(No Model.) 2 Sheets—Sheet 1.

R. M. DIXON.

STEM CONNECTION FOR FOUR-WAY COCKS.

No. 528,658. Patented Nov. 6, 1894.

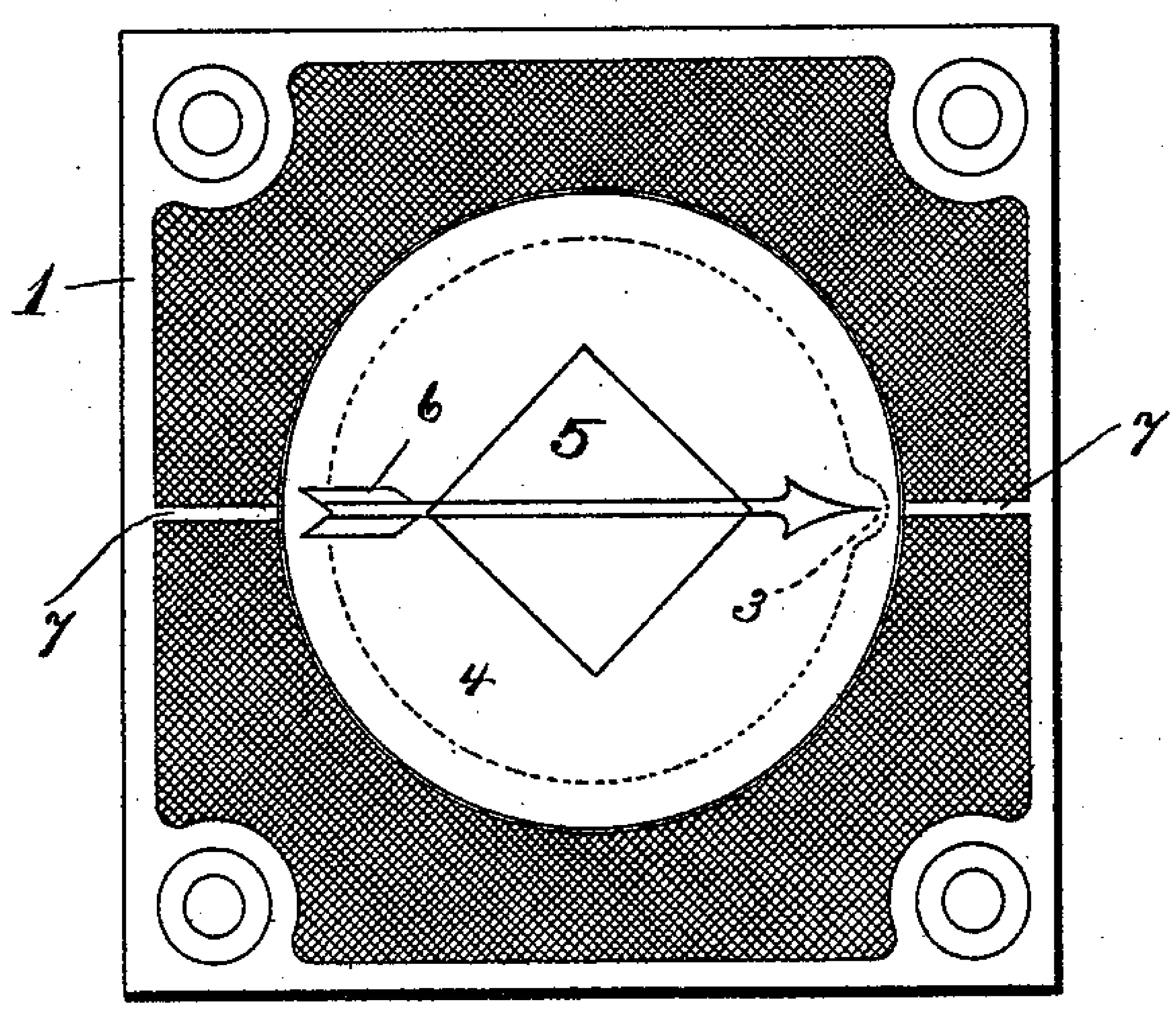

