

No. 675,317.

Patented May 28, 1901.

E. E. BENNER.
JOURNAL BEARING.

(Application filed Aug. 23, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

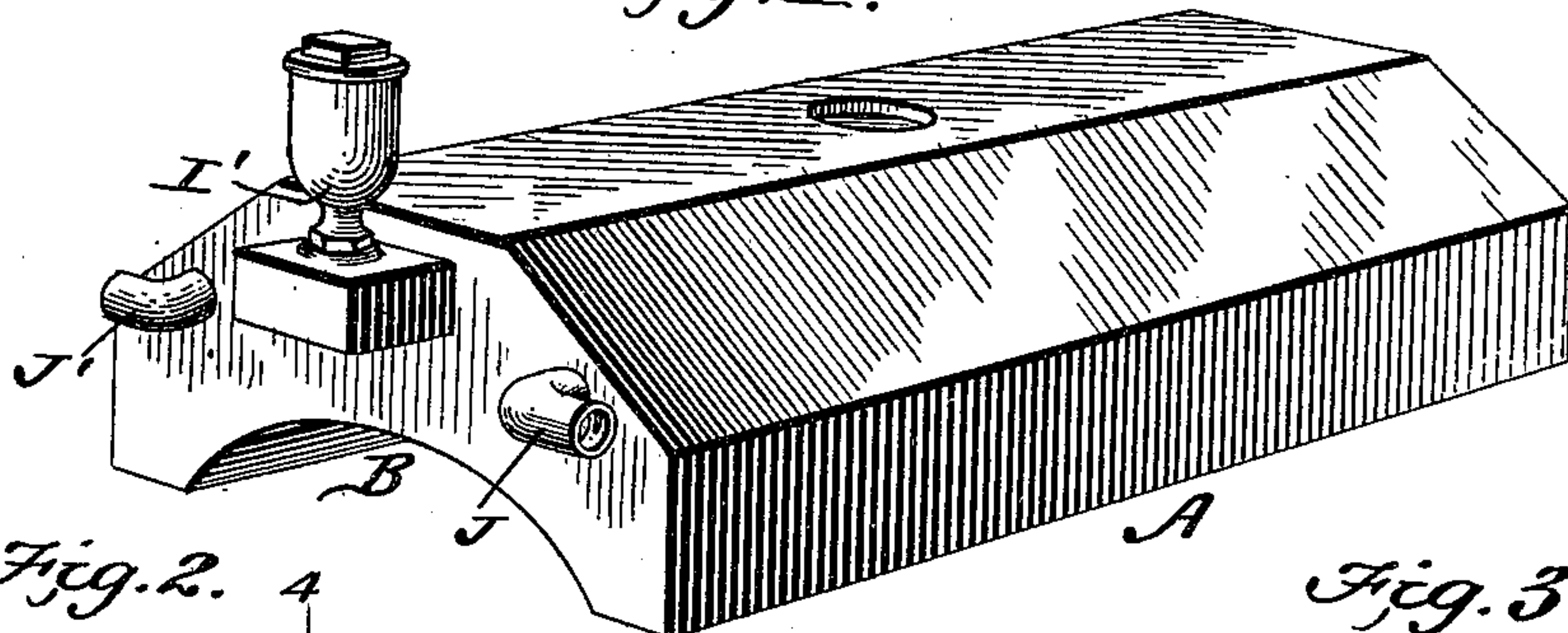


Fig. 2.

