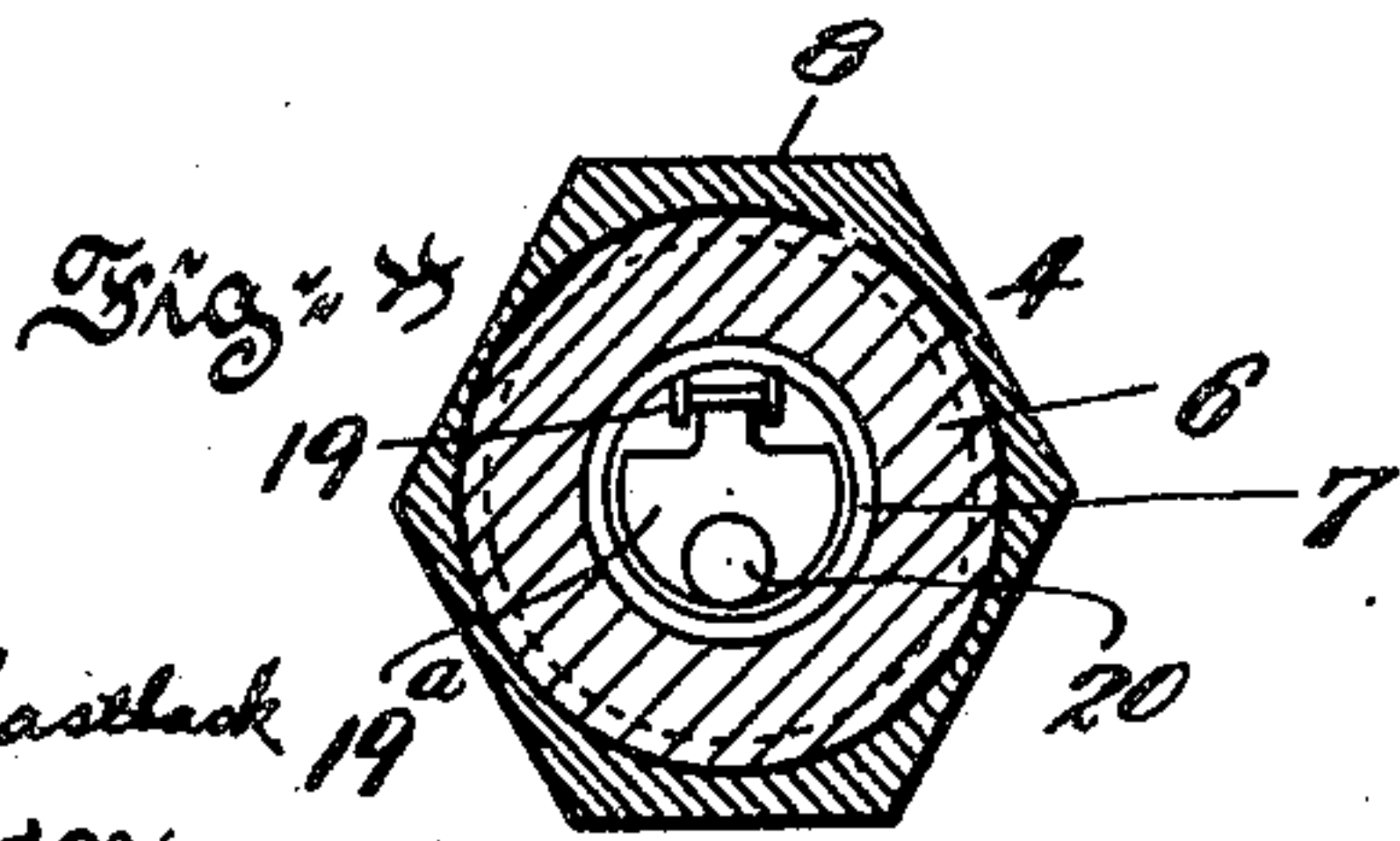
