

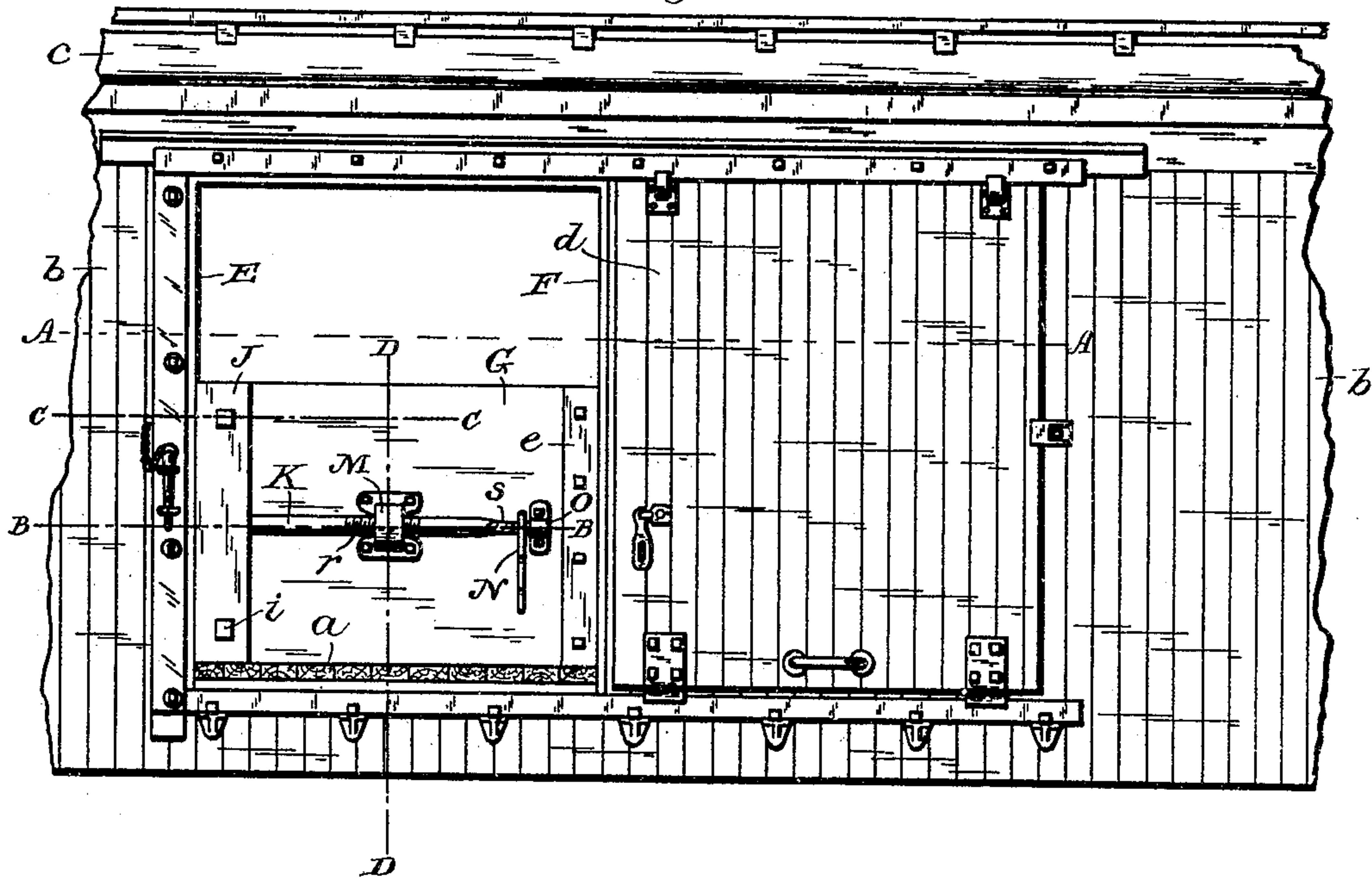
No. 808,906.

PATENTED JAN. 2, 1906.

