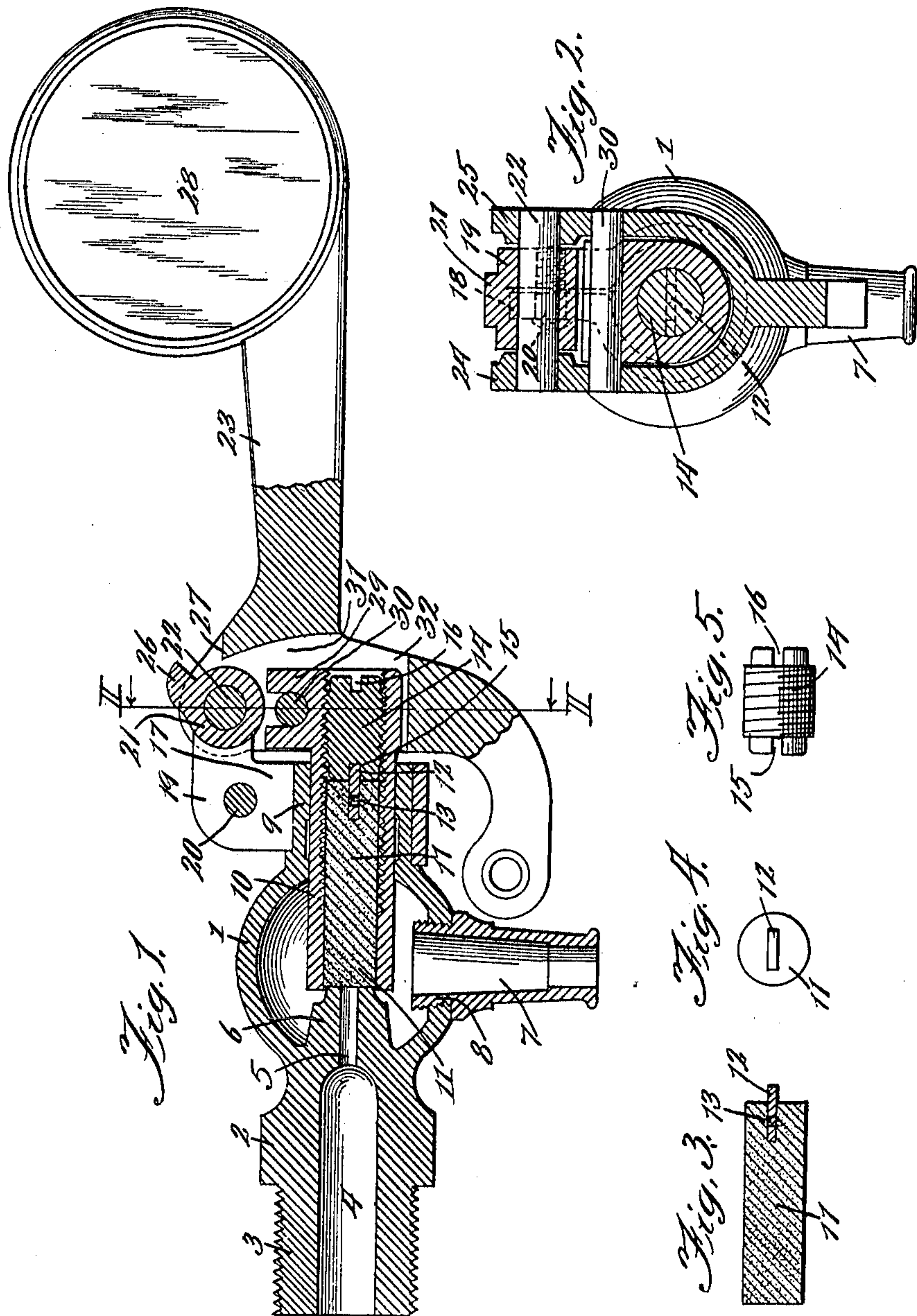


J. R. BROWN.  
GAGE COCK.  
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969,770.

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Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## GAGE-COCK.

969,770.

Specification of Letters Patent. Patented Sept. 13, 1910.

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*To all whom it may concern:*

Be it known that I, JOHN ROWLAND BROWN, a citizen of the United States, residing at Mansfield, in the county of Rich-  
land and State of Ohio, have invented cer-  
tain new and useful Improvements in Gage-  
Cocks, of which the following is a specifica-  
tion.

