

No. 894,729.

PATENTED JULY 28, 1908.

C. A. DAFLINGER.  
GAGE COCK.

APPLICATION FILED DEC. 2, 1907.

Fig. 1.

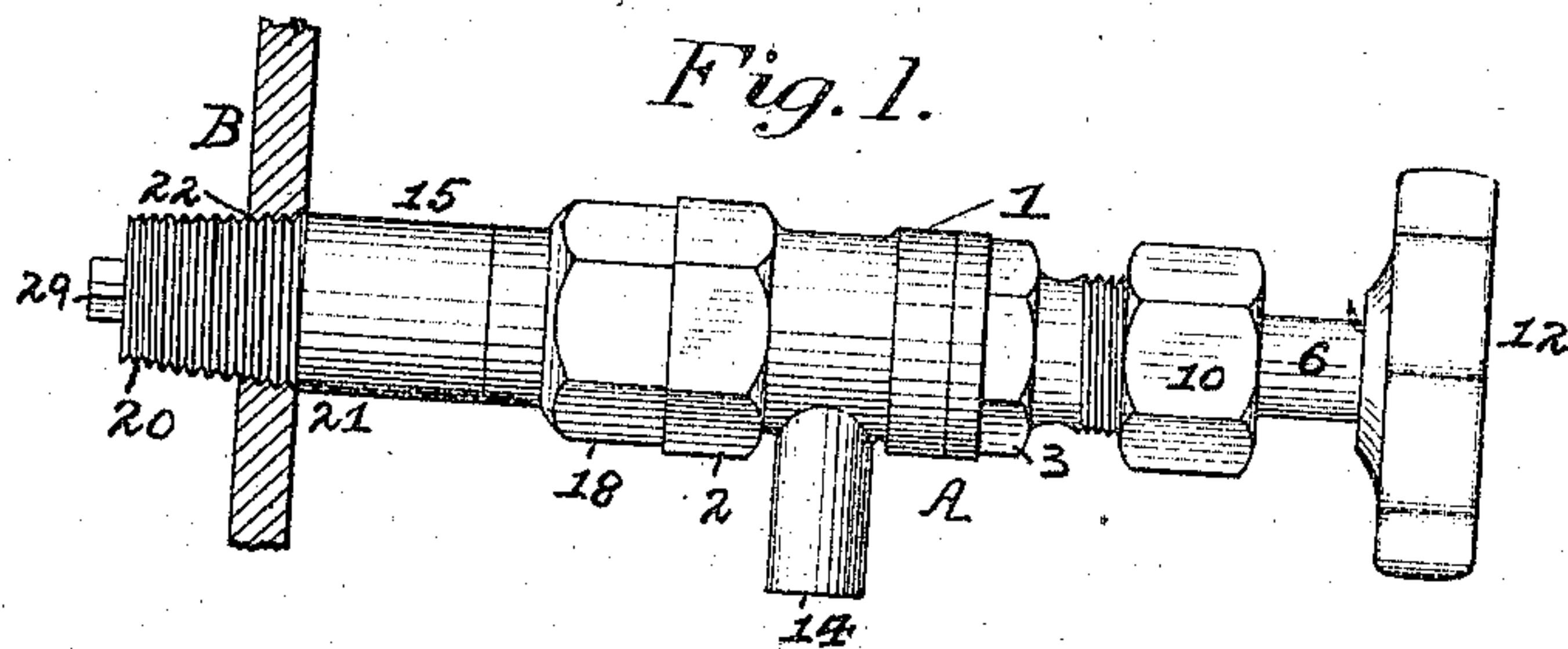


Fig. 2.