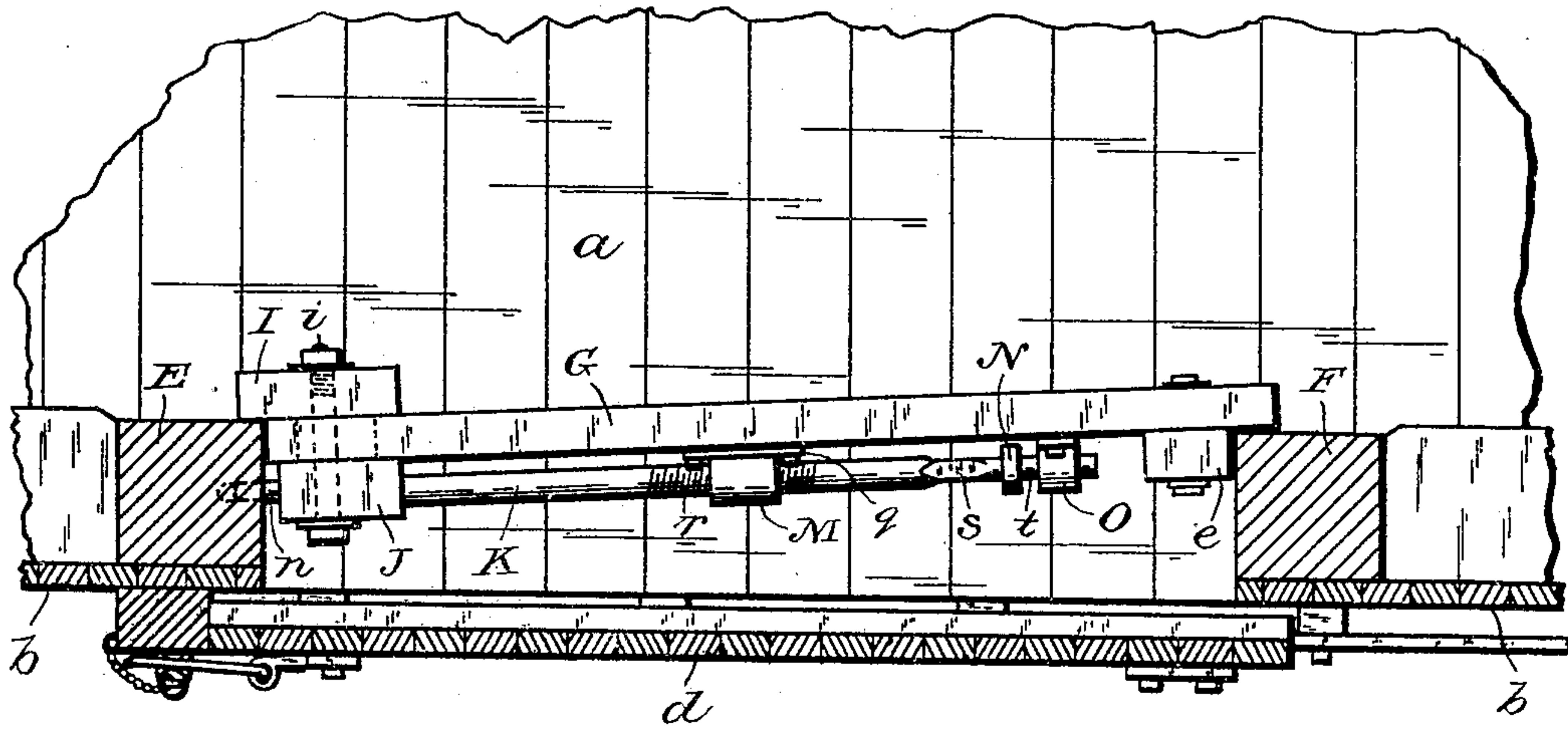
M. G. DONEHEW.  
GRAIN DOOR FOR CARS.  
APPLICATION FILED JULY 29, 1905.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:

B. L. Boyle.  
P. A. Hawlick

Inventor:

Morton G. Donehew,  
by

E. T. Silvius,

Attorney.

No. 808,906.

PATENTED JAN. 2, 1906.

M. G. DONEHEW.  
GRAIN DOOR FOR CARS.  
APPLICATION FILED JULY 29, 1905.

2 SHEETS—SHEET 2.

Fig. 3

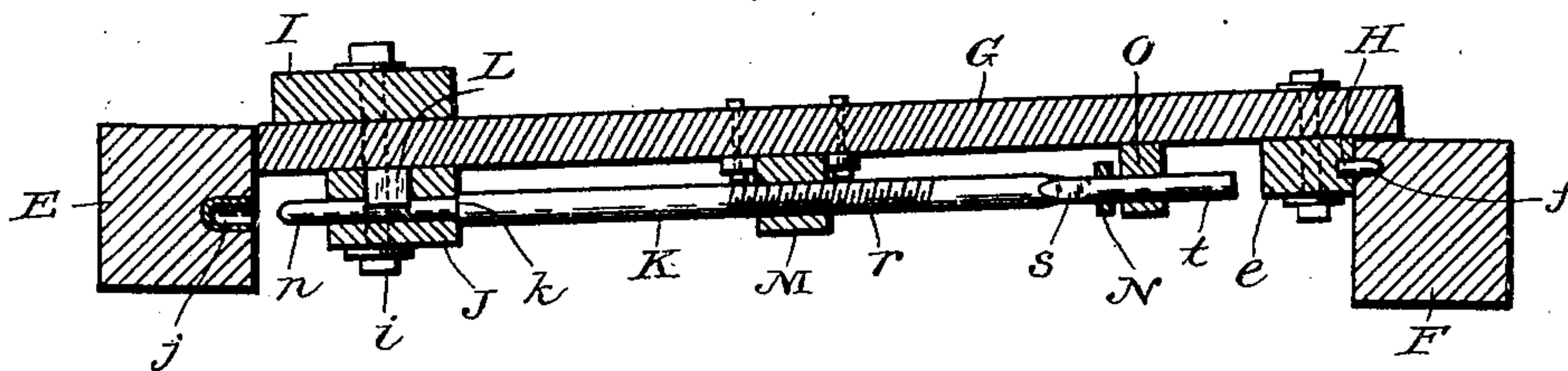


Fig. 4.

