

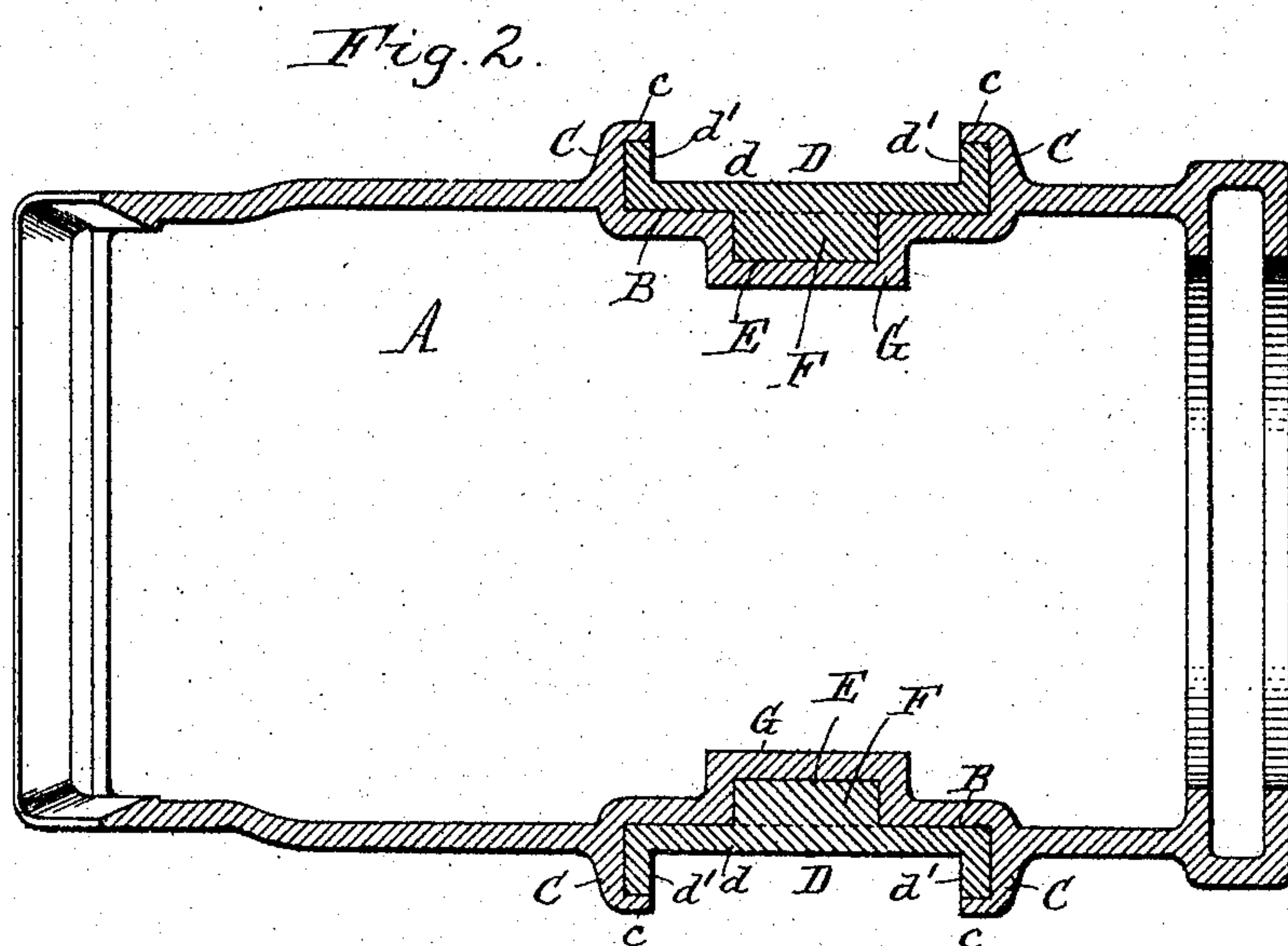
