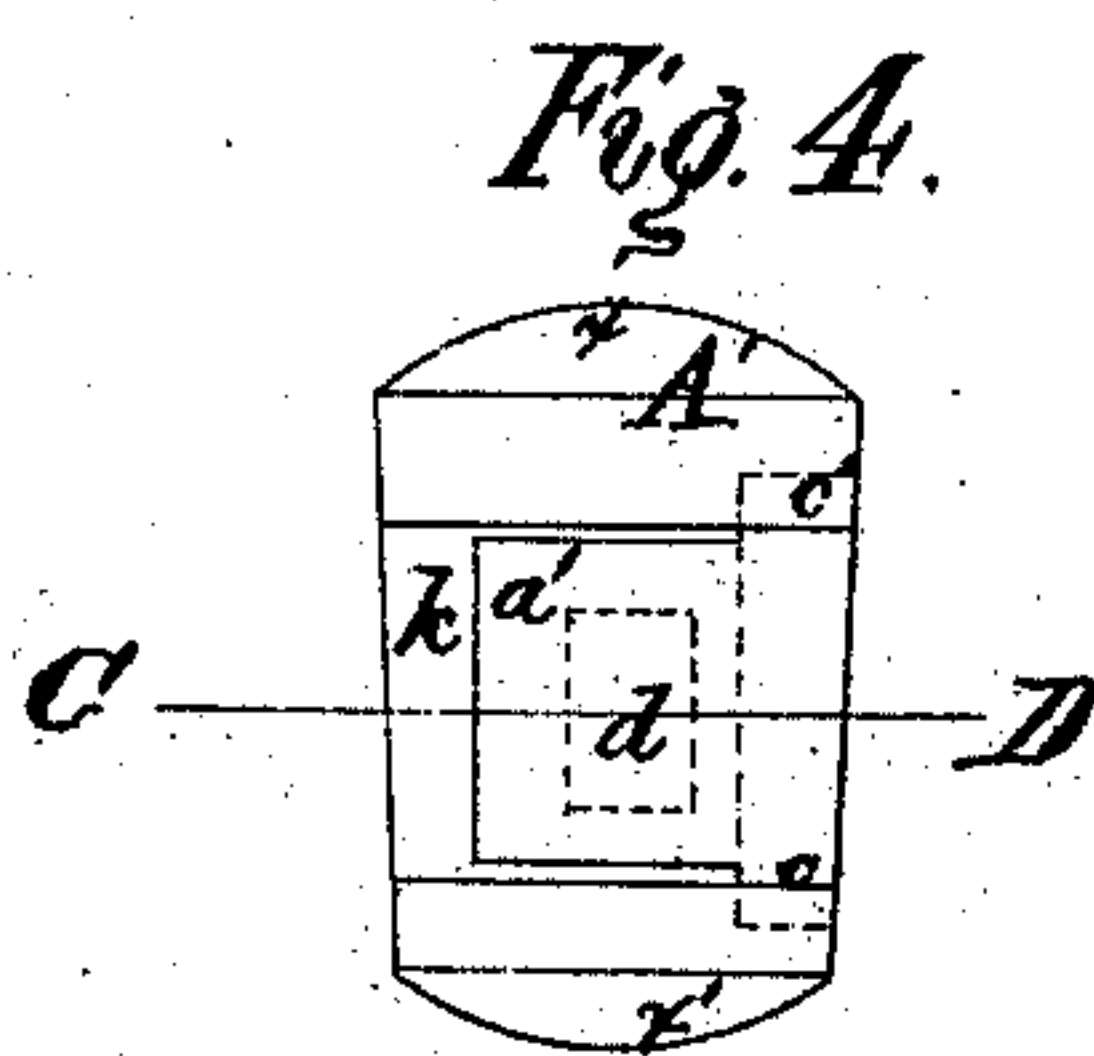
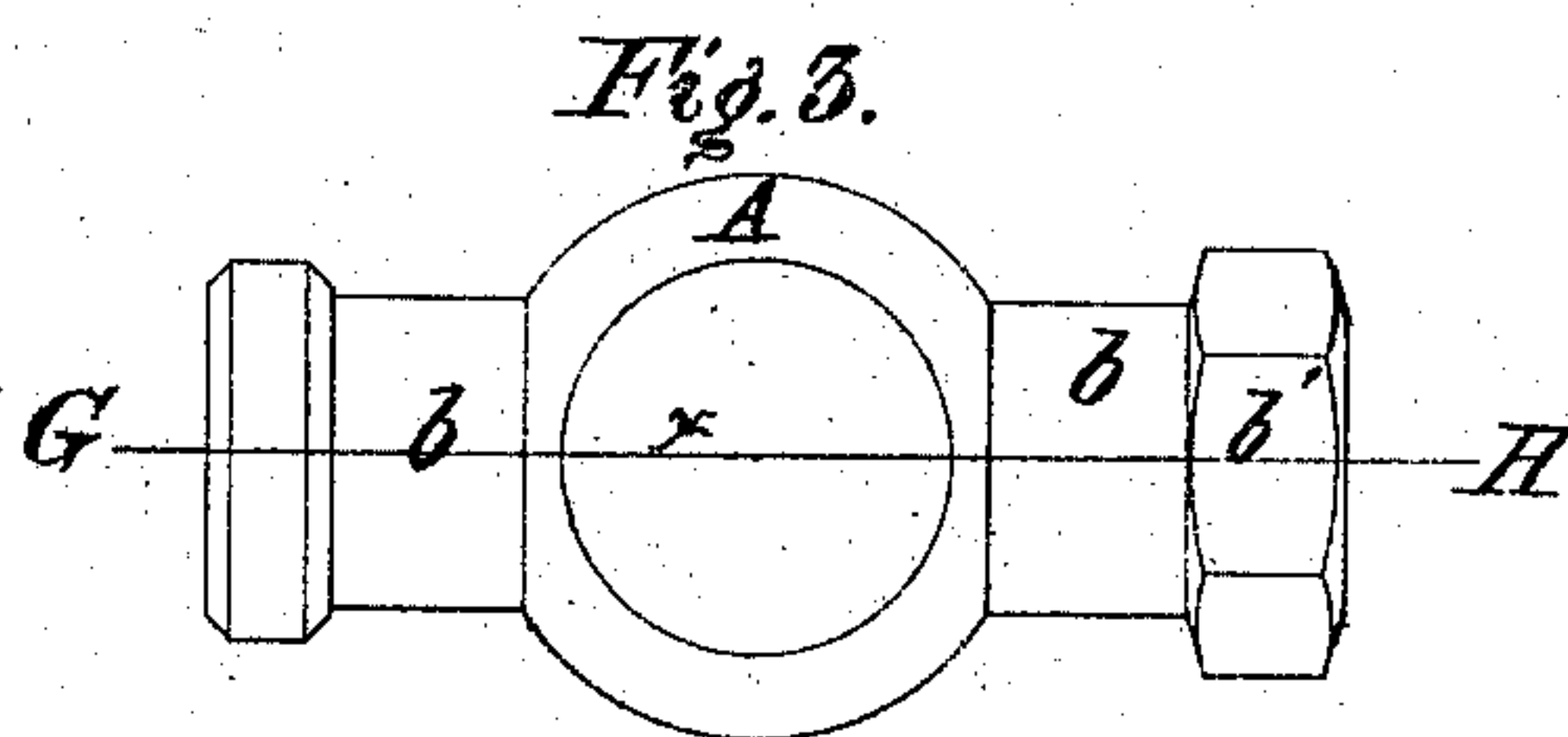