Fig. 1

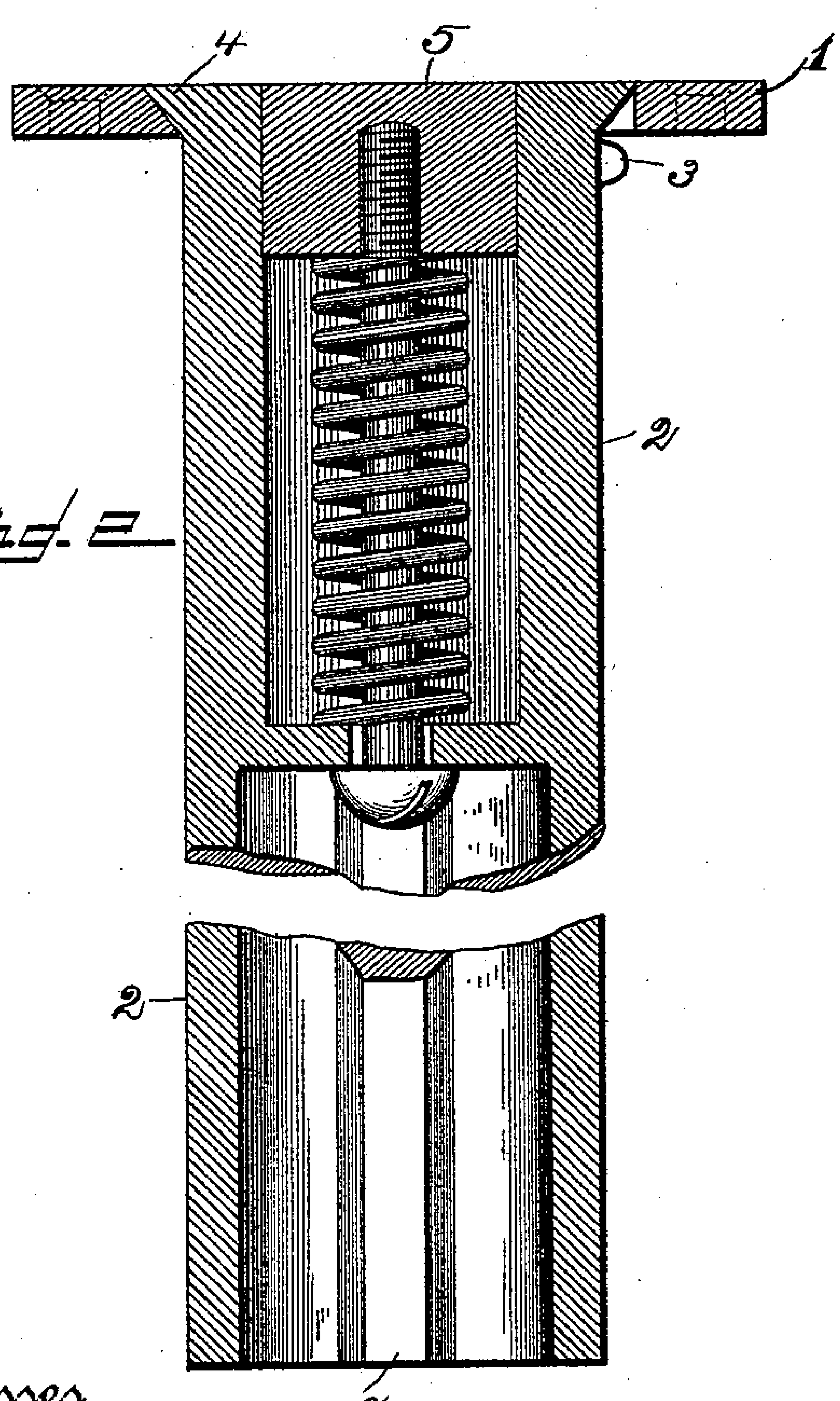

Fig. 2

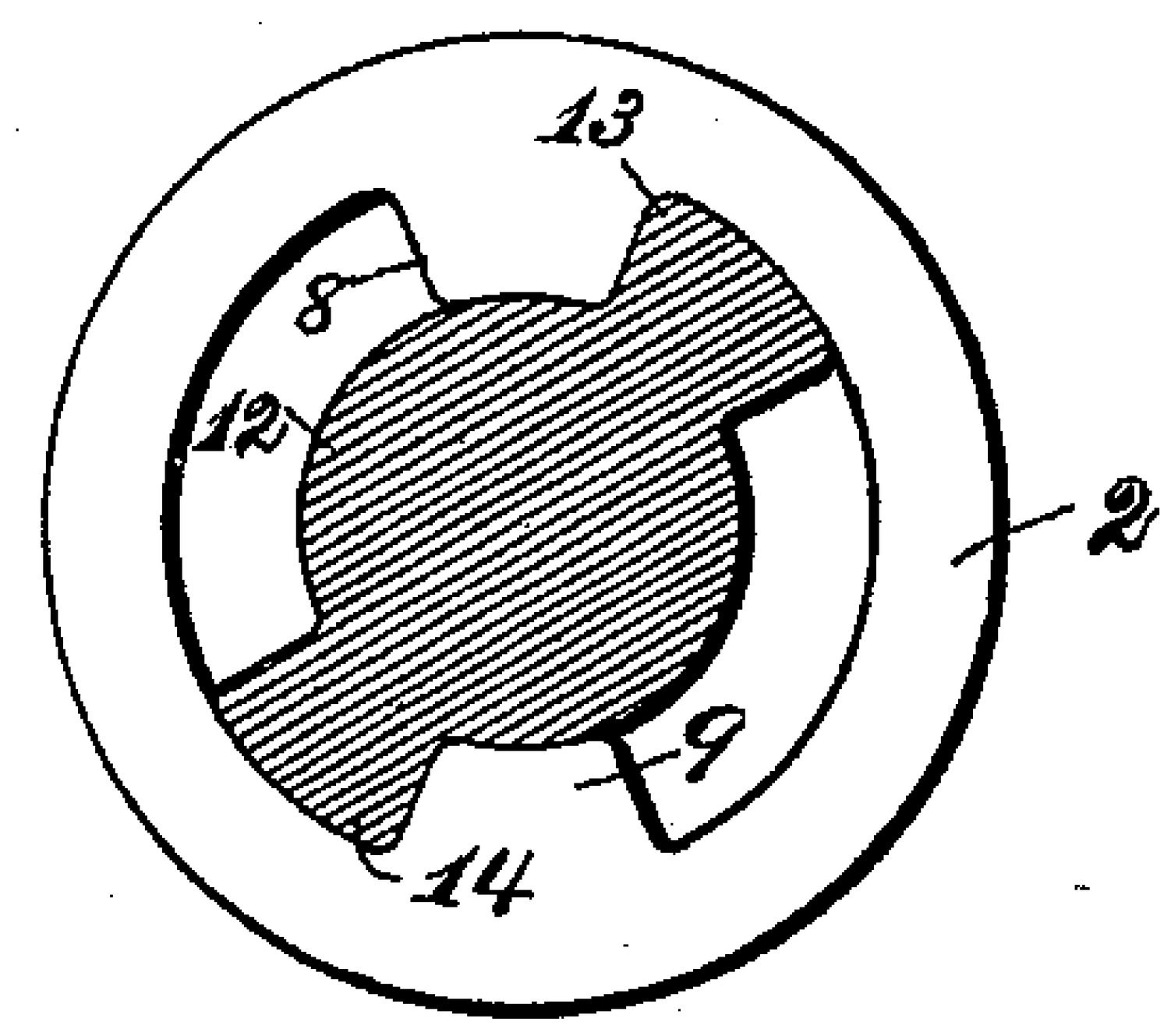

Fig. 6

Witnesses
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J. McWitherow

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(No Model.)

2 Sheets—Sheet 2.

R. M. DIXON.

STEM CONNECTION FOR FOUR-WAY COCKS.