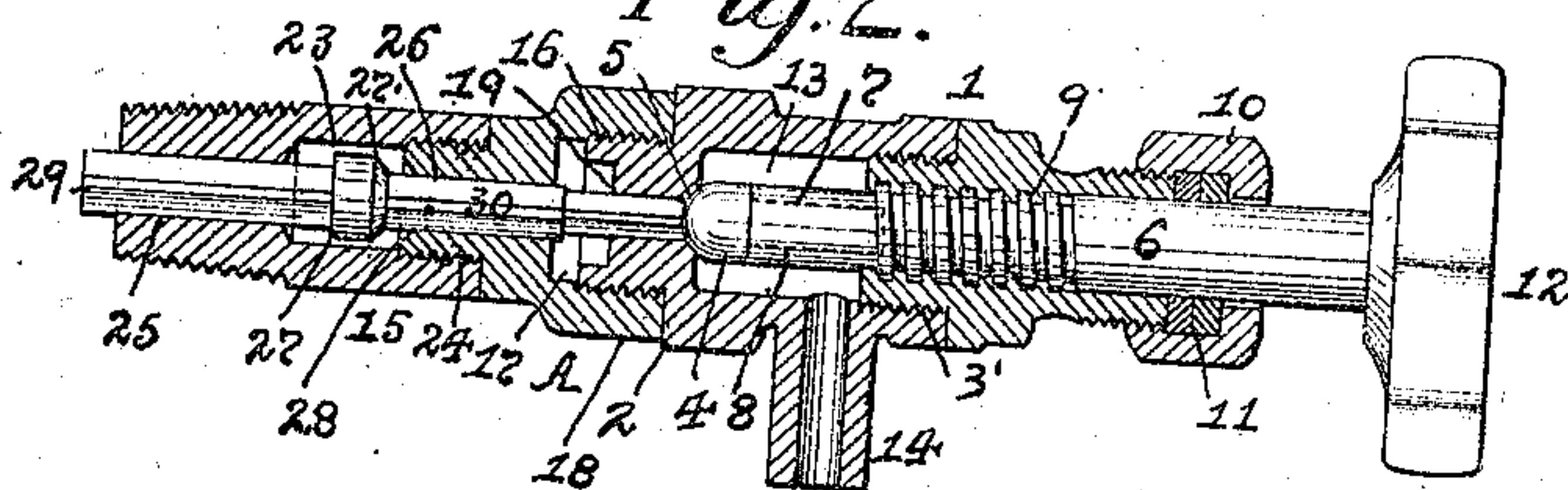


Fig. 3.

