

L. W. HARTSIG.  
DOOR HINGE.  
APPLICATION FILED MAY 4, 1908.

Patented Jan. 26, 1909.

910,533.

2 SHEETS—SHEET 1.

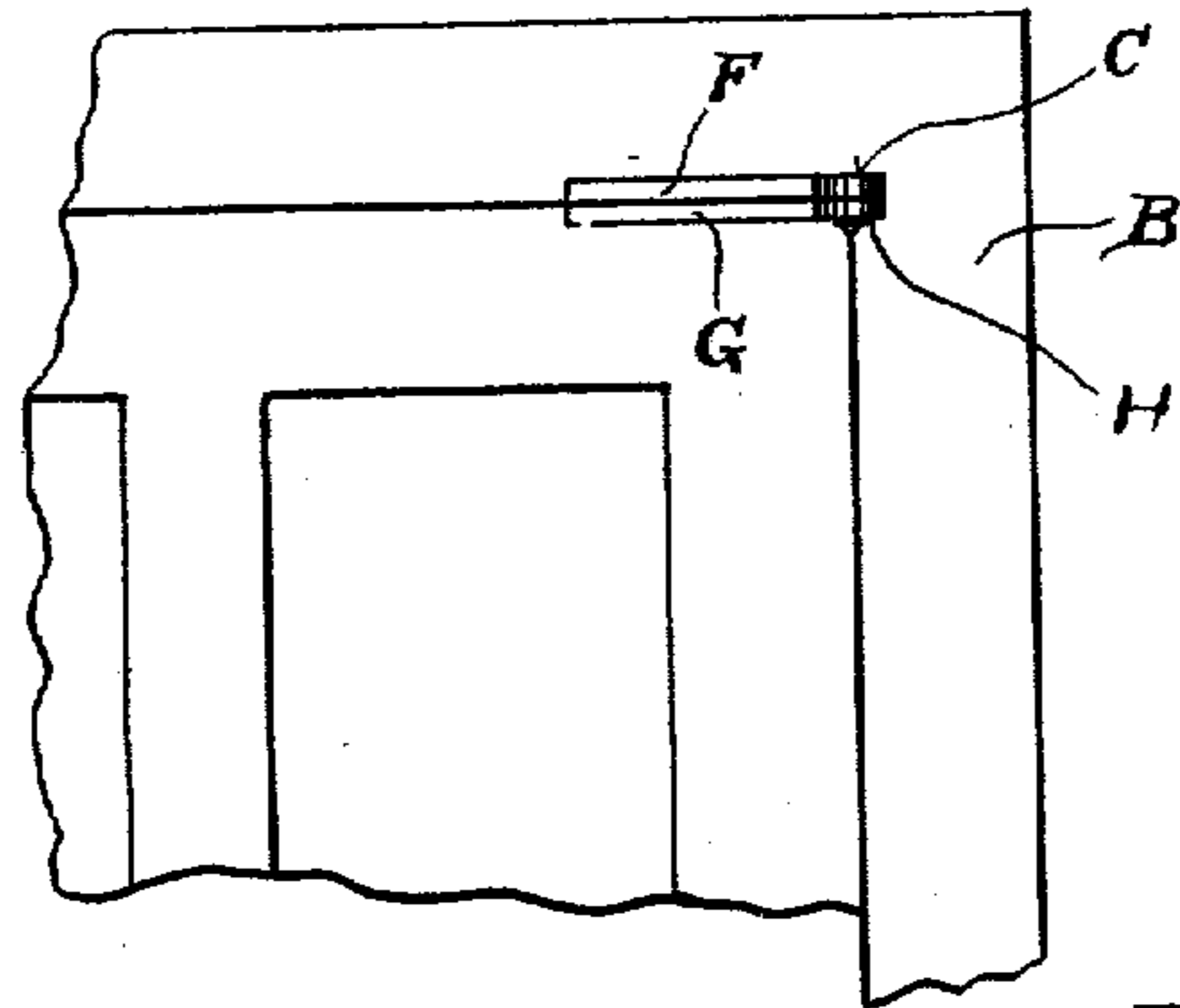


Fig 1