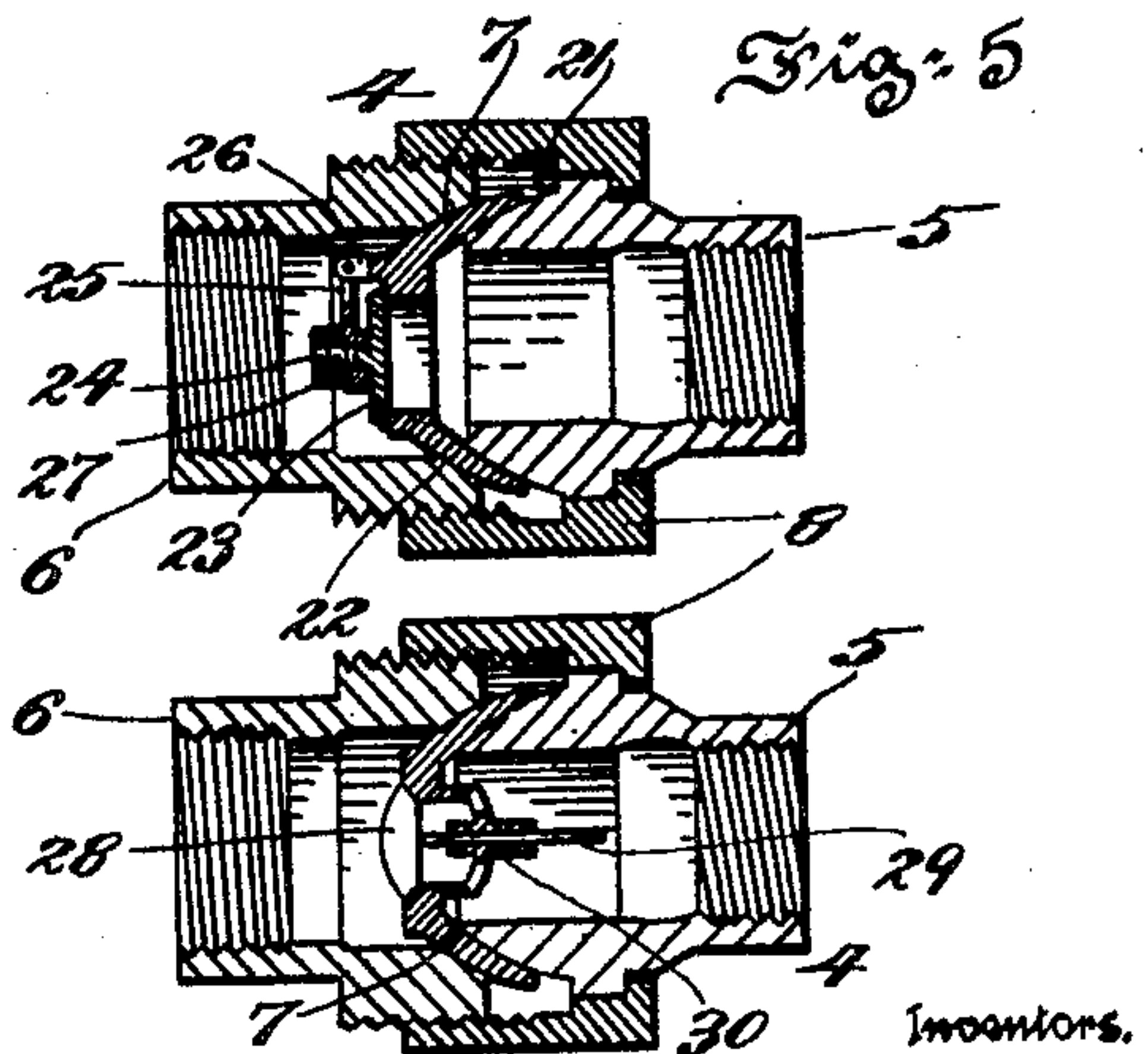
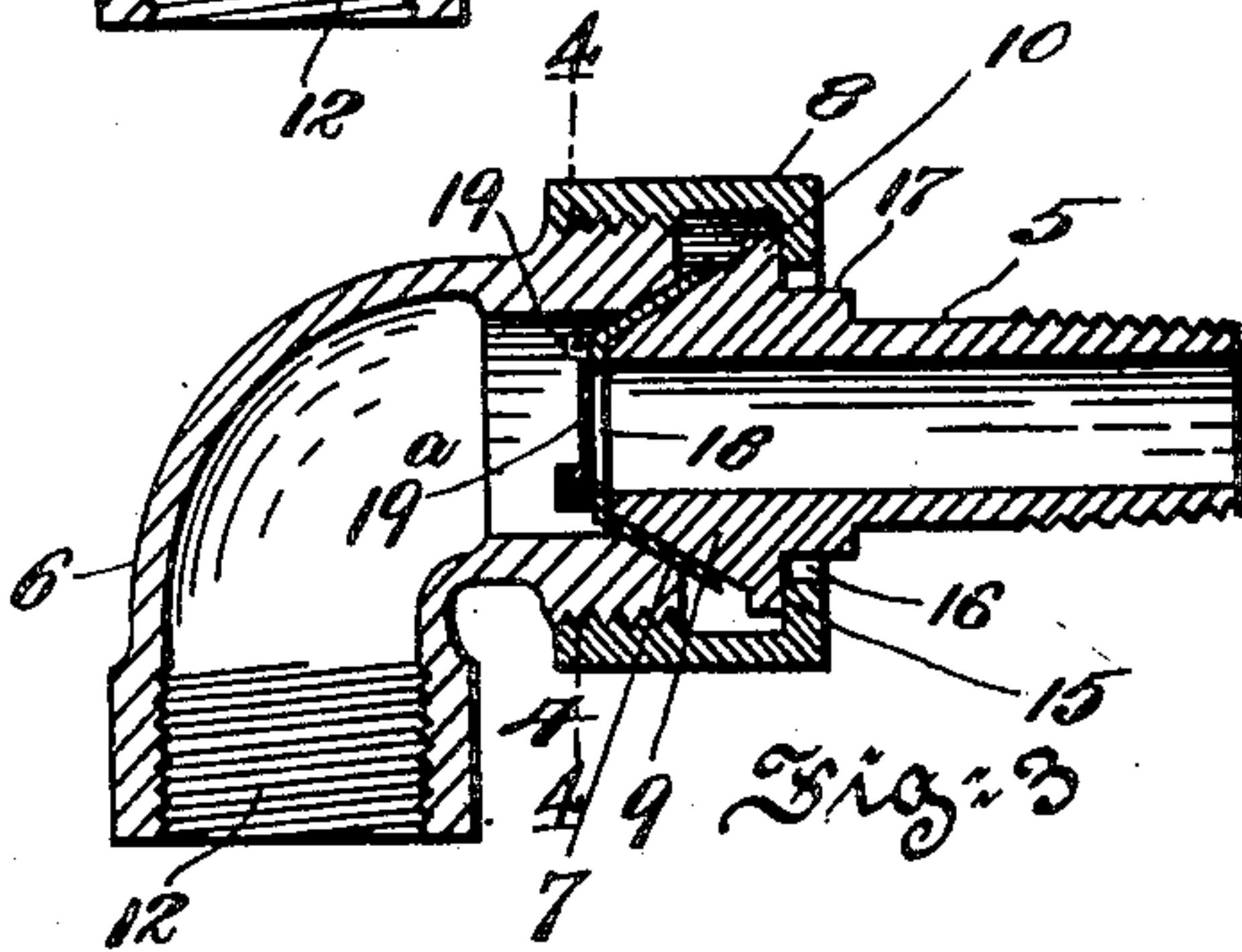