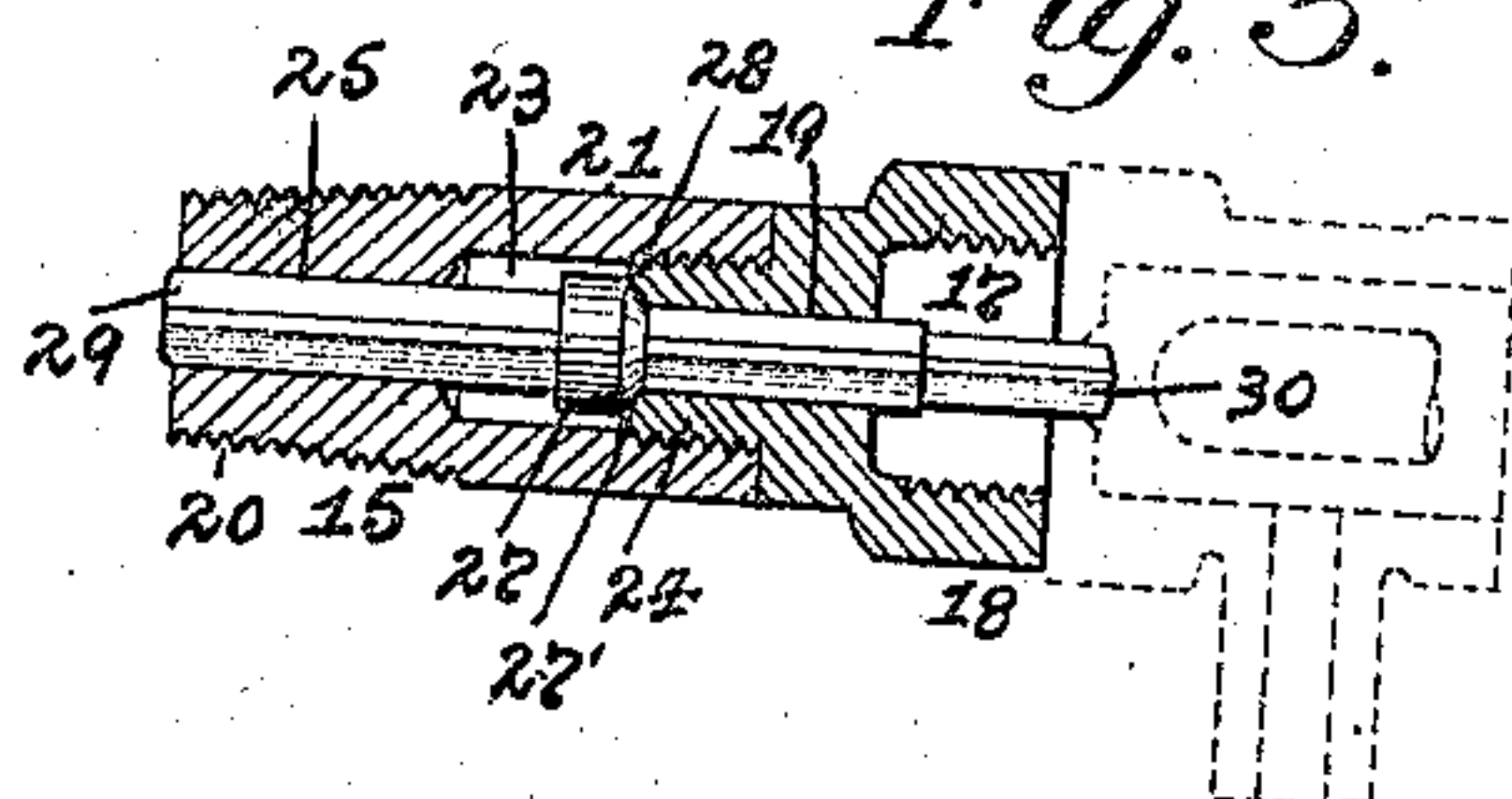


Fig. 4.

