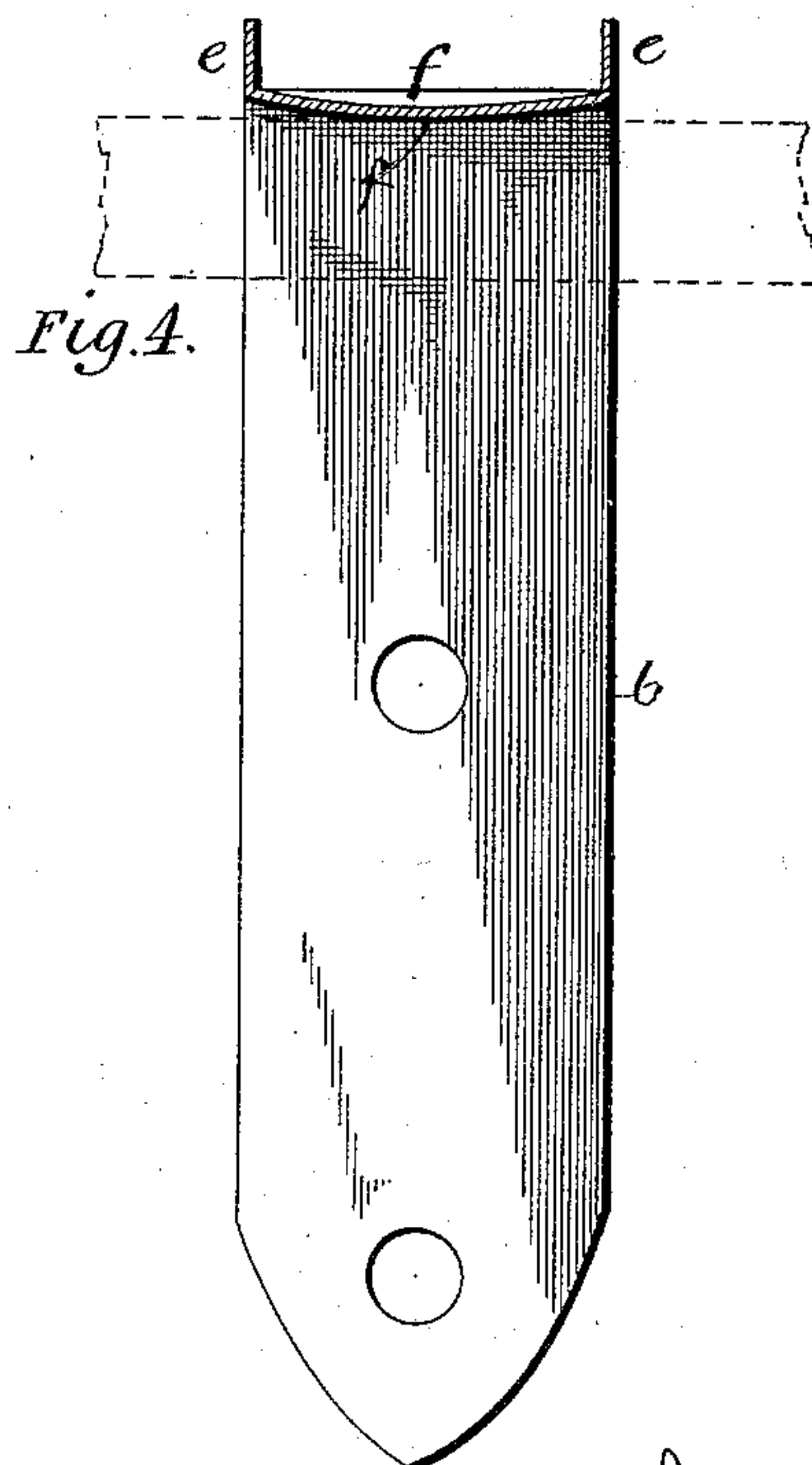
