

(No Model.)

3 Sheets—Sheet 1.

W. E. & W. M. WINBY.
CABLE TRAMWAY.

No. 431,099.

Patented July 1, 1890.

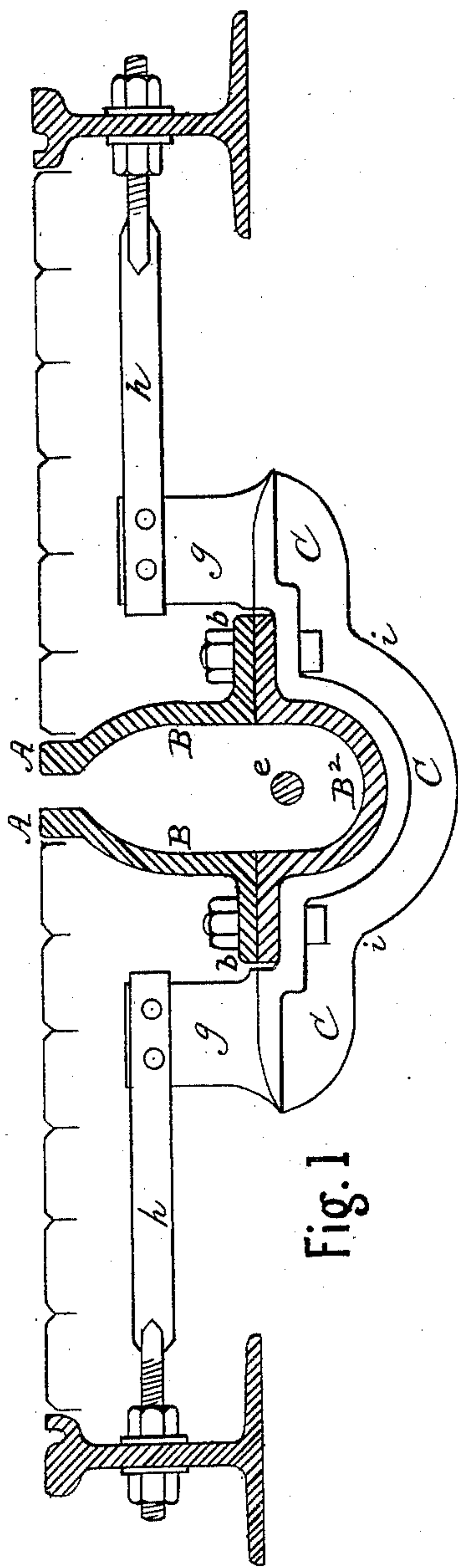


Fig. 1

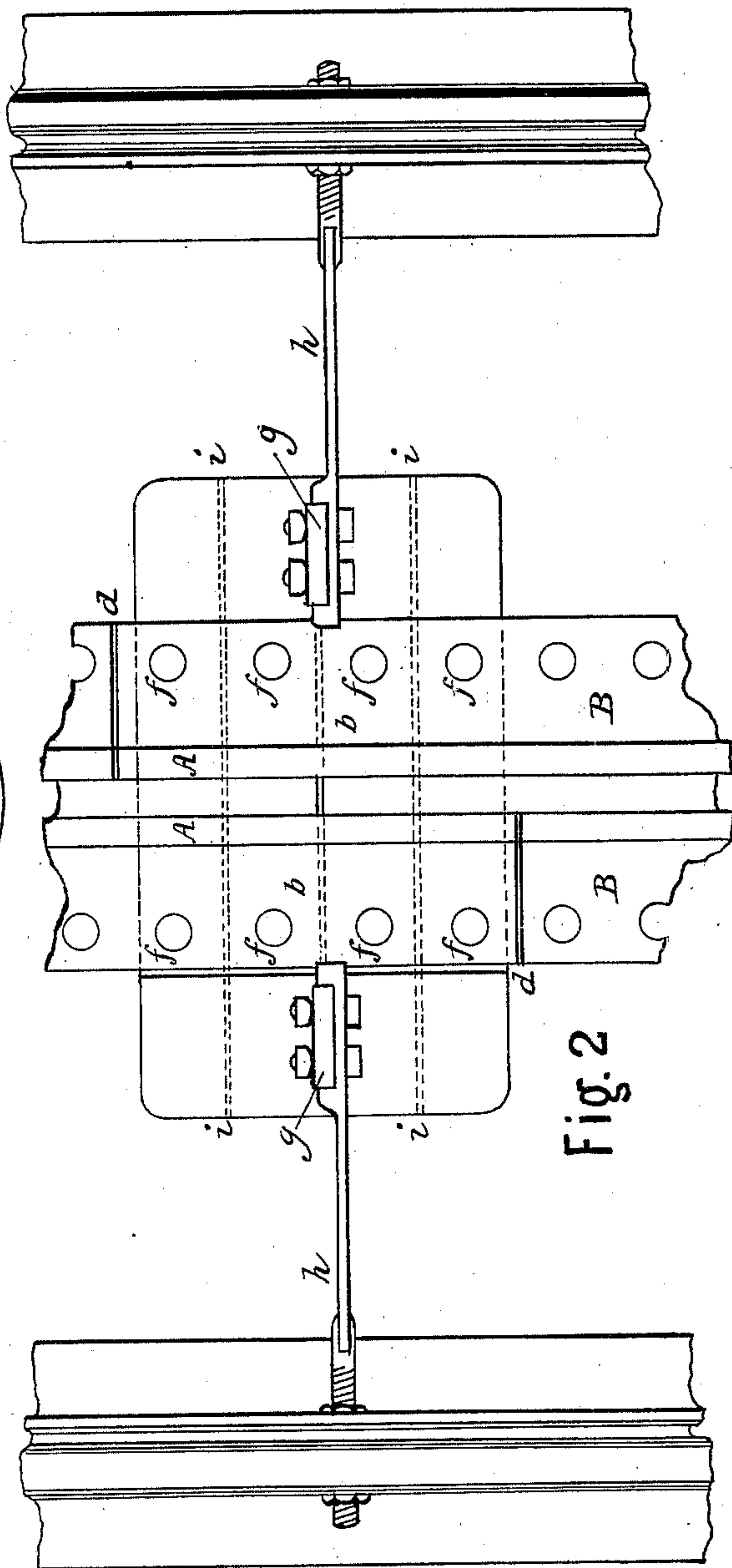


Fig. 2

Witnesses,
F. Hadley