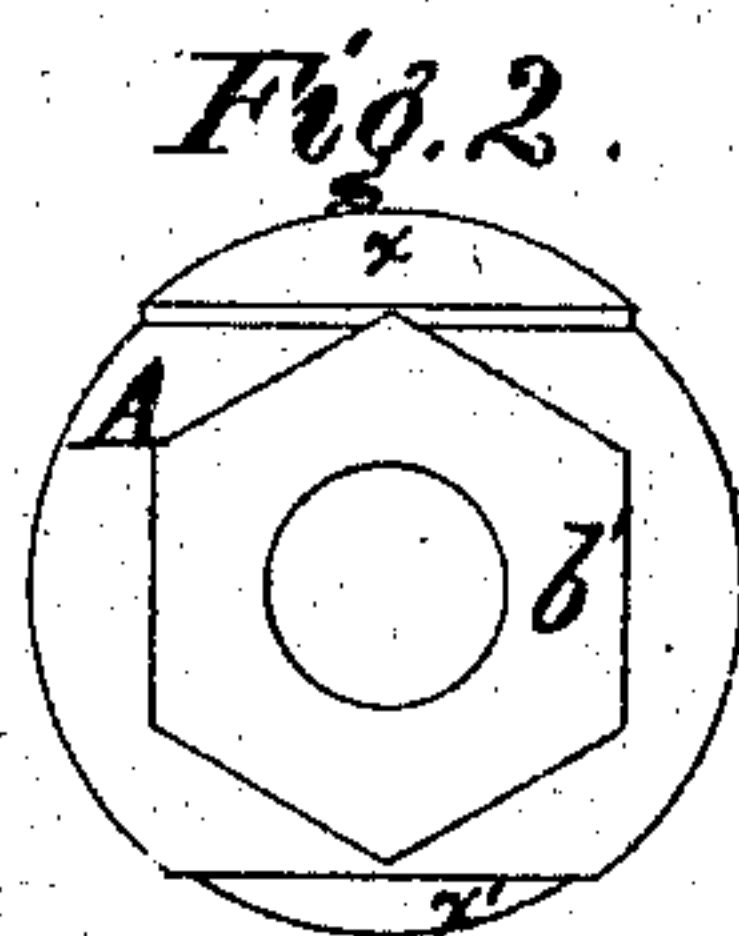