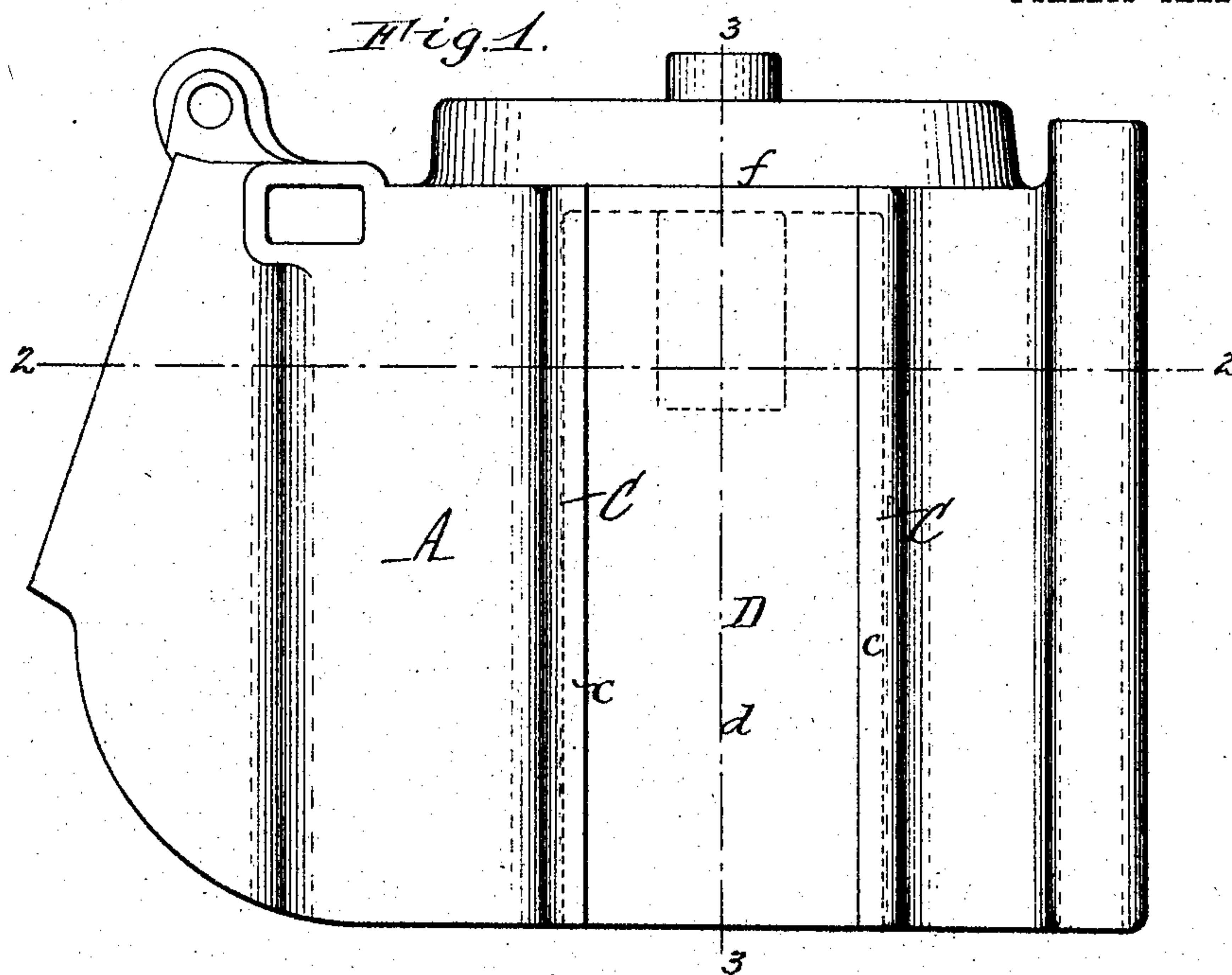
No. 786,993.