Edward Salter

Inventors,
William E. Winby
William M. Winby
By their Attorney,
James H. Lancaster

(No Model.)

3 Sheets—Sheet 2.

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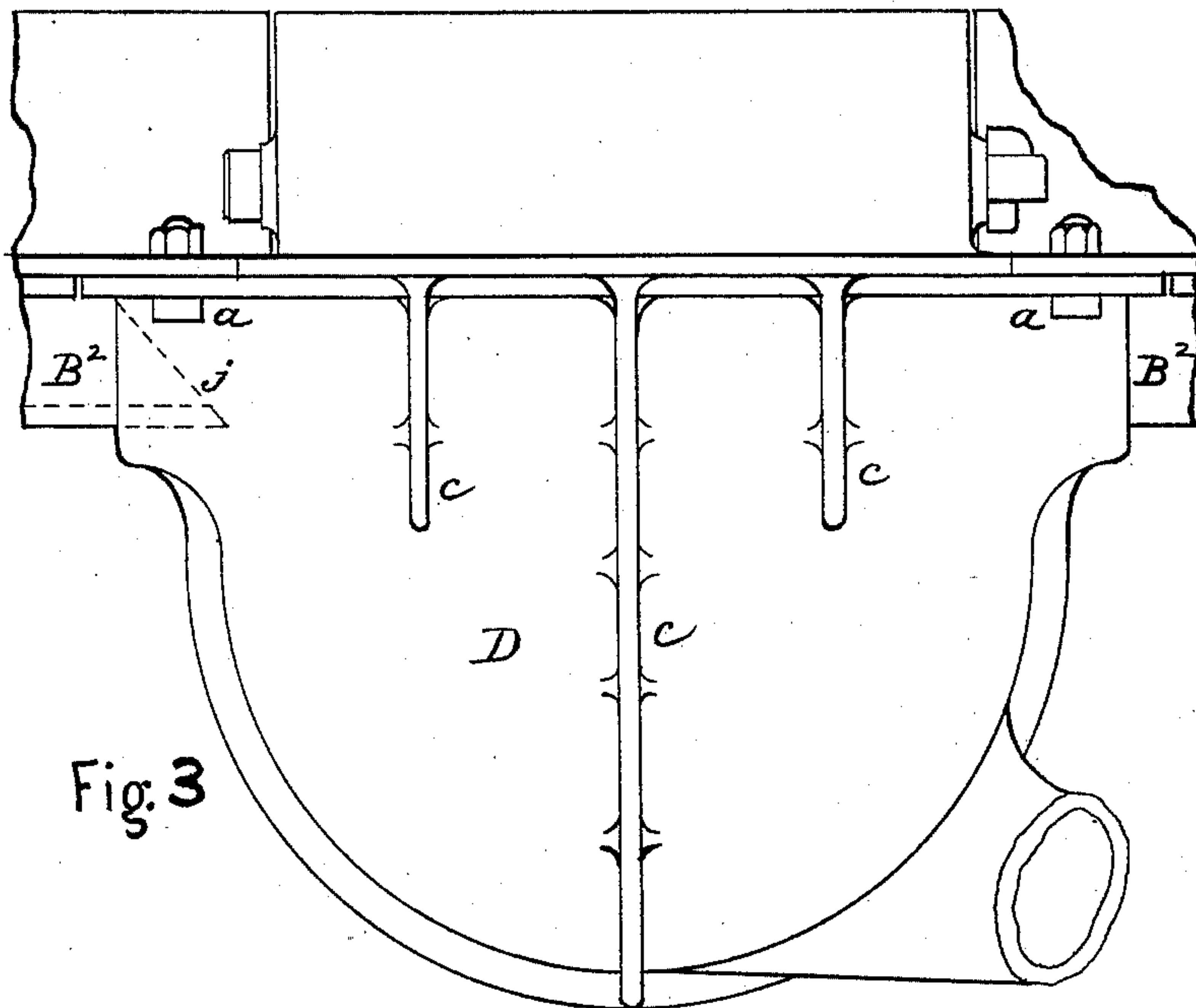