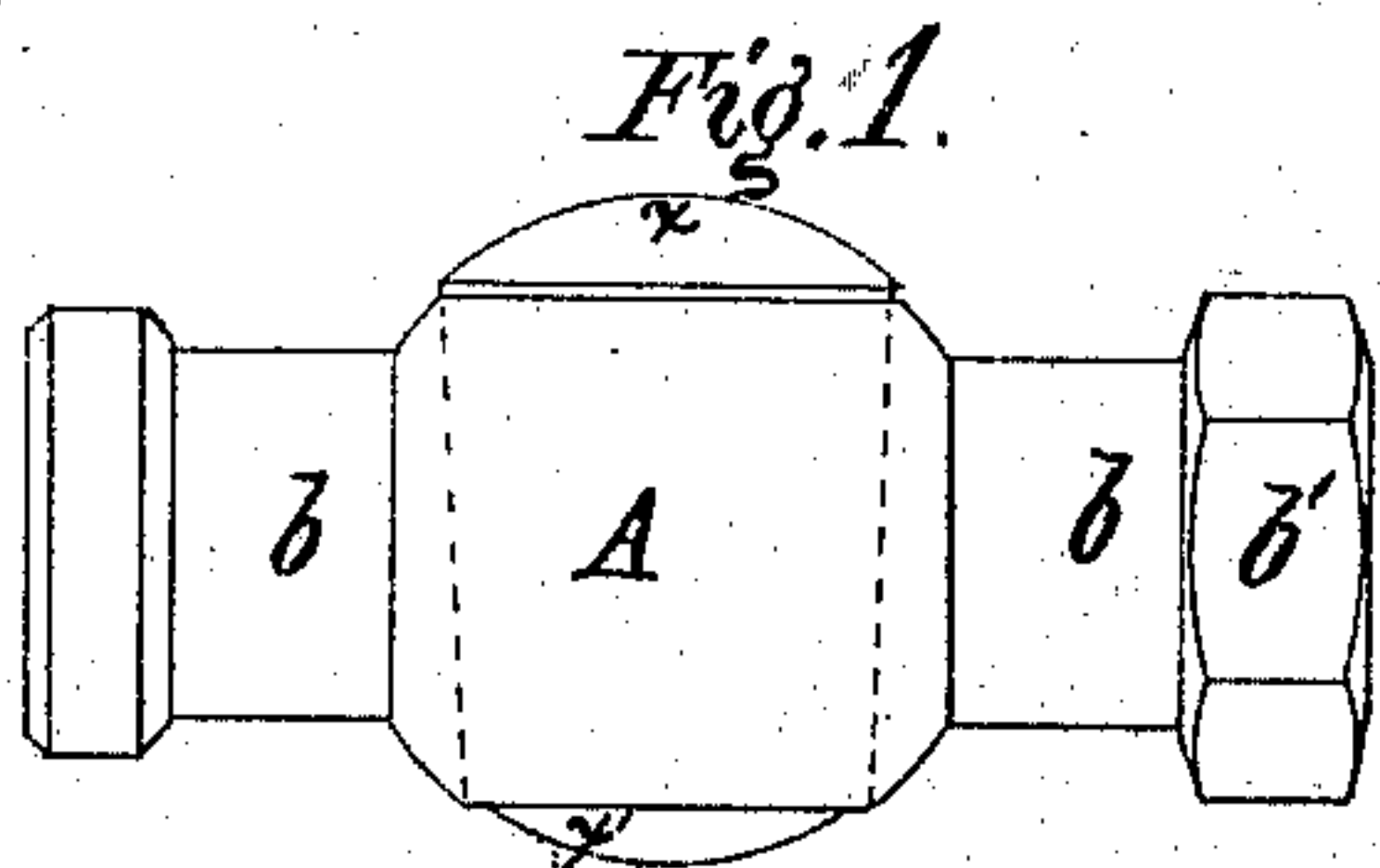
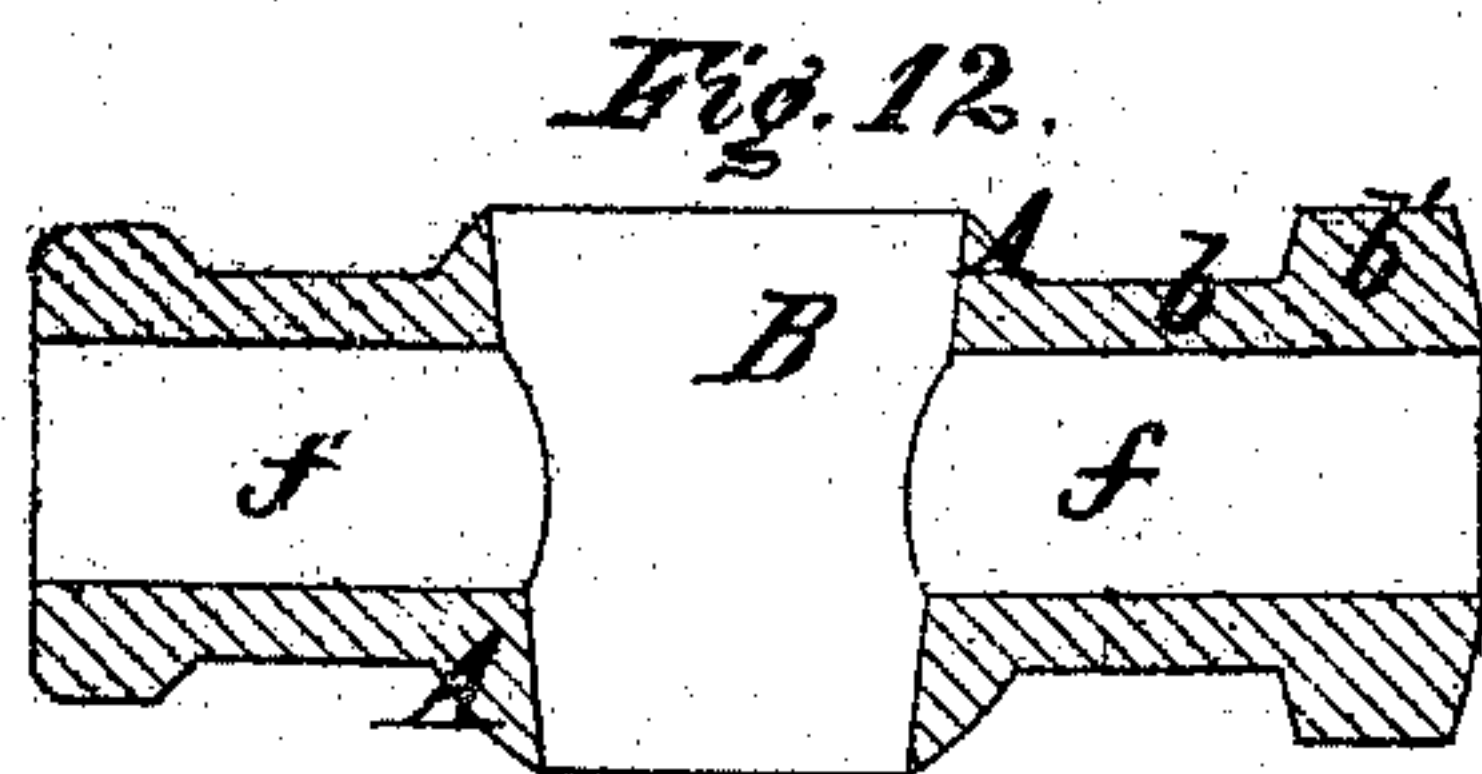