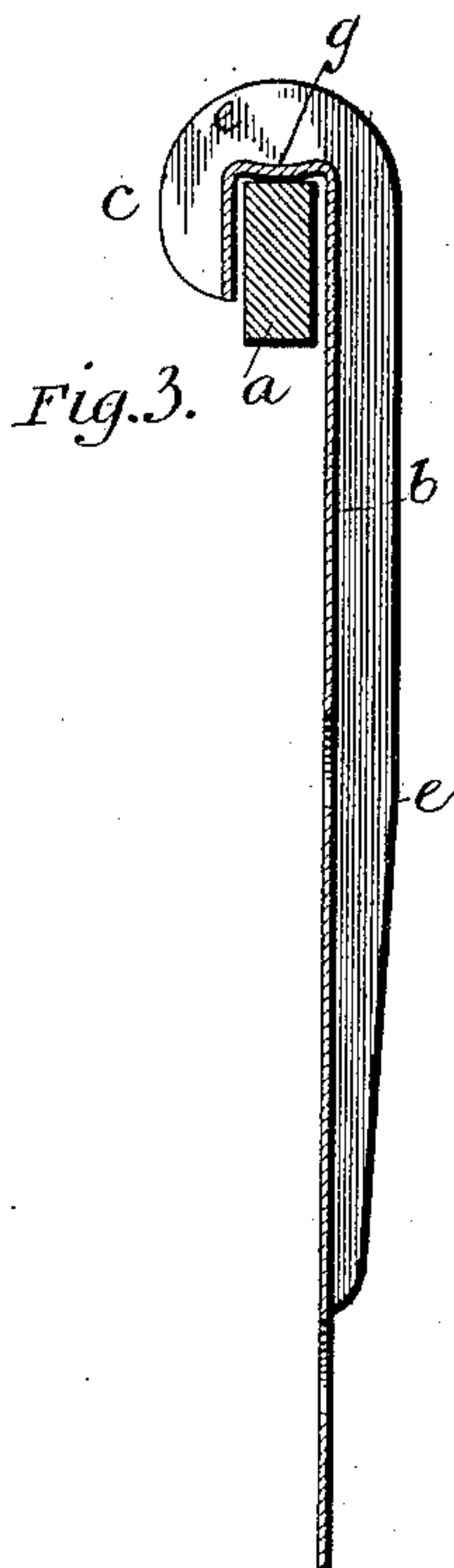
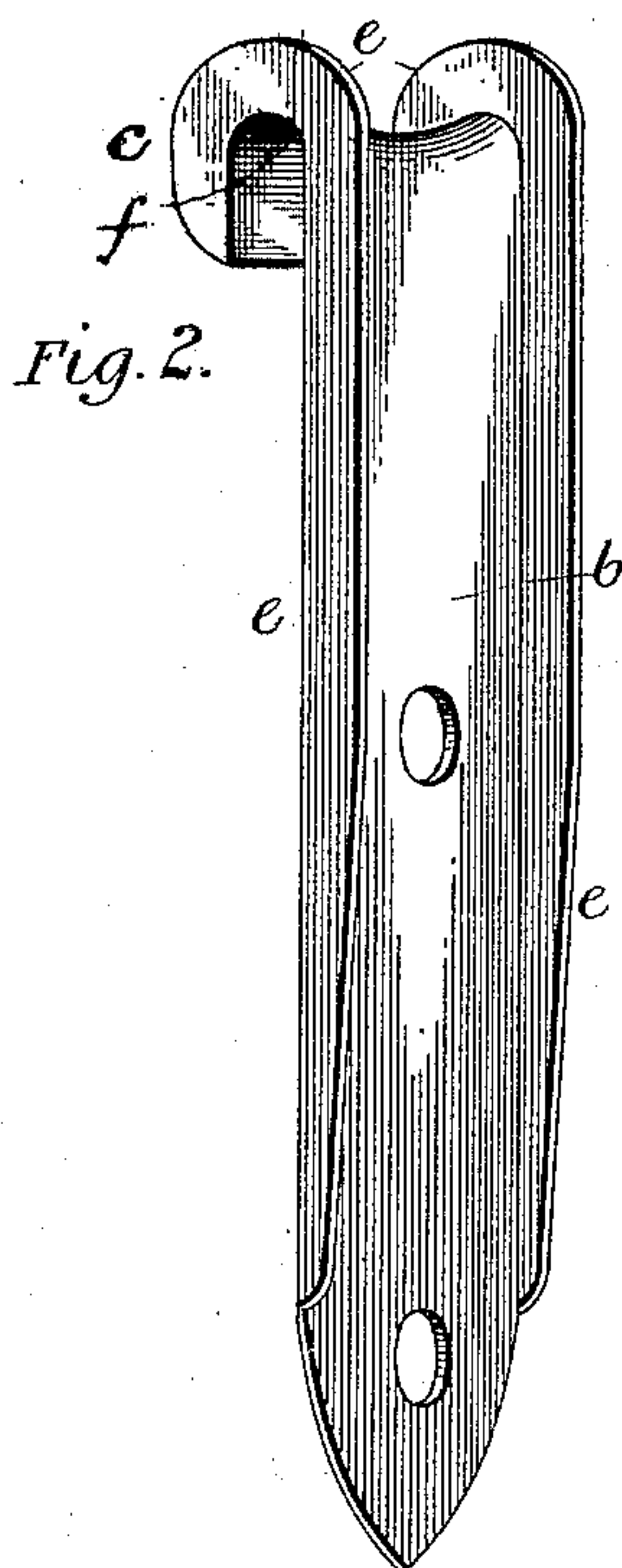
