

No. 681,321.

Patented Aug. 27, 1901.

J. D. HOOVER.
GRAIN CAR DOOR.

(Application filed June 27, 1901.)

(No Model.)

→ 3 *Fig. 1.*

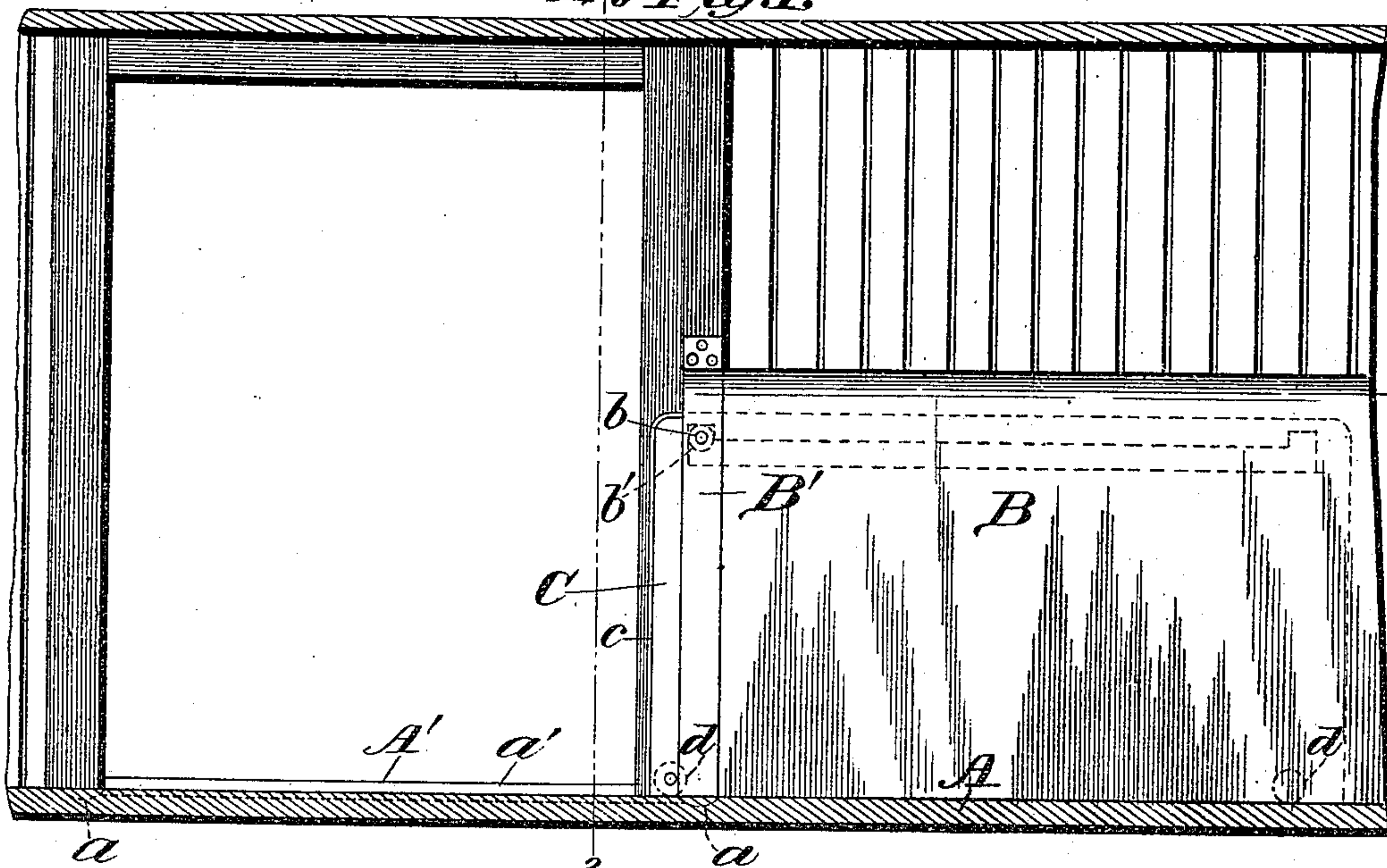


Fig. 2.