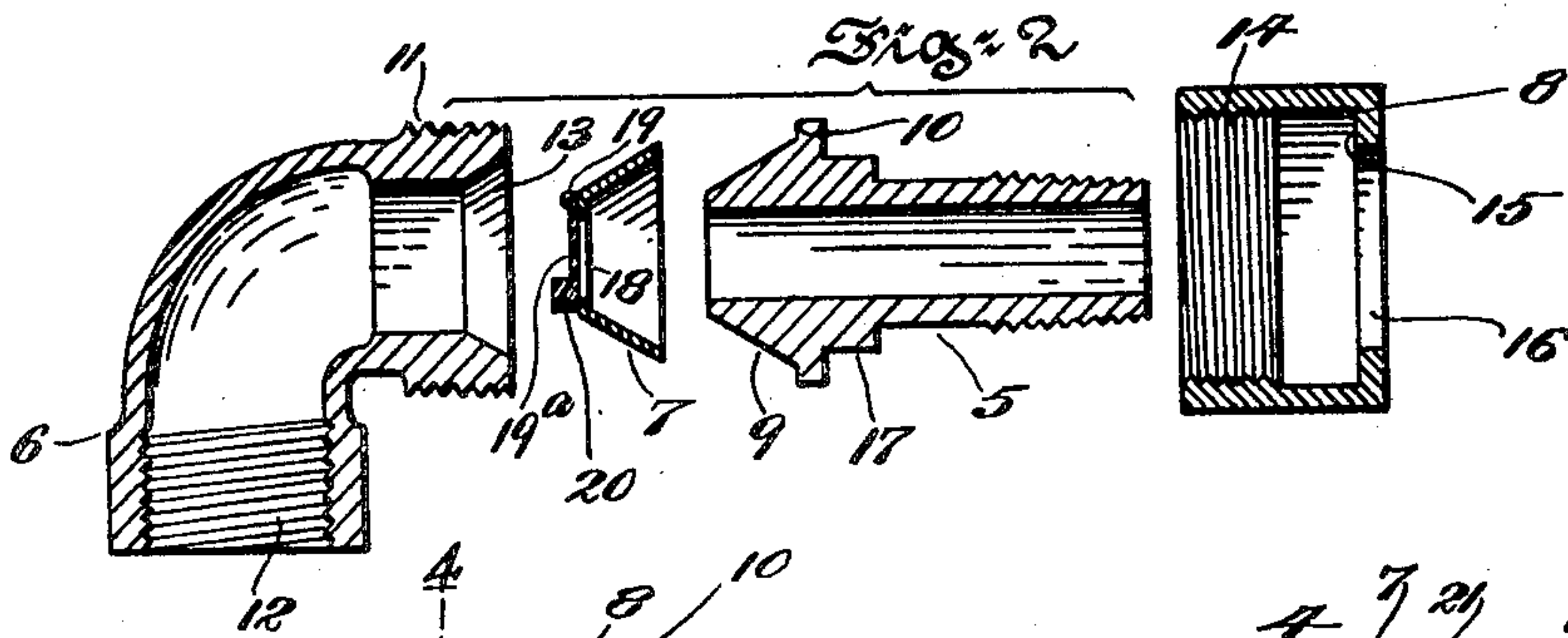