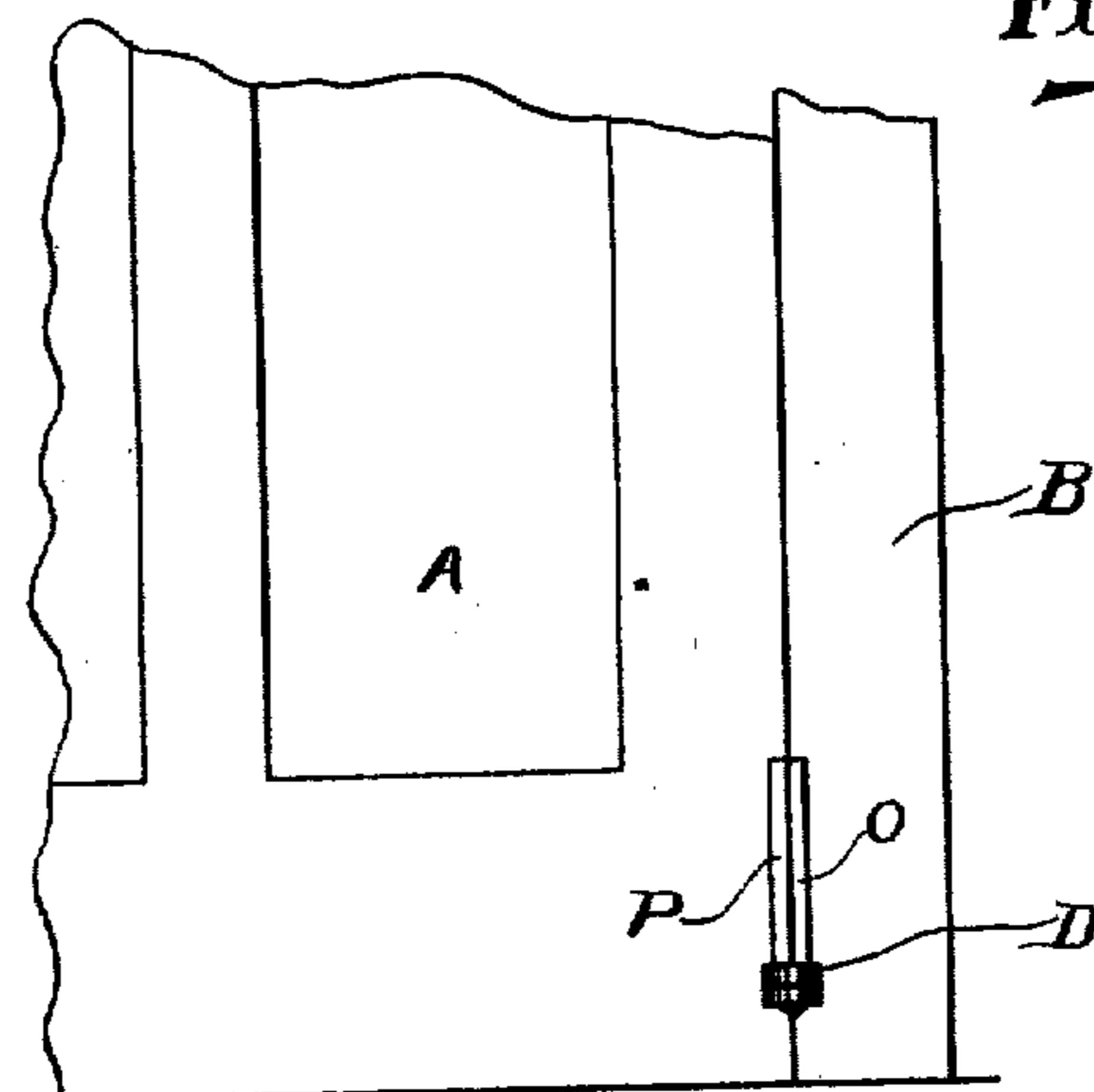


Fig 2

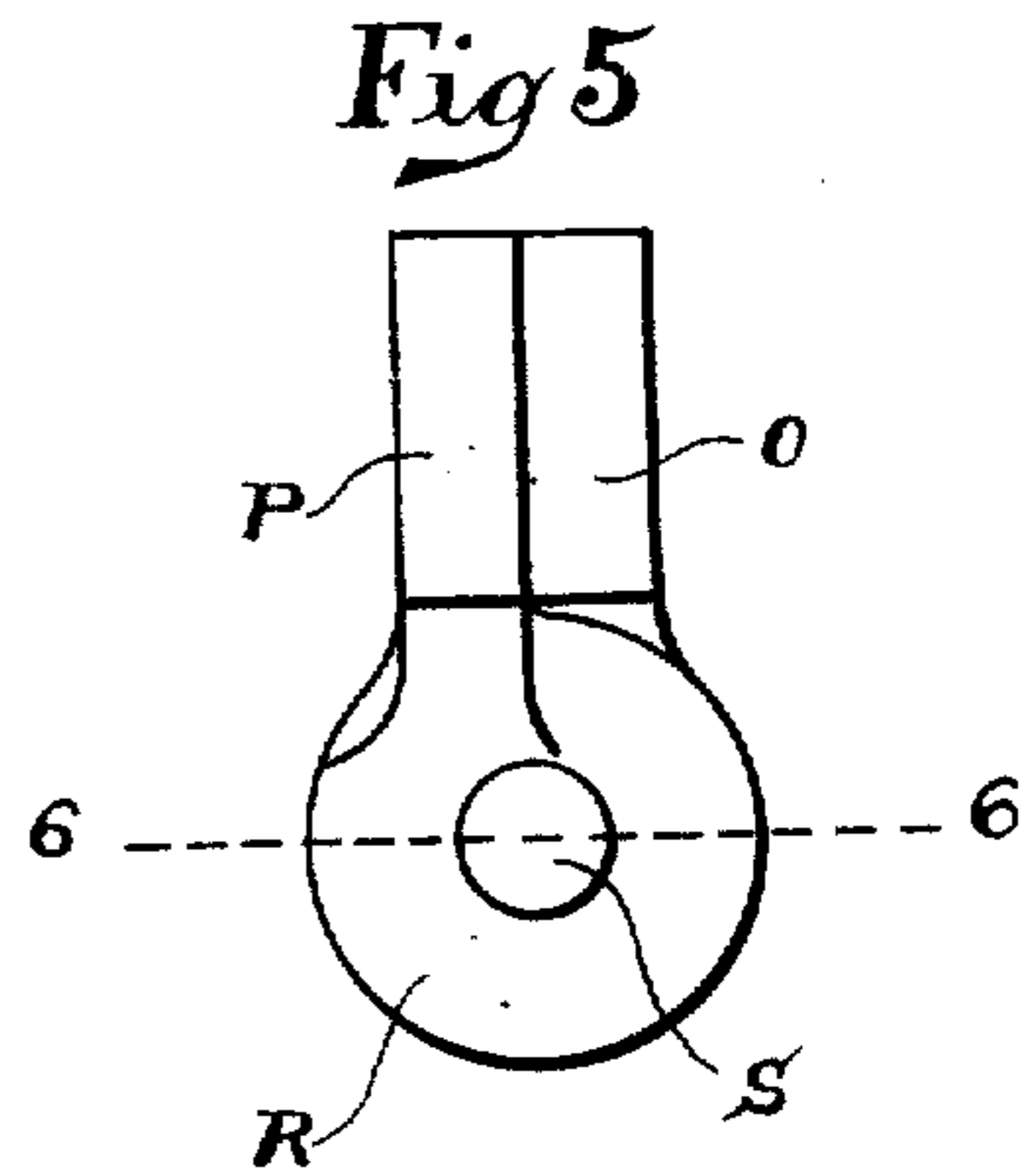
