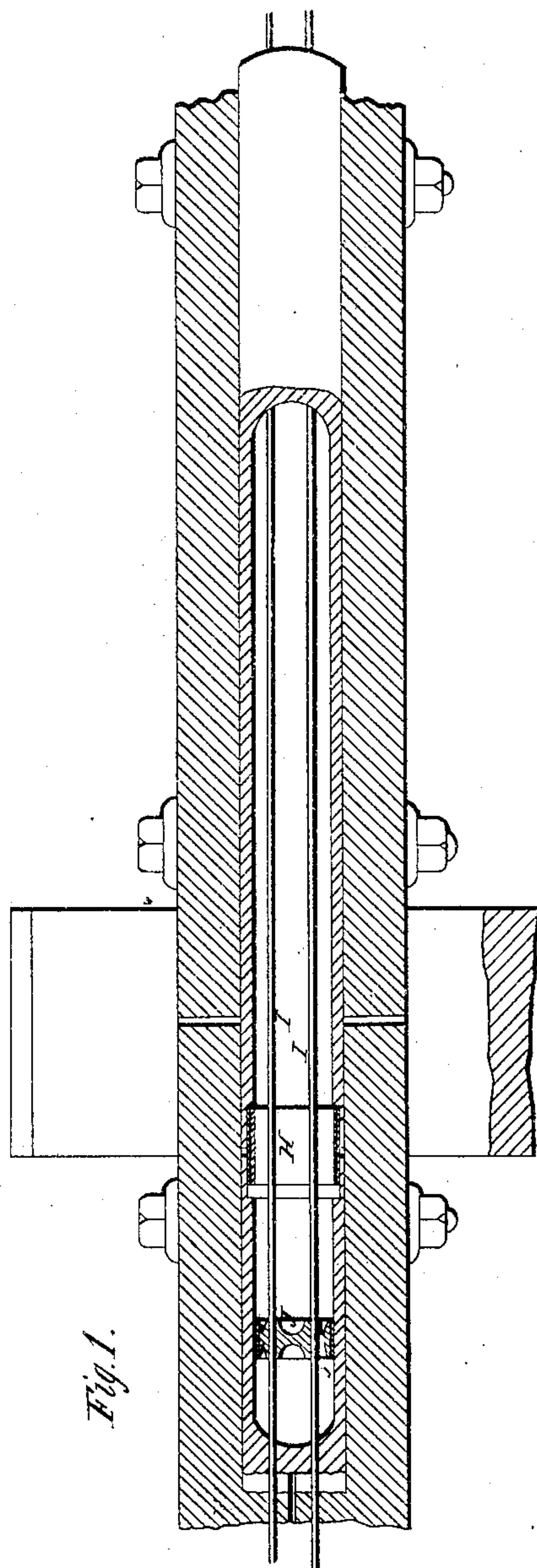
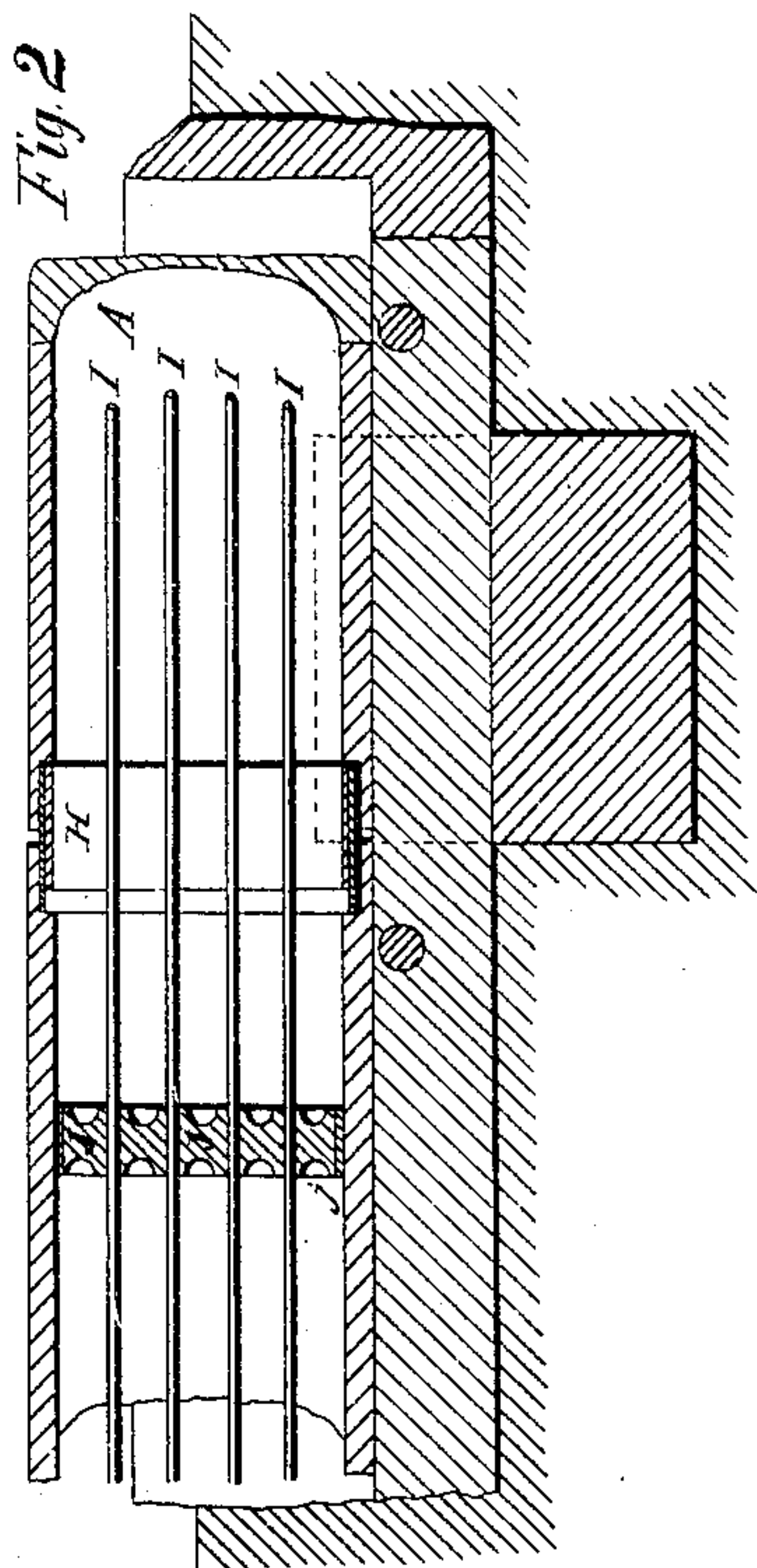