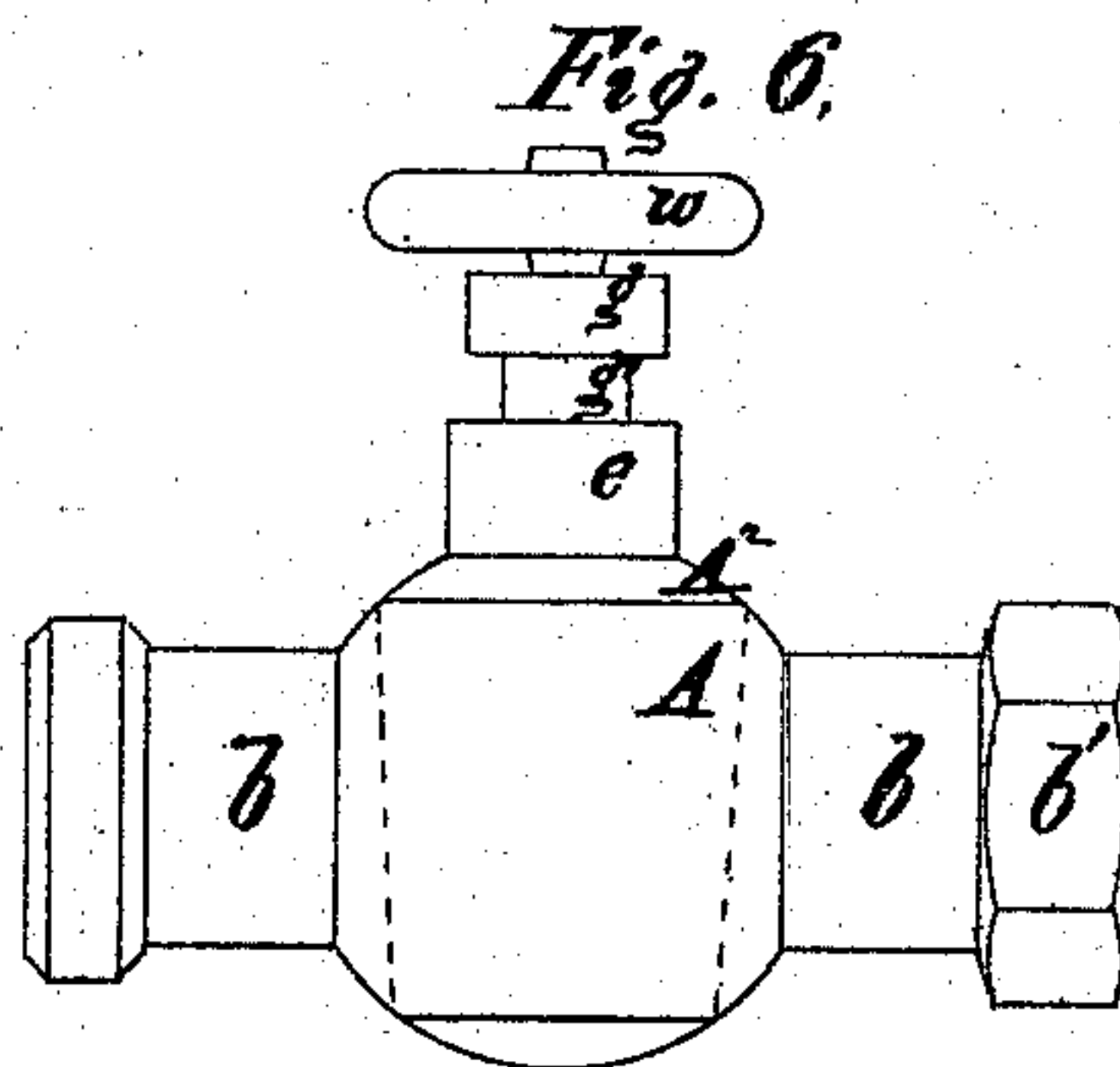
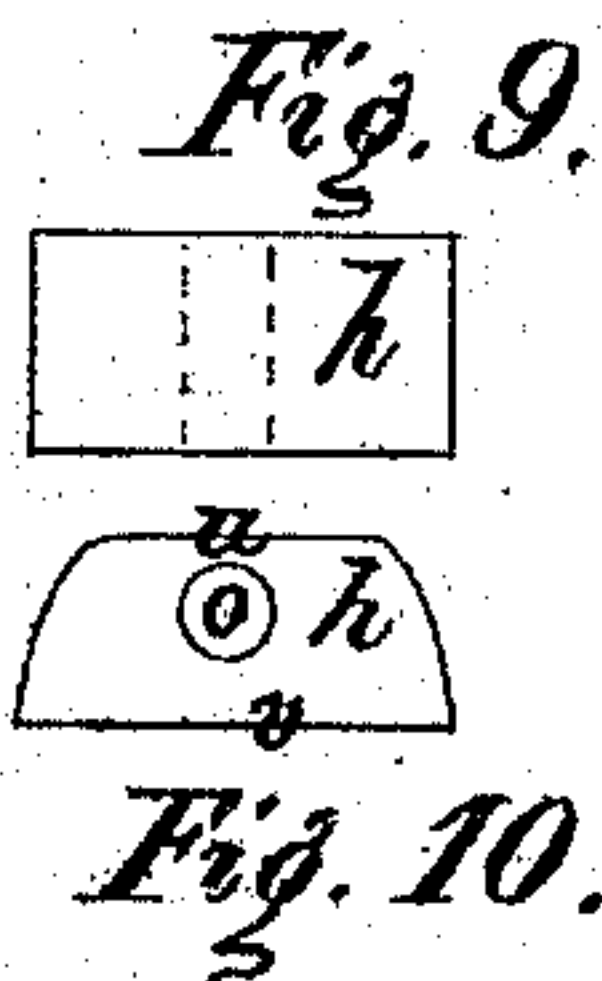