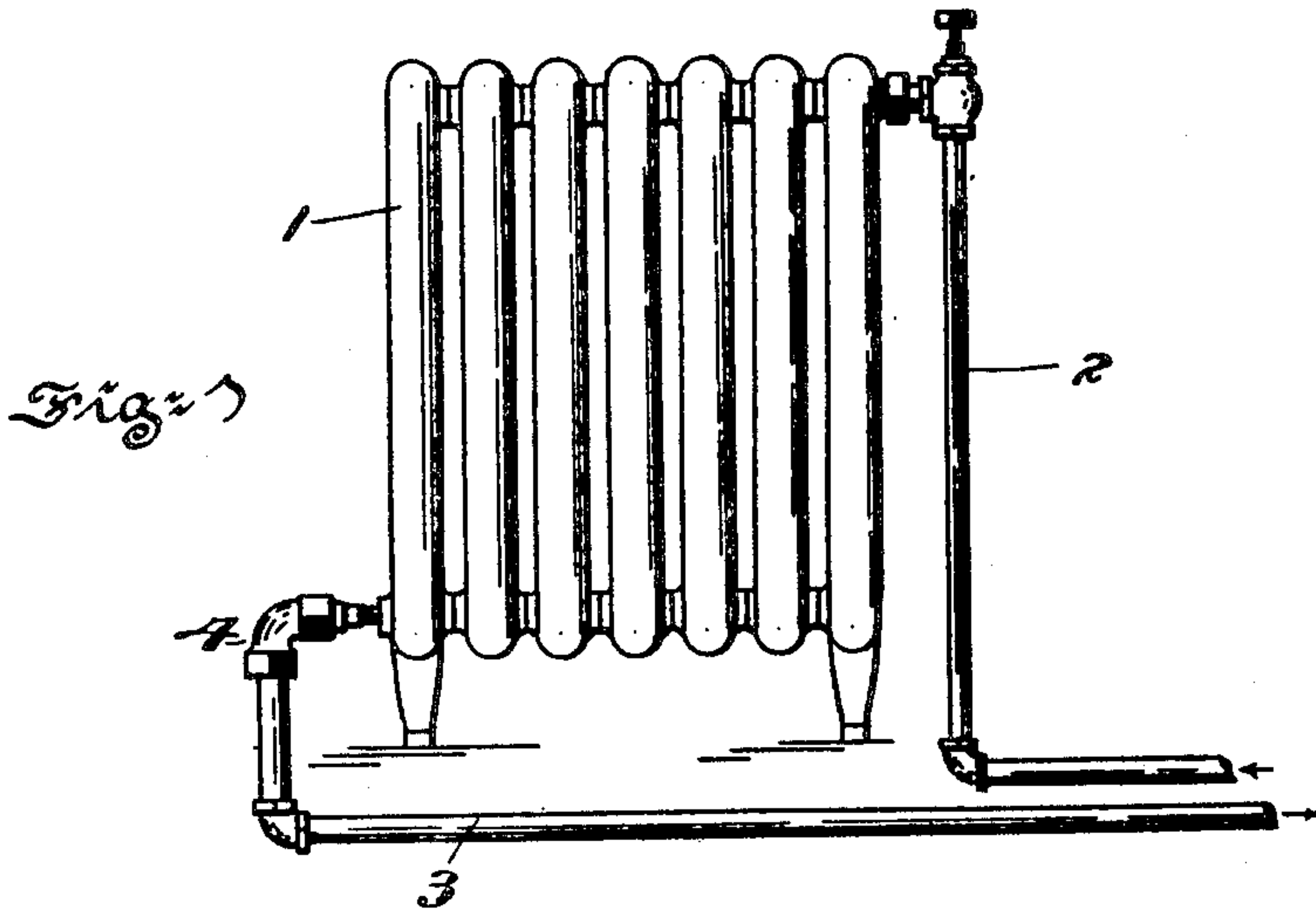