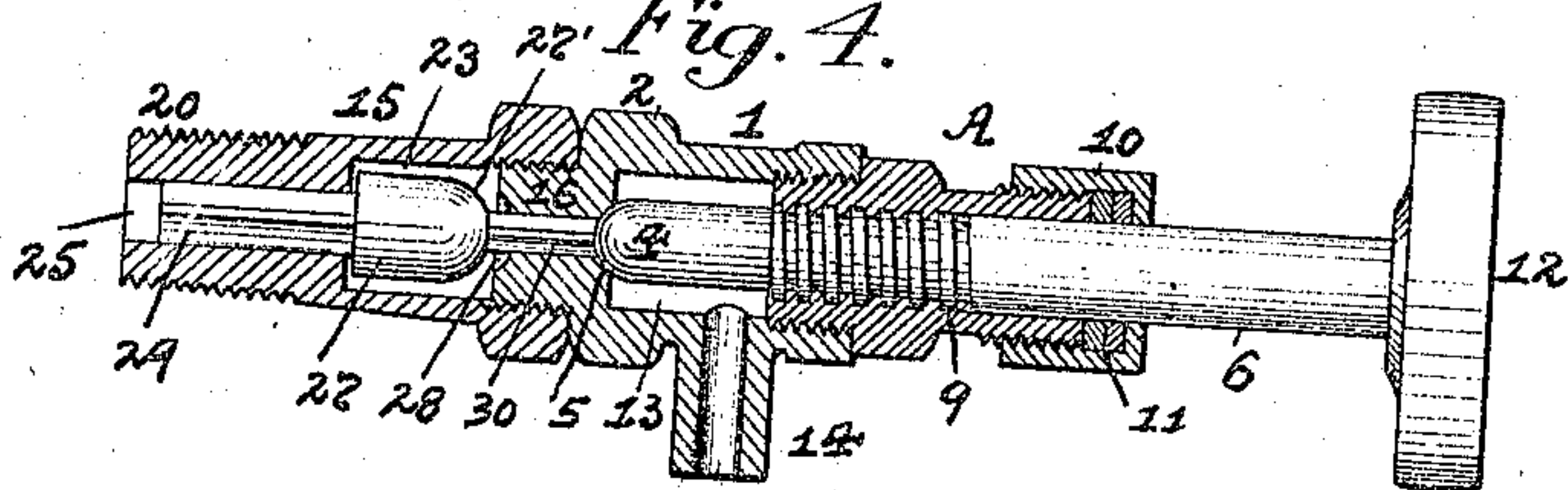
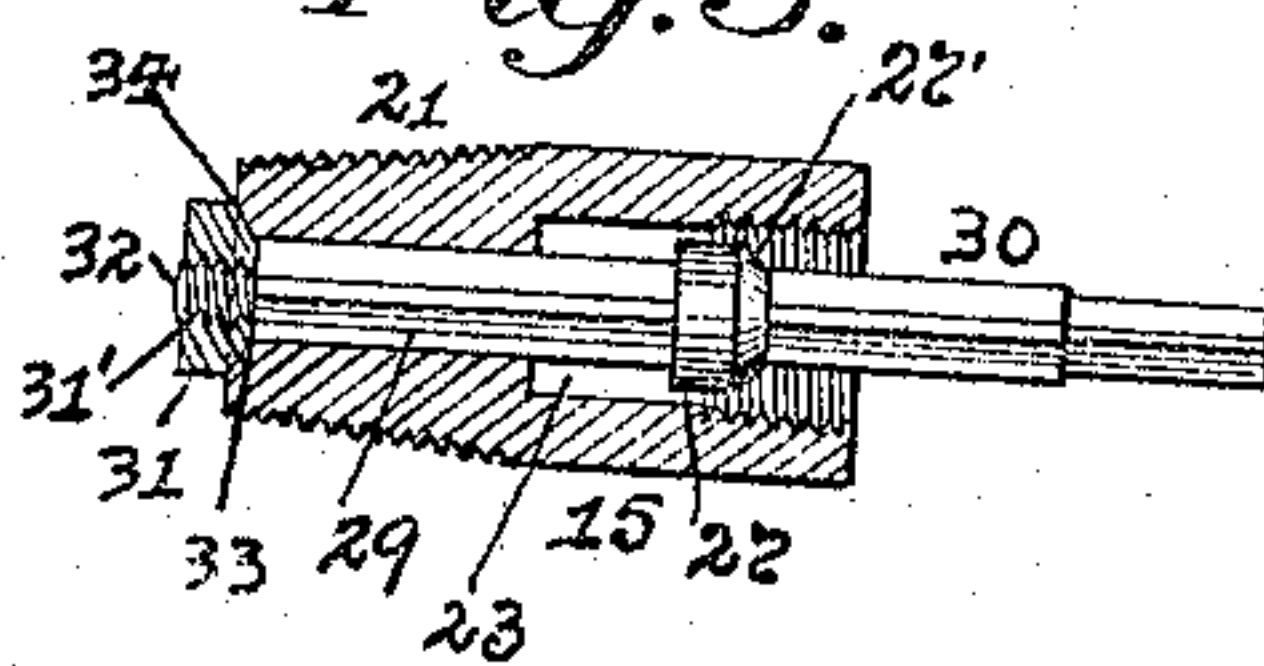


Fig. 5.