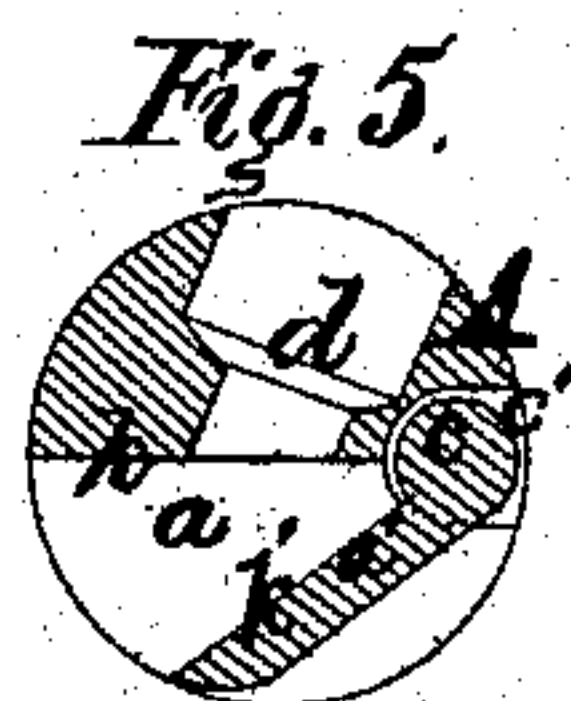