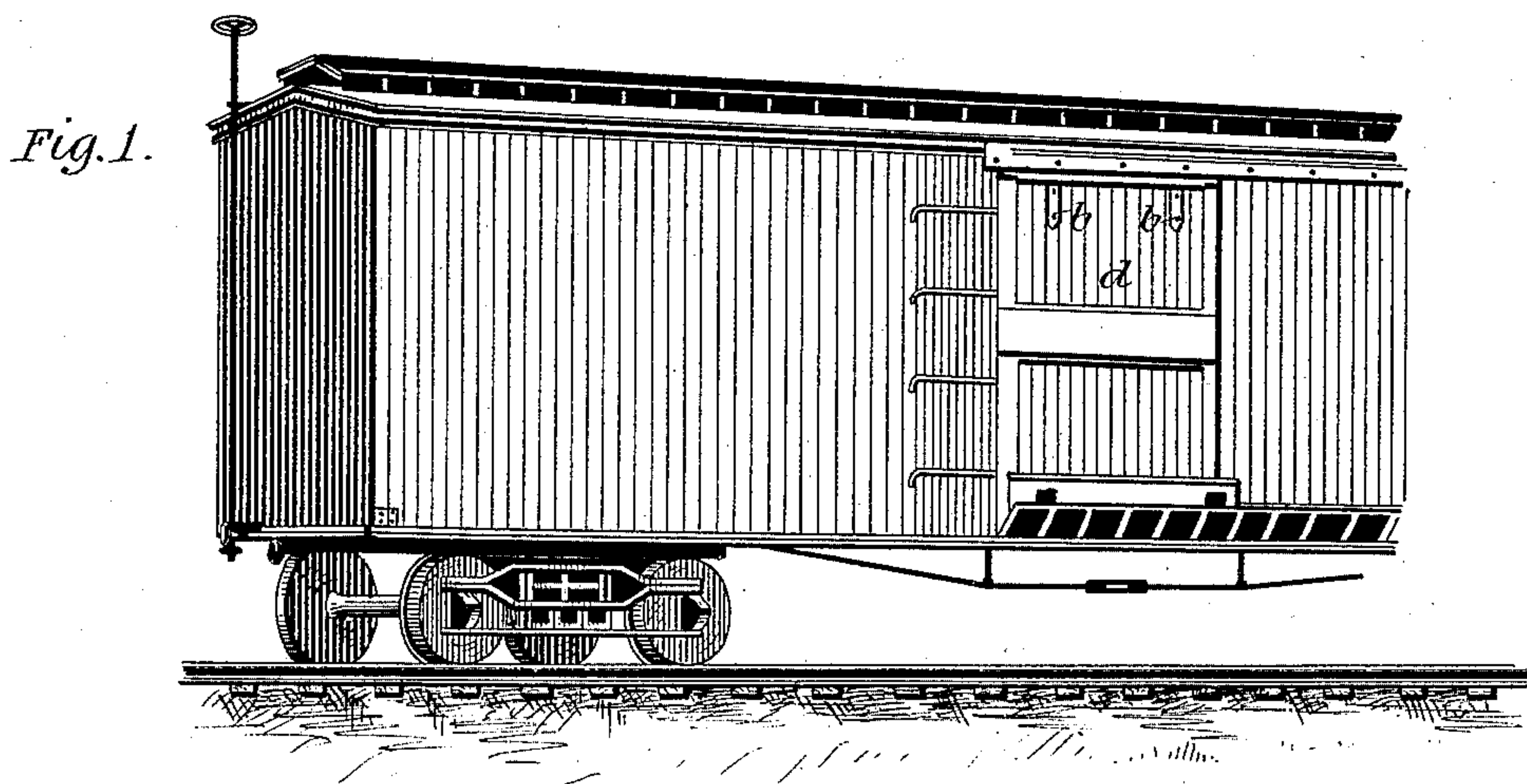