WITNESSES

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INVENTOR

Charles A. Daflinger,  
By J. N. Cooke  
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# UNITED STATES PATENT OFFICE.

CHARLES A. DAFLINGER, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO  
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## GAGE-COCK.

No. 894,729.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed December 2, 1907. Serial No. 404,681.

*To all whom it may concern:*

Be it known that I, CHARLES A. DAFLINGER, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gage-Cocks; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to gage-cocks, and has for its object to provide a cheap, simple and efficient form of a gage-cock whereby the valve proper in one cock can be cleaned or repaired without interfering with the use or operation of the other cocks, as well as one which can act as a plug in the boiler when the working parts of the same are removed for any purpose.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved gage-cock, I will describe the same more fully, referring to the accompanying drawing, in which:—

Figure 1 is a side elevation of a gage-cock embodying my invention. Fig. 2 is a longitudinal central section of the same. Fig. 3 is a longitudinal central section of the stationary portion of the cock with the main valve and its carrying portion removed. Fig. 4 is a longitudinal central section of a gage-cock showing a modification of my invention. Fig. 5 is a like view of the plug portion showing another form of my invention.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing 1 represents the usual main portion of the ordinary gage-cock A, which is composed of the body portion 2 having the bonnet 3 connected thereto through the threaded portion 3' and the valve 4 within said body portion. The valve 4 is of the usual rounded convex form for engaging with a concave seat 5 in the body portion 2 and it is connected to the stem 6 through an extension 7 thereon fitting loosely within a recess 8 in the inner end of said stem. The stem 6 is provided with the usual threaded portion 9 thereon for engaging with the bonnet 3 and the outer end thereof extends through a stuffing box 10 containing the usual packing 11 which is connected to

said bonnet through the threaded portion 10. The valve stem 6 is provided with the usual handle or wheel 12 connected thereto for operating the valve 4. The body portion 2 has the usual annular chamber 13 within the same around the valve 4 and inner end of the stem 6 and leading from this chamber is the usual discharge opening or passage-way 14.

The inner end of the body portion 2 of the cock A is connected to the plug portion 15 through the threaded extension 16 on the portion 2 engaging with the threaded annular chamber 17 in the removable head 18 forming part of said plug, and a circular passage-way 19 leads through said extension and valve seat 5 to the chamber 13 from the chamber 17. The plug 15 is provided with the tapered threaded exterior surface 20 at the inner end of its body portion 21 for engaging with the head plate B of a boiler through a threaded opening 22 therein, and such body portion 21 has a threaded annular chamber 23 at its outer end for engaging with a threaded extension 24 on the head 18. A circular passage-way 25 leads through the inner end of the portion 21 of the plug 15 for communicating with the chamber 23, and a like passage-way 26 leads from said chamber through the extension 24 and head 18 for communicating with the chamber 17. An auxiliary valve 27 is located within the chamber 23 for engaging with a concave seat 28 at the inner end of the extension 24 by its convex face 27', and such valve is provided with the inner and outer stems 29 and 30 thereon for fitting within the passage-ways 25 and 26 respectively, which stems are provided with flat sides for fitting against the walls of said passage-ways to guide said valve and to permit the passage of the steam or water around the same through said ways. If desired, another valve 31 can be used, as shown in Fig. 5, and this valve is mounted upon the inner end of the inner valve stem 29 to act as an emergency valve by being located beyond the inner end of the body portion 21 of the plug portion 15 and it is removably connected to said stem by the threaded opening 31' within said valve engaging with the threaded end 32 on said stem. The valve 31 is provided with the convex face 33 for engaging with a concave seat 34 on the inner end of the body portion 21 of the plug 15 and around the passage-way 25 and stem 29.



