

No. 869,711.

PATENTED OCT. 29, 1907.

S. D. HUNT.
TROLLEY.

APPLICATION FILED APR. 24, 1907.

3 SHEETS—SHEET 1.

Fig. 1.

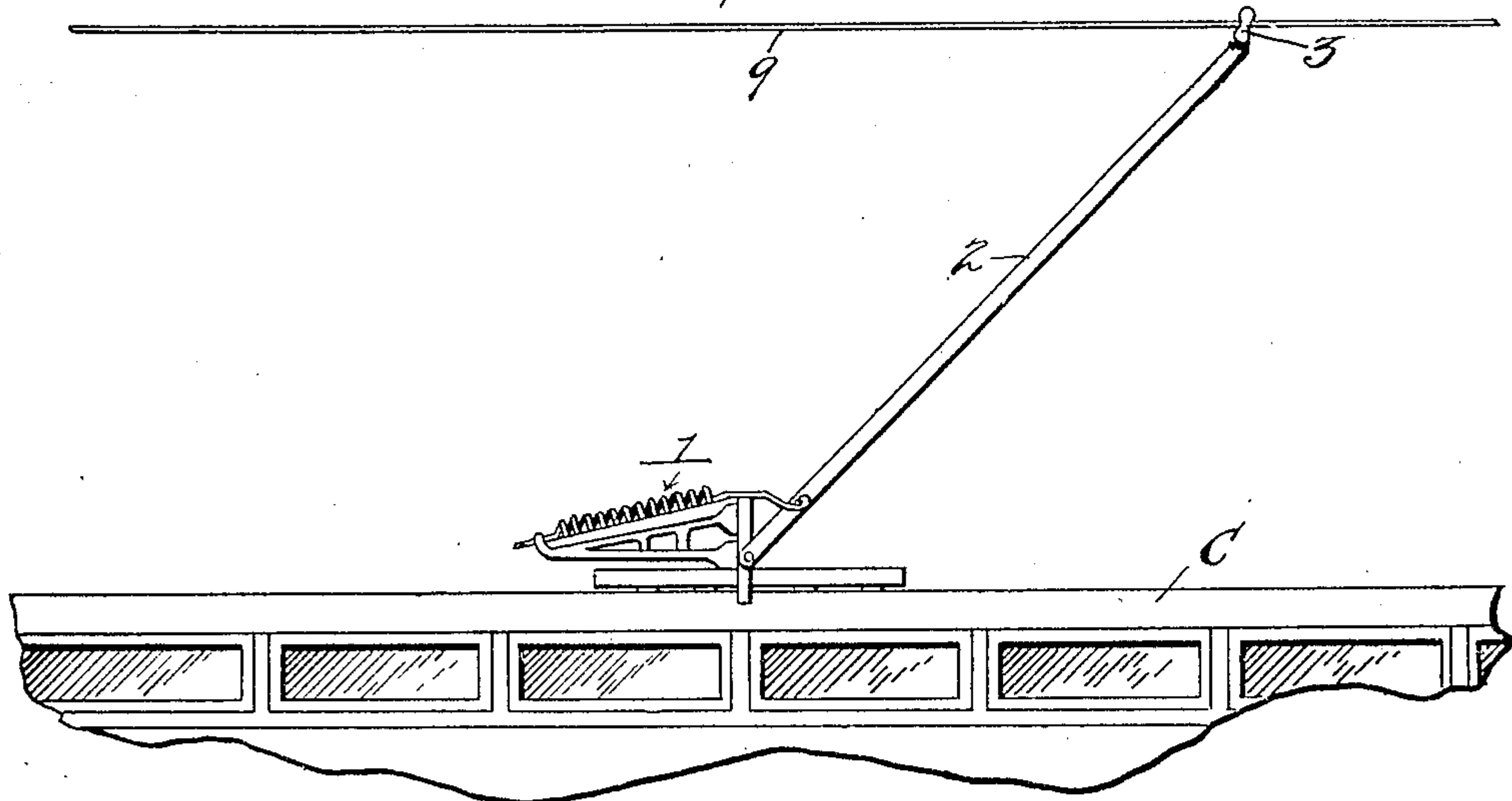
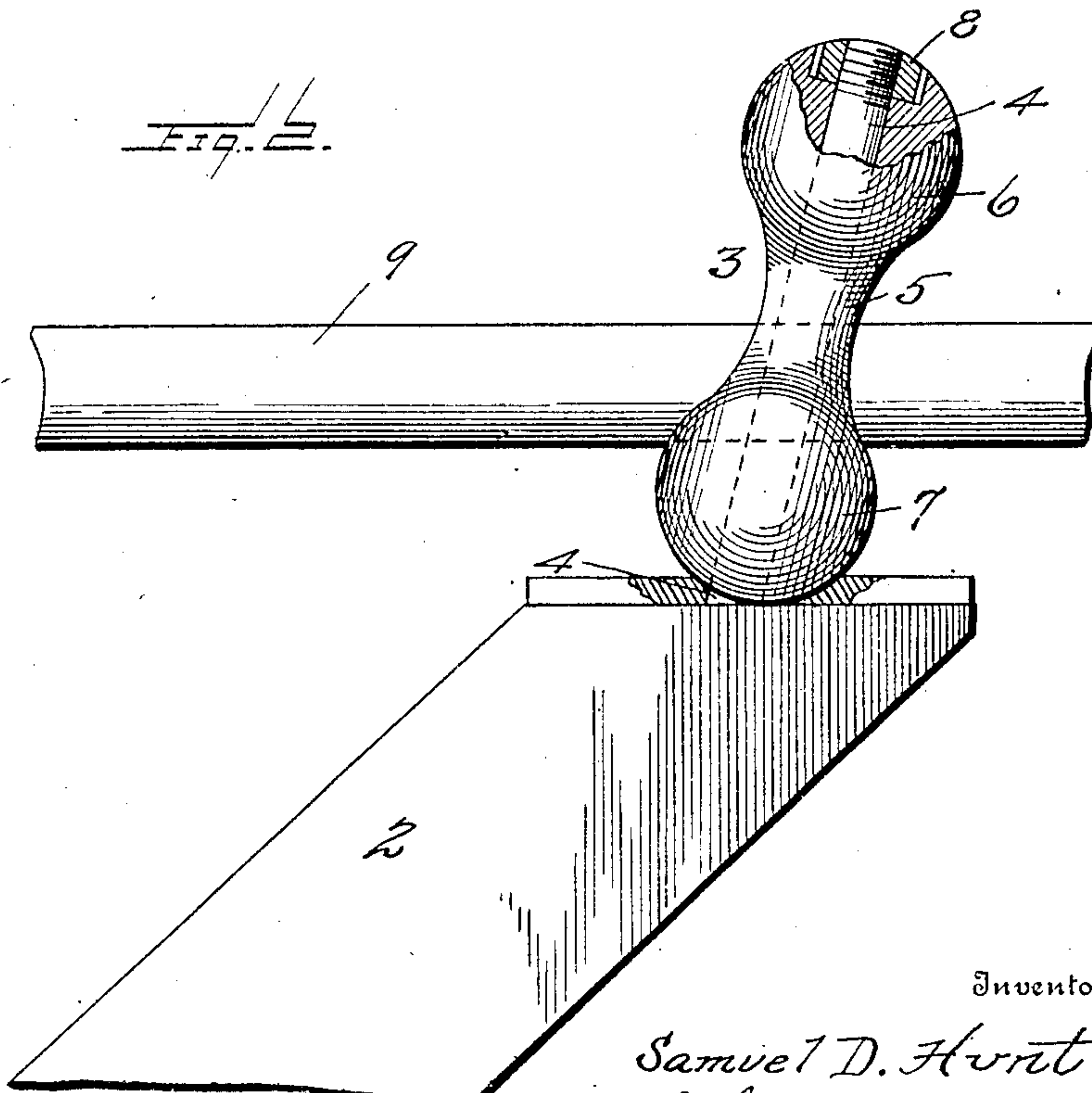