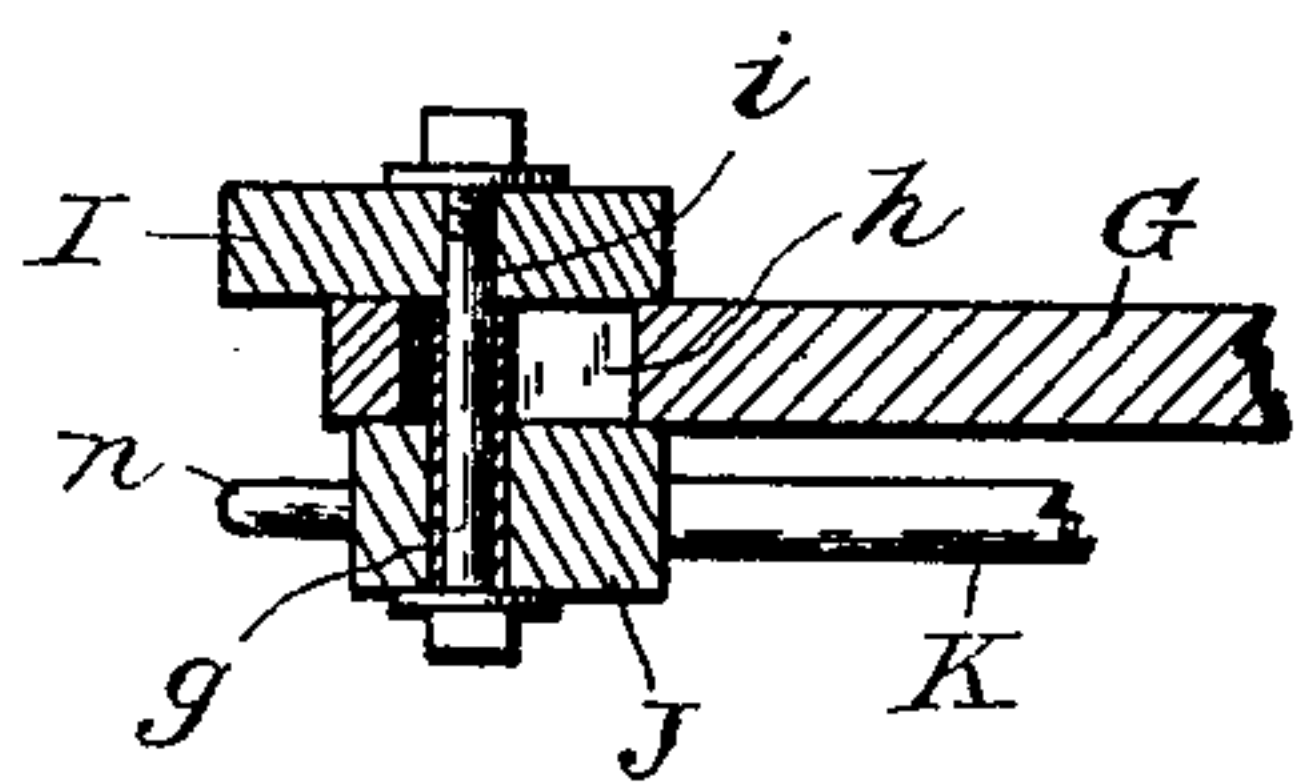


Fig. 5.