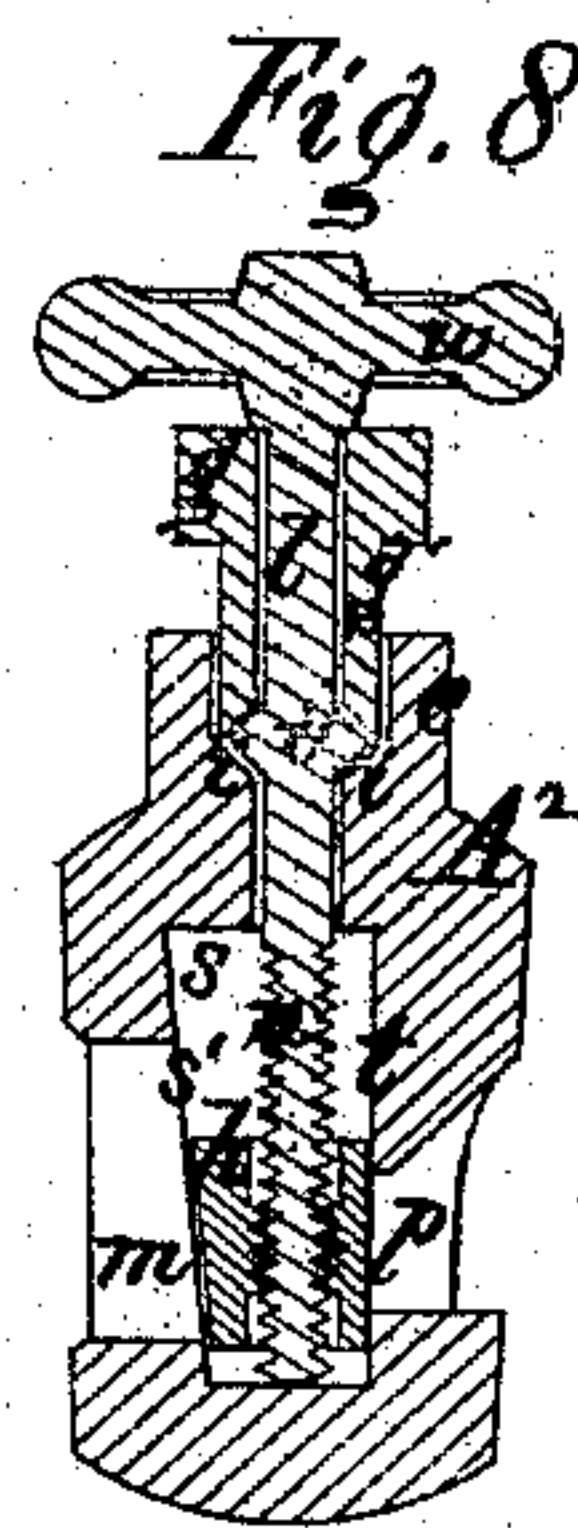
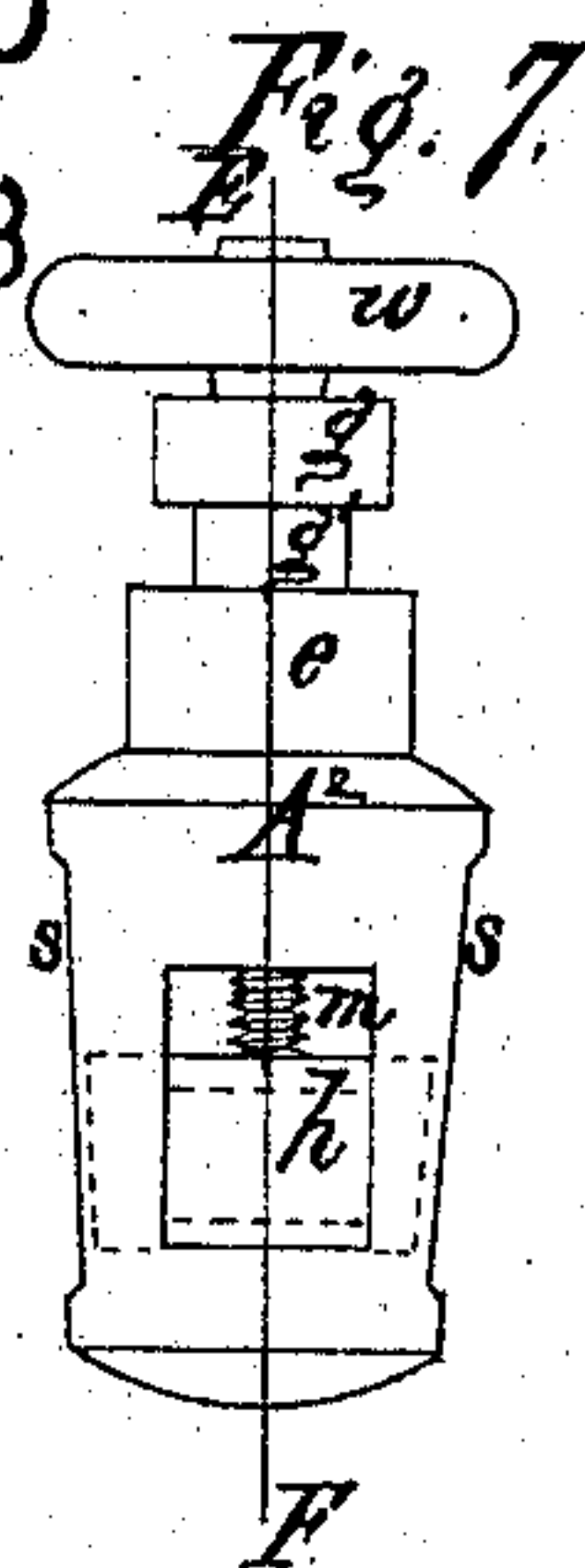


