouthed hood, arm, connection *H*, register-valves *I I*, register-frame *C*, and transverse spindle *l* for operating the register-valve, all operating in combination, so that each one or more of these is combined with the residue.

The form of the ventilating-aperture may, of course, be varied, as also the form of the hood, provided the double-mouthed construction be retained. The form of the register may also be varied, and one or more register-valves may be used, as deemed expedient. So, also, the transverse spindle may be placed at the inner or outer side of the register-frame, and instead of being connected directly with the register-valve, by its pivot, may be connected with it through a link, cog-sectors, or levers, as found expedient.

Having thus described an apparatus embodying all parts of my invention, I declare that I am aware that deflectors of various kinds have been combined with the ventilating-apertures of railroad-cars, such, for example, as a hood turning upon an axis extending axially through the center of the ventilating-aperture and hood, inclined deflecting-plates turning upon vertical axes, and curved deflecting-plates arranged to slide on their edges in cases on the exterior of the car.

I am also aware that two or more deflectors of the last two kinds have been connected by cords or rods, so that they might be moved simultaneously, and that deflectors of all the above kinds have been combined with register-valves. Therefore I do not claim the separate members of which my new combinations are composed; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the frame of a ventilating-aperture with a double-mouthed hood, turning upon an axis arranged transversely to the hood and to the aperture, substantially as before set forth.

2. The combination of the said frame and double-mouthed hood with arms *C F*, by means of which the said hood, at the outer side of the frame, may be operated from the inner side of the frame, substantially as before set forth.

3. The combination of the said frame, double-mouthed hood, and arm, with a connection by means of which two or more of said hoods may be turned simultaneously, substantially as set forth.

4. The combination of the frame of a ventilating-aperture having a hood connected with it, with a register-valve, and with a transverse spindle, *K*, for the purpose of operating

said register-valve, substantially as before set forth.

5. The combination of each of the first three combinations aforesaid, with a register-valve for regulating the passage of air through the ventilating-aperture, substantially as before set forth.

6. The combination of each of the first three combinations aforesaid with a register-valve,

and a transverse spindle for operating said valve, substantially as before set forth.

In testimony whereof I have hereto set my hand this 9th day of April, 1867.

JAMES L. HOWARD.

Witnesses:

ALBERT L. BURKE,
GEORGE C. BARNES.