This invention relates to gage cocks, and  
has for its primary object to provide an im-  
proved construction, combination and ar-  
rangement of parts in valves for gage cocks.

One object of the present invention is to  
provide an improved construction of gage  
cock valves by means of which the valve  
may be adjusted axially and ground against  
the valve seat while the gage cock is in use.

Another object is to provide an improved  
replaceable valve disk or pencil for devices  
of this character.

Another object is to provide improved  
means for pressing the valve against the  
valve seat, said means being constructed and  
arranged to make the valve adjusting means  
accessible while the device is operated.

Other and further objects will appear in  
the specification and be more specifically  
pointed out in the claims, reference being  
had to the accompanying drawings exem-  
plifying the invention and in which—

Figure 1 is a vertical, longitudinal section  
of a valve cock provided with the improve-  
ments described and claimed in the specifi-  
cation. Fig. 2 is a section on the line II—II  
of Fig. 1. Fig. 3 is a detail section of the  
valve pencil. Fig. 4 is an end view of the  
valve pencil. Fig. 5 is a detail elevation of  
the pencil operating screw or worm.

Referring more especially to the embodi-  
ment of the invention shown in the draw-  
ings, the body portion of a gage cock is  
shown in Fig. 1 as comprising a substan-  
tially spherical housing 1 provided with a  
projecting connection portion 2, which por-  
tion is provided with a threaded extremity  
3 by means of which the gage cock may be  
secured to any suitable fitting connected  
with a sight gage or other similar device  
used on steam boilers or similar devices.

The connection portion is provided with a  
passage 4 leading to an inlet port 5 extend-  
ing through a nipple like protuberance 6 into  
the interior of the valve housing 1. The  
end of the nipple 6 is made flat. In the  
embodiment shown, the outlet or nozzle 7 is

provided with a threaded portion 8 by  
means of which it is connected in the lower  
wall of said housing. Projecting from the  
wall of the housing opposite to the inlet  
nipple or valve seat 6 is a tubular portion 9  
within which is slidably mounted a valve  
holder 10. Slidably mounted within the  
valve holder 10 and freely movable along  
the axis of said valve holder is a valve  
pencil 11 which is preferably of a smooth  
cylindrical conformation, as shown in Figs.  
3 and 4, in order to adapt it to slide freely  
in the valve holder 10. Said valve pencil  
11 is provided at one end with a short flat  
bar or slab 12 which is embedded in the  
pencil 7 when said pencil is cast. To more  
securely fasten the slab or projection 12 in  
the pencil 11, said slab is provided with a  
perforation 13 through which the metal of  
the pencil 11 flows and hardens when it is  
cast. The pencil holder 10 is provided for  
a portion of its length with screw threads in  
the inner cylindrical wall thereof, said  
threads being preferably extended to the  
outer end of the holder.

In order to provide means for reciprocating the pencil valve 11 toward and away from the valve seat 6, a screw or worm 14, the outer threaded portion of the barrel of which engages with the screw threads in the end of the pencil holder 10, is provided with a slot 15 adapted to fit over and engage the projection 12 on said pencil. The other end of the screw 14 is provided with a slot 16 for the reception of a screw driver by means of which said screw may be moved axially of the holder 10 to force the pencil against the valve seat 6.

The tubular extension 9 is provided exteriorly with a reduced neck portion whereon it is adapted to receive a split collar 17 for adjustably mounting a weighted lever to be presently referred to. The cheeks or ears 18 and 19 of the split collar 17 may be drawn together by a screw 20 to clamp said collar on the tubular projection 9. The cheek 19 is provided with a projecting hub or boss 21 through which extends a pivot 22 upon which is pivotally mounted the weighted lever 23. For this purpose said lever is provided with ears or lugs 24, 25 by means of which it is supported on the pin 22. In order to limit the upward movement of the weighted lever 23, a lug 26 is provided on the boss 21 for engagement with a flat seat



27 formed on the weighted lever. A weight 28 on the end of the lever 23 serves to impart a tendency to said lever to swing in a clock-wise direction around the pivot 22. In order to have the weight serve to force the pencil 11 against the valve seat 6, the valve holder 10 is provided on its outer extremity with a slotted projection 29 within the slot of which engages a pin 30 rigidly mounted on said lever 23. In this way any movement of the lever 23 is imparted to the valve holder 10, either to press the pencil against the valve seat 6, or to permit the valve to be moved from said seat. The lever 23 and weight 28 are so disposed and arranged as to not interfere with the use of a screw driver or other tool for operating the screw 14 while the device is in operative connection with a steam boiler or the like. To permit the introduction of the screw driver, the lever 23 is slotted at 31 and provided with a circular opening 32 opposite the screw 14.