Fig. 2.



Witnesses

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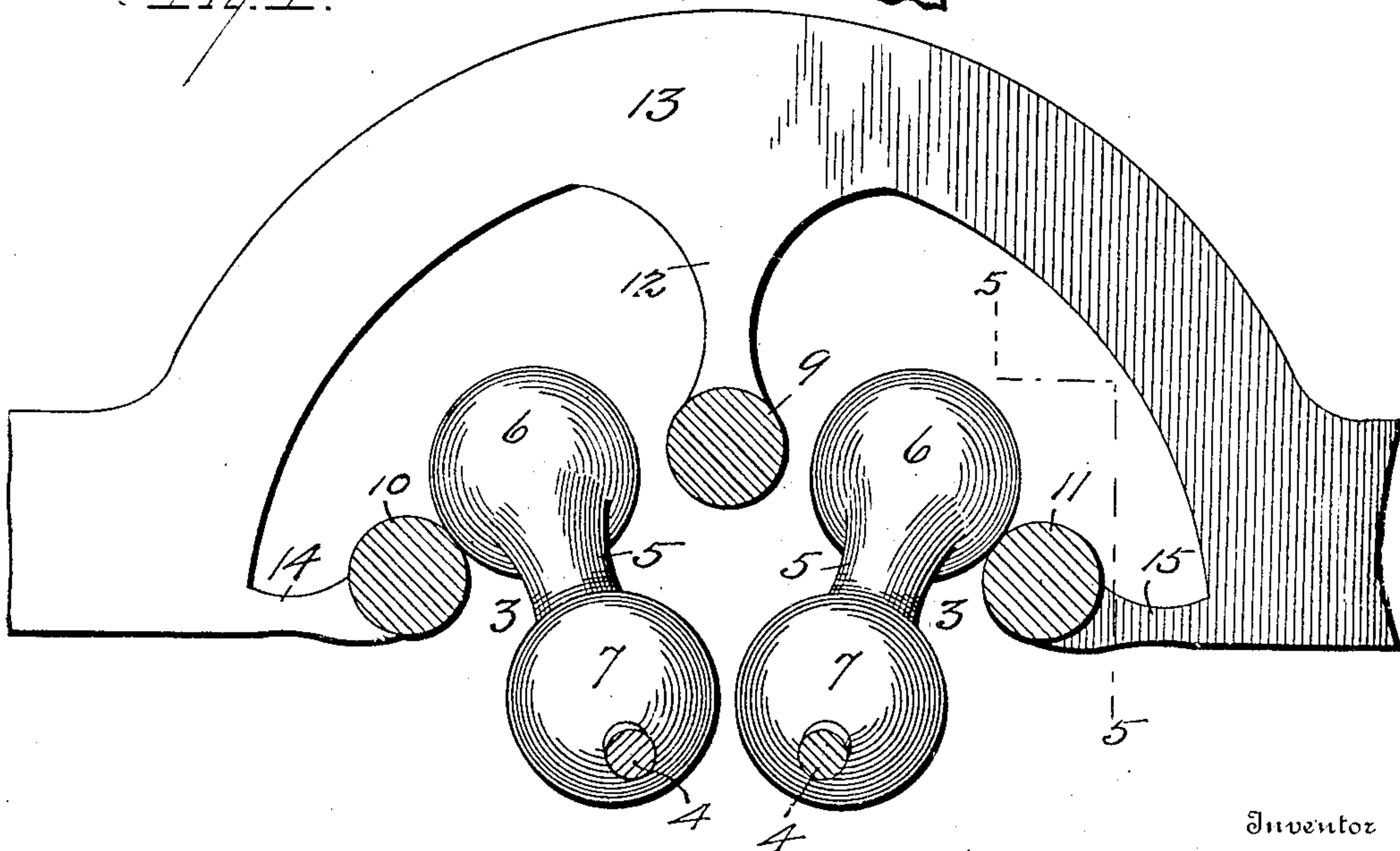
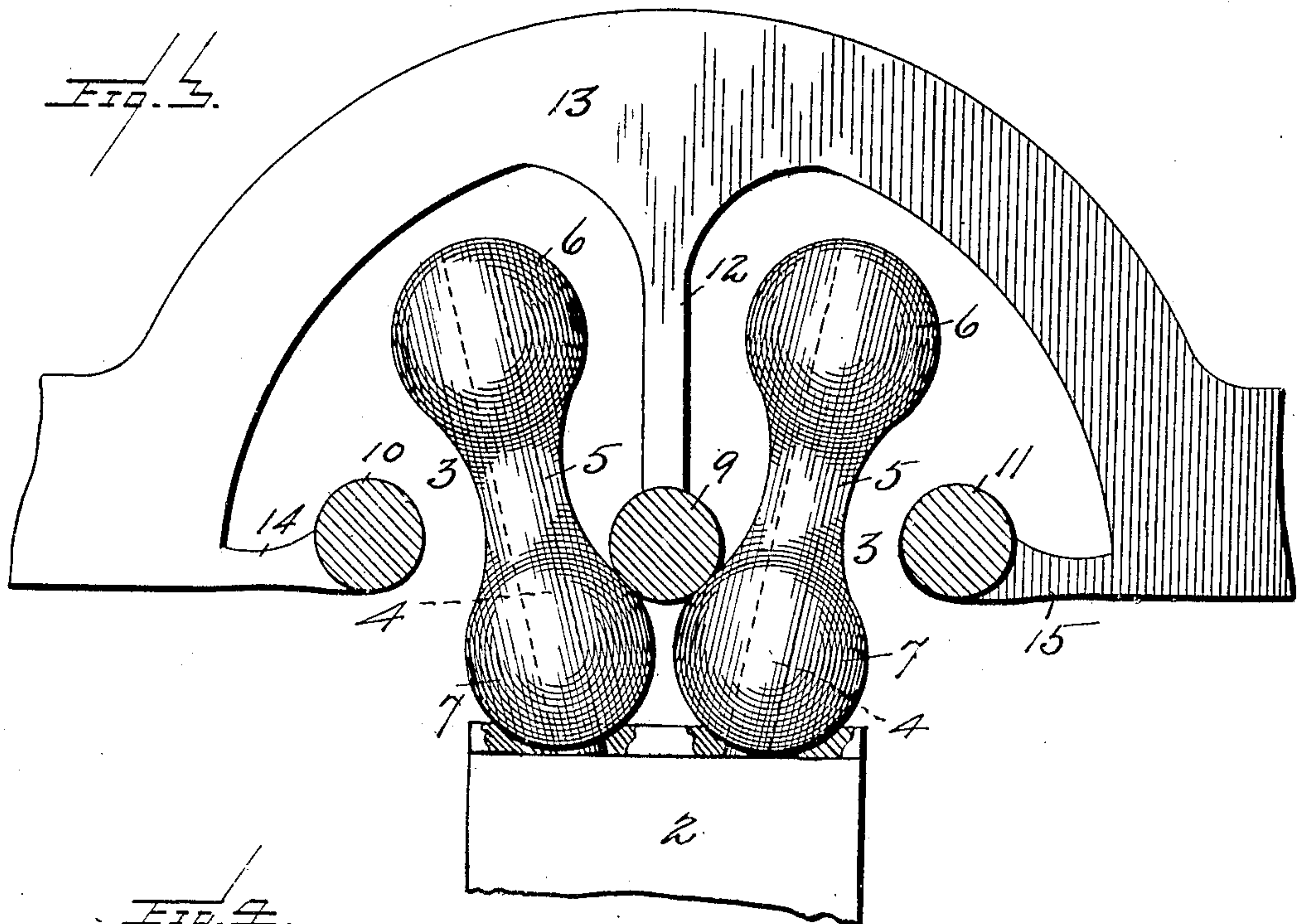
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3 SHEETS—SHEET 2.