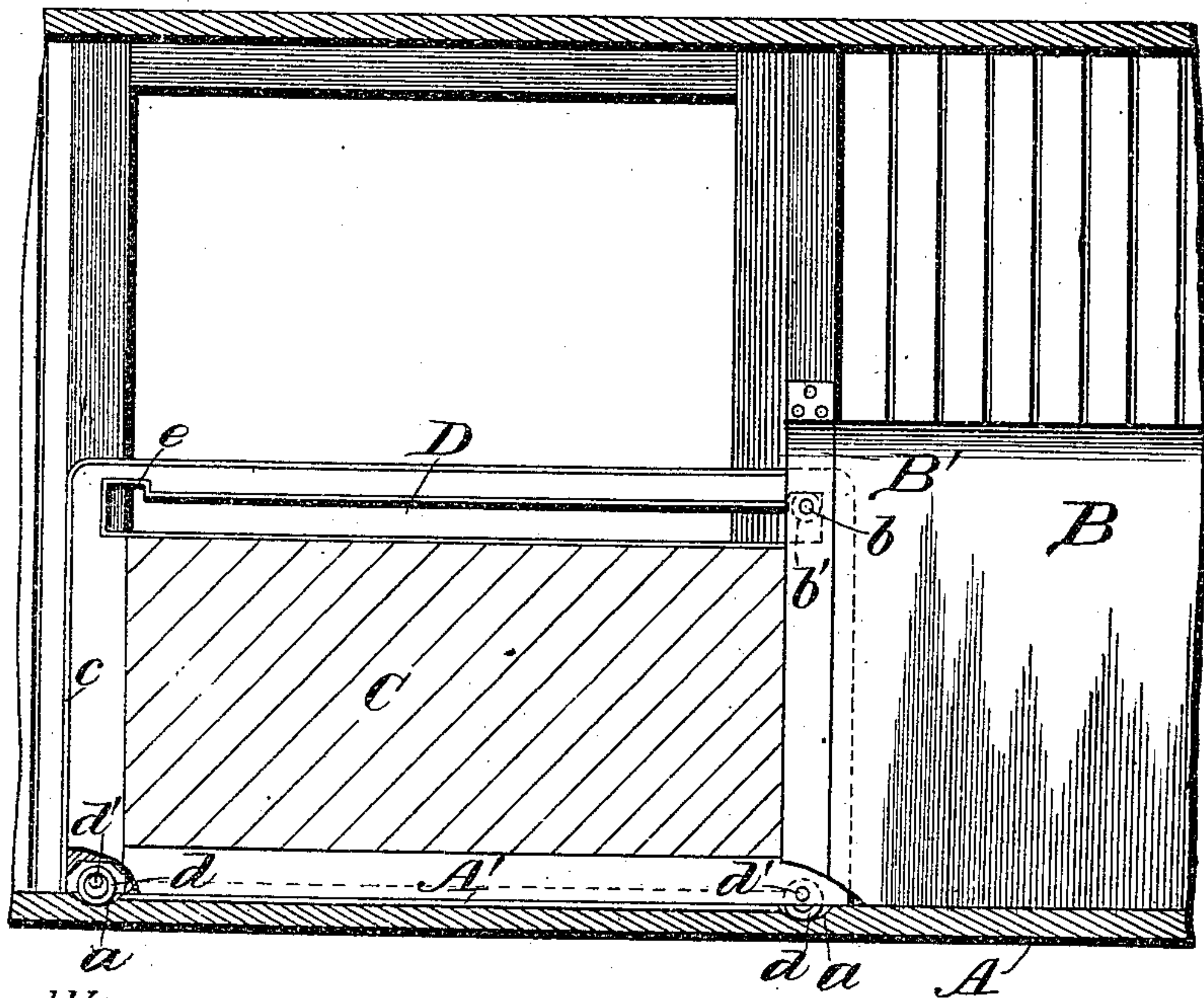