L.C. RODIER.
Improvement in Steam and Water Valves.
No. 74597



PATENTED
 FEB 18 1868



Witnesses *T. Alenuto*
A. G. Clark

Inventor:
Louis C. Rodier

United States Patent Office.

LOUIS C. RODIER, OF SPRINGFIELD, MASSACHUSETTS.

Letters Patent No. 74,597, dated February 18, 1868.

IMPROVEMENT IN STEAM GLOBE-VALVES.

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, L. C. RODIER, of Springfield, in the county of Hampden, and Commonwealth of Massachusetts, have invented a new and useful Improvement in Steam or Water-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of one modification of my invention, or of a shell, with a plug and hinge-valve inserted.

Figure 2 is an end view of the same.

Figure 3 is a plan view of the same.

Figure 4 is a side view of the plug with the valve in place.

Figure 5 is a horizontal transverse section through line C D of fig. 4.

Figure 6 is a side view of another modification of my invention, or of a shell, with a throttle-valve and plug inserted.

Figure 7 is a side view of the throttle-valve plug with the valve in place.

Figure 8 is a longitudinal vertical section through line E F of fig. 7.

Figure 9 is a side view of the throttle-valve.

Figure 10 is a plan of the same.

Figure 11 is an end view of the same; and

Figure 12 is a longitudinal vertical section of the valve-shell and connecting-pipes through line G H of fig. 3.

The nature of my invention consists in the construction and arrangement of a water or steam-valve, in which the valve is placed in a plug, which is tapered, or is in the form of a truncated cone, said plug being inserted in the valve-shell of a globe-valve, which is so constructed as to admit of the insertion of different plugs having different kinds of valves therein, so that the shell and valve may be used as a check-valve or a throttle-valve without disturbing the piping or valve-shell in the operation of changing one valve for another. As ordinary steam and water-valves are constructed, it is a matter of considerable labor and expense, to say nothing of vexatious delays, when out of repair, to remove the valve for the purpose of repairing it, as it is necessary to remove the whole shell from the pipes.

By my invention, when any foreign substance should get between the valve and its seat, or from any other cause the valve should refuse to act, I am enabled quickly and easily to withdraw the plug by a slight blow upon its smaller end, remove the obstruction, and insert the plug in its place in the shell. If from any cause it may be desirable to remove a check-valve, and use, instead, a throttle-valve, I simply remove the check-valve plug and insert in its place a throttle-valve plug, which is a matter of little or no trouble, while in other valves such a change is a matter of much difficulty, and attended with more or less labor and expense.

That others skilled in the art may be able to make and use my invention, I will proceed to describe its construction and operation.

In the drawings, A represents the valve-shell, which may be spherical in form, and to which are joined the connecting-pipes *b b*, the said shell having a perforation, B, which is conical, or in the form of a truncated cone, and so made that the plug, when inserted in its place in said perforated shell, shall fit it closely. A¹ is a plug, made of such form as to fit the perforation B in the valve-shell A, and having the semi-cylindrical space *a* upon one side, and the port or orifice *d* leading from the said space *a* to the opposite side of the plug. Upon one side of this space *a*, and at each end thereof, is the recess *c'*, into which is inserted the hinge *c* of the valve *a'*, the face *k'* of the said valve *a'* being made flat to fit its seat *k* in the plug A¹. The orifice *d* may be of any desired form, as may be most adapted to the free and direct passage of water or steam through it, and the ends *x x'* of the plug A¹ may be spherical in form to conform to the shape of the valve-shell A.