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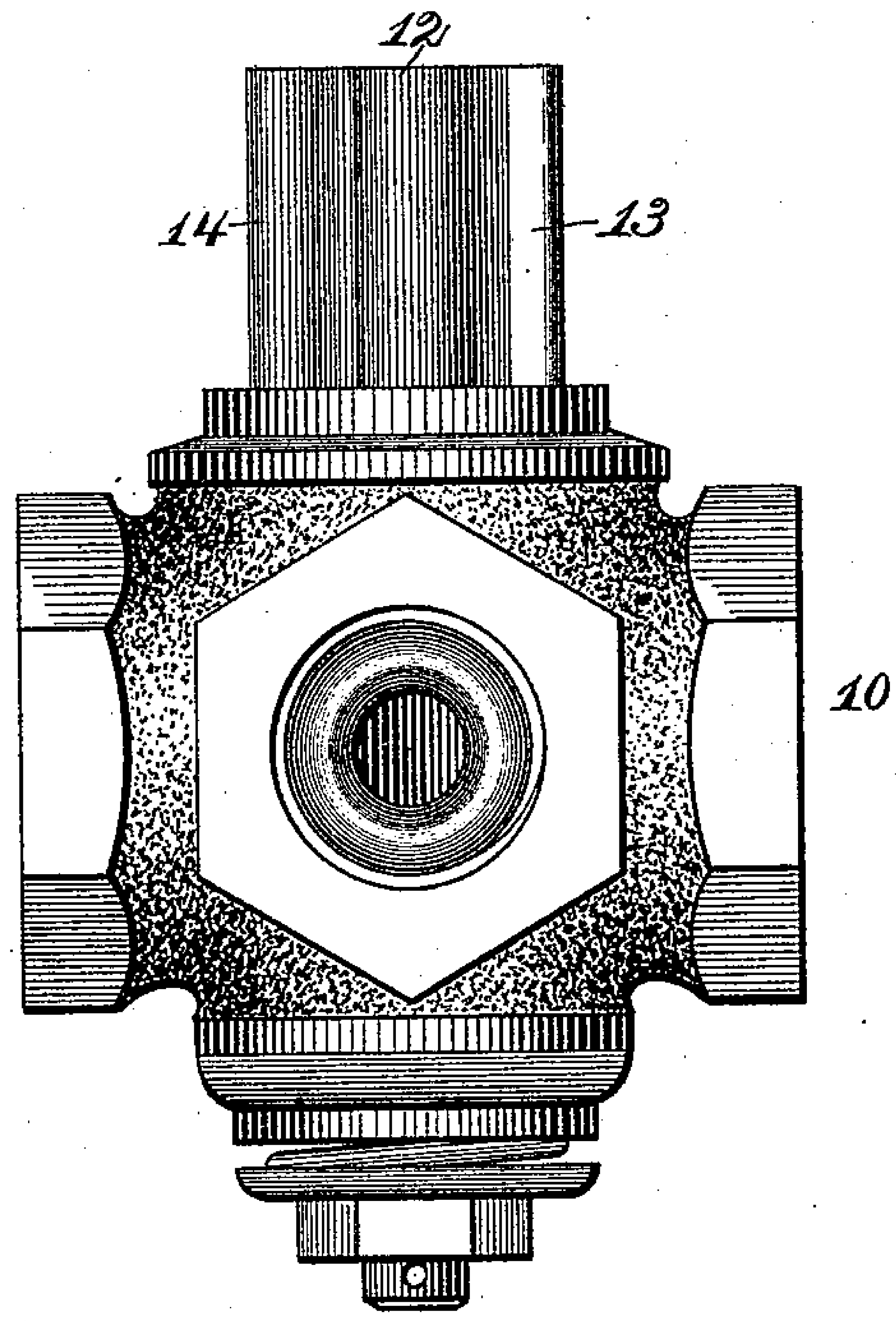