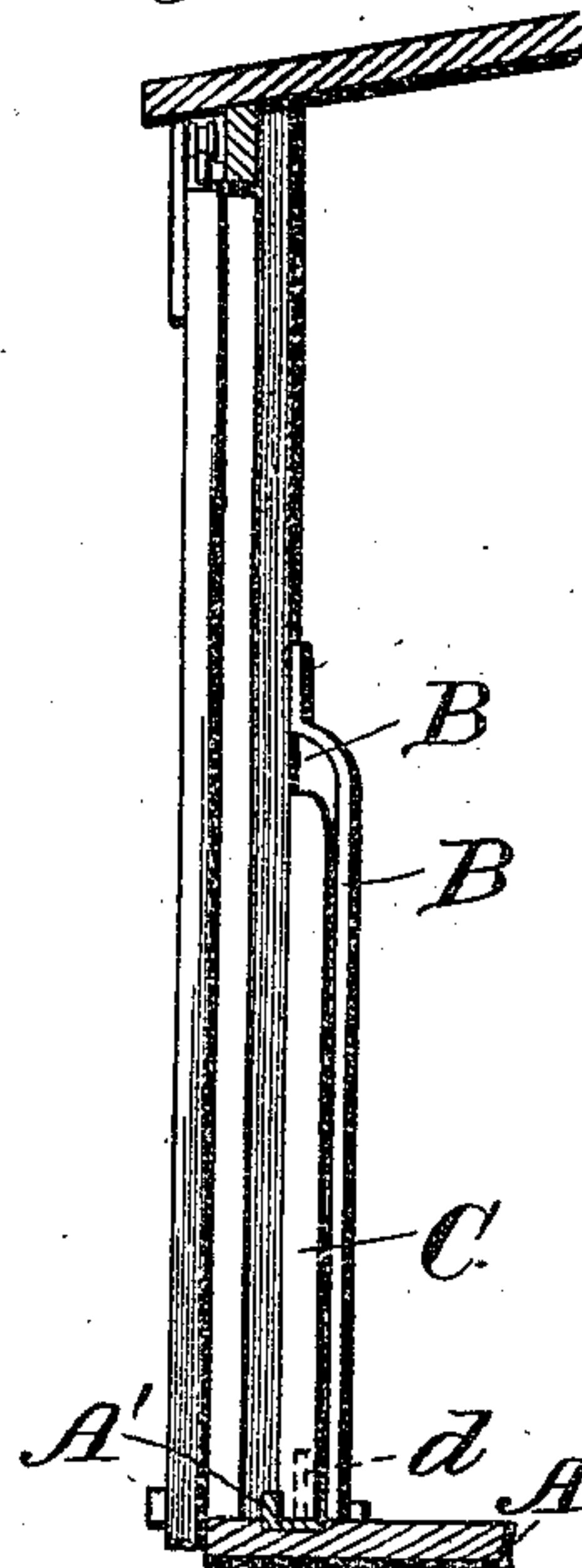