PATENTED APR. 11, 1905.

W. F. RICHARDS.
CAR AXLE BOX.

APPLICATION FILED JULY 17, 1901.

2 SHEETS—SHEET 1.



Witnesses:

Henry L. Deck.

F. F. Schuringer.

W. F. Richards Inventor.

By Wilhelm Borned.

Attorneys.

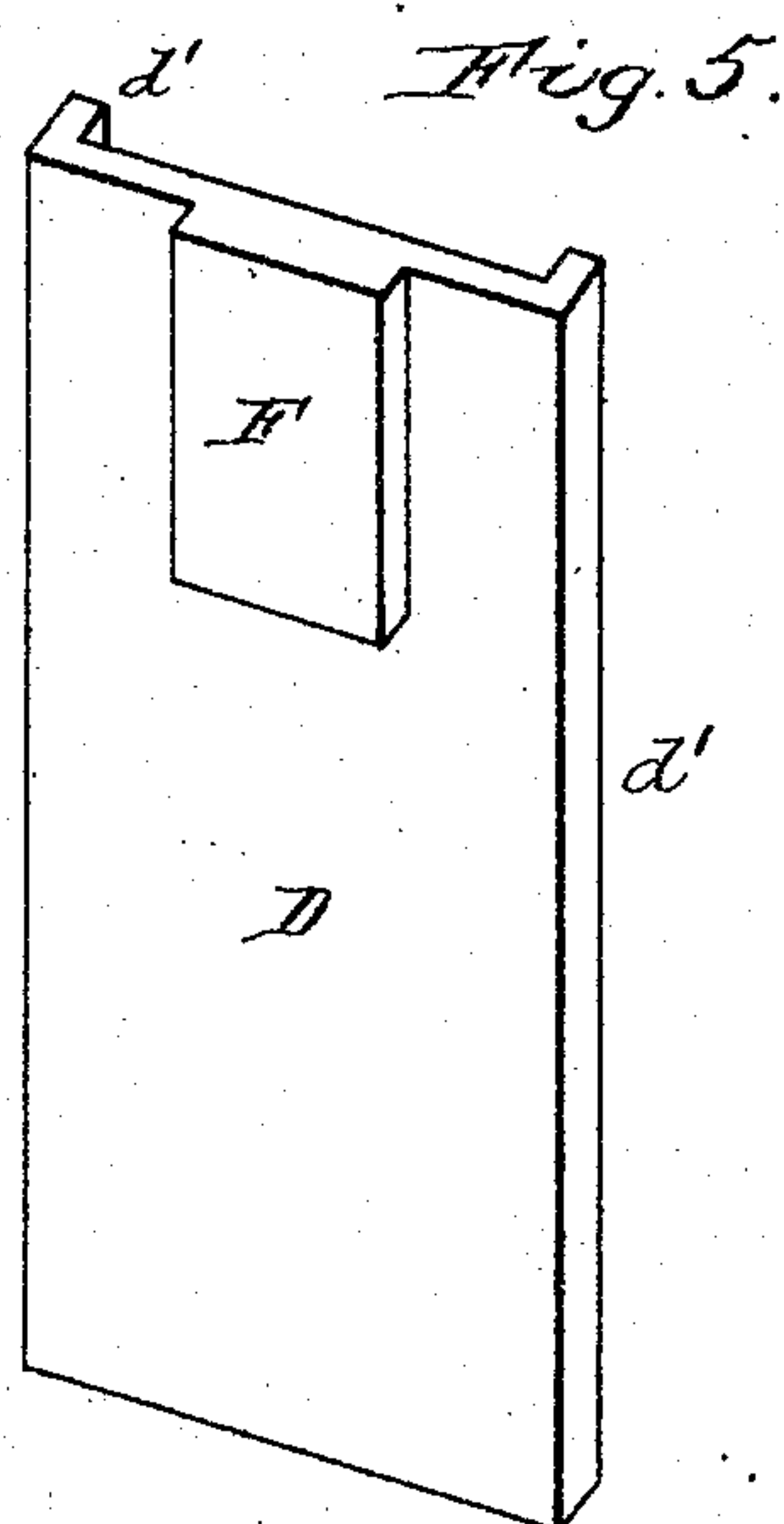
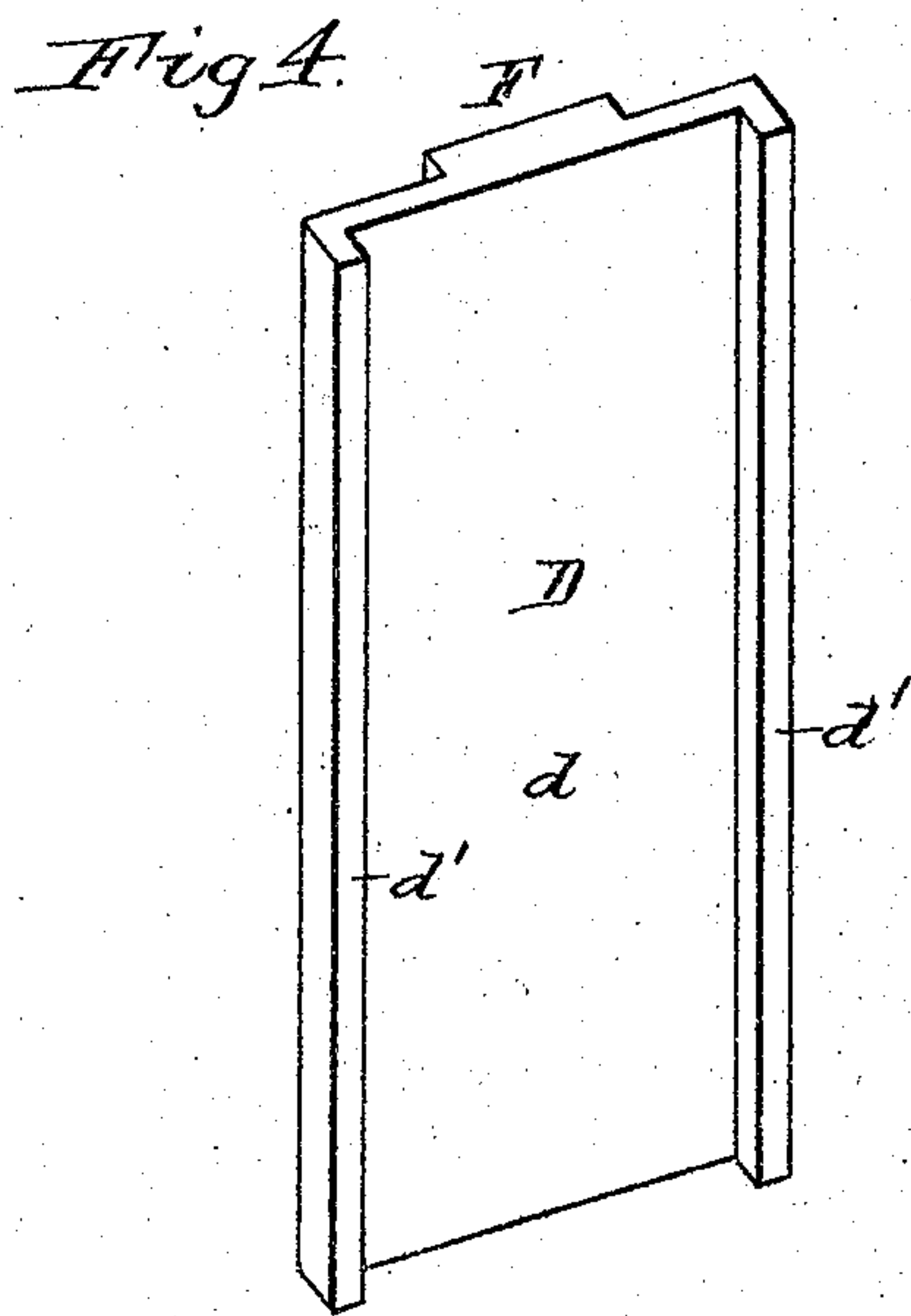
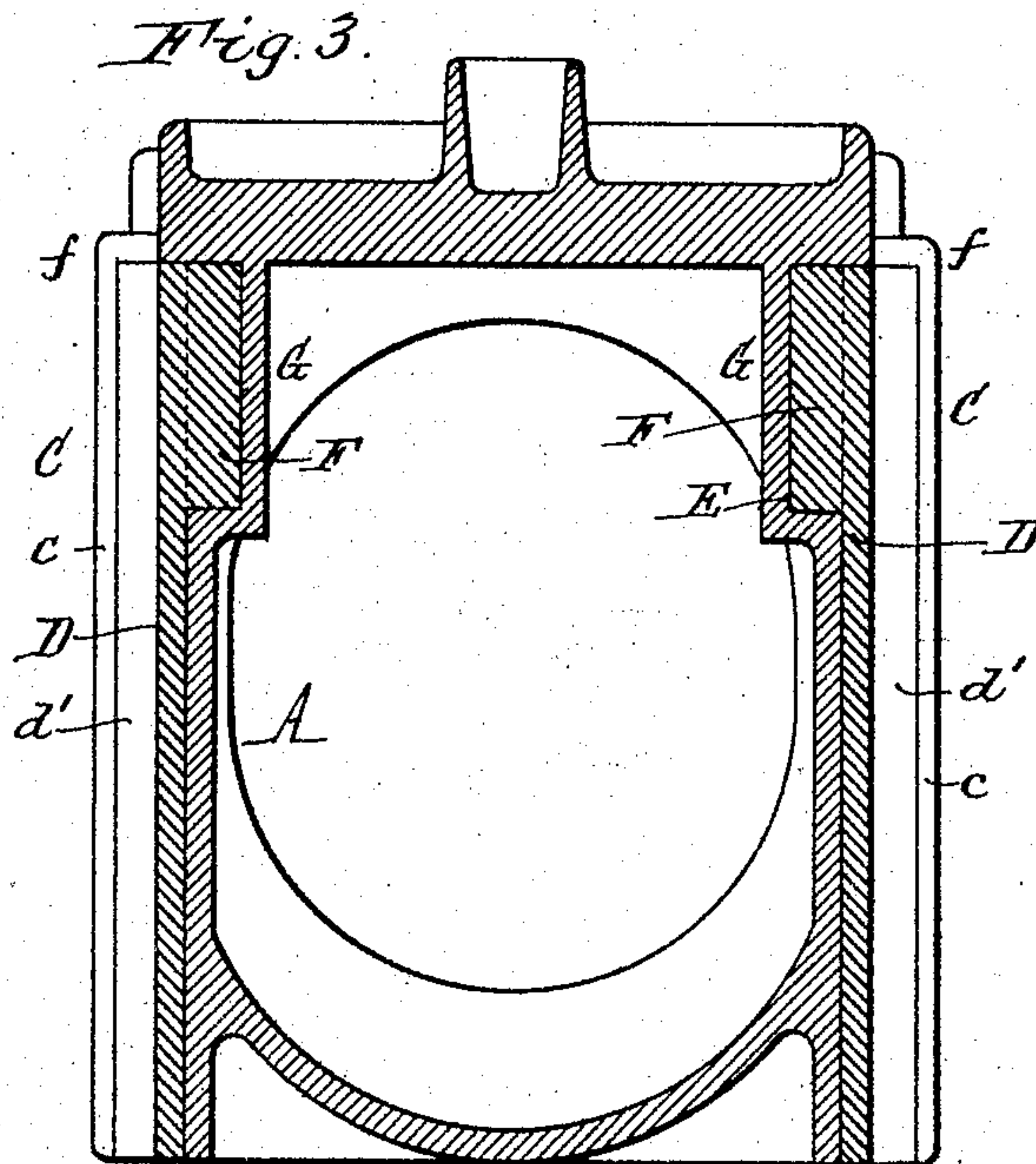
No. 786,993.