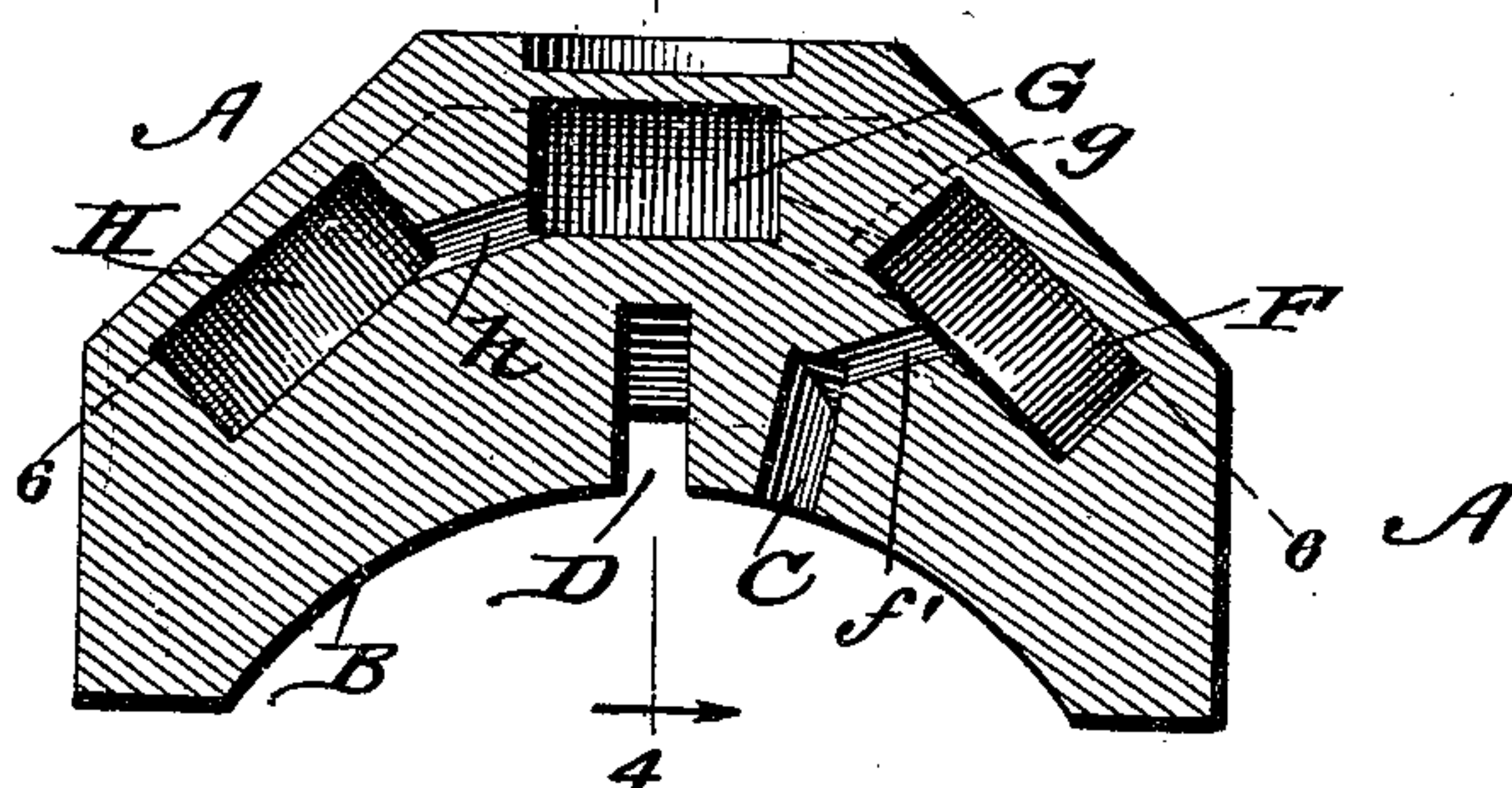


Fig. 3.