H. K. & I. Z. KRIEBEL.
CHECK VALVE.
APPLICATION FILED FEB. 18, 1908.

934,548.

Patented Sept. 21, 1909.



Witnesses
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Fig: 6
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UNITED STATES PATENT OFFICE.

HOSEA K. KRIEBEL AND IRWIN Z. KRIEBEL, OF PHILADELPHIA, PENNSYLVANIA.

CHECK-VALVE.

934,548.

Specification of Letters Patent. Patented Sept. 21, 1909.

Original application filed April 19, 1907, Serial No. 369,055. Divided and this application filed February 18, 1908. Serial No. 416,457.

To all whom it may concern:

Be it known that we, HOSEA K. KRIEBEL and IRWIN Z. KRIEBEL, both citizens of the United States, and residents of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have jointly invented certain new and useful Improvements in Check-Valves, of which the following is a specification.

10 This invention consists of an improved check valve intended for use in connection with systems of steam heating such as is described in an application for Letters Patent serially numbered #369,055 and of which
15 the present case is a divisional application; and the principal object of the present invention may be said to be to provide a check valve for radiators to permit of the circulation of steam in one direction only and to
20 permit air and water of condensation to readily escape from the radiators.

A further object is to apply to what is usually termed a steam fitter's union, the valve of the invention without in any way
25 altering the construction of said union.

A still further object is to provide a union having a gravity flap or valve disk which may be properly positioned irrespective of the angle of the union.

30 Other objects will appear hereinafter.

The invention stated in general terms comprises the improvements to be presently described and finally claimed.