Witnesses

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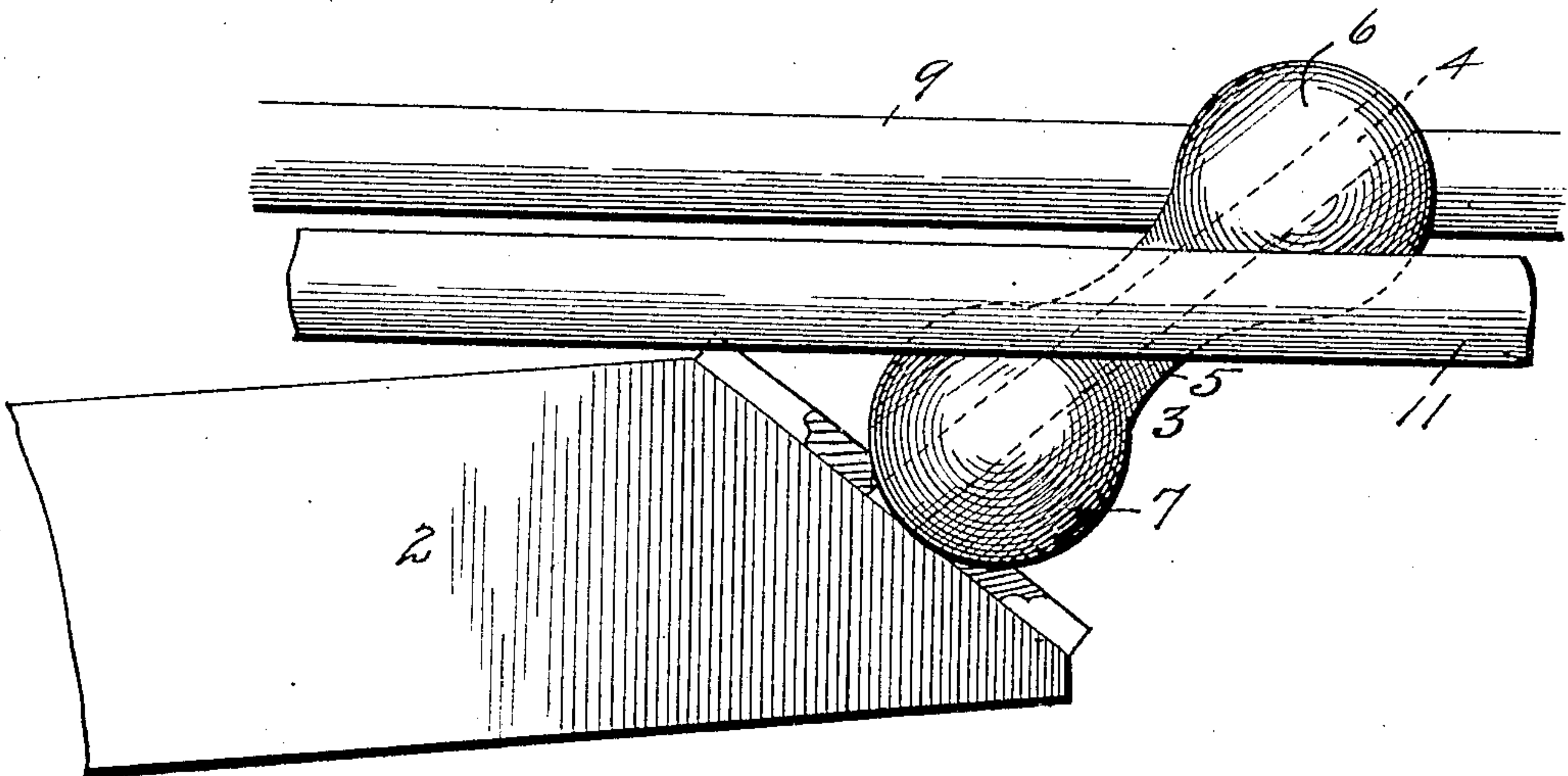
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3 SHEETS—SHEET 3.

Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL D. HUNT, OF YOUNGSTOWN, OHIO.

TROLLEY.

No. 869,711.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed April 24, 1907. Serial No. 370,108.

To all whom it may concern:

Be it known that I, SAMUEL D. HUNT, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Trolleys, of which the following is a specification.

This invention relates to an improvement in trolleys and trolley system for electric railways.

To this end the invention has in view the provision of a novel and practical construction of trolley head or harp designed to maintain an effective contact with the feed wires under all conditions, while at the same time guarding against the loss of contact with the feed wire or wires at curves and such other points where trolleys are generally liable to leave the wire.

Furthermore, the invention contemplates a form of trolley head or harp comprising a pair of peculiarly-shaped trolley spools which carry out the foregoing objects with a minimum amount of friction, and at the same time preserve novel and effective functions in connection with main and auxiliary feed wires arranged at curves and other points to be specially guarded and also beneath bridges and viaducts where the main feed wire is brought especially low.

With these and many other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

The essential features of the invention involved in the peculiar design of the trolley spools, and their relation to each other and to the feed wires, are necessarily susceptible to a variety of structural modifications without departing from the scope of the invention, but a few of the preferred embodiments of the latter are suggested in the accompanying drawings in which—

Figure 1 is a side elevation of a trolley embodying the present invention and showing the general relation of parts to each other and to the main feed wire or conductor. Fig. 2 is an enlarged side view of the improved trolley contemplated by the present invention. Fig. 3 is a front view of the trolley head or harp showing the operative relation thereof to main and auxiliary feed wires arranged at curves and other points to be guarded against loss of contact with the trolley. Fig. 4 is a similar view to Fig. 3 illustrating an arrangement of the main and auxiliary wires at a bridge, viaduct, or other point where the main feed wire must be brought especially low and the trolley pole seeks an almost horizontal position. Fig. 5 is a sectional elevation on the line 5—5 of Fig. 4, showing the trolley pole lowered to almost a horizontal position such as when passing beneath bridges or other low places.

Like references designate corresponding parts in the several figures of the drawings.

In carrying out the present invention no change whatever is required in the trolley pole mounting on the electric motor car, so for illustrative purposes, there is shown in Fig. 1 of the drawings, a car C equipped with a conventional type of trolley swivel designated in its entirety by the reference numeral 1, and having connected therewith in the usual or any approved manner, the trolley pole 2 subserving the usual functions of a pole of this character.