The operation of the device is obvious, but briefly stated, it is as follows: The pencil valve 11 which is usually constructed of relatively soft metal or composition of metals, is maintained in abutment with the valve seat 6 by means of the weighted lever 23. When a new valve pencil 11 is inserted in the holder 10, there may be a substantially tight closure of the inlet passage 5, but if there should not be, and in cases where the closure becomes imperfect through usage, by means of the device shown and claimed in the present specification, the pencil 11 may be forced against the valve seat 6 and at the same time caused to rotate in such a way as to grind the pencil 11 to make a perfect steam tight connection with the valve seat 6. It is thus possible to perfect the valve joint a great number of times during the life of one of the pencils 11, thereby securing not only a more perfect valve action, but also a greater economy in the use of devices of this character.

While I have exemplified the invention in the description of the embodiment shown in the drawings, it will be evident that various modifications in the construction and arrangement of parts can be incorporated without departing from the spirit of my invention.

What I claim is:

1. As an article of manufacture, a pencil valve for gage cocks provided on one end with a flat end face and with a flattened lug projecting endwise from the other end, said lug being adapted to engage the slotted end of a screw.

2. As an article of manufacture, a pencil valve for gage cocks comprising a cylindrical body and a flattened lug projecting endwise from said body and adapted to fit the groove in a screw head.

3. In a gage cock, the combination with a valve seat, of a valve slidable axially toward

said seat, means rotatable and reciprocable relatively to said valve seat for moving said valve against the valve seat, and means interengaging between the valve in the first said means for preventing relative rotary movement between the first said means and the valve.

4. In a gage cock, a valve seat, a valve holder, gravity actuated means tending to force said holder toward said seat, a valve slidable in said holder, and means adjustably connected with said holder for supporting said valve against endwise movement, said means and valve being releasably connected to rotate together.

5. In a gage cock, the combination of a valve housing provided with a valve seat, a valve holder slidable in said housing toward the valve seat, a weighted lever movably engaging said holder, a valve slidable in said holder, and means adjustably engaging said holder for imparting an axial and rotary movement to said valve.

6. In a gage cock, the combination of a valve housing provided with a valve seat, a tubular valve holder slidable in said housing, said holder being threaded interiorly for a portion of its length, a cylindrical valve pencil slidable in said holder, said valve being provided with a projection in its outer end, a screw mounted in the threaded portion of said holder, said screw being provided with a recess fitting said projection and means whereby it may be rotated, and a weighted lever movably engaging said holder, said lever being pivotally mounted on said housing and disposed to one side of said holder to permit access to said screw.

7. In a gage cock, the combination with a valve seat, of a tubular valve holder movable toward said seat, a valve pencil slidable in said holder, said valve being provided with a flattened projection on its outer end, and a screw threaded to said holder, said screw being slotted on one end to engage said projection and slotted on the other to receive a screw driver.

8. As an article of manufacture, a pencil valve for gage cocks comprising a cylindrical body and a flattened slab embedded in one end, said slab being provided with a perforation through which the metal of the valve extends.

9. In a gage cock, the combination of a valve seat, a valve holder, a valve slidable in said holder, and means adjustably connected with said holder for supporting said valve against end-wise movement, said means and valve being releasably connected to rotate together.

10. In a gage cock, the combination of a valve housing provided with a valve seat, a valve holder slidable in said housing toward the valve seat, means adapted to exert



a pressure upon the valve holder tending to force it in the direction of the valve seat, a valve slidable in said holder, and means adjustably engaging said holder for impart-  
5 ing an axial and rotary movement to said valve.

10 11. In a gage cock, the combination of a valve housing provided with a valve seat, a tubular valve holder slidable in said housing, said holder being threaded interiorly for a portion of its length, a cylindrical valve pencil slidable in said holder, said valve being provided with a projection in its

outer end, a screw mounted in the threaded portion of said holder and provided with a  
15 recess fitting said projection, and means whereby it may be rotated.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 16th day  
20 of March A. D. 1910.

JOHN ROWLAND BROWN.

Witnesses:

J. C. PAINTER,  
C. V. MARKS.