(No Model.)

P. N. FRENCH.  
DOOR HANGER.

No. 422,200.

Patented Feb. 25, 1890.



WITNESSES:

Wm. Norton  
Howell Zettle

INVENTOR  
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BY  
Johnson & Johnson  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

PHILO N. FRENCH, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE A. FRENCH SPRING COMPANY, (LIMITED,) OF SAME PLACE.

## DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 422,200, dated February 25, 1890.

Application filed December 23, 1889. Serial No. 334,658. (No model.)

*To all whom it may concern:*

Be it known that I, PHILO N. FRENCH, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Door-Hangers, of which the following is a specification.

My improvement is directed to the production of an improved hanger for the sliding doors of freight-cars, whereby to obtain the advantage of strength, lightness, and a riding bearing of peculiar rounded form to reduce the frictional resistance in sliding the door upon its guide-rail and to render it easy to move the door. I am aware that such hangers have been made of steel for lightness, and that the riding-bearing part at the bent end of such hanger has been made of convex or rocker form in the cross-section or width of the hanger; but when the latter is made of comparatively thin steel such crosswise-convex formation at the hook is liable to yield under the weight of the door and to flatten out the convex bearing-surface and thereby render the bearing-surface upon the guide-rail no better than the ordinary flat bearing of the iron bar.

The object of my improvement is to brace this convex or rocker-riding surface of the steel hanger, and at the same time to increase the strength of the hook end of the hanger and enable me to use comparatively thin steel for the hanger. This I do by forming the riding bearing of a compound convex form and brace such double-curved bearing by upsetting the edges of the hanger to form flange-stiffeners, and thereby render it stiff and strong at the hook bend and at the ends of the rocker-bearing which terminate in said edge-stiffeners. Now, as the important matter is to render durable the rocker-riding bearing in a thin steel hanger, I find that by making said riding bearing convex in two directions—one crosswise of the hanger-strap and the other crosswise of the first and upsetting the edges of the hanger—the hook end is both stiffened and strengthened to such a degree as to prevent the flattening of

the rocker-bearings, as illustrated in the accompanying drawings, in which—

Figure 1 shows a portion of a freight-car having a door sliding upon hangers. Fig. 2 is a perspective view of my improved hanger. Fig. 3 is a vertical cross-section of the hanger, showing its bearing upon the guide-rail; and Fig. 4 is a vertical section of the hanger, taken in a plane parallel to the guide-rail.

For the sliding doors of freight-cars the guide-rail *a* for the door-hangers *b* is secured to the side of the car above the door-opening in the usual manner, so that the hook end *c* of the hanger stands inward over the guide-rail and rides upon it as the door *d* is opened and closed. I form the hanger of a comparatively thin strap of steel bent at one end to form a flat hook adapted to fit over and ride upon the guide-rail *a*, while its longer end *b* is secured to the door. The strap is bent or upset along its edges to form flange-stiffeners *e e*, and at its hook end it is made with a convex or rocker bearing *f* in the cross-section or width of the hanger, as shown in Fig. 4, so that said rocker-bearing terminates in the upset or bent-edge stiffeners, which I find serve to so brace and to stiffen this rocker-bend *f* as to prevent it from flattening under the weight of the door. To further brace and stiffen this rocker-bearing *f*, I make it convex at *g* across the line of the rocker-bearing *f*, as seen in Fig. 3, so that the riding bearing proper is rounded in two directions and the bearing-surface of the hanger upon the guide-rail is a comparatively small rounded part rendered stiff and prevented from flattening, as stated. The hanger is made by being rolled and its hook end and cross convex or rocker bearing formed by dies.

I claim as my improvement—

1. As a new article of manufacture, a door-hanger consisting of a strap of steel having its edges bent or upset into stiffeners, and its bearing-surface made of convex or rocker form between said stiffeners, as shown and described.

2. As an improved article of manufacture,

the herein-described door-hanger, consisting  
of a strap of steel having its edges bent or  
upset into stiffeners, and having its bearing-  
surface made convex or rocker form between  
5 said stiffeners and also convex across said  
rocker-bearing, as shown and described.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing  
witnesses.

PHILO N. FRENCH.

Witnesses:

D. C. NOBLE,  
S. F. KRAUTH.