Fig. 3

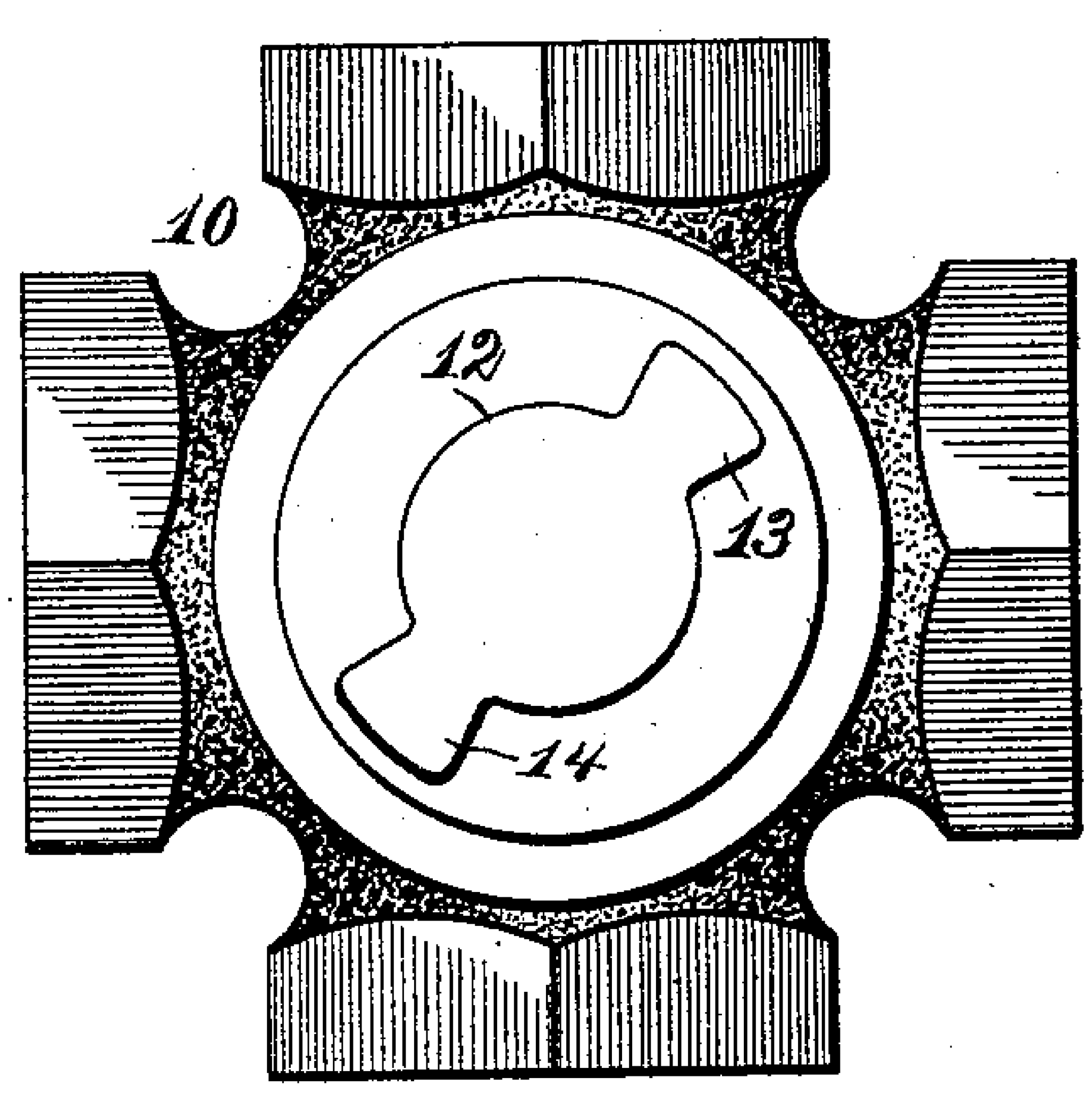

Fig. 4

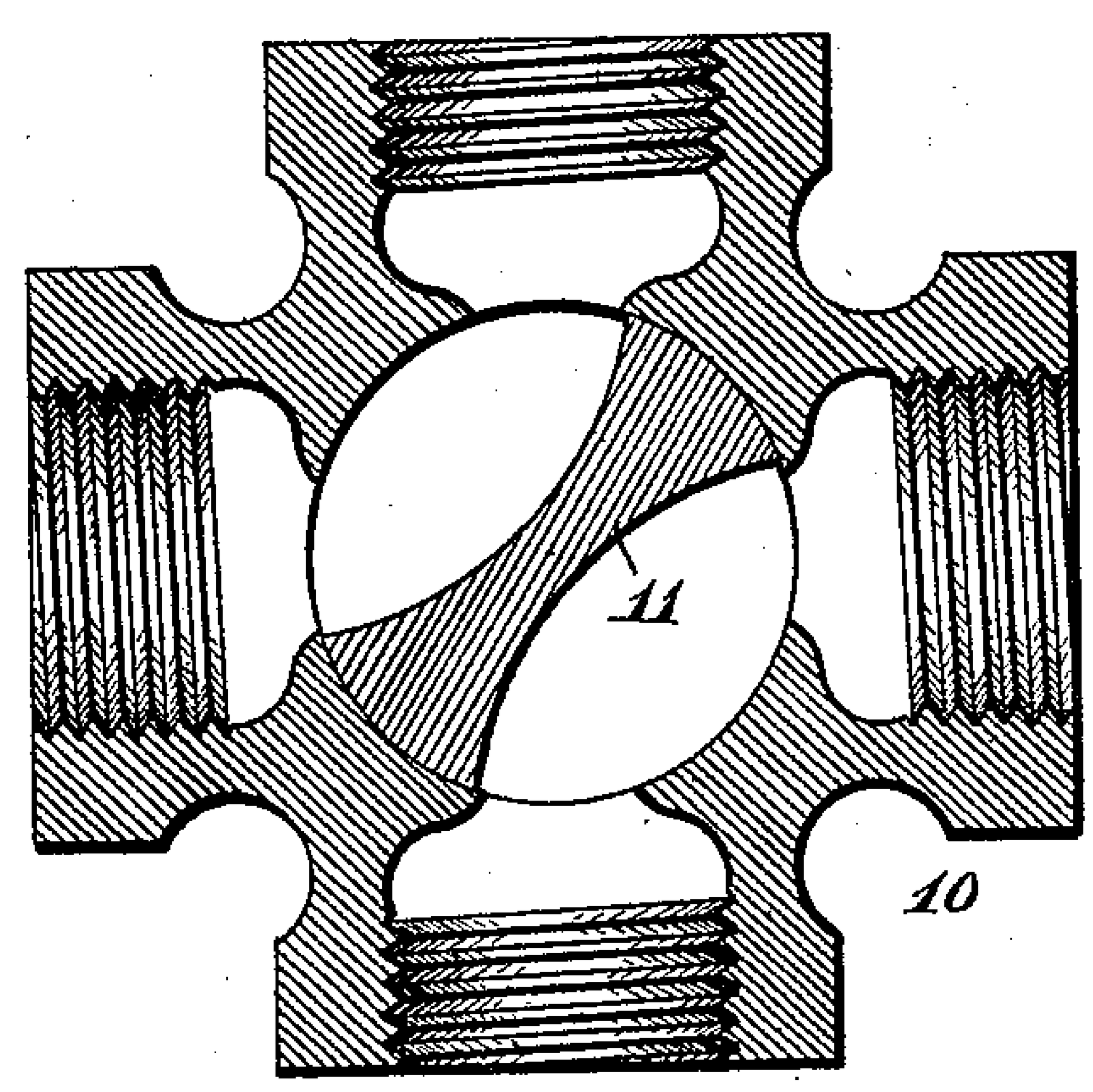

Fig. 5

Witnesses
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J. McWitherow.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT M. DIXON, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO THE SAFETY CAR HEATING AND LIGHTING COMPANY, OF NEW YORK, N. Y.

STEM CONNECTION FOR FOUR-WAY COCKS.

SPECIFICATION forming part of Letters Patent No. 528,658, dated November 6, 1894.

Application filed April 20, 1893. Serial No. 471,208. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. DIXON, of East Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Stem Connections for Four-way Cocks, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved stem connection for four-way cocks whereby, for example, when the stem is moved through one hundred and eighty degrees it will turn the cock but forty-five degrees.

