

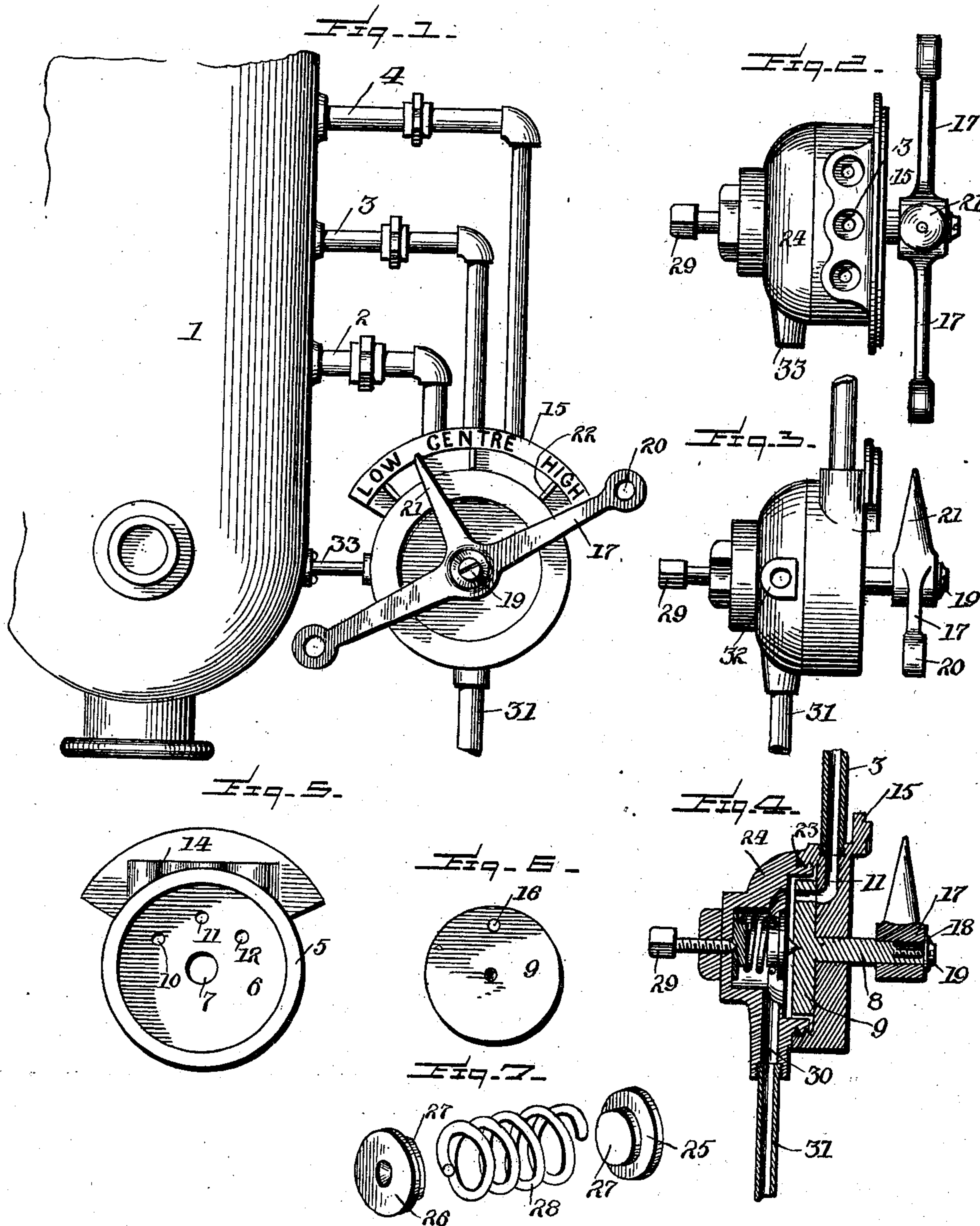
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W. I. STAAF.
GAGE COCK.

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(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

WERNER I. STAAF, OF PITTSBURG, PENNSYLVANIA.

GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 708,785, dated September 9, 1902.

Application filed November 19, 1901. Serial No. 82,929. (No model.)

To all whom it may concern:

Be it known that I, WERNER I. STAAF, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Combination Gage-Cocks, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in gage-cocks, and has for its main object to construct a gage-cock in such a manner as to connect a series of blow-off pipes thereto, the pipes being connected
15 to the water-column in such a manner as to register with different water-levels therein and all discharging through the same cock.

Briefly described, therefore, my invention consists of a gage-cock comprising a shell or
20 body having a series of ports with a rotatable valve provided with a single port, which is adapted to be operated so as to bring the port into registration with one of the ports in the casing to exhaust or "blow-off" through one
25 of the pipes. Means is provided for adjusting the tension upon the valve so that the latter may be held tight upon its seat at all times without hindering the free movement thereof when desired.