Fig. 3

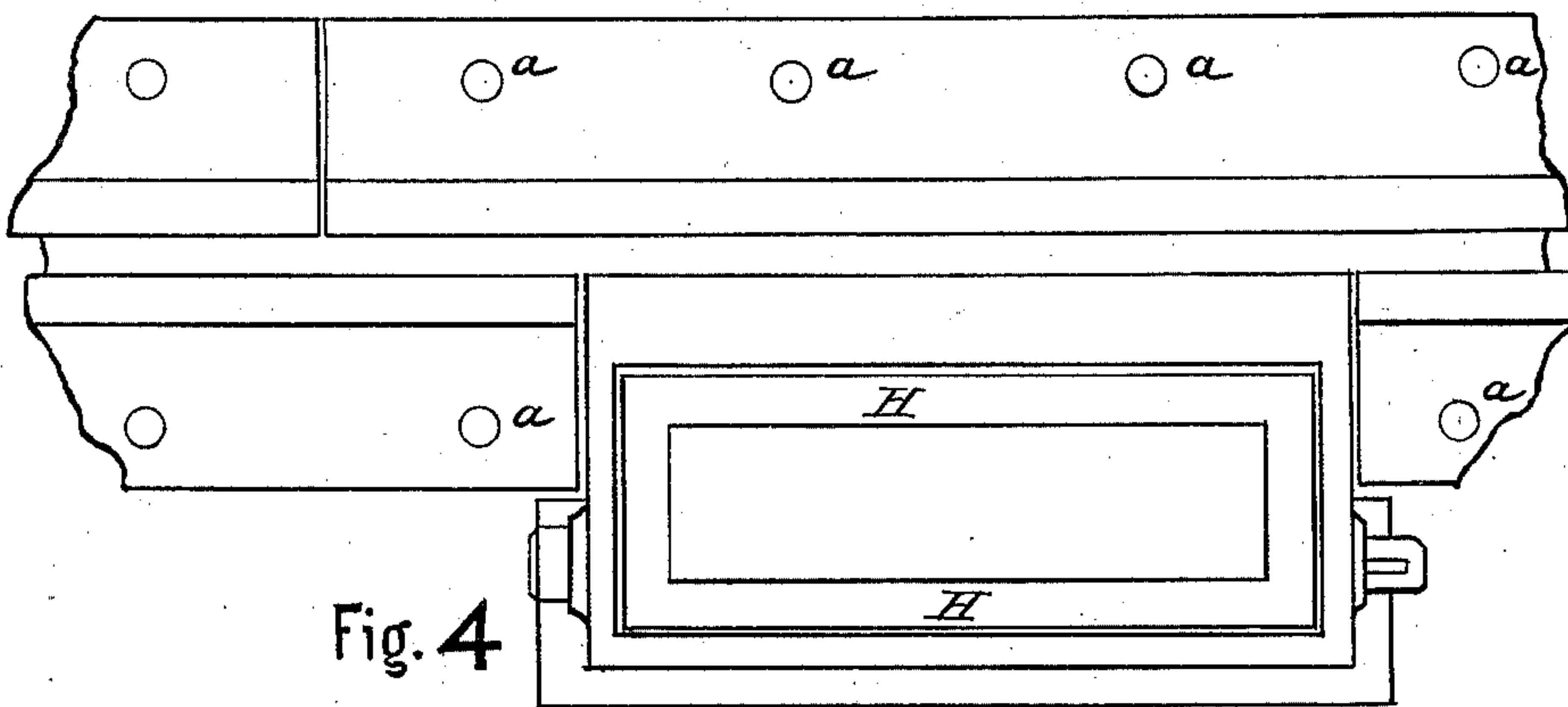


Fig. 4

Witnesses,
F. Hadley
Edward Salter

Inventors
William E. Winby
William M. Winby