In certain car heating systems in which four-way cocks are employed to direct the steam from a locomotive in one direction or another, it is desirable, if not practically necessary, to employ simple means of indicating when the cock is set in the proper direction. I have adopted the plan of using a rotary head or disk in connection with the valve stem. Upon the top of this head or disk an arrow is displayed. The proper position for the cock is ndicated by the direction in which the arrow points. In practice, the arrow should always point toward the locomotive. In order, therefore, to reverse the position of the arrow, when the car is turned end for end, it is necessary to turn the head through one hundred and eighty degrees. The four-way cock, however, should be turned through but forty-five degrees and it is, therefore, necessary to employ an especially constructed loose connection between the cock and its stem, whereby the rotation of the stem through one hundred and eighty degrees will indicate a rotation of the cock or plug through forty-five degrees. The proportional number of degrees through which the stem and the cock, respectively, rotate may be varied. I only suggest the relative number of degrees which, in practice, I now employ.

In the accompanying drawings: Figure 1 is a top plan view of a floor plate and valve stem head or disk. Fig. 2 is a central longitudinal section through the same. Fig. 3 is a side elevation of the valve or cock. Fig. 4 is a top plan view thereof, showing the plug head. Fig. 5 is a horizontal section of the subject matter of Fig. 3. Fig. 6 is an end view of the stem shown in Fig. 2, showing, the relation of the plug head to the stem and indicating the manner in which the different relative degrees of rotation of the two parts is effected.

Referring to the figures on the drawings: 1 indicates a floor plate designed to be secured flush with the floor of a car.

2 indicates a hollow stem, revolubly secured within an aperture in the plate, as by a lug 3. The flanged head 4 of the stem and the walls of the aperture in the plate are perferably made beveled, as illustrated in Fig. 2, for maintaining the relative position of the parts when united. A spring-supported block 5 is preferably employed to close the central aperture of the stem. In practice, this block is depressed by a tool fitting into the end of the stem and designed to rotate it. These features constitute no part of my present invention and are explained merely to make the operation of my device clear.

Upon the top of the stem an arrow 6 is illustrated, extending nearly across the same.

7 indicates guide lines with which the arrow should align in practice. As above suggested, the arrow, in the present instance, turns with its head toward one of the lines, or may be turned in the opposite direction. The lower cavity of the stem, as shown in Fig. 6 of the drawings, is mainly of circular cross section, but is provided with jutting ribs 8 and 9 extending longitudinally within it.

10 indicates a four-way cock or valve having a plug 11 whose head is reduced to form a main, partially cylindical, body 12, of a diameter to allow it to fit loosly between the ribs 8 and 9.

13 and 14 indicate longitudinal lugs upon opposite sides of the plug head. The distance from the outer periphery of the lug 13 and that of the lug 14 is such as to admit of their free movement within the lower cavity of the stem. The relative positions of the plug head and the end of the stem are shown in Fig 6 of the drawings. Therein is also clearly illustrated the correlative conformations of the interior of the stem cavity and the exterior of the plug head. The ribs in the frame and the lugs on the latter both taper toward the center so that, when the sides of the lugs

strike the sides of the ribs they meet in the same plane. It will be observed that if the parts are in the relative positions shown in that figure, and it is desired to reverse direction of the arrow, the ribs 8 and 9 of the stem pass without obstruction during the greater part of the rotation of the stem. Before the stem reaches its limit of rotation, the ribs will strike the lugs 13 and 14 and, carrying them ahead, will impart the degree of rotation required to the plug by the time the arrow reaches its proper position. It will be perceived, therefore, that the relative thicknesses of the ribs 8 and 9 and of the lugs 13 and 14 determines the proportional degrees of rotation between the valve stem and the plug.

I do not confine myself to the details of construction herein shown and described, as, for example, the relative conformations of the plug head and valve stem, but reserve the right to modify and vary them at will within the scope of my invention.

What I claim is—

The combination with a cock and its plug, of a stem loosely connected with said plug and provided with an indicating arrow, the connection between the stem and plug permitting the direction of the arrow to be reversed and the plug to be turned through ninety degrees by the movement of the stem in one direction, movement thereof in the opposite direction causing the movement of the plug in the same degree, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

ROBERT M. DIXON.

Witnesses:
ELMER E. ALLBEE,
CLARENCE D. SLOCUM.