PATENTED APR. 11, 1905.

W. F. RICHARDS.
CAR AXLE BOX.

APPLICATION FILED JULY 17, 1901.

2 SHEETS—SHEET 2.



Witnesses:
Henry L. Deck.
F. F. Scherjager.

W. F. Richards Inventor.
By Wilhelm Bonner
Attorneys.

UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 786,993, dated April 11, 1905.

Application filed July 17, 1901. Serial No. 68,661.

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Axle Boxes, of which the following is a specification.

This invention relates more particularly to a car-axle box made of malleable iron and provided with wear surfaces or plates of harder iron cast thereon.

Heretofore car-axle boxes have been made of malleable iron or of cast or gray iron. Cast or gray iron is not as strong as malleable iron and is much more brittle. Hence axle-boxes made of the former were required to be very thick and heavy to withstand the severe shocks and usage they were subjected to. Malleable-iron axle-boxes have therefore been preferred, because they can be made much lighter for the necessary strength. Where the boxes are used in the well-known diamond trucks, they are securely held in the truck and are not subject to great wear. Malleable-iron boxes are therefore desirable with such trucks; but they are found to be objectionable when used in the pressed-steel trucks, such as the Fox truck, wherein the boxes have an up-and-down movement between the box holding and guiding jaws of the truck, for the malleable iron being much softer than the cast or gray iron the walls of the boxes wear rapidly, and being thin the boxes are rendered useless in a comparatively short time.

It is the object of the present invention to provide a malleable-iron car-axle box of the usual and accepted form with wear surfaces or plates of harder material at the points where this wear occurs, in a simple and inexpensive manner, whereby the advantages of both the light malleable-iron box and the hard cast-iron box are secured without the disadvantages of the soft wear-surfaces of the former in the bulk and weight of the latter. This object I accomplish by casting on each side of a malleable-iron car-axle box or at those parts subject to wear, as above stated, a wear surface or plate of iron of that hard

quality which is usually called "carbonized" or "chill" iron.