By their Attorney,
James H. Lancaster

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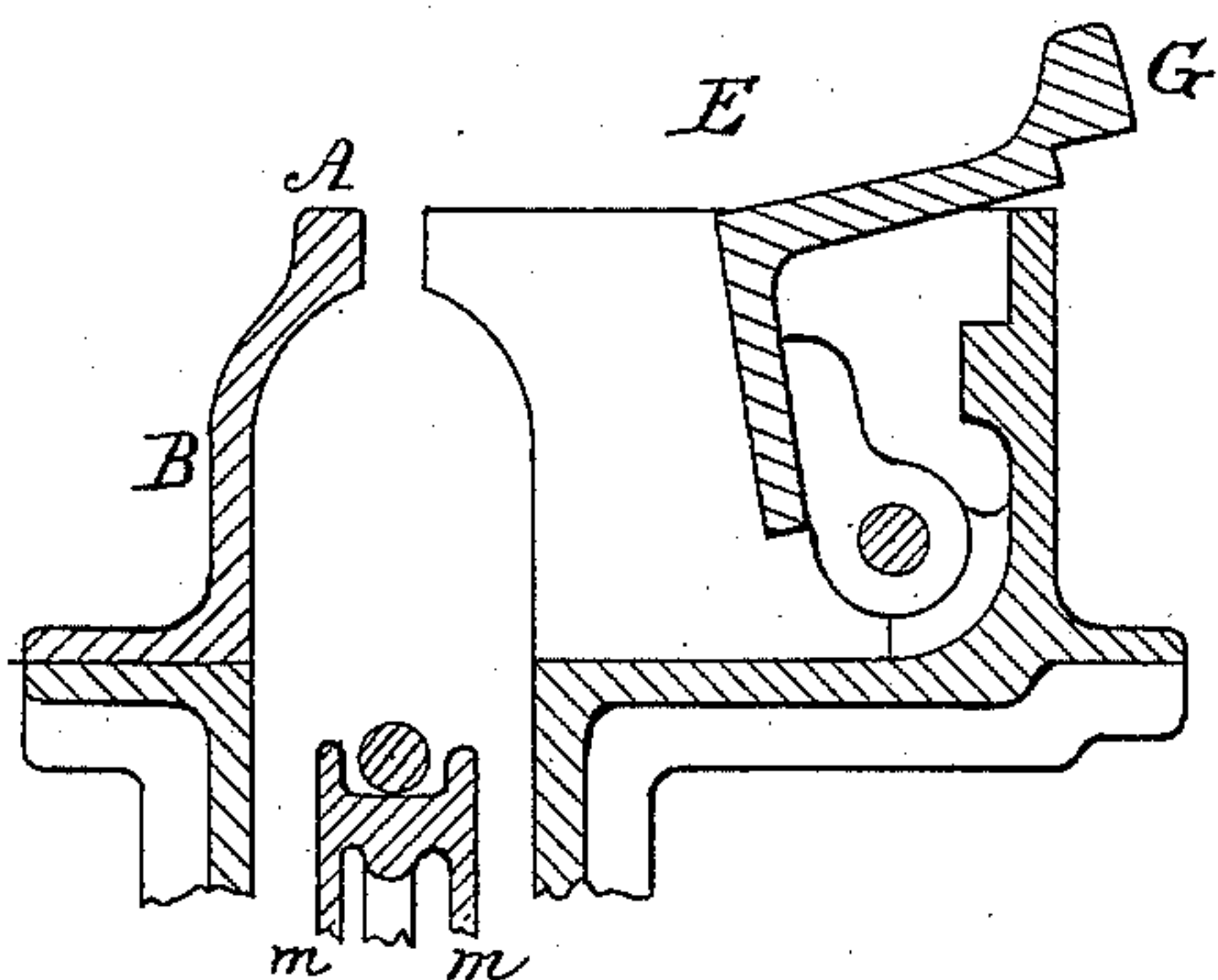


