

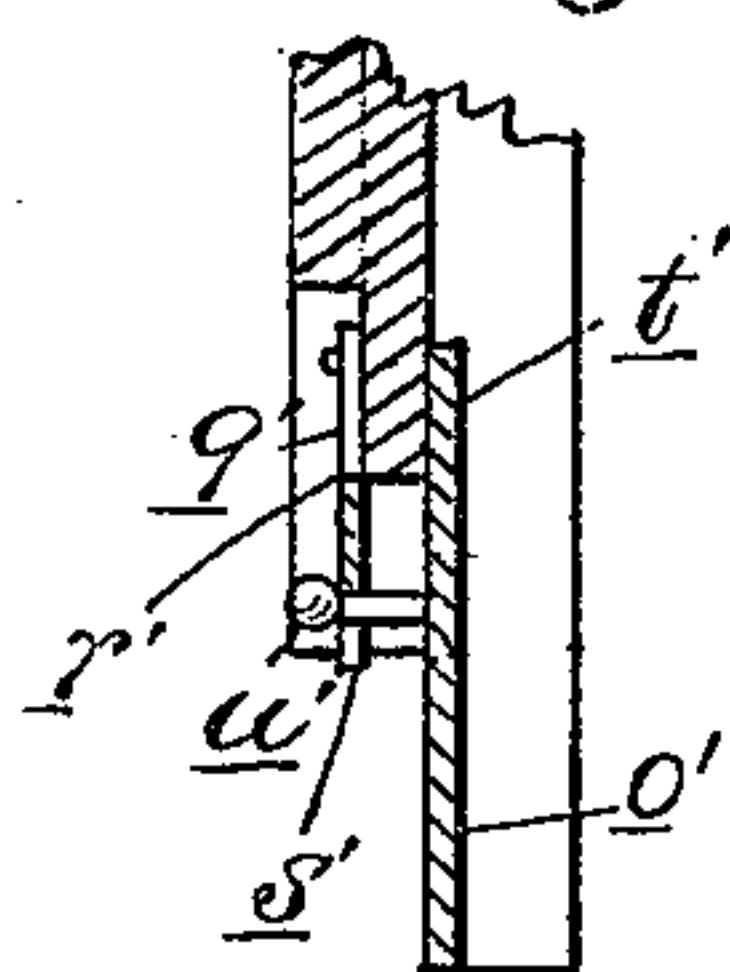