The distinctive feature of the present invention resides in the construction and action of the trolley head or harp carried at the upper or outer end of the trolley pole 2. This head or harp comprises a pair of upright rotatable trolley spools 3 journaled on the fixed upright supporting journals 4 suitably fitted to the upper or outer end of the pole 2. The said spools are preferably duplicates in construction and each may be characterized as consisting of an elongated body of a dumb-bell shape and embodying in its construction an intermediate longitudinally concaved or dished cylindrical bearing waist 5, and a pair of terminal contact heads 6 and 7 arranged respectively at opposite ends of the waist portion 5, and hence respectively at upper and lower ends of the spool body. The said terminal contact heads 6 and 7 of the individual trolley spools 3, are of a spherical or spheroidal form and thus have a uniform ball-like rolling contact with the feed wires engaged thereby, while at the same time, the round longitudinally concave waists 5 of the spools likewise have an easy rolling contact with the feed wires when, under some conditions, they are brought into contact therewith.

In the preferable embodiment of the invention, the opposite spools 3, and their supporting journals or spindles, 4 are set in upwardly divergent relation, while at the same time, it is also preferable to arrange both spools at an inclination rearwardly of about ten degrees from the perpendicular. That is, assuming the normal working position of the trolley pole to be forty-five degrees, the spools and their spindles would then be set at an angle of thirty-five degrees with the pole. However, the angularity of the spools with respect to each other, and in relation to the pole, may be varied without in any way affecting the invention.

The spools may be held upon their spindles by any suitable retaining means such as the nut retainer 8 shown in Fig. 2 of the drawings, and other minor structural features may be utilized without altering the essential idea of the specially designed trolley spools and their relation to the main and auxiliary feed wires designated respectively by the references 9, 10 and 11. The main feed wire or conductor 9 is strung in the usual way in connection with suitable hangers, such for in-

stance, as shown in Fig. 3 of the drawings which illustrates said wire suspended from the central pendent bracket-piece 12 carried by the arched hanger bracket 13. This bracket 13 is provided at opposite sides of the support for the main wire 9, with the inwardly extending side bracket arms 14 and 15 to which are respectively attached the auxiliary wires 10 and 11 which are arranged in connection with the main feed wire at curves or any other points in the trolley system where the trolley would be liable to leave the wire, as is well understood by those familiar with the art.

As shown in Fig. 3, under normal conditions, the lower contact heads 7 of both spools will have an easy rolling contact under and against the main feed wire 9. At points where the auxiliary wires are located, it will be seen that if the trolley should be forced down by any cause, as it would have to be in order to leave the wire, the upper or outer heads 6 of the spools, or one of them at least, would come in contact with its auxiliary wire. Moreover, if the trolley should move, say to the right, bringing the upper contact head of one spool down upon the auxiliary wire 10, the waist 5 of the opposite spool would come into play against the main central feed wire 9, thus making it impossible for the trolley to get entirely away from the main feed wire and the auxiliary wires at the same time.

In arranging the wires for bridges, viaducts, or other low places, the auxiliary wires are dropped a predetermined distance below the plane of the main wire in order that the upper contact heads 6 cannot come in contact with the auxiliary wires so long as the lower contact heads remain in contact with the main wire, which result would otherwise be liable to occur with the arrangement already described because the pole reaches almost a horizontal position when passing under

a bridge or other low place. This use of the invention is exemplified by Figs. 4 and 5 of the drawings.

Other modifications of the invention will readily suggest themselves and it will be understood that various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim—

1. In a trolley, the trolley head comprising a pair of dumb-bell shaped trolley spools. 45
2. In a trolley, a trolley head having a dumb-bell shaped spool.
3. In a trolley, a trolley head comprising a pair of divergently related spools having heads at both ends. 50
4. In a trolley, a trolley head comprising a pair of spools having spherical contact heads at both ends.
5. In a trolley, a trolley head comprising a pair of divergently related spools having spherical contact heads at both ends. 55
6. In a trolley, a trolley head comprising a pair of spaced upright spools, each consisting of a body having a narrowed bearing waist, and spherical terminal contact heads at the ends of said waist.
7. In a trolley, a trolley head comprising a pair of upright rotatable trolley spools, each consisting of a body having a longitudinally concaved waist and spherical terminal contact heads. 60
8. In a trolley system, the combination with a main feed wire and oppositely arranged auxiliary side wires, of a trolley head comprising a pair of upright rotatable spools having terminal spherical contact heads at both ends. 65

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

SAMUEL D. HUNT.

Witnesses:

JOHN SCHLARE,
JOHN W. BREMEN.