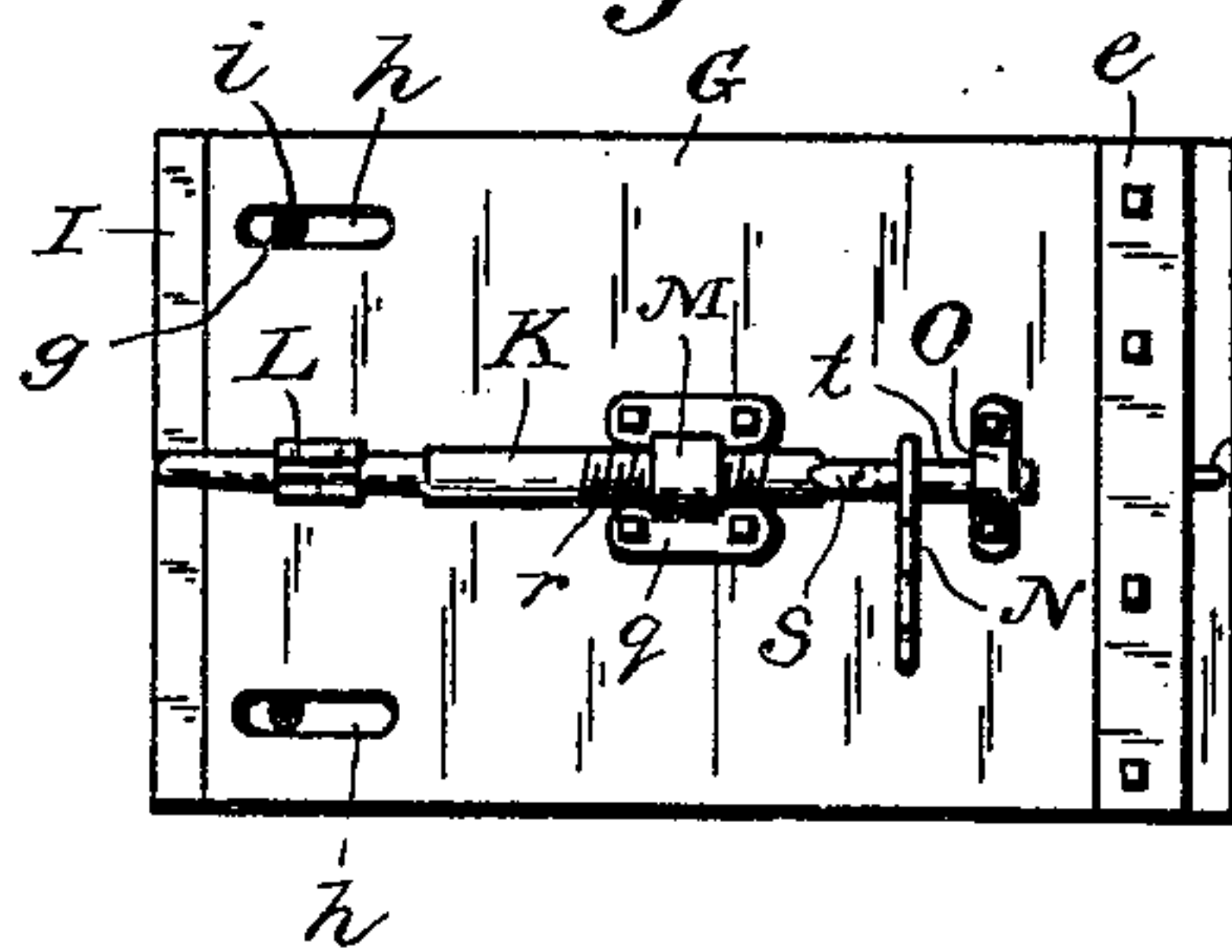


Fig. 6.

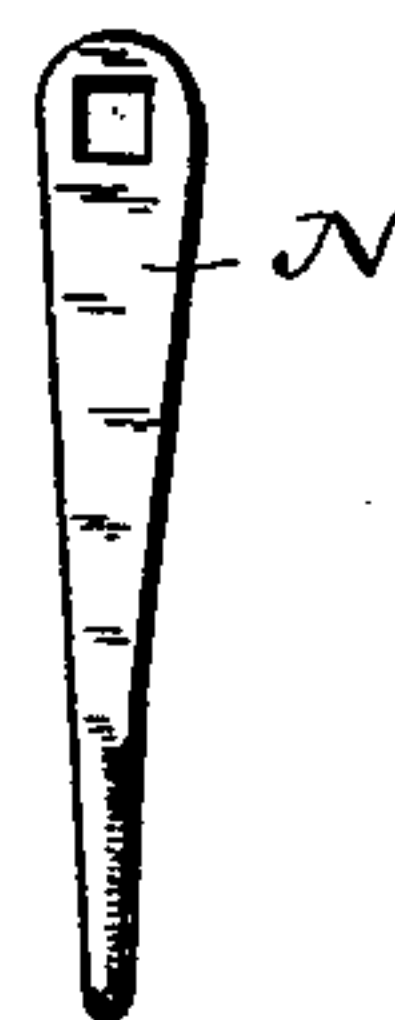


Fig. 7.