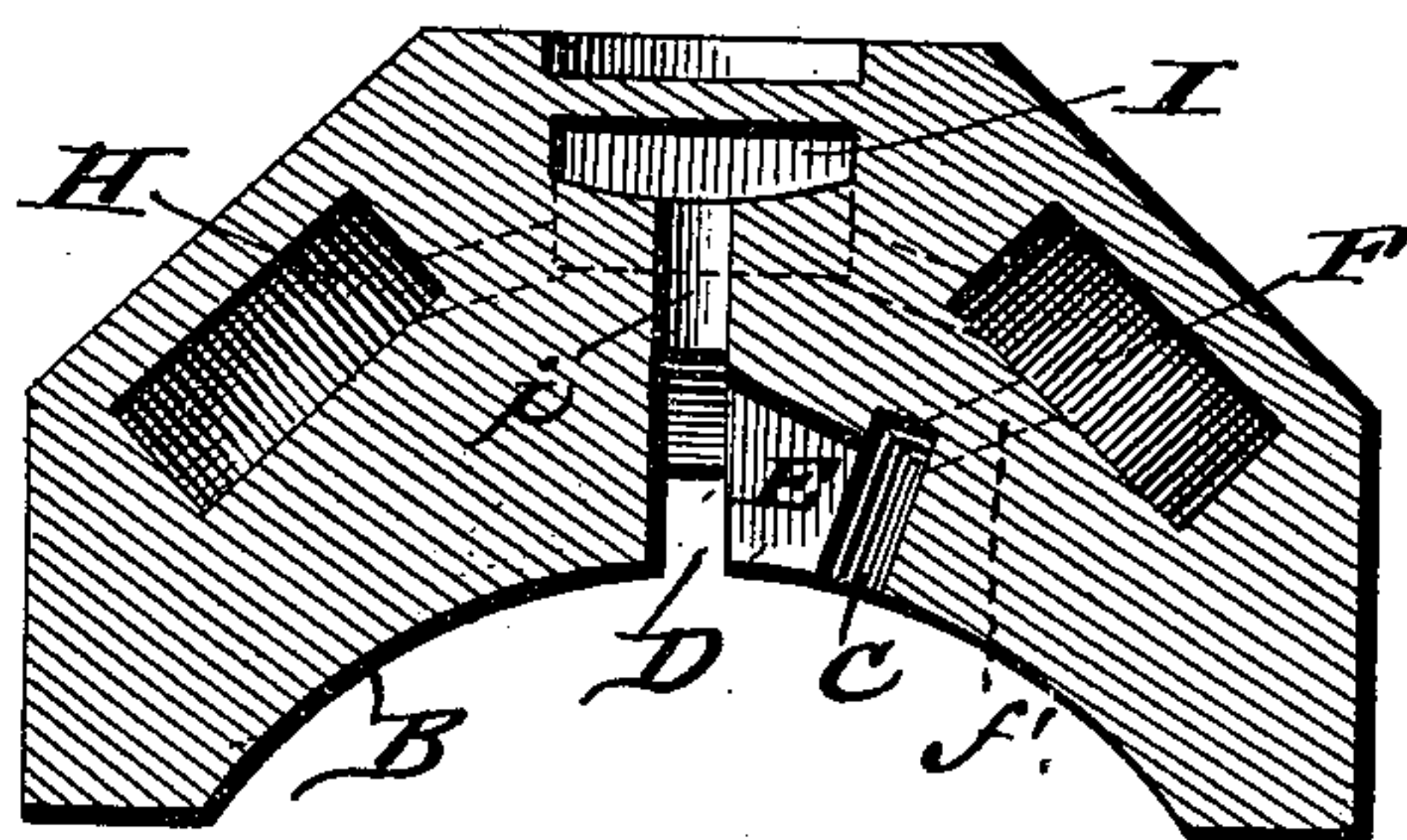


Fig. 4.