Fig. 5

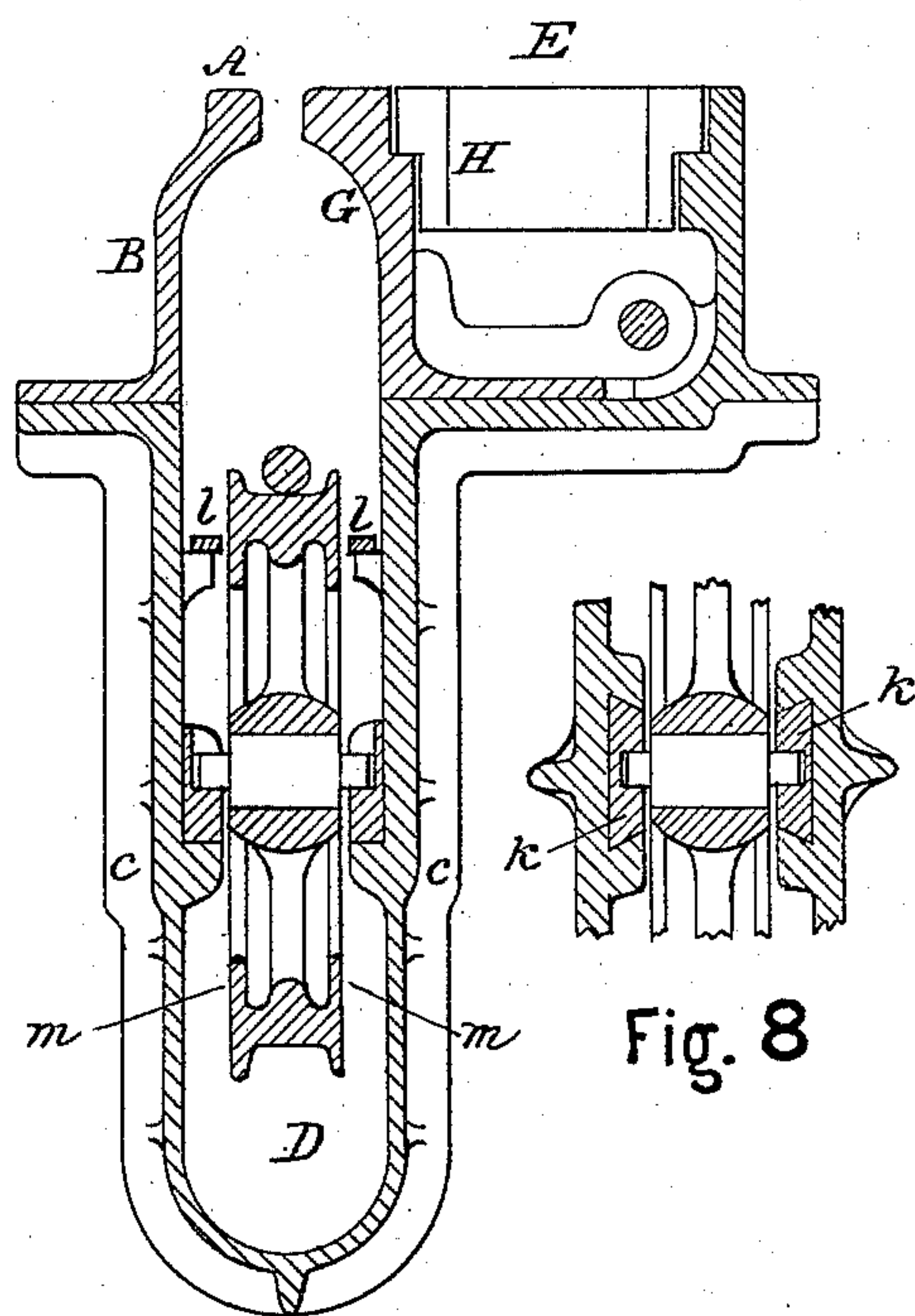


Fig. 7

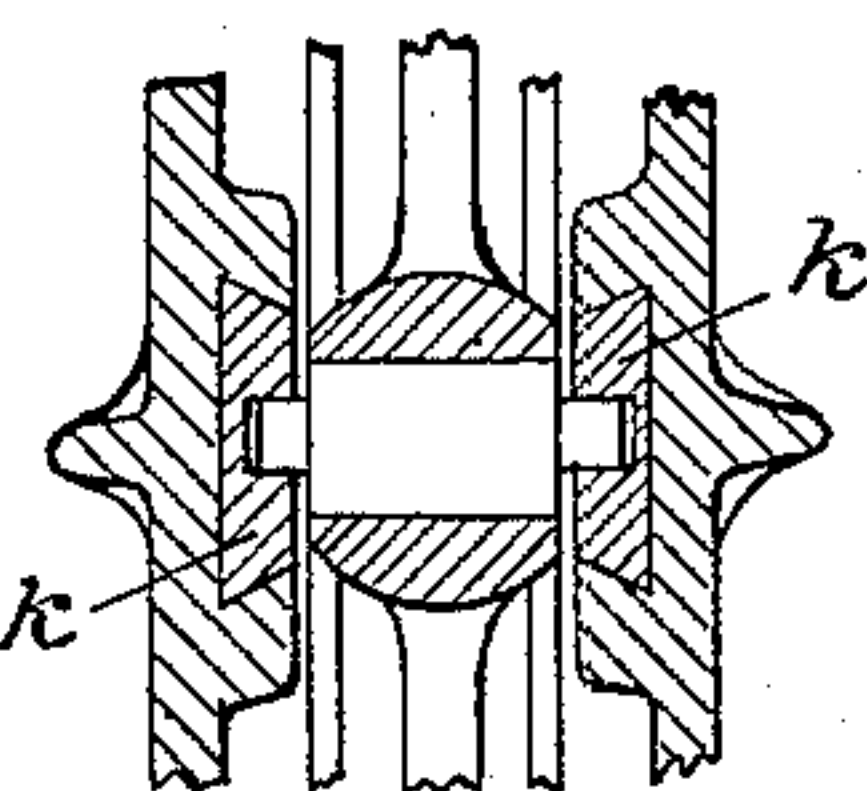


Fig. 8

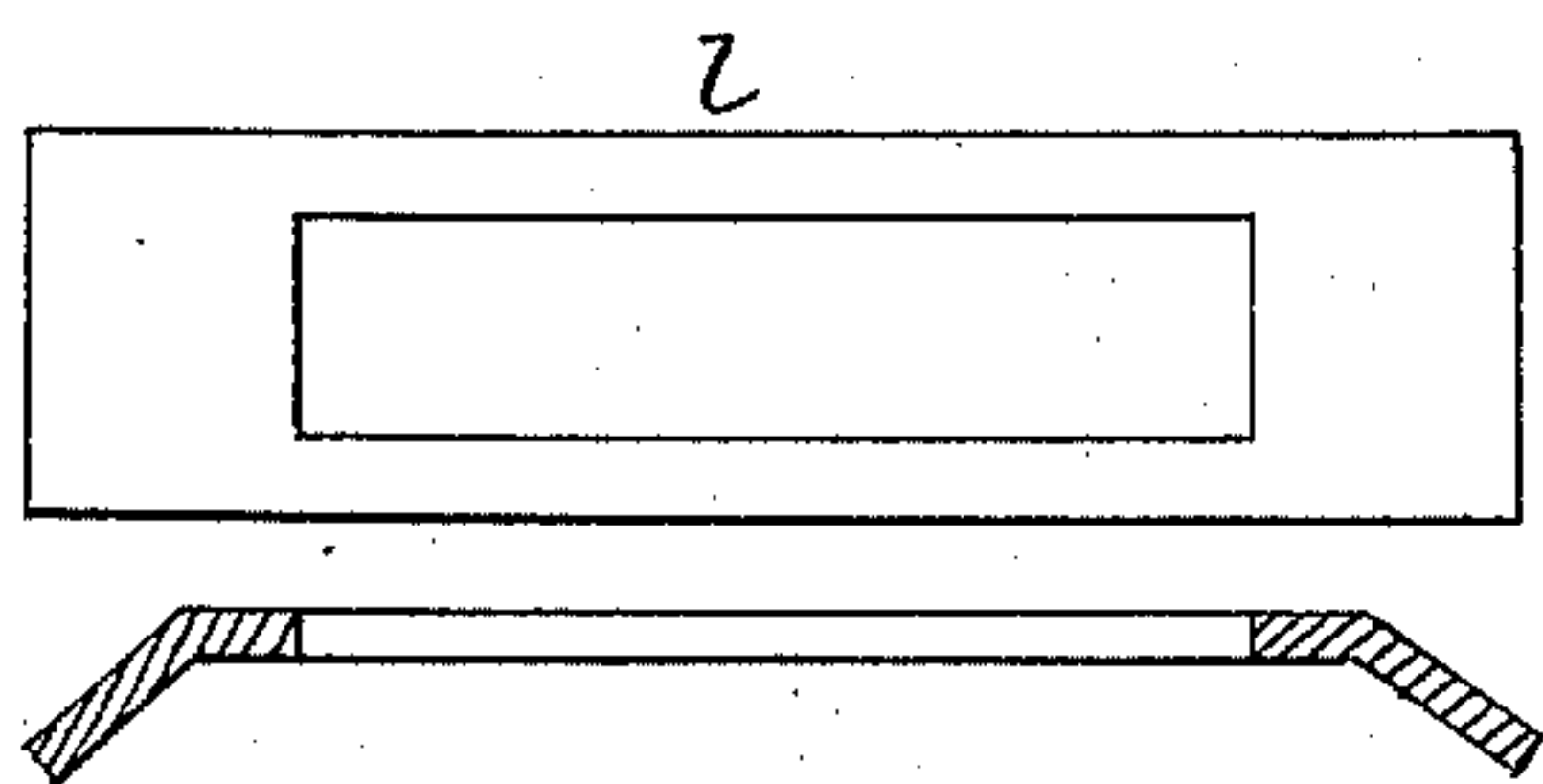


Fig. 6

Witnesses,
J. Hadley
Edward Salter

Inventors,
William E. Winby
By their Attorney, William M. Winby
James H. Lancaster.

UNITED STATES PATENT OFFICE.

WILLIAM EDWARD WINBY AND WILLIAM MARSTON WINBY, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

CABLE TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 431,099, dated July 1, 1890.

Application filed March 7, 1889. Serial No. 302,371. (No model.) Patented in England August 18, 1887, No. 11,277; in New South Wales December 29, 1888, No. 1,146; in Victoria January 4, 1889, No. 6,438; in South Australia April 5, 1889, No. 1,271, and in Queensland April 10, 1889, No. 720.

To all whom it may concern:

Be it known that we, WILLIAM EDWARD WINBY and WILLIAM MARSTON WINBY, both subjects of the Queen of Great Britain, and residents of Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Cable Tramways, (for which they have obtained a patent in Great Britain, No. 11,277, dated August 18, 1887; in New South Wales, No. 1,146, dated December 29, 1888; in Victoria, No. 6,438, dated January 4, 1889; in South Australia, No. 1,271, dated April 5, 1889, and in Queensland, No. 720, dated April 10, 1889,) of which the following is a full, clear, and exact specification.