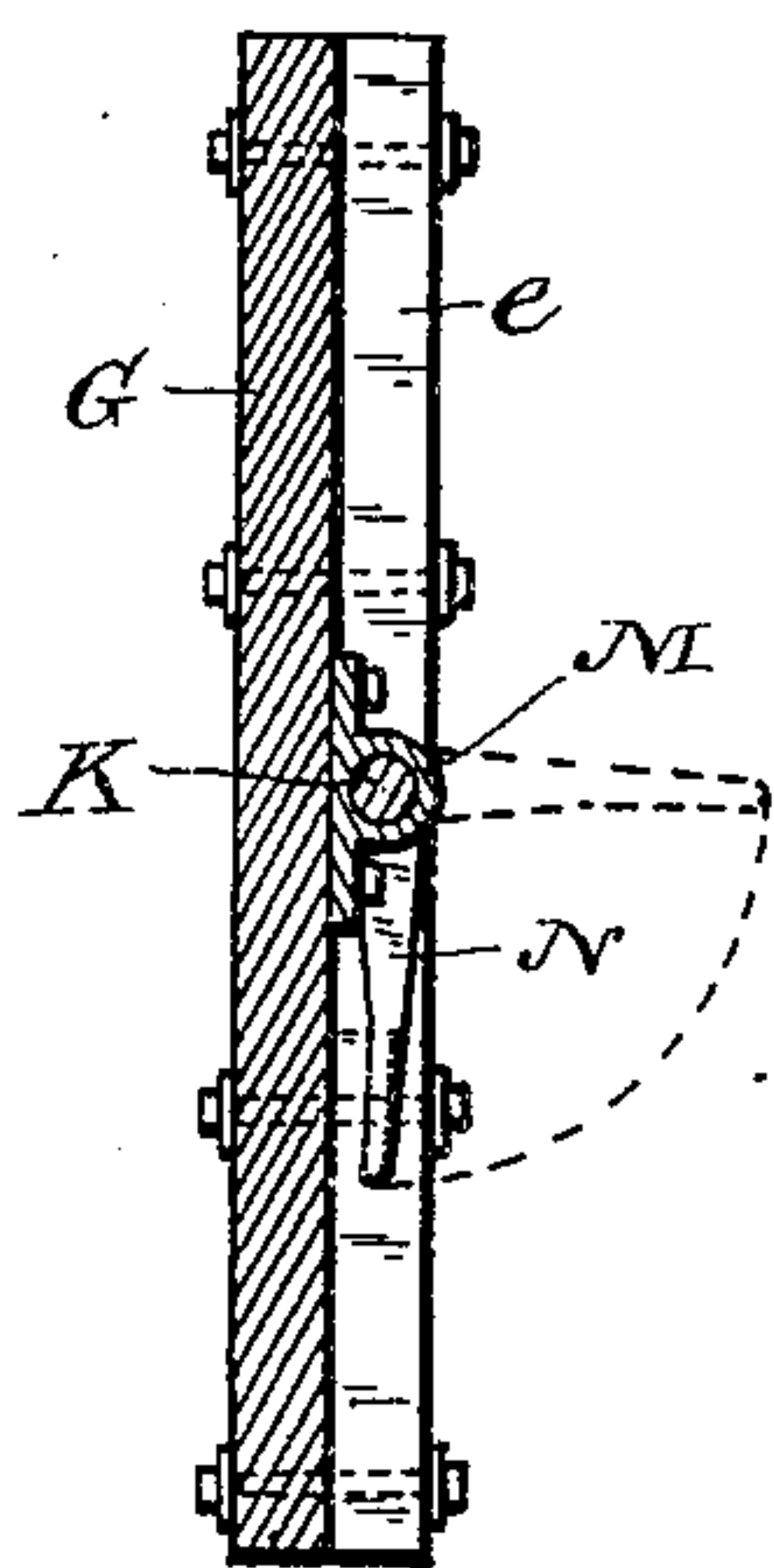


Fig. 8.