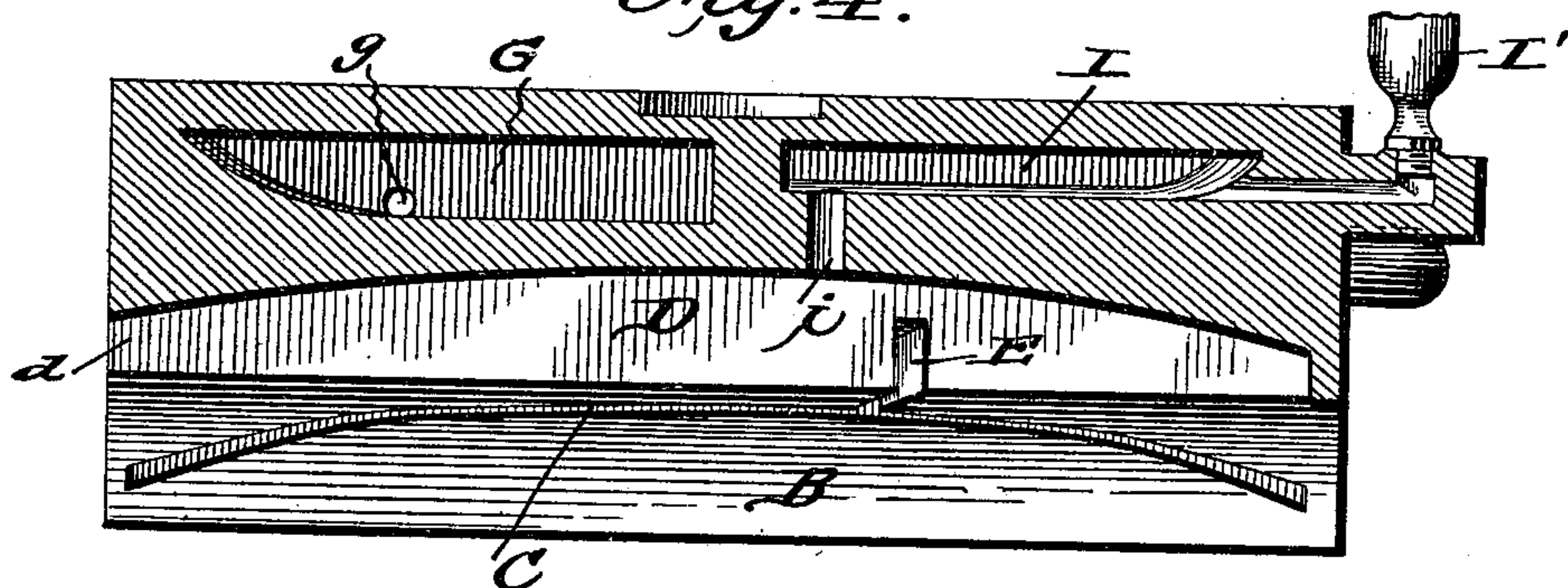
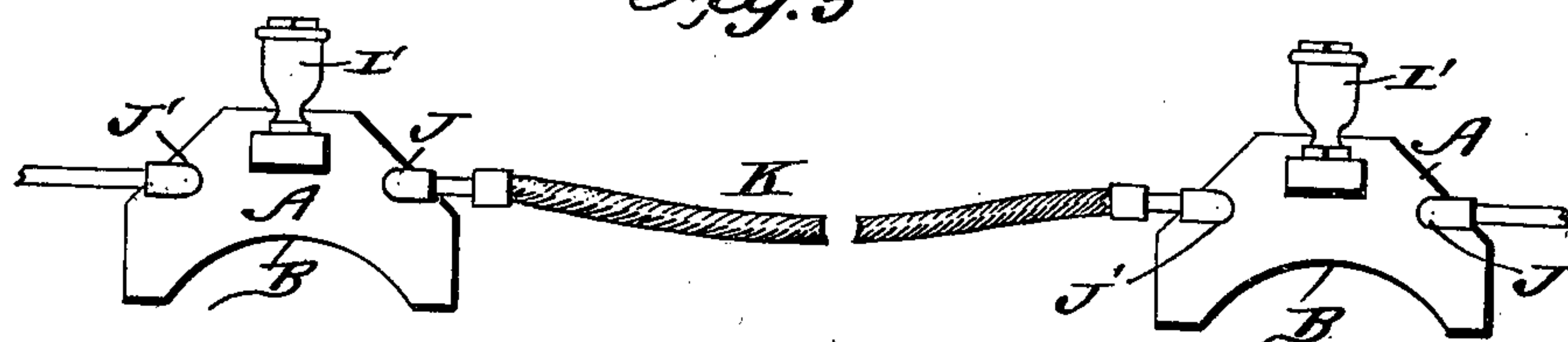


Fig. 5.