In the accompanying drawings, Figure 1 is a side elevation of a car-axle box, illustrating the invention. Fig. 2 is a horizontal sectional view thereof on the line 2 2, Fig. 1. Fig. 3 is a vertical section on line 3 3, Fig. 1. Fig. 4 is a perspective view showing the form of the outside face of the wear-plate. Fig. 5 is a similar view of the inside face of the wear-plate.

Like letters of reference refer to like parts in the several figures.

Referring to the drawings, A indicates a car-axle box of the conventional or any desired form. The box is made of malleable iron and is shown as cast or formed at each of its opposite side walls with a vertical depression or channel B, bounded at the upright edges thereof by parallel vertical ribs C, which project outwardly beyond the outer face of the side wall.

D indicates wear plates or surfaces of carbonized or chill iron cast into the recesses B. Each wear-plate is preferably substantially U-shaped in horizontal cross-section, comprising the broad base portion *d*, the outer face of which is flush with or in the vertical plane of the outer face of the side wall of the axle-box, and the vertical outwardly-projecting side flanges *d'*. Thus each wear-plate covers and protects both the base-face of the depression B and also the inner faces of the ribs C and provides in itself a vertical depression or channel in which the holding and guide jaw of the truck engages. The axle-box with the wear-plates thereon is of substantially the same outer contour or formation as the old-style malleable-iron box without the wear plates or faces, so that it can replace one of them without change in the form or size of the truck. To prevent vertical displacement of the wear-plates, the bases of the channels B are preferably provided with pockets E, into which extend holding-lugs F on the inside faces of the wear-plates. Car-axle boxes of the type illustrated in the drawings are usually provided at the upper part thereof

with internal inwardly-projecting lugs, such as indicated at G, for holding the journal-bearings in place, and I preferably make use of these lugs by forming therein the pockets
 5 E, the other parts of the walls of the box not being without some alteration sufficiently heavy for this purpose. To further insure against the loosening or displacement of the wear-plates, the outer edges of the vertical
 10 ribs C are provided with retaining-flanges *c*, projecting toward or facing each other and adapted to overlap the outer edges of the side flanges *d'* of the wear-plates. These retain-
 15 ing-flanges *c* prevent the wear-plates from being moved outwardly. As an additional safeguard the upper ends of the depressions or channels B are closed by overhanging horizontal top flanges *f*, which extend outwardly
 20 over the upper ends of the wear-plates, thereby assisting the lugs F in preventing upward dislodgment of the wear-plates. In manufacturing the boxes with these hard wear-sur-
 25 faces the boxes are cast with the depressions B therein and annealed in the usual way. The box is then put into a mold and molten carbonized or chill iron is run into the mold at the places left between the depressions and the mold for the formation of the hard wear
 30 plates or surfaces. The carbonized or chill iron employed for the wear-plates does not require to be chilled by casting it in contact with a chill, but becomes sufficiently hard simply by cooling.

An axle-box provided as above described
 35 with the hard wear plates or surfaces embodies the advantages of both the malleable-iron and cast or gray iron box and is the same in external form as the usual malleable-iron

box, thus avoiding any necessity for changing the usual and accepted form of trucks. 40
 Furthermore, the hard wear-plates are intimately and firmly united to the walls of the box, constituting practically integral parts thereof and are inseparable therefrom. The
 45 use of securing devices is completely avoided, and consequently there are no parts to be broken or lost or which can loosen and permit the loosening of the wear plates or surfaces.

I claim as my invention—

1. A metallic car-axle box provided with 50
 depressions in its sides, and having wear-plates of relatively harder metal located in said depressions, said wear-plates and axle-box being permanently connected by interengaging
 55 parts on the wear-plates and axle-box constructed and arranged to positively hold the wear-plates from movement in every direction laterally and vertically, substantially as set forth.

2. A metallic car-axle box provided in its 60
 sides with upright depressions, and having wear-plates of relatively harder metal located in said depressions and permanently attached to the axle-box against removal by projec-
 65 tions on the inner sides of the wear-plates engaging in correspondingly-shaped sockets in the axle-box, and upright flanges on the axle-box overlapping the outer faces of the side
 70 edges of the wear-plates, substantially as set forth.

Witness my hand this 2d day of July, 1901.

WILLARD F. RICHARDS.

Witnesses:

JNO. J. BONNER,

CLAUDIA M. BENTLEY.