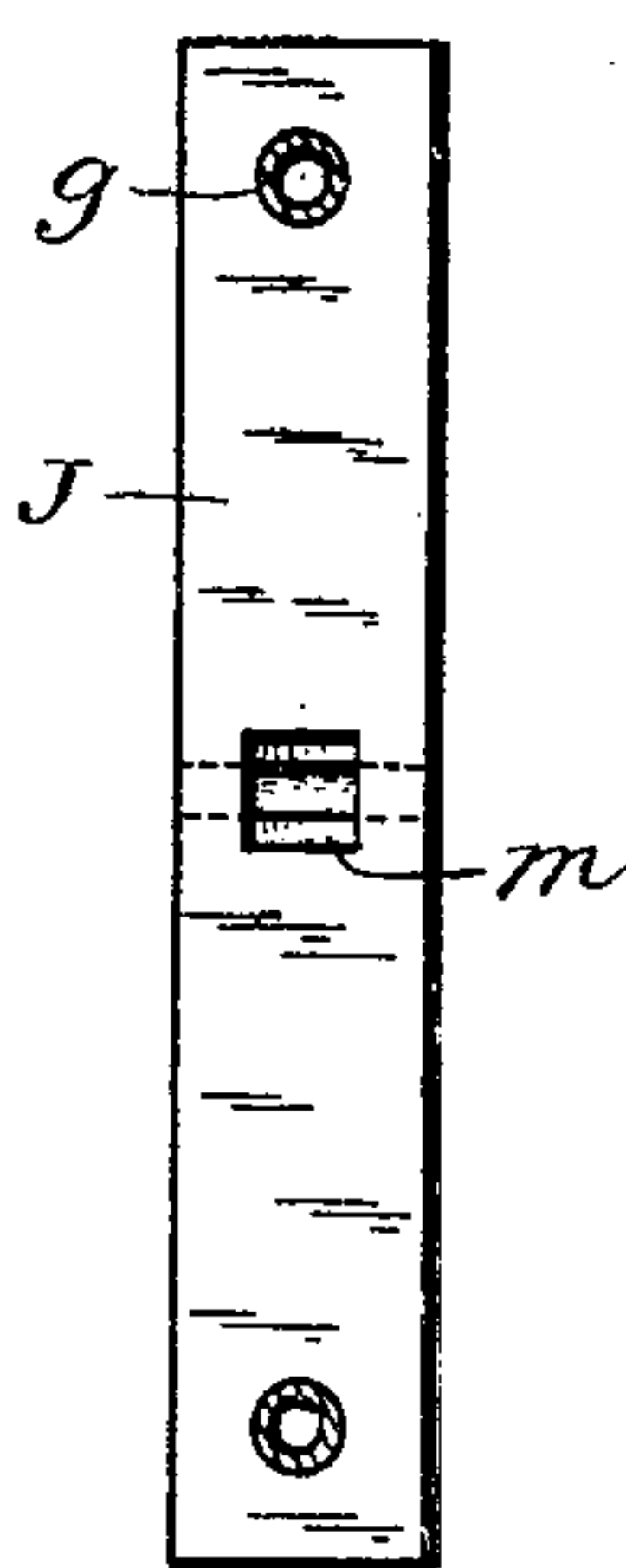
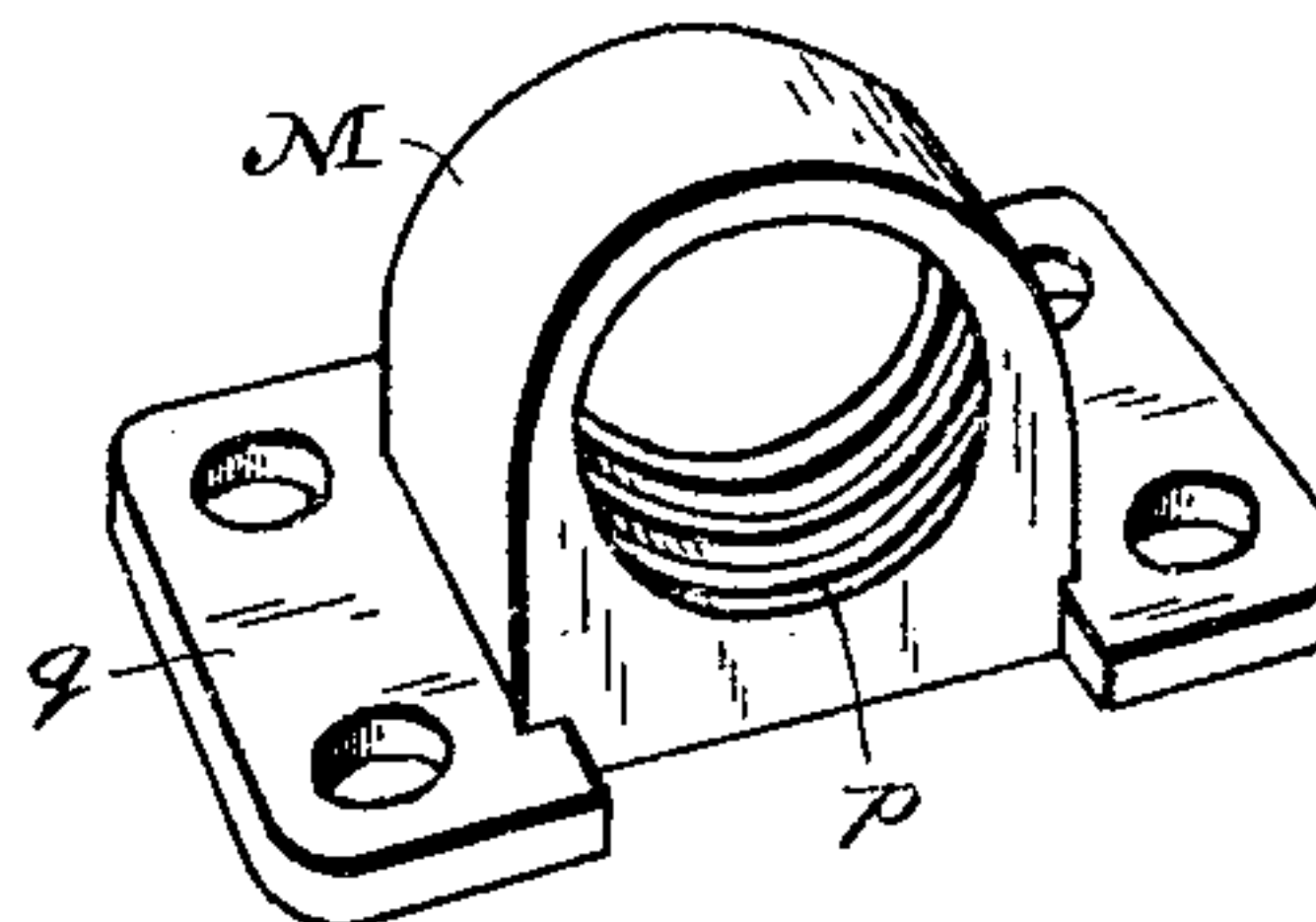