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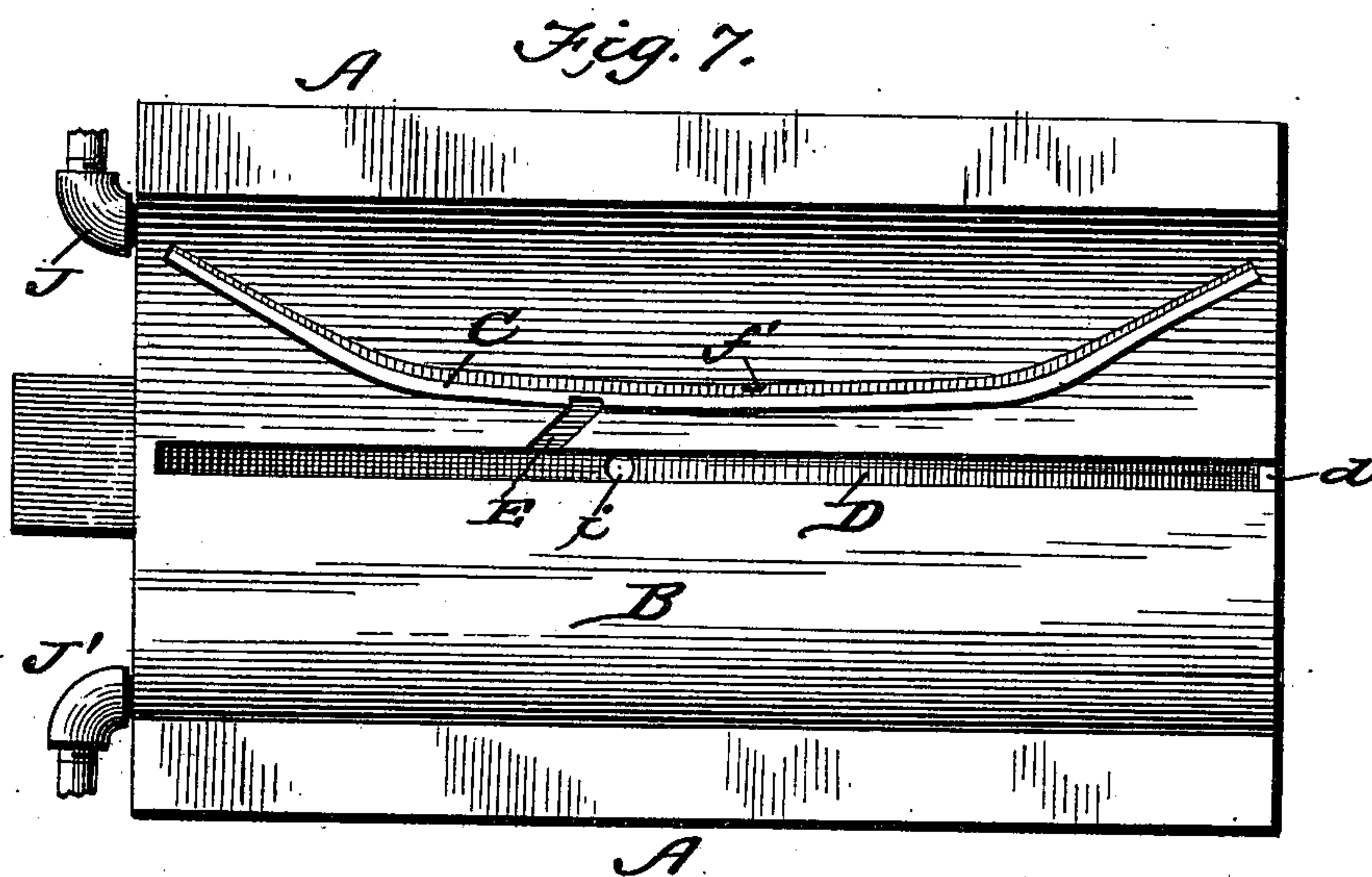