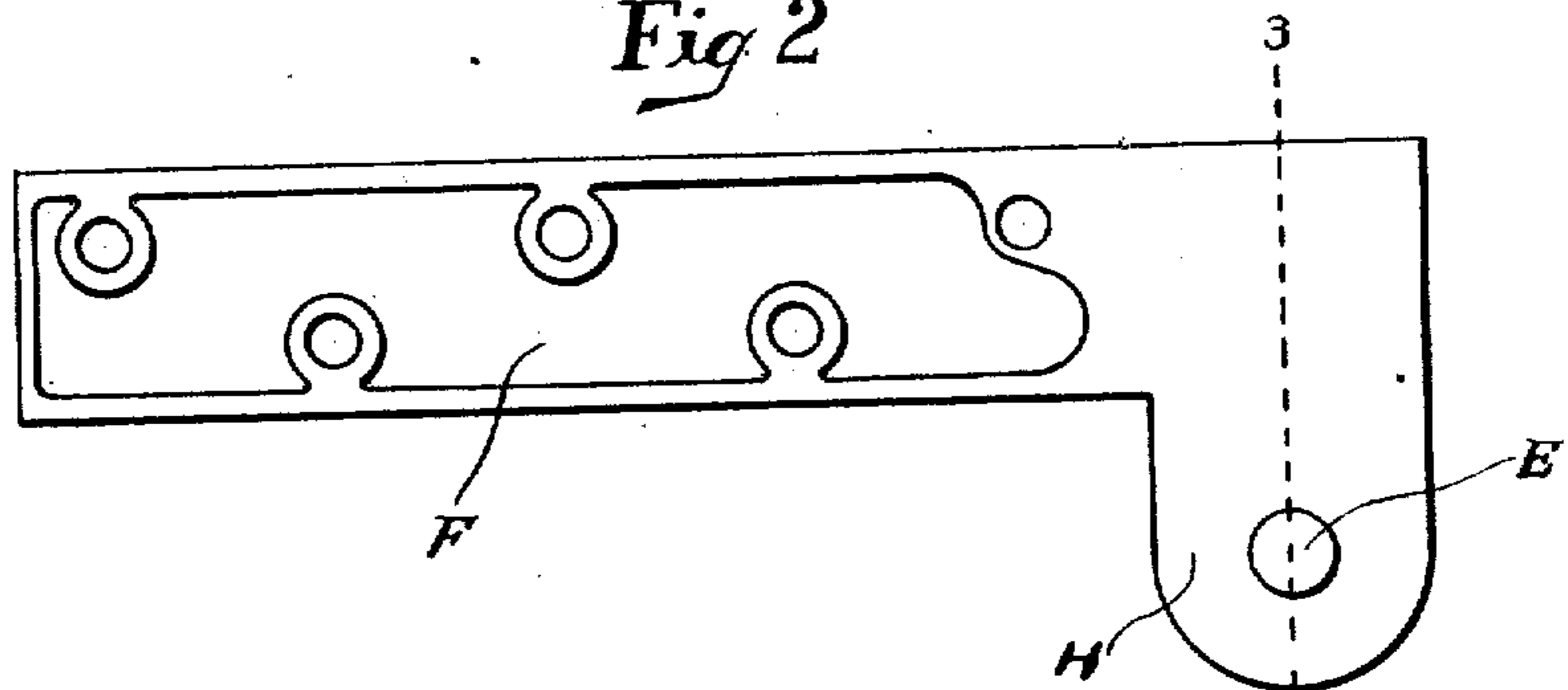
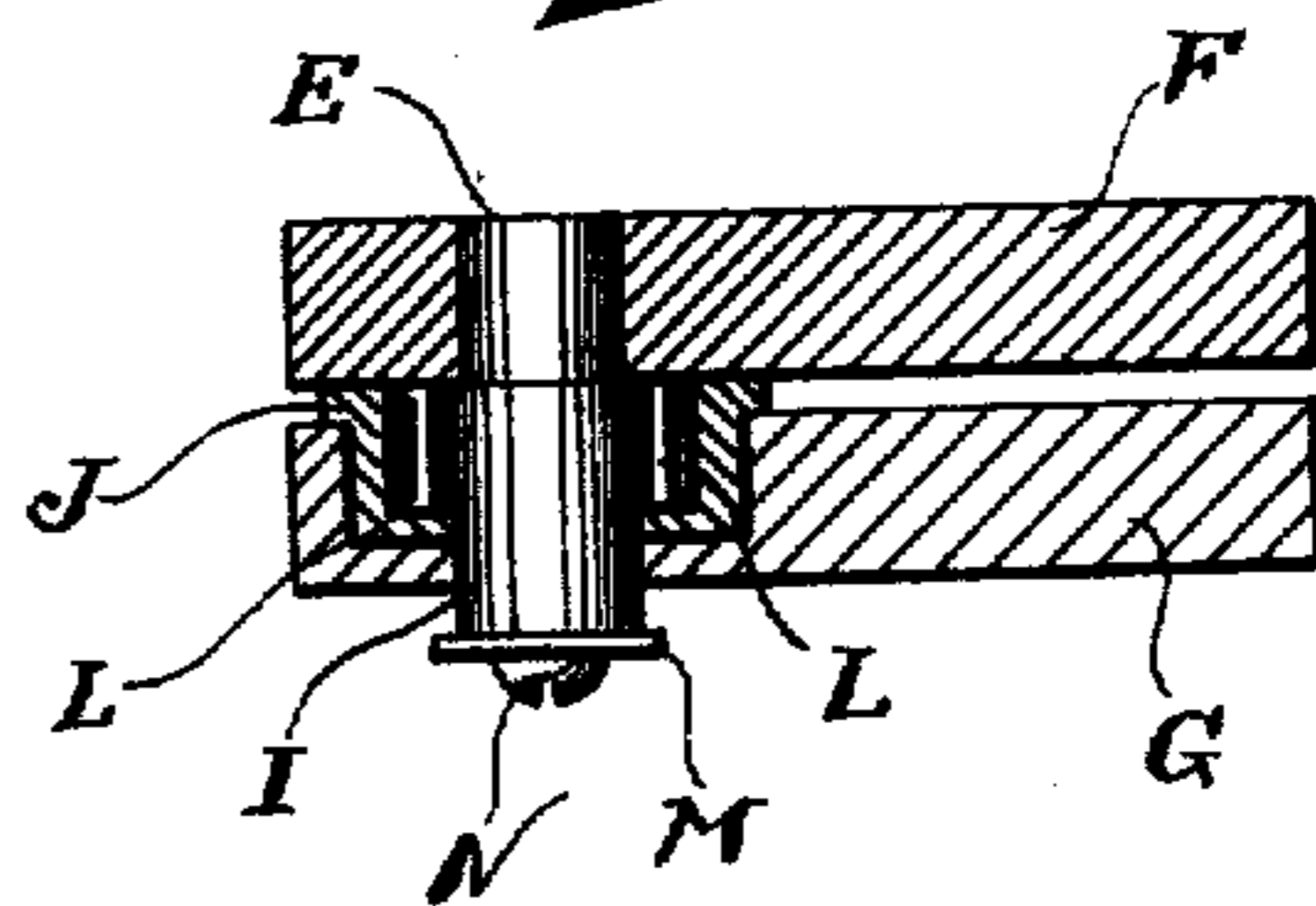