The use and operation of my improved gage-cock is as follows:—With the parts of the cock A assembled and connected together so as to be applied to a boiler or other object, as to the boiler head plate B, shown in Fig. 1, and then by turning the wheel 12 in the proper direction the valve rod or stem 6 will be revolved in the bonnet 3 and with it the valve 4, so that said stem and valve will be drawn out and the valve unseated from its seat 5 in the valve body 2. By this unseating of the valve 4 from its seat 5 the steam or water can pass from the boiler through the passage-ways 25 and 26 around the valve 27 in the chamber 23 and its stems 29 and 30 into chamber 17, thence from said chamber through the passage-way 19 around the stem 30 into the chamber 13 and from this chamber through the discharge opening 14 leading from said chamber. In this opening or unseating of the valve 4, the end of the outer stem 30 on the valve 27 can automatically bear against the end of said valve 4 from the pressure of the steam or water passing around said valve 27 and thereby prevent said valve 27 from seating itself against its seat 28. When it is desired to close the valve 4 the handle wheel 12 is turned in the opposite direction, so that the stem 6 and said valve will be revolved in the same direction with said wheel and in the opposite direction from that hereinbefore described, so that said valve will be seated on its seat 5 and thereby close off the steam or water through the passage-ways 25, 26, and 19, and chambers 23, 17 and 13 to the discharge opening 14.

When it is desired to remove the main portion 1 of the cock A for any purpose, such as the cleaning out of the same, or the repairing of any of the parts thereof, the bonnet 3 carrying the valve 4 can be removed from the valve body 2 by unscrewing the same from said body through the disengaging of the threaded connection 3', which will expose said valve and its seat 5 for the cleaning, repairing or other purpose intended, and when so removed, the steam or water is prevented from escaping through the plug 15 and body 2 by the pressure of the same automatically seating the valve 27 against the seat 28. When it is desired to remove the valve or body portion 2 of the cock A from the plug 15 for the further cleaning of the said plug, the turning of the seat 5 for the valve 4, or for any other purpose, the said body portion is unscrewed from the head 18 on said plug through the threaded extension 16 on said plug disengaging with the threaded annular chamber 17, so that said portion 2 can be removed, and when so removed, the steam or water is prevented from escaping by the automatic seating of the valve 29 against its seat 28, in the manner above described.

In case it is desired to remove the head 18 for the turning of its valve seat 28, clearing of the plug 15, or any other purpose, such head is unscrewed from the body 21 of the plug 15 through its threaded extension 24 disengaging with the annular chamber 23 in said body, so that said head can be removed, and then the steam or water is prevented from escaping through said plug in the manner above described by the pressure of the same against the valve 31, which will act to close said valve against the end of said plug and over the passage-way 25 by the automatic seating of its face 33 within the seat 34 on said plug. If desired, the removable head 18 on the plug 15 can be dispensed with and the extension 16 on the body portion 2 can then carry the seat 28 for the valve 27, as is shown in Fig. 4, and if desired the valve 31 can also be dispensed with, as shown therein.

Various other modifications and changes in the design, construction and operation of my improved gage-cock may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will thus be seen that my improved gage-cock is of great utility and of wide application in its use, and when in operation all the parts are rendered easy of access and capable of removal for cleaning, repairing, changing or renewal. The construction of the stationary or plug portion of the cock will allow the valve movement therein to act as an agitator for the same and cock in order to prevent the lodging of dirt and scale in the parts and thereby greatly assist in keeping the device clean at all times. When the device is in use in connection with a locomotive boiler, the plug portion will act as a safety valve for shutting off the hot water or steam, in case the cock is knocked off or bent to a degree through wrecks, etc. and thereby prevent injury or possible loss of life by scalding to persons in the cab or adjacent thereto. Very little cost is added to the usual form of gage-cock, as only the valve connection within the plug end of the cock is attached to the parts, and such valve movement being automatic in all its uses no labor or attachments are required to operate the same at any time. The parts when assembled in place are not exposed for injury or handling and being preferably formed of brass are not liable to corrosion from the scale or water in the boiler. Practical experience with the cock has demonstrated that when used on boilers it will operate successfully at all times and will not require the banking of the fire within the boiler, or the closing down of the boiler or engine, or the laying off of the locomotive, in case of the cleaning, repairing or renewal of any of the main parts of the cock.