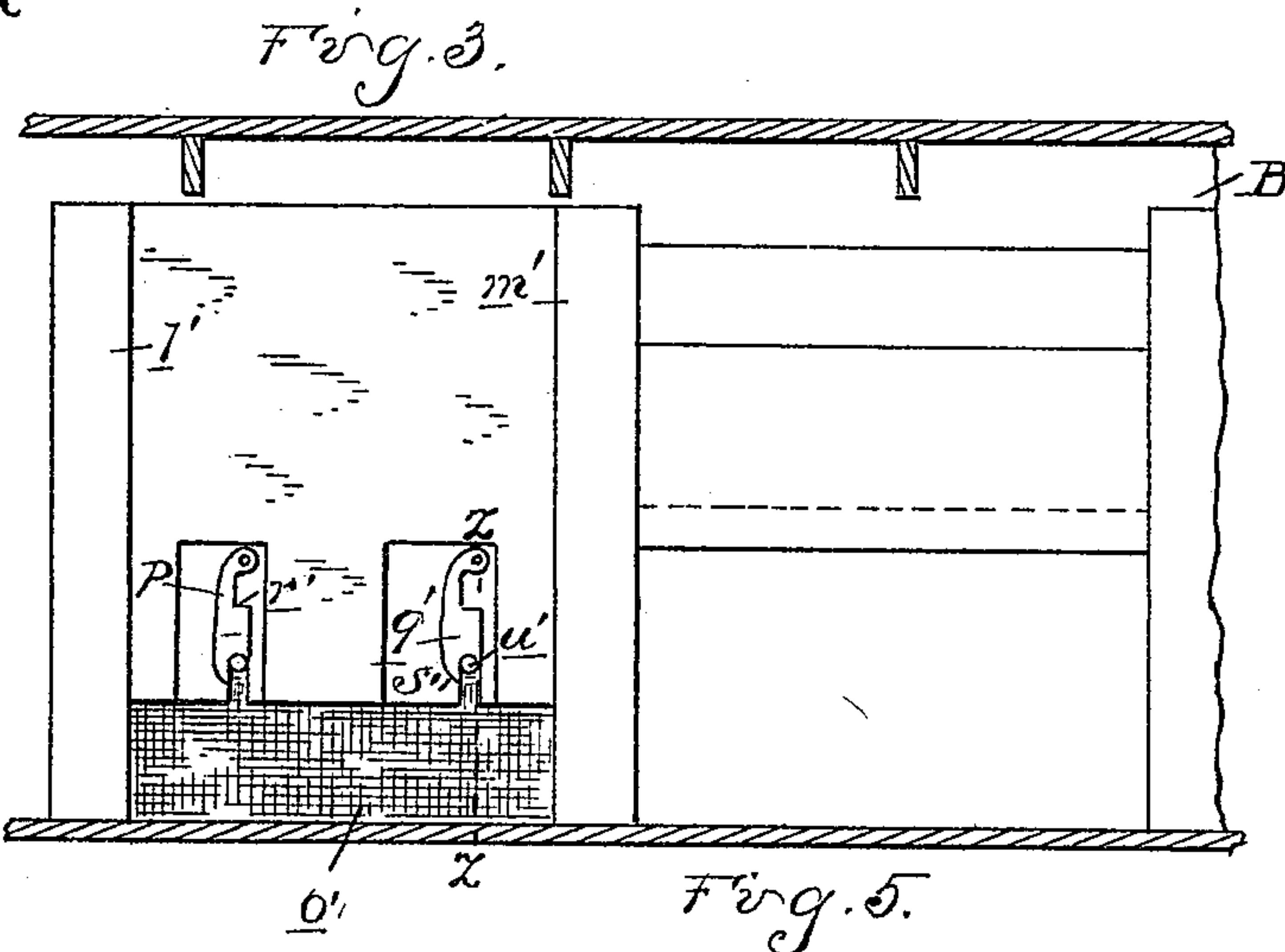
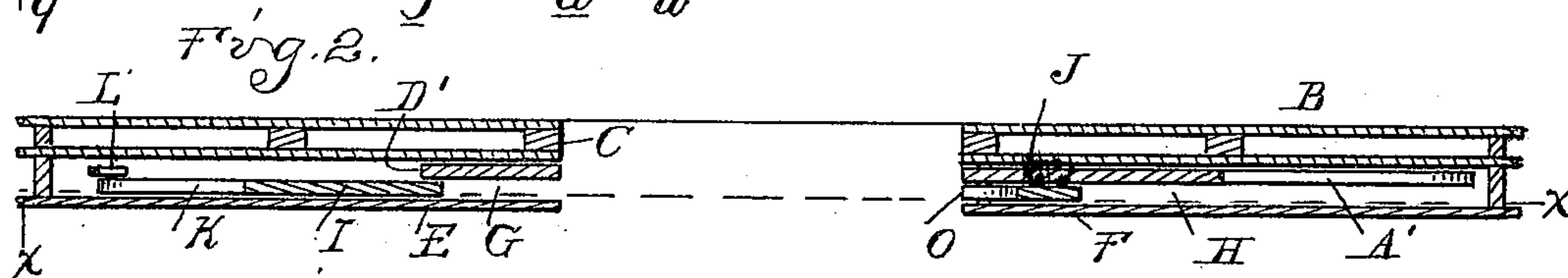