Fig. 9.



Fig. 10.



Witnesses:

B. L. Boyle.  
P. A. Havlick

Inventor:

Morton G. Donehew,

by

E. J. Silvius,

Attorney.



# UNITED STATES PATENT OFFICE.

MORTON G. DONEHEW, OF RUSSELL TOWNSHIP, PUTNAM COUNTY,  
INDIANA.

## GRAIN-DOOR FOR CARS.

No. 808,906.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed July 29, 1905. Serial No. 271,742.

*To all whom it may concern:*

Be it known that I, MORTON G. DONEHEW, a citizen of the United States, residing in Russell township, in the county of Putnam and State of Indiana, have invented new and useful Improvements in Grain-Doors for Cars; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to railway-cars; and it has reference particularly to doors that are adapted to be arranged in the car-doorways independently of the ordinary car-doors, especially for holding bulk grain in the cars.

Objects of the invention are to provide grain-doors that may be relied on to fit closely, so as to effectually close the doorways against leakage of grain, and to provide grain-doors that may be securely held in the doorways and yet be easily removed for unloading the grain without requiring the use of axes, crowbars, and like implements that invariably injure and ultimately destroy grain-doors of ordinary construction that usually are cleated or nailed in place.

With the above-mentioned and minor objects in view the invention consists in an expansible grain-door having a locking-pin mounted on the outer side thereof and means for expanding the door in the doorway of a car; and the invention consists, further, in the novel parts and in the combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a fragmentary side elevation of a railway-car body with its door open and the improved grain-door arranged in the car-doorway; Fig. 2, a fragmentary horizontal sectional view as on the line A A in Fig. 1, showing the car-door closed and the grain-door partially contracted; Fig. 3, a horizontal sectional view of the grain-door and door-posts, as on the line B B in Fig. 1, the door being contracted so as to be removed; Fig. 4, a fragmentary horizontal sectional view on the line C C in Fig. 1; Fig. 5, a front elevation of the grain-door with one of the expansible or movable parts thereof omitted; Fig. 6, a plan of the lever for operating the operating-screw of the grain-door; Fig. 7, a vertical transverse sectional view of the grain-door on the line D D in Fig. 1; Fig. 8, a rear elevation of the movable part of the grain-door that is

omitted in Fig. 5; Fig. 9, a fragmentary side view of the operating-screw and locking-pin detached from the grain-door, and Fig. 10 a perspective view of the screw-head for the operating-screw.

Similar reference characters in the different figures of the drawings designate corresponding elements or features.

In the drawings so much of a railway box-car is shown as is necessary to an understanding of the invention, *a* designating the floor of the car; *b*, the siding of the car; *c*, the car-roof; *d*, the ordinary door at one side of the car, and E and F the car-door posts at either side of the doorway.

In a practical embodiment of the invention the grain-door body G is composed principally of wood, but may be made of plate-iron equally as well, and it extends from the floor *a* upwardly a suitable distance and from one door-post to and somewhat beyond the nearer side of the other door-post. An abutment *e*, forming a relatively fixed part of the grain-door, is bolted to the outer side near one end of the door-body G and is provided with a dowel H, that is adapted to be entered in a socket *f*, which is formed in the post F, when the abutment is placed against the post with the end of the door-body extending against the inner side of the post, as indicated in Figs. 2 and 3. The opposite end of the door-body G is provided with a movable joint-plate I and a movable abutment J, both movable together, as will further appear. In the end portions of the abutment J are thimbles *g*, that extend through slots *h* in the door-body G, and the plate I bears against the thimbles and is secured thereto, and consequently to the abutment J, by means of bolts *i*, that extend through the thimbles and the plate I. It will now be seen that the plate I and the abutment J each forms a movable part of the body G, thus rendering the door expansible and contractible as to length, the plate being controlled directly by the abutment J, which in turn is controlled by an operating-screw K, that is mounted horizontally on the outer side of the door-body, so as to rotate and also move longitudinally. The post E has a socket *j* therein approximately opposite to the socket *f* of the post F. The screw K has a shoulder *k*, engaging the abutment J, the bolt extending through the abutment and having a groove *l*, into which extends a key-block L, that is arranged in a recess *m* in the back of the abut-