Our invention consists of the improvements hereinafter described and illustrated in the accompanying drawings in cable tramways, the said improvements being particularly applicable to tramway-lines already laid, and can be applied without disturbing the old permanent-way rails and with the smallest amount of excavation.

One of the improvements consists of a continuous tube or conduit for the cable, the said tube being without internal obstructions, so that the cable is protected from injury, and the said tube can be readily cleared of dirt or solid matter which may have fallen from the roadway by scraping the said dirt into the pulley-box, from whence it can be removed. The pulley-box, which constitutes a portion of the under part of the continuous tube or conduit, is so constructed as to form the man-hole at which the pulley and cable can be examined, oiled, or repaired when required. Over the periphery of the pulley immediately under the cable we place a wheel-guard for preventing stones or other solid bodies from falling into the pulley from the roadway. For conveniently carrying the cable to the required curve of the line we use a bell-shaped capstan so constructed that the wearing parts are protected from dirt and dust, and, as the said parts are constantly working in oil, will require little attention.

We will now describe, with reference to the accompanying drawings, the manner in which this invention is to be carried into effect.

Figure 1, Sheet 1, represents in cross-section, and Fig. 2 in plan, a continuous tube or conduit for the cable made according to this invention. The said tube is constructed of the side parts B B and the bottom or trough piece B², the three parts being bolted together by the flanges b b on the said parts. When so bolted together, they form a tube, through which the cable e runs, the said tube having the usual opening at the top to admit of the car-coupling or gripper attachment, as represented. The upper ends of the side parts B B are slightly thickened at A A. The side parts of the tube are constructed alike, and are either rolled or cast, and the lower part B² is also either rolled or cast. The ends of the several bars forming the continuous tube when bolted together do not terminate opposite each other, but break joint, as represented at d d, Fig. 2, the junctions of the several bars being fish-plated in the ordinary way. A continuous tube or conduit for the cable is thus formed without internal obstructions, and storm-water will freely find its way to the pulley-box hereinafter described, which pulley-box is connected at bottom with an outlet-pipe to the main sewer or other convenient waterway. It will be seen by reference to Fig. 1 that the side flanges of the tube B B B² form a support to the stone sets or wood pavement to rest upon, the said flanges preventing the said sets or pavement sinking below the level of the top of the tube. The cable e, Fig. 1, may run immediately under the groove in the tube or may run on either side to suit the gripper or car-coupling.