What I claim as my invention, and desire to secure by Letters Patent, is:—

1. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body, and having a valve therein for closing the same.

2. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having passage-ways therein, and a valve within said plug portion for closing said passage-ways.

3. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having passage-ways therein, and a valve within said plug portion for closing said passage-ways and adapted to be guided by said passage-ways.

4. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having circular passage-ways therein, and a valve within said plug portion for closing said passage-ways and having a flat sided stem thereon fitting in said passage-ways to guide the same.

5. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions, and a valve within said plug portion and adapted to be seated against said head for closing the same.

6. In a gage-cock, the combination of the bonnet carrying the main valve, a main-body portion connected to said bonnet and having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions having a passage-way therein, and a valve within said plug portion and adapted to be seated over the passage-way in said head for closing the same.

7. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions having a passage-way therein, and a valve within said plug portion and adapted to be seated over the passage-way in said head for closing the same, said valve being guided by said passage-ways.

8. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a circular passage-way therein, a removable head between on said body plug portions having a circular passage-way therein, a valve within said plug portion and adapted to be seated over the passage-way in said head for closing the same, and flat sided stems on said valve and fitting in said passage-ways to guide said valve.

9. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and the plug portion connected to said body and having a valve therein for automatically closing the same.

10. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having passage-ways therein, and a valve within said plug portion for automatically closing said passage-ways.

11. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having passage-ways therein, and a valve within said plug portion for automatically closing said passage-ways and adapted to be guided by said passage-ways.

12. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion connected to said body and having circular passage-ways therein, and a valve within said plug portion for automatically closing said passage-ways and having a flat sided stem thereon fitting in said passage-ways to guide the same.

13. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions, and a valve within said plug portion and adapted to be seated against said head for automatically closing the same.

14. In a gage-cock, the combination of the bonnet carrying the main valve, a main-body portion connected to said bonnet having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions having a passage-way therein, and a valve within said plug portion and adapted to be seated over the passage-way in said head for automatically closing the same.



15. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a passage-way therein, a removable head between on said body and plug portions having a passage-way therein, and a valve within said plug portion and adapted to be seated over the passage-way in said head for automatically closing the same, said valve being guided by said passage-ways.

16. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, a plug portion having a circular passage-way therein, a removable head between on said body and plug portions having a circular passage-way therein, a valve within said plug portion and adapted to be seated over the passage-way in said head for automatically closing the same, and flat sided stems on said valve and fitting in said passage-ways to guide said valve.

17. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a valve at the inner end thereof for closing the same.

18. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a valve within the same and at the inner end thereof for closing the same.

19. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a

valve within the same and another valve connected thereto and at the inner end of said plug for closing the same. 45

20. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a valve within the same and another valve connected to the stem thereof and at the inner end of said plug for closing the same. 50

21. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a valve at the inner end thereof for automatically closing the same. 55 60

22. In a gage-cock, the combination of the bonnet carrying the main valve, a main body portion connected to said bonnet and having the main valve seat therein, and a plug portion connected to said body and having a valve within the same and at the inner end thereof for automatically closing the same. 65

23. In a gage-cock, the combination of the main body portion having the main valve seat therein, and a plug portion having a valve within the same and another valve connected thereto and at the inner end of said plug for automatically closing the same. 70

24. In a gage-cock, the combination of the main body portion having the main valve seat therein, and a plug portion having a valve within the same and another valve connected to the stem thereof and at the inner end of said plug for automatically closing the same. 75 80

In testimony whereof, I, the said CHARLES A. DAFLINGER, have hereunto set my hand.

CHARLES A. DAFLINGER.

Witnesses:

J. N. COOKE,

JAMES L. WEHN.