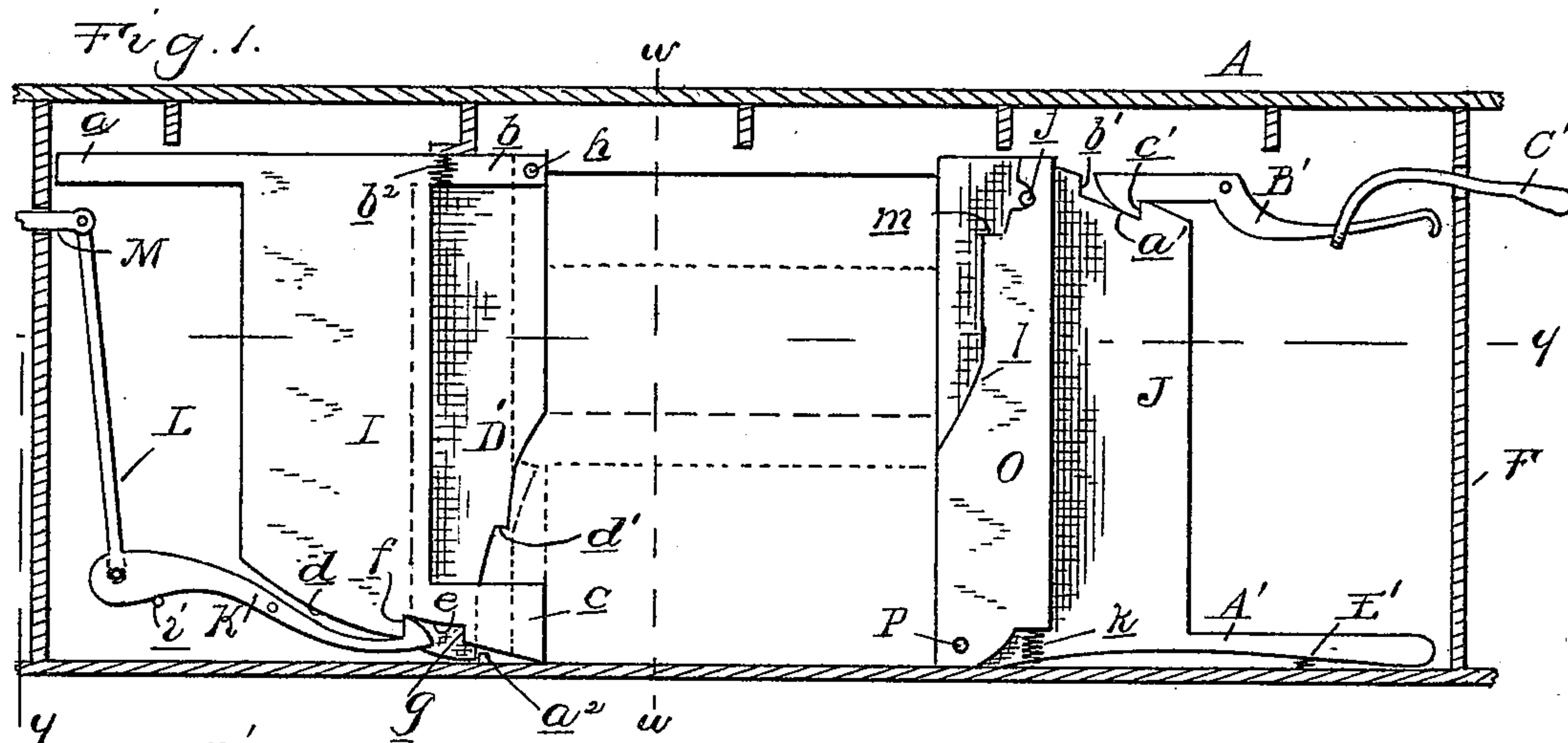
No. 641,860.