The nature, characteristic features and
35 scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof and in which:—

40 Figure 1, is an elevational view of a radiator having applied thereto a check valve embodying the invention. Fig. 2, is a view in central section of the valve parts embodying the invention and illustrating the same about
45 to be assembled. Fig. 3, is a view in central section of the valve parts assembled. Fig. 4, is a view in cross section of Fig. 3. Fig. 5, is a view in central section of a somewhat modified form of the invention; and Fig. 6,
50 is a similar view of a still further modified form of the invention.

In the drawings there is shown a radiator 1, to which is connected a steam supply pipe 2, and a return pipe 3. In the return pipe 3,
55 arranged in juxtaposition to the radiator, is

a check valve 4. This check valve permits of a free circulation of steam through the radiator in one direction only and at the same time readily permits of air and water of condensation leaving the radiator. Referring more especially to Figs. 2, 3 and 4, the check valve is shown to comprise what is known as a steam fitter's union consisting of inlet and outlet branches 5 and 6, interposed between the beveled portions of which is a
60 generally dish-shaped, comparatively shallow, member 7, carrying a valve disk, the said branches being securely held to place by means of a coupling or spanner-nut 8. The inlet branch 5, is shown as being in one
65 piece, the inner end of which is considerably enlarged at 9, and is of the configuration of a frustum of a cone terminating in a shoulder 10. The outer end of the branch 6, is screw threaded for application to the outlet end of
70 the radiator. The outlet branch 6, is arranged at an angle to the inlet branch and is externally threaded as at 11, for a purpose to be described and is internally threaded as at 12, for application to the return pipe. The
75 wall of the inner portion of the branch 6, is increased in thickness as shown in order to provide a beveled seat 13. The coupling or spanner-nut 8, is internally threaded as at 14, and is adapted to engage the threaded
80 portion 11, of the branch 6, and its outer portion is provided with a flange 15, which is adapted to abut against the shoulder 10, of the branch 5, the opening 16, of the nut 8, passing over the enlarged part 17, of the
85 said branch. The generally dish-shaped member 7, is shown as being of comparatively thin metal the walls of which are aslant and is provided in its bottom wall with a central opening 18, above which are
90 lugs 19, having pivotal relation with which is a valve-disk 19^a, which may be weighted as at 20. When the parts are assembled, this dish-shaped member 7, is arranged between the two branches so that the part 9, of
95 the inner branch fits within the dish-shaped member 7, and the beveled seat 13, of the branch 6, fits over the dish-shaped member, or in other words are nested one with respect to the other as clearly illustrated on Fig. 3,
100 and may be readily adjusted within the union by merely loosening the nut 8, so that the valve-disk may be shifted to always assume a vertical position irrespective of the various
105 angles in which the union may be placed. 110

In Fig. 5, the inlet and outlet branches are shown in alinement and the part 21, of the inlet branch is curved convexly, and the part 22, of the outlet branch is curved concavely, and the dish-shaped member is convexly-concavely curved to fit between these parts. The valve disk 23, thereof is provided with a stem 24, which loosely fits within an opening in the arm 25, pivotally hinged from lugs 26, arranged above the opening in the dish-shaped member. The stem is screw threaded for the reception of a nut 27, to confine the disk to the arm.

In Fig. 6, instead of a hinged flap, the dish-shaped member is equipped with a valve-disk 28, having a stem 29, that works through a bearing in the spider 30, otherwise the construction is the same as described in Fig. 5.

It will be readily seen by reference to the drawing that the valves open in a direction

away from the taper or slant of the side walls of the dish-shaped members.

What we claim is:—

A check valve comprising a union consisting of a pair of members having their meeting faces inwardly and outwardly beveled to seat each other, a generally dish-shaped member having a vertical valve opening in its bottom wall and a valve therefor adapted to open in a direction away from the taper of said dish-shaped member, said member being positioned between the beveled parts of the union and a nut for coupling the union parts together.

In testimony whereof we have hereunto signed our names.

HOSEA K. KRIEBEL.
IRWIN Z. KRIEBEL.

Witnesses:

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