Fig 3



Inventor

Lewis William Hartsig  
by Beacho Fisher  
Attorneys

Witness  
H. J. Floote.  
M. Olive Williams

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Fig 4

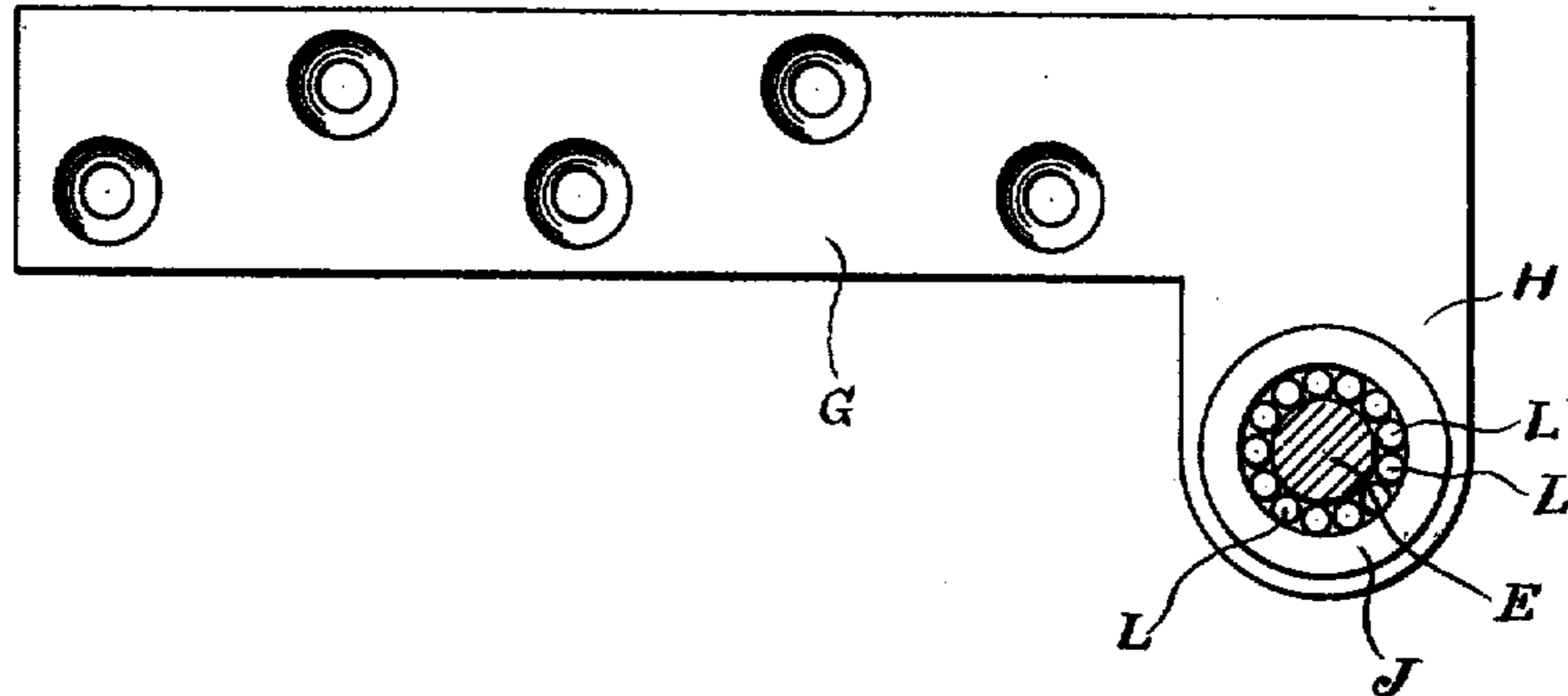


Fig 6

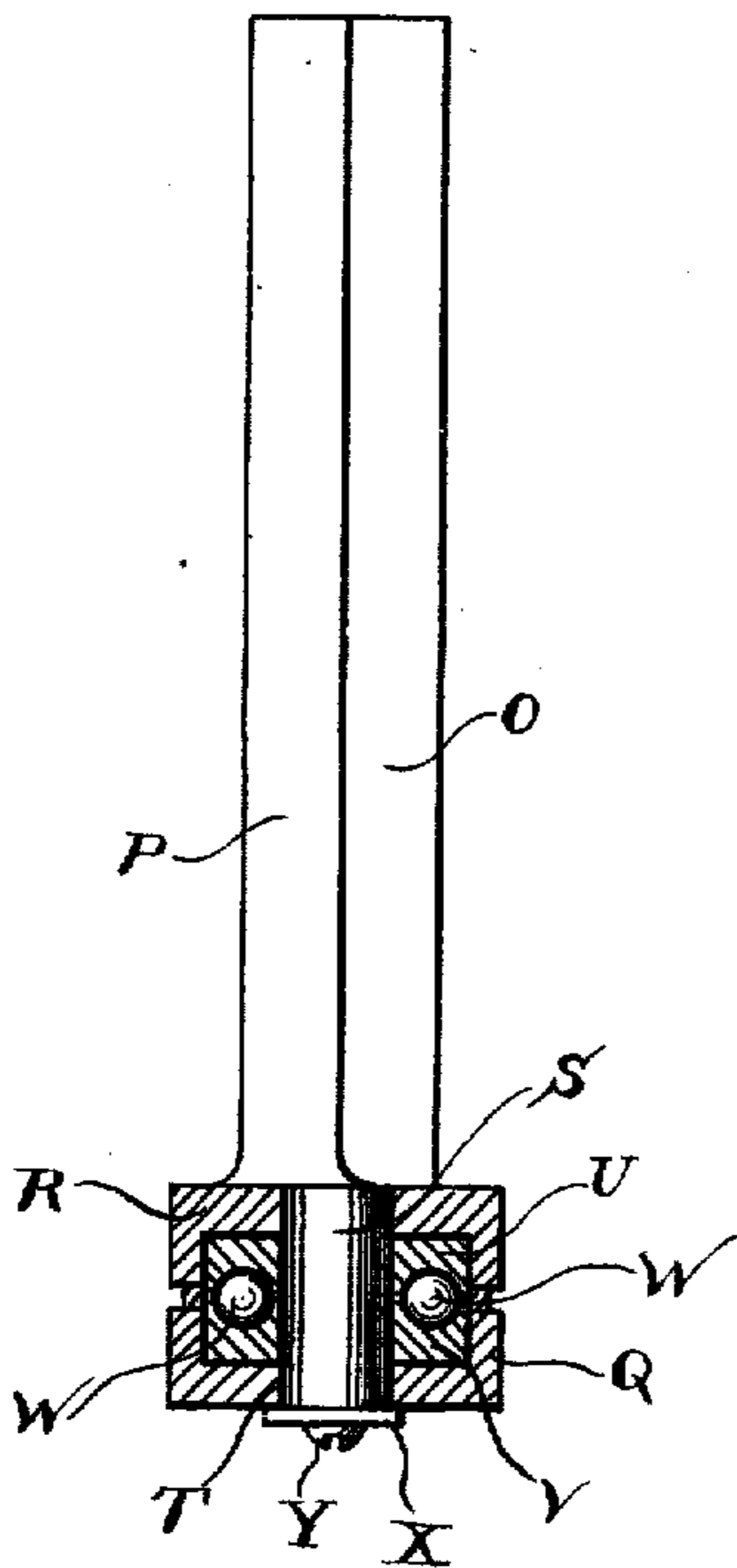
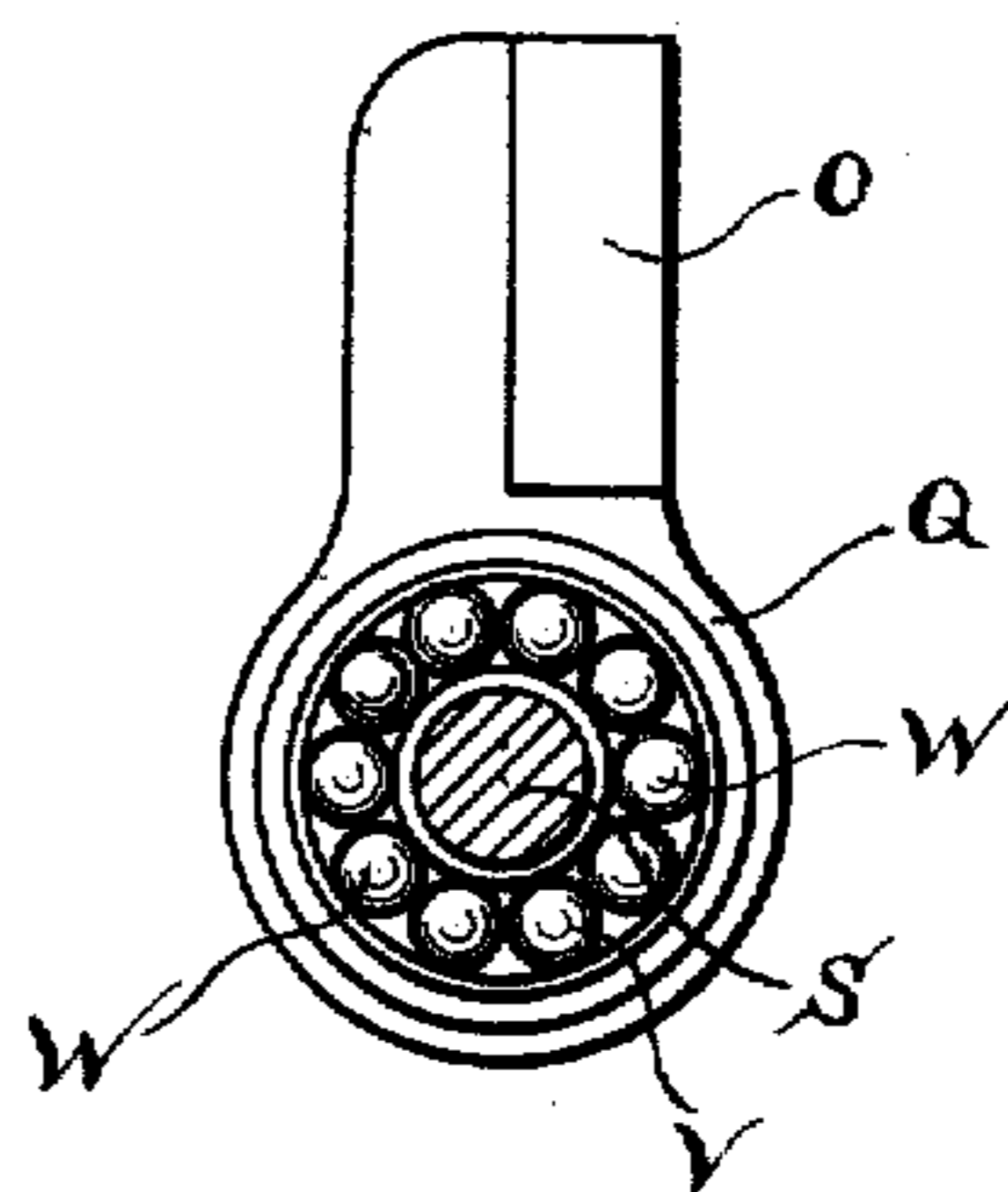


Fig 7



Witness

H. J. Frootie.  
M. Olive Williams.

Inventor:

Lewis William Hartsig  
by Beach & Fisher

Attorneys

# UNITED STATES PATENT OFFICE.

LEWIS WM. HARTSIG, OF CHICAGO, ILLINOIS, ASSIGNOR TO SARGENT & COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## DOOR-HINGE.