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB D. HOOVER, OF WINCHESTER, VIRGINIA, ASSIGNOR OF ONE-HALF
TO GEORGE H. KINZEL, OF SAME PLACE.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 681,321, dated August 27, 1901.

Application filed June 27, 1901. Serial No. 66,245. (No model.)

To all whom it may concern:

Be it known that I, JACOB D. HOOVER, a citizen of the United States, residing at Winchester, in the county of Frederick and State of Virginia, have invented new and useful Improvements in Grain-Car Doors, of which the following is a specification.

This invention appertains to certain new and useful improvements in grain-car doors, and has for its object to provide an inside door for retaining grain in cars, the construction being such that the door will be automatically locked when either opened or closed, and when closed will rest upon the sill, and thus provide a tight joint at the bottom of the door.

The invention consists in the construction and combination of the parts as will be hereinafter set forth, and particularly pointed out in the claims, the construction embodying a roller-support for the door and rollers at the bottom of the door, which rollers are adapted to enter recesses when the door reaches the limit of its movement and the upper or main supporting-roller lies in notches or recesses at the end of the longitudinal slot at the upper portion of the door.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, viewed from the inside of the car, the door being positioned to one side of the doorway. Fig. 2 is a similar view, the door being closed. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 1.

In the drawings, A refers to the floor of the car, which is provided between the door posts or frame with a sill A', and between each pair of posts the sill, when continued beyond the posts, or the floor, when the same is not so extended, has depressions or recesses *a a*. The door-sill A' may be made up of an angular strip of metal having an upwardly-projecting flange *a'*, against which the door may abut when closed, the horizontal portion of the angle-iron providing a track or way for the rollers of the door.

The car is provided with the usual outside door, and to one side of the door-frame on the inner side of the car there is provided a casing or housing B, into which the grain-door may be slid. The upright B', which is adja-

cent to the door-frame, is attached at its upper end to the inner wall of the car, its lower end being secured in any suitable manner to the floor, and this upright or post B' supports one end of a journal *b*, upon which is mounted a roller *b'*. The casing for the grain-car door may be either built up or of sheet metal and the upper portion may be rounded or curved, as shown.

The grain-car door C is preferably built up from lumber in the usual manner and is bounded by a metal strip *c*, the portion at the bottom of the door being cut away to admit the passage therethrough of rollers *d d*, which have apertures of a considerably larger diameter than the fixed journals *d'*, which connect the rollers to the door. This construction permits the rollers to drop well into the recesses *a* when the door is opened or closed and will roll on the sill when the door is slid out of the recesses.

Near the upper portion of the door C is a longitudinal slot D, which has at its ends upwardly-extending notches or recesses *e* with straight edges, the recesses being practically of the same length as the diameter of the roller *b'*, and this slot may be provided with metal wear-plates.

In order to attach the grain-door to the car, it is only necessary to remove partially the bearing-pin *b* and place the roller in the slot and then cause the same to be engaged by its roller, and when the door is either opened or closed the roller will enter one of the recesses *e*, while the other rollers *d d* drop into the depressions *a*, holding the door locked when moved to its limit in either direction.

To open or close the door, it is only necessary to lift the door and give it a slight longitudinal movement, and when raised the upper roller *b'* will receive the major portion of the weight of the door and the other rollers will move over the sill and prevent the gate binding in its movement. It is obvious that the door as moved either to open or close the same will tilt at certain points upon the roller *b'* and would be liable to bind unless it was for the rollers *d d*, and said rollers being loosely mounted on their axle will give or adapt themselves to the inclination of the door. They will also enter the recesses to the

full depth thereof, and thus make a secure lock and allow the door to bear at its lower edge upon the sill when closed.

In opening or closing the door it is only necessary to elevate that end thereof with which the roller *b'* engages with the recess *e* and give to the door a slight movement in the direction which it is desired to move the door, after which the door can be readily slid to open or close. By this construction no openings are provided at the bottom of the door, nor are there any stops which would interfere with the free sliding movement thereof when unlocked, and it will also be noted that this lock operates automatically when the door reaches the limit of its movement in either direction.

The retaining-door usually only occupies a portion of the height of the car-door opening and is readily applied to grain-cars of ordinary construction.

I claim—

1. A sliding door for grain-cars, having near its upper edge a longitudinal slot with upward recesses, rollers carried by the door adjacent to the lower corners thereof, a roller mounted so as to engage the slot and enter the recesses thereof when the door is opened or closed, and recesses into which the rollers at the lower portion of the gate drop when the door is closed, substantially as shown.

2. The combination with a car-door frame having a roller, of a grain-door having rollers which extend beyond the bottom of the grain-

door, the upper portion of the door having a longitudinal recess with upward extensions at its ends, substantially as shown to provide an automatic lock for the door.

3. The combination with a door-frame having a housing or guideway for a grain-door and a roller carried thereby, of a grain-door having rollers which extend below its lower edge and are adjacent to the ends of the grain-door, said grain-door having therethrough near its upper edge a longitudinal slot with upwardly-extending notches, and recesses in the floor of the car-body into which the rollers at the lower edge of the door may enter when the door is closed and locked, substantially as set forth.

4. A sliding door for a grain-car, having a longitudinal slot the ends of which extend upward, rollers carried by the door said rollers being loosely mounted on journals, recesses in the path of the door, a flanged sill between the door-frame, a supporting-roller which intersects the slot in the upper portion of the door, and a housing or casing into which the grain-door may slide when moved past the doorway of the car.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JACOB D. HOOVER.

Witnesses:

C. N. WALKER,
EUGENE W. JOHNSON.