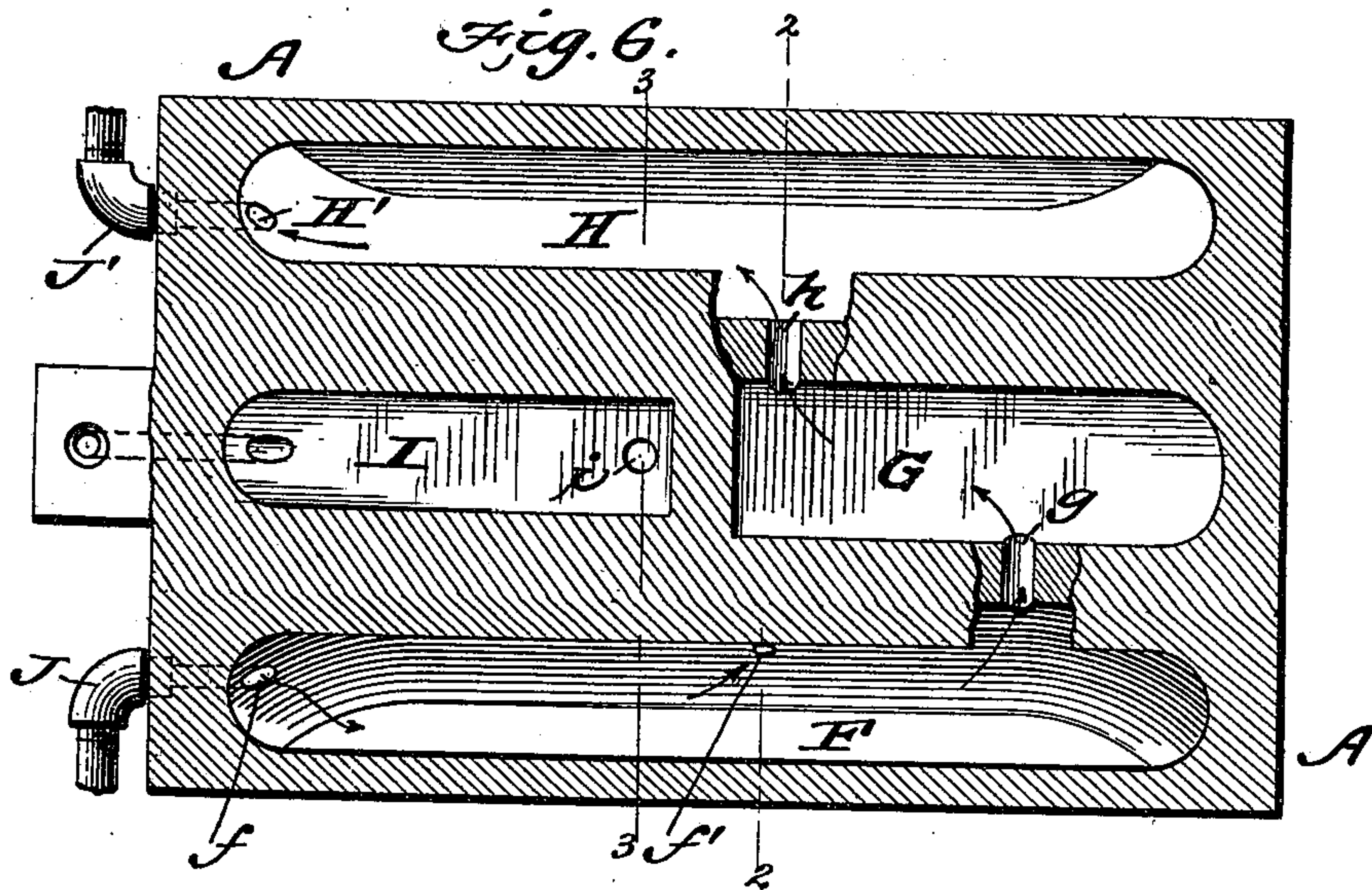
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 675,317, dated May 28, 1901.