I also make, to fit the same perforation B in the valve-shell A, another plug, A², having a valve-chamber, *s*, therein, one side *t*, of said valve-chamber being made upon a plane parallel to the axis of the valve-stem *l*, and forming a seat for the valve *h*, while the opposite side *s'* of the valve-chamber *s* is made upon a plane, which, as it extends downward from its upper part, inclines toward the axis of the valve-stem *l*, or the position of said plane *s'* is at an angle to the perpendicular position of the valve-stem *l*.

In the upper part of the valve-plug A^2 is the socket e , at the lower part of which is the bevelled shoulder h , and from thence to the valve-chamber s is a perforation to admit the insertion of the valve-stem l . A male-screw thread is cut upon the lower portion of this valve-stem l , and at a little distance above this thread is the collar z' , which is bevelled upon its lower side to fit the bevelled shoulder h , and is also bevelled upon its upper side to fit the bevelled portion in the lower end of the packing-nut g . The lower portion g' of the packing-nut g is of a size to fit the socket e , and should in practice have a male-screw thread cut thereon to engage with a female-screw thread cut in the socket e . The packing-nut g has a cylindrical perforation, into and through which is passed the valve-stem l , to the upper end of which is properly secured the hand-wheel w . The valve h has a vertical cylindrical perforation, v , in which is cut a female-screw thread, which engages with the screw-thread cut upon the valve-stem l , and the face v of the valve h is made upon a plane parallel to the axis of the valve-stem l , and also parallel to the plane of the valve-seat t . The opposite or back side u of the valve h is made upon a plane parallel to the plane of the side s' of the valve-chamber s , and said valve h is of proper width and height to perfectly cover or close the port p when the said valve h is at the lower part of the chamber s , and in a proper position to cover or close said port p , and the ports m and p may be of any desirable shape which may be adapted to the free passage of water or steam entirely through the plug.

The operation of the valve is as follows: The hinge c of the valve a' is inserted in its socket c' in the plug A^1 , and the plug A^1 is then inserted in its socket B in the shell A . The valve is then ready for use as a check-valve. The water or steam being admitted through the aperture d , in the direction indicated by the arrow, forces the valve a' open in a position shown in fig. 5, and any reactionary movement of the water or steam, which causes pressure backward toward the aperture d , after passing the valve a' , forces the valve a' against its seat k , or closes it, thus preventing any passage of the water or steam backward past the valve a' and through the aperture d . In large check-valves it may be necessary to insert two or more smaller valves in place of a single large one, so as to lessen the noise of the valves, and divide the strain, and to make a corresponding number of valve-seats. If it should be desirable to use a throttle-valve instead of a check-valve, though in the same place, a blow upon the smaller end of the plug A^1 removes it from the shell A .

The valve h is inserted in the valve-chamber s , the valve-stem passed down through the aperture leading to the valve-chamber s , and screwed into the aperture in the valve h , the upper end of the valve-stem l being passed through the perforation in the packing-nut g , and the packing-nut is then screwed into the socket e , and the hand-wheel w attached and properly secured to the upper end of the valve-stem l . The plug is then inserted into the same perforation B in the shell A . If the valve is closed, and it is desired to open it, the valve-stem l is turned into the valve h by means of the hand-wheel w until the valve h is raised, so that the water or steam is admitted into the port m , passes under the valve h , and out at the port p . As the valve h descends in closing, when nearly closed, the side u of the valve h comes in contact with the side s' of the valve-chamber s , which, being inclined to the plane of the valve-seat t , and also to the axis of the valve-stem l , forces or presses the valve h firmly against its seat t . The pressure of the water, also, through the port m , against the valve h , assists in keeping the said valve firmly to its seat.

As my invention does not consist in the particular kind of valve used in the plug, but consists in a removable plug (containing a valve or valves, and a seat or seats, and) inserted in the valve-case or shell, thus constituting an entire steam or water-valve, the plug may be fitted with any desired kind of valve, which can be operated in the conical plug.

The perforation or seat B in the shell or case A might be cylindrical, instead of tapering, and the plug might also be made cylindrical to fit the said cylindrical seat in the shell or case A , in which case the plug could be secured in its seat B by means of screws or pins. A female-screw thread might also be cut in this seat B , and a screw-thread cut upon the plug, and the plug be turned into place in its seat; but I prefer the method as shown in the drawings, as being cheap and convenient.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The metallic plug, having one or more valve-seats therein, and one or more valve attached thereto, in combination with the shell or case A of a globe-valve, the aperture B being constructed therein so as to receive said plug, and the whole arranged substantially as herein described and set forth.

LOUIS C. RODIER.

Witnesses:

J. P. BUCKLAND,

I. G. CLARK.