Patented Jan. 23, 1900.

G. P. HOFFMAN.  
GRAIN CAR DOOR.

(Application filed May 1, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 641,860, dated January 23, 1900.

Application filed May 1, 1899. Serial No. 715,232. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE P. HOFFMAN, a citizen of the United States, residing at Durand, in the county of Shiawassee and State of Michigan, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to grain-car doors; and it consists in the novel construction of a door of this type and the peculiar arrangement, construction, and combination of the various parts thereof, as more fully hereinafter described and shown in the drawings, in which—

Figure 1 is a section taken on line *xx*, Fig. 2. Fig. 2 is a sectional view taken on line *yy*, Fig. 1. Fig. 3 is an elevation of parts shown in Fig. 1 from the interior of the car. Fig. 4 is a section taken on line *ww*, Fig. 1; and Fig. 5 is a section on line *zz*, Fig. 3.

In the construction of my door I preferably form the same in two complementary parts or sections so constructed and arranged relatively to each other that they will overlap when closed, as shown by the dotted lines in Fig. 1.

More particularly, the construction of my door is as follows:

The reference-letter A designates a grain-car, and B one side thereof.

C designates the post forming the uprights for the door-frame, and D designates the usual car-lining secured to said uprights. Upon each side of the door are housings E and F, said housings being secured to the car-lining, as shown in Fig. 2, to form pockets G and H, which are adapted to receive, respectively, the door-sections I and J. The section I is provided at one end with oppositely-projecting extension-pieces *a* *b* and at the opposite end with an extension *c*. The body of the door-section is provided adjacent to the extension *c* with a curved face *d*, and *e* is a recess within the body and extension *c*, formed therein for the purpose of providing locking-shoulders *f* and *g*. The section is likewise pivoted within the housing E by means of a pin *h*, which extends through the extreme end of the section *b*. Means are provided for locking the said section when opened, as shown in Fig. 1, which means comprise a

latch K, pivoted to the car-lining below the section, a connecting-rod L, and a lever M, extending without the housing. *i* designates a stop arranged beneath the latch to prevent downward movement of the latter. When the door-section is swung into its open or vertical position, the latch K engages the shoulder *f* upon said section, thus locking it in an open position. The said section is released or unlocked by the operator withdrawing the latch K from the shoulder *f* by means of the lever M. Through the action of gravity the door-section swings outwardly a sufficient distance to enable the operator to obtain a hold upon the same and move the door into its closed position.

A locking mechanism is provided for each door-section when closed, and I preferably so construct said mechanism and arrange the same that while performing the function of a lock or latch it likewise assists in closing the pocket, thus effectively preventing dust or other foreign material from entering therein and interfering with the operation of the doors. The locking mechanism referred to for the section J comprises a latch-strip O, which is pivoted within the pocket H at a point P, said point being at the extreme lower end of the strip. *j* designates a stop limiting the forward movement of this strip, and *k* is a spring bearing against the lower portion of the strip and acting to hold it normally against the stop.

The strip or latch O is cut away at *l* and provided with a shoulder *m*, as plainly shown in Fig. 1. The door-section I when unlocked and swung into its raised position is moved upwardly until the shoulder *g* engages the shoulder *m* upon the latch. The extension *c* upon the door-section I forms a complementary portion of the latch-strip O, and the curved face *d* upon said section bears against the portion *l* upon the strip.

The complementary door-section J is somewhat similar in formation to the section I, the detail construction being as follows: Upon one end of the body of the section J is a lateral projection A', and at the opposite end the body is recessed at *a'* to form shoulders *b'* and *c'* thereon. The section is pivoted at the point P and swings in a direction opposite to that of its complementary section.

The letter B' designates a gravity-latch



adapted to engage the shoulder  $c'$  to lock the door-section in its open position, and  $C'$  is a lever projecting without the housing  $F$ , by means of which the latch is operated. The door-section  $I$  is provided with a latch-strip  $D'$ , located in the pocket  $G$  of section  $I$  and pivotally supported upon the pivot  $h$ . The strip referred to is provided with a locking-shoulder  $d'$ , said shoulder being adapted to engage in the recess  $a'$  of the door-section  $J$  when the latter is lowered into its closed position.  $a^2$  is a stop limiting the forward movement of the strip  $D'$ , and  $b^2$  is a spring causing the strip to bear against the stop.