C C C, Fig. 1, is a cast-metal chair or cradle cast to fit the bottom of the tube and bolted thereto at f f, the said chair supporting and preventing the rolling or displacement of the tube. To the said chair on each side lugs g g are cast, to which the permanent way-rail tie-bars h h are connected, as seen in Fig. 2. By means of ribs i i, running across the bottom of the chair C C, the said chair is strengthened.

We will now describe the pulley or wheel box which forms part of the continuous tube or conduit for the cable and the man-hole combined with the said box. The pul-

ley or wheel box, together with the man-hole forming part of the same, are shown in Sheets 2 and 3, where Fig. 3, Sheet 2, represents the combined pulley-box and man-hole in elevation. Fig. 4, Sheet 2, is a plan, and Fig. 7, Sheet 3, a cross-section of the same. The pulley or wheel box is marked D, and constitutes the lower part of the continuous tube for the cable, and is bolted at *a a*, Figs. 3 and 4, Sheet 2, to the under side of the side parts of the tube, the said pulley-box replacing the trough-piece B², Sheet 1. The said pulley-box is furnished with bearings for the pulley or wheel to work upon. The said pulley or wheel box D is strengthened by ribs at C C, to resist collapsing-pressure. The lower or trough piece B² of the continuous tube enters the wheel-box D, as shown by dotted lines at *j*, Fig. 3, Sheet 2. E is the man-hole, constructed as best seen in Fig. 7, Sheet 3, a portion of the said man-hole being made in one piece with the pulley-box. The said man-hole is provided with an internal flap-door G, which when shut down in its place forms one of the sides of the continuous tube, as seen in Fig. 7, Sheet 3.

In Fig. 5, Sheet 3, the flap-door G is represented raised for giving free access to the tube for examining the pulley and cable and for cleaning out the tube. Stops or projections on the ends of the man-hole prevent the flap-door G falling too far and impeding the groove at the top of the tube.

By means of an iron frame H H, (see Fig. 7, Sheet 3,) filled with wood or other material, the man-hole may be covered to form the roadway.

Fig. 8, Sheet 3, represents the pulley-box provided with a gun-metal bearing, which is put in its place from the top and secured by dovetails, as seen at *k k*. The wheel or pulley guard, which we use, is shown detached in Fig. 6, Sheet 3, and combined with the pulley in Fig. 7, and marked *l l*. The said guard is fixed near the top of the pulley and is supported on lugs on the wheel-box, the cable

being situated over the said guard. The guard *l* also acts as a guide to the cleaning-brush. We make the pulley of cast-steel, preferably, and provide it with flanges on each side, as shown at *m m*, Fig. 7, to box up the said wheel and prevent stones or solid matter entering the said wheel.

Having now described the nature of our invention, and the manner in which the same is to be performed, we wish it to be understood that we do not limit ourselves to the precise details hereinbefore described and represented, as the same may be varied without departing from the nature of our invention; but

We claim as our invention—

1. The wheel or pulley-guard constructed and applied substantially as hereinbefore described and illustrated, for preventing dirt falling onto the said wheel or pulley, and for guiding the cleaning-brush.

2. The combination, with the pulley-box provided with man-hole E, of an internal flap-door to said man-hole, and the frame H, all substantially as and for the purpose specified.

3. The combination, with the pulley-box provided with man-hole E, provided with stops, as described, of the internal flap-door to said man-hole, and the iron frame H, having a wooden filling, substantially as and for the purpose specified.

4. The combination, with the chair and the conduit in sections, as described, of the lugs *g* on the chair upon opposite sides of the conduit, and the tie-bars *h*, connecting the said lugs with the rails, substantially as shown and described.

In testimony that we claim the foregoing, we have hereunto set our hands this 31st day of January, 1889.

WILLIAM EDWARD WINBY.

WILLIAM MARSTON WINBY.

Witnesses:

M. A. FITTER,

GEORGE B. FITTER,

Solicitors, 5 Bennetts Hill, Birmingham.