ment J, the groove being shouldered at its ends for engagement with the key-block, whereby the abutment may be controlled. The operating-screw has a tapering locking-pin *n* for entering the socket *j*, the pin serving to draw the grain-door down closely onto the floor *a*, as does also the dowel H in the socket *f*.

A screw-head M, having screw-threads *p*, is provided with ears *q*, whereby it is bolted or otherwise secured to the body G, the operating-screw K extending through the screw-head and having screw-threads *r* engaging the screw-threads *p*. The operating-screw has a square *s* to receive a wrench-like lever N for turning the operating-screw, the lever hanging when not in use on a circular part *t* of the operating-screw, and the circular part extends through a bearing O, that is secured to the body G of the grain-door.

In practical use the grain-door is to be set in the car-doorway somewhat as it appears in Fig. 3. Then by means of the lever N the operating-screw K may be turned so as to be moved longitudinally, thus forcing the abutment J against the post E and the locking-pin *n* into the socket *j*, and this will force the abutment *e* against the post F, the joint-plate I at the same time being pushed outwardly, so as to overlap the post E and assist in resisting the load of grain that may be subsequently placed in the car, the door *d* being open until the grain-door is placed as in Fig. 1. Then after loading the car the door *d* may be closed as usual. When it is desired to unload the grain, the door *d* is to be opened. Then the attendant should stand outside of the post F and with the lever N operate the operating-screw K until the locking-pin is withdrawn from the socket *j* and the joint-plate I clears the post E, when the bulk grain will push the grain-door out of the doorway, permitting part of the load to fall out into any suitable receptacle, after which the balance of the load may be shoveled out of the car. The grain-doors when not in use may be stowed suitably in the car or in store-houses out of the grain-shipping season.

Having thus described the invention, what is claimed as new is—

1. A grain-door including a door-body having at an end thereof an abutment attached movably thereto and provided with a joint-plate movable with the abutment and projectable beyond the adjacent end of the door-body forming an extensible part thereof.

2. A grain-door including a door-body having at an end thereof a joint-plate and an abutment movable together and provided with controlling means carried by the grain-door, a locking-pin carried by the abutment and movable therewith, and a dowel attached to the opposite end of the grain-door.

3. A grain-door including a door-body having at one side of an end thereof a movable

joint-plate, an abutment at the opposite side of the door-body provided with a locking-pin projectable beyond the end of the door-body, connecting devices extending through the door-body and connecting the abutment with the joint-plate for the movement thereof, and operating means for moving the abutment.

4. A grain-door including a door-body having at one side of an end thereof a movable joint-plate, an abutment at the opposite side of the door-body connected to the joint-plate and movable therewith, a locking-pin carried by the abutment and projectable beyond the end of the door-body, a screw-head attached fixedly to the door-body, an operating-screw screwed into the screw-head and connected operatively to the abutment for the operation thereof, and a dowel carried by the opposite end of the door-body.

5. An expansible grain-door for cars including a door-body having at an end thereof a joint-plate and an abutment movable together and provided with controlling means carried by the grain-door, the joint-plate and the abutment being capable of engagement with a door-post of a car, and the opposite end of the door-body being adapted to engage an opposite door-post of the car.

6. An expansible grain-door for cars including a door-body having at an end thereof a joint-plate and an abutment movable together with respect to the door-body and provided with controlling means, the abutment having a locking-pin mounted thereon projectable beyond the end of the door-body simultaneously with the movement of the joint-plate, and the opposite end of the door-body having a projecting dowel.

7. A car including a body having a doorway between opposing door-posts, a car-door, a grain-door having an end for coöperation with a door-post and provided with a joint-plate and an abutment movable together at the opposite end of the grain-door, means for attaching the joint-plate and the abutment together and movably with respect to the grain-door body, and an operating device mounted on the grain-door and controlling the abutment.

8. In a car-body, the combination of a pair of opposing door-posts having each a socket therein, a grain-door having a dowel at an end thereof for entering one of the sockets and provided with a locking-pin for entering the other one of the sockets, an operating-screw for operating the locking-pin, and a joint-plate and an abutment connected together as movable parts of the grain-door and controlled by the locking-pin to and from one of the door-posts.

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

MORTON G. DONEHEW.

Witnesses:

WM. C. THOMPSON,  
E. T. SILVIUS.