In order that the section  $J$  of my improved door may be readily manipulated, I arrange a spring  $E'$  beneath the extension  $A'$ , which when the door is released throws the latter partly out of the pocket  $H$ , thus enabling the operator to obtain a hold upon the same.

In closing the door-sections, the parts being shown as in Fig. 1, the operator by means of the hand-lever  $M$  unlocks the section  $I$  and moves the latter upwardly until it is locked in its raised position in the manner set forth. The extensions  $a$  and  $b$  upon the body of this section entirely close one-half of the pocket  $G$ , while the latch  $O$  for said section  $I$  closes in a similar manner one-half of the pocket  $H$ . When the section  $J$  of the door is unlocked and moved into its closed position, the shoulder  $d$  upon its respective latch-strip locks it in its lower position. The extension  $A'$ , together with the end of the section-body, closes the remaining half of the pocket  $H$ , while the latch-strip  $D'$  closes the remaining half of the pocket  $G$ . The sections are of such size that when in their lowered position the upper section overlaps the lower, and both of said sections being arranged within the car and bearing against the post  $C$  of the door-frame the pressure of the grain is brought against said post and is not sustained alone by the doors.

From the description of my invention it will be readily observed that I have provided a door which is effective in use and of simple construction and have so arranged the door that the same may be closed in a ready and effective manner. Moreover, I have provided locking mechanism for the doors which, in connection with the latter, prevents to as great an extent as possible the grain, dust, or other foreign material from sifting between the door-sections, thus preventing the working of the door. For such dust or foreign material as may accumulate I provide means for readily removing the same, said means being of the following construction: A portion of each housing is cut away at the lower portion thereof, forming a discharge-passage from said housing into the interior of the car, and upon each side of the opening are arranged guide-strips  $l'$  and  $m'$ , in which a door  $o'$  is adapted to have a vertical sliding engagement.

Above the door are pivoted two latches  $p'$  and  $q'$ , each latch being provided with an upper shoulder  $r'$  and a hook  $s'$ . Upon the door are extensions  $t'$ , which at their ends are provided with a pin  $u'$ . When it is desired to remove the foreign matter from the housing, the latches are moved out of engagement with the pins and the door is raised and is maintained in its raised position by means of the upper shoulders upon the latches engaging the pins. The door is maintained in its closed position by means of the hooks upon the latches engaging said pins, as plainly shown.

What I claim as my invention is—

1. In a grain-car door, the combination of a slotted housing arranged adjacent to one side of the door-opening, a door-section for closing a portion of said opening, pivoted and adapted to swing in its own plane within the housing, and an extension upon the section at its pivoted side, and in the plane of the section, constructed to extend vertically within and fully close the housing when the door is in its forward or closed position.

2. In a grain-car door, the combination of a slotted housing arranged adjacent to one side of the door-opening, a door-section for covering a portion of the said opening pivoted and adapted to swing in its own plane within the housing, said section being of a length to entirely close the housing when in its open or retracted position, and an extension upon the section side having the lesser dimension, said extension being of a length sufficient to make the length of said lesser side equal at its edge to the length of the longer side, to fully close the housing when the section is in its closed position.

3. In a grain-car door the combination of slotted housings arranged respectively adjacent to opposite sides of the door-opening, a door-section pivoted to swing into one of said housings in its open position and in its closed position to extend across into the slot of the opposite housing and a latch-strip in said latter housing adapted to engage with said door-section to lock the same and to close the slot in said housing.

4. In a grain-car door the combination of slotted housings arranged respectively adjacent to opposite sides of the door-opening, door-sections pivoted to swing in parallel planes adjacent to each other and respectively into said opposite housings, and latch-strips in said housings adjacent to said door-sections each adapted to engage with the door-section pivoted in the opposite housing, when in its closed position.

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

GEORGE P. HOFFMAN.

Witnesses:

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H. C. SMITH.