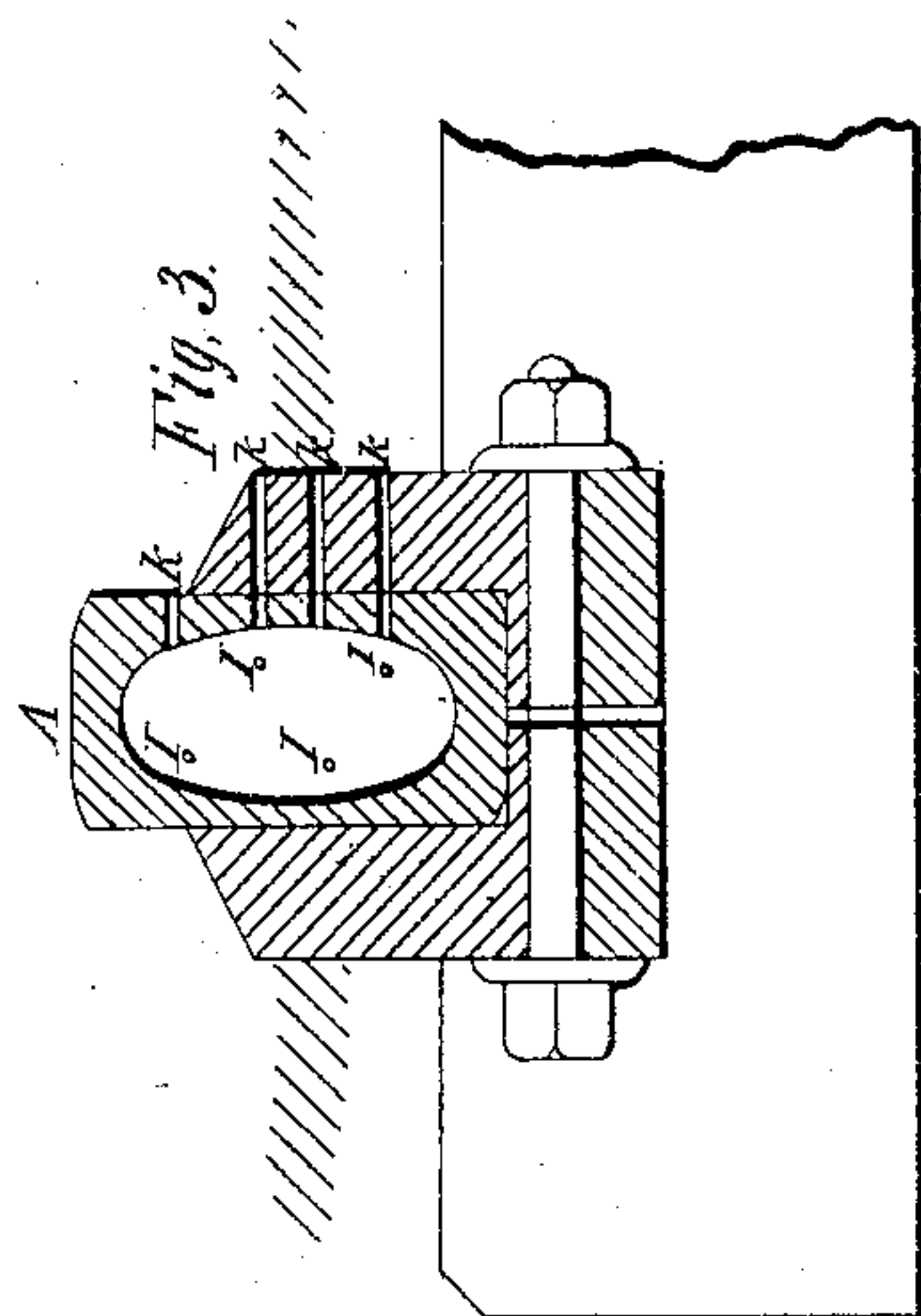