Application filed August 23, 1900. Serial No. 27,810. (No model.)

To all whom it may concern:

Be it known that I, ELWOOD E. BENNER, residing at Sargent, in the county of Custer and State of Nebraska, have made certain new and useful Improvements in Journal-Bearings, of which the following is a specification.

My invention is an improvement in journal-bearings, and particularly in the brasses employed in such bearings and especially used in the boxes of engines and car-wheels; and the invention has for an object to provide means for lubricating the journal by the use of water, thus economizing in the cost of lubricant and providing at the same time for cooling the journal by the lubricating agent.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a brass embodying my invention. Figs. 2 and 3 are cross-sectional views on about lines 2 2 and 3 3, respectively, of Fig. 6. Fig. 4 is a vertical longitudinal section on about line 4 4 of Fig. 2. Fig. 5 is a side view showing two brasses and the connection between the same. Fig. 6 is a sectional view of the brass on about line 6 6 of Fig. 2, and Fig. 7 is a bottom plan view thereof.

In carrying out my invention I provide the brass A with a surface at B, fitted to the journal, and in this brass I form the longitudinally-extended grooves C and D, which are connected about midway their ends by the cross-groove E, and the groove C is curved from end to end, with its crown or convex side next to the straight groove D. In practice water is fed or supplied to the curved groove, and it passes through the cross-groove to the straight one and is also fed around from the curved groove by the action of the journal in such manner as to secure an even distribution of the water, portions of which discharge at the end *d* of the straight groove which, as shown, extends to the end of the brass, so the water discharged therefrom will operate to lubricate the hub of the journal at the end of the brass.

In the brass I form a longitudinally-extended chamber F, to which water is supplied at *f* in the manner presently described and from which a portion of the water entering

at *f* is discharged at *f'* into the curved groove C, before described. The opening *f'* is contracted with respect to the opening *f*, so only a portion of the water entering at *f* will pass to the bearing B. This permits the chamber F to be kept full of water, so it will operate to cool the brass and also will supply water to an intermediate cooling-chamber G, with which it communicates through a passage *g*, and this intermediate cooling-chamber in turn communicates, through a passage *h*, with a cooling-chamber H, which is similar in form and extends parallel with the chamber F, as shown. The chamber H has a discharge H' at the same end of the brass as the inlet-opening *f* of the chamber F, so the water can enter the brass, circulate through it, and be discharged from the brass at the same end at which it enters.

An oil-cavity is provided at I in the crown of the brass in line with the cooling-chamber G and between the inlet end of the chamber F and the outlet end of the chamber H, as shown. This oil-chamber communicates, through an opening *i*, with the bearing B and is supplied with oil from an oil-cup I' or in other suitable manner, as may be desired.

In the practical application of my invention I prefer to arrange the several brasses of an engine, car, or train in series and connect them together, so the water from the tender or other source of supply can circulate to and through the several brasses of the series. In doing this I provide an L-shaped joint or nipple J in connection with the inlet-opening *f* and a similar joint J' in connection with the discharge-opening H' of the brass, so rubber connecting-pipes K can be quickly supplied to secure the desired circulation.

By the described construction I provide for efficiently lubricating the journals by means of water, which will also operate to cool the journal. I furnish means whereby the lubricating-water may be circulated through a series of the brasses from a common source, and also provide means whereby oil can be used in case of emergency, such as a failure of sufficient water-supply, to lubricate the journals as may be required.

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

1. A brass having a curved longitudinally-extended groove and a straight groove connected with such curved groove and discharging at the hub end of the brass, such brass being provided with a water-inlet chamber having a discharge leading to the curved groove and a cooling-chamber communicating with said inlet-chamber substantially as set forth.
2. In a journal-bearing substantially as described the combination of a plurality of brasses arranged in series and having water-chambers discharging to their bearings and provided with inlets and outlets for the water and connections between the discharges of the several brasses and the inlet-openings of the succeeding ones whereby the water may be circulated to and through the several brasses substantially as set forth.
3. In a journal-bearing, a brass provided with a water-chamber having an inlet and an outlet leading to the bearing and contracted with respect to its inlet, such brass being provided with a cooling-chamber in communication with said water-chamber substantially as set forth.
4. In a journal-bearing the brass herein described provided with a longitudinal water-chamber having an inlet and an outlet to the bearing, an intermediate cooling-chamber connected with said water-chamber, a discharge-chamber communicating with the intermediate chamber, and an oil-chamber arranged to discharge to the bearing substantially as set forth.
5. A brass having a surface fitted to the journal, a water-chamber discharging to said surface, a cooling-chamber in communication with the discharge-chamber and a wall or plate between said cooling-chamber and the surface fitted to the journal substantially as set forth.
6. A journal-bearing brass provided with a straight longitudinal groove and with a curved groove substantially as set forth.
7. A journal-bearing substantially as described provided with means for discharging water to the bearing-surface and with an independent oil-holder by which to discharge oil to the bearing-surface in case of failure of the water lubricant substantially as set forth.

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Witnesses:

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