No. 910,533.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed May 4, 1906. Serial No. 315,239.

*To all whom it may concern:*

Be it known that I, LEWIS WILLIAM HARTSIG, of the city of Chicago, county of Cook, and State of Illinois, have invented  
5 new and useful Improvements in Door-Hinges, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof, and in which—

10 Figure 1 represents a front elevation of a door and door jamb with hinges embodying the invention, Fig. 2, a top view of the upper hinge shown in Fig. 1, Fig. 3, a transverse vertical section of the same hinge on line  
15 3—3 of Fig. 2, Fig. 4, a top view of the lower leaf of the upper hinge, Fig. 5, a top view of the lower hinge shown in Fig. 1, Fig. 6, a transverse vertical section on line 6—6 of Fig. 5, and Fig. 7, a top view of the  
20 lower leaf of the lower hinge.

In all figures, similar letters of reference represent like parts.

This invention relates to hinges for doors, and has for its object the utilization of anti-  
25 friction devices on hinges so as to meet the principal strains or thrust of the door in its movement. To this end, the upper hinge is provided with anti-friction devices so surrounding the pintle of the hinge that they  
30 will receive the lateral thrust of the door, as the greater part of the lateral thrust, or strain, that tends to pull the door away from the jamb is present at the top of the door. The lower hinge is provided with  
35 anti-friction devices so arranged as to receive the downward or vertical thrust of the door.

To these ends, the invention consists of the several improvements and combinations  
40 of parts set forth and claimed hereinafter.

Referring to the drawings for a more particular description, the part designated by the letter A represents a door, and B the door jamb and lintel.

45 C designates the upper hinge and D the lower. The upper hinge is shown formed of two leaves; of which the upper leaf F may be fitted into the under side of the lintel of the door and secured therein, and the lower  
50 leaf G secured to the upper edge of the door.

Each leaf has a lateral offset H for the pintle E which is rigidly secured to the upper leaf F and projects downward through a perforation I in the lower leaf G. In the lower leaf  
above the perforation I is seated a socket J, 55 which is provided with a perforation corresponding to the perforation I for the pintle E. In the socket J surrounding the pintle E are adapted to fit rollers L. The pintle may be held in place in the leaf G by means of a  
60 washer M and screw N. The principal lateral thrust of the door which is inclined to pull the door away from its hinge is at the top of the door, and when the hinge is arranged (as shown in Fig. 1) at the upper end  
65 of the door, it will receive the greater portion of this strain or thrust. This thrust is taken up by the pintle bearing against the rollers which surround it laterally in the socket J.

The lower hinge D consists of the two leaves 70 O and P, the leaf O being secured to the door jamb, and the leaf P to the door. The leaf O carries a lateral offset Q, and the leaf P a lateral offset R. To the offset R is secured a depending pintle S, which is adapted to pro-  
75 ject downward through a perforation T in the offset Q. Surrounding the pintle S are two plates U and V, one of which fits into a recess in the offset R and another in the offset Q. These plates U and V are provided  
80 with annular grooves for ball bearings W. A washer X and screw Y hold the pintle within the lateral offset Q and the ball bearings W will take the downward or vertical thrust of the hinge. By this arrangement of  
85 hinges, the lateral thrust is taken up by anti-friction rollers in the upper hinge at the point where it is greatest, while the vertical or downward thrust is taken up by the ball bearings on the lower hinge. 90

Having now described my invention, what I claim and desire to secure by Letters Patent, is:

The combination with a door; of means for supporting said door consisting of a  
95 plurality of hinges secured to the door, one hinge having one leaf secured horizontally to the top of the door, and the other leaf to the frame above the door, the other hinge having one leaf secured vertically to the lateral edge 100

of the door near the bottom thereof, and the  
other leaf vertically to the frame at the side  
of the door, both hinges having lateral off-  
sets and pintles in said offsets, the leaves of  
5 both hinges projecting in substantially the  
direction of their respective strains, sub-  
stantially as described.

In witness whereof, I have hereunto set my  
hand on the 27th day of April, 1906.

LEWIS WM. HARTSIG.

Witnesses:

RALPH RYAN,  
W. A. KROMER.