J. MONTGOMERY.  
CONDUCTOR FOR TELEGRAPHS.

No. 103,072.

Patented May 17, 1870.



Witnesses,  
W. B. Deming  
Wm. H. Brewster, Jr.

Inventor,  
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# United States Patent Office.

JAMES MONTGOMERY, OF NEW YORK, N. Y.

Letters Patent No. 103,072, dated May 17, 1870; antedated April 30, 1870.

## IMPROVEMENT IN CONDUCTORS FOR TELEGRAPHS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES MONTGOMERY, of the city, county, and State of New York, have invented certain new and useful Improvements in Telegraphs; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings which are made a part of this specification.

I support my telegraph-wires in insulating diaphragms, placed at proper distances within tubes of any convenient form, which may serve as rails for cars to run on, or for other purposes.

The said tubes or hollow rails are put together with longitudinal and transverse joints, which, while affording the necessary play to allow for expansion and shrinkage under changes of temperature, may be made proof against the ingress of moisture, while, at the same time, permitting the opening of the tube for repairs.

I also provide means whereby the wires may be tested at intervals in order to ascertain whether they are in effective working condition or locate a break.

In the drawings—

Figure 1 is a plan, partly in horizontal section, of a hollow railway rail, with telegraph wires within.

Figure 2 is a vertical longitudinal section thereof.

Figure 3 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in the several views.

A represents my tubular rail, which may be made either with or without longitudinal joints, and supported by any suitable system of sleepers and ties.

H represents tubular couplings inserted in recesses in the end of the rail sections, so as to leave a flush surface on the interior, and effectually prevent the opening of the joints either designedly by the introduction of any sharp instrument, or accidentally under the tremor or motion of the rails, or by expansion and contraction of the latter under changes of temperature.

I I I represent telegraph wires supported within the rail by disks J of glass or other insulating material.

The insulators J are formed with flanges j to retain them in their proper vertical position.

K K represent "test holes," through which a suitable instrument may be inserted in contact with either of the wires, to ascertain whether they are in effective condition.

I propose to make these holes of a suitable shape and size to prevent the insertion of any instrument by an unauthorized person to "tap the wires."

This object may be accomplished by making the apertures long and extremely narrow, so as to admit a flat blade, which may be made of steel no thicker than paper, or the apertures may be made of irregular shape, with corresponding keys fitted to them.

The test keys may be forked so as to stride the wires, and may be faced with platinum in order to form electrical connection with greater ease and effect.

The test-holes may be advantageously formed in the thimbles or joints H. Instead of these open holes test-wires may be passed through insulators to the exterior, and each cluster of wires guarded by a locked cover or cap.

Having thus described my invention,

The following is what I claim as new therein, and desire to secure by Letters Patent—

1. The flanged insulators J j, constructed as represented and described, when used in combination with a hollow railway rail, in the manner and for the purposes stated.

2. The couplings H, inserted in recesses in the rail ends, in the manner and for the purposes set forth.

3. The test-holes K, for the purposes specified.

JAMES MONTGOMERY.

Witnesses:

OCTAVIUS KNIGHT.

W. B. DEMING.