30 Various other features enter into my invention, and these, together with the construction above mentioned, will be hereinafter more specifically described and then particularly pointed out in the claims.

35 In describing the invention in detail reference will be had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference will be employed to indicate like parts throughout
40 the several views, in which—

Figure 1 is a front elevation of my improved gage-cock, showing the same connected up to a water-column. Fig. 2 is a top plan view of my improved gage-cock. Fig. 3 is a side elevation thereof. Fig. 4 is a transverse vertical sectional view thereof. Fig. 5 is a rear elevation of the casing with cap and valve-plate removed. Fig. 6 is a detail plan view of the disk employed for holding the valve-plate in position. Fig. 7 is a detail perspective view of the parts employed for holding the valve-plate and adjusting the tension thereon.

As is well known in the art, it is the practice to provide a series of blow-off or gage
55 cocks in connection with steam-boilers or engines arranged one above the other, so that the water-level in the water-column or boiler may readily be determined. In my invention I connect all of the blow-off pipes to the same
60 gage-cock, providing means for discharging either one independently of the others. In the accompanying illustrations I have shown a water-column 1, to which are connected three
65 blow-off pipes 2, 3, and 4. These blow-off pipes are arranged one above the other and are each connected to a cock common to all, which will now be described.

My improved gage-cock comprises an annular shell 5, the valve-plate 6 of which is provided with a central opening 7 to receive the
70 stem 8 of the valve-disk 9. This valve-plate and shell or casing are provided with ports 10, 11, and 12, one for each blow-off pipe employed, the pipes 2, 3, and 4 being inserted
75 into sockets or bushings 14 provided therefor on the top of the shell or casing. This shell or casing also carries an indicating-plate 15, on which are placed indicating inscriptions—
80 such as "Low," "Center," "High"—for the respective blow-off pipes. A valve-disk 9 is provided with an orifice or port 16, so positioned as to be brought into registration with the orifices or posts 10 11 12 in the valve-plate
85 6. The stem 8 of this valve-disk extends outwardly in front of the casing and has a lever 17 secured thereon by a key 18 or in any other suitable manner, with a tap-screw 19 engaging into the end of the stem. This lever may be of
90 any desired form, though in the accompanying illustrations I have shown the same as extending outwardly to each side of the stem and provided with eyes 20, to which chains (not shown) or other like devices may be attached for operating. The lever carries a pointer 21,
95 and when the lever is operated so as to bring the pointer opposite one of the ridges 22 on the plate 15 the orifice 16 will be in registration with the respective orifice or port in the casing. The flange of the shell 5 is inter-
100 riorly threaded to receive the threaded flange 23, carried by the cap 24, the latter being centrally recessed to permit the mounting therein of the mechanism for holding the valve-disk against the valve-plate with the desired
105 tension. This mechanism includes two disks

25 26, the former having a central cone 27, which seats in a seat provided therefor in the rear face of the valve-disk 9. Both of these disks have annular offsets 27, which engage
 5 in the ends of a stiff coil-spring 28. The tension on this spring is increased or decreased by a set-screw 29, mounted in the end of the cap 24 and bearing against the disk 26, as shown. The cap 24 has a discharge-port 30
 10 extending through the underneath side and communicating with the chamber in said cap. A pipe 31 may, if desired, be connected with this discharge-port. In order that the weight of the gage-cock will not be suspended from
 15 the blow-off pipes, I provide the cap 24 with a socket 32 in one side, into which a brace-rod 33 is inserted, the other end of this being rigidly connected to the water-column. In the position shown in Fig. 1 the ports are all
 20 closed, the valve-disk 9 being in such a position as to bring the orifice 16 midway between the orifices 10 and 11. When the lever is actuated so as to bring the orifice or port into registration with either of the orifices or
 25 ports 10, 11, or 12, communication with the respective blow-off pipe is established and the water or steam is discharged through port 30 and pipe 31. The tension on the spring 28 may be increased by means of the set-screw
 30 29, so as to always retain the valve-disk firmly seated, this tension, however, not being sufficient to prevent the free rotation of the disk valve by means of its stem and lever connected thereto.

35 While I have shown the gage-cock as constructed to receive three blow-off pipes, as this is the number generally employed, yet it will be evident that a greater number of pipes may be connected to the same gage-cock by
 40 increasing the number of ports in the latter, and such changes as this and other minor details of construction may be made without departing from the general spirit of my invention.

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

1. In a three-way gage-cock, a casing having ports for registration with a series of
 50 blow-off pipes, and a rotary valve-disk having a single discharge-port adapted on rotation to register with the respective blow-off pipes, substantially as described.

2. A gage-cock having a series of ports, and adapted for connection to a series of
 55 blow-off pipes, a disk valve having a single discharge-port, means connected to the stem of said valve for rotating the same, and means for adjusting the tension on said disk valve, substantially as described.

3. In a gage-cock, the combination of a casing having a series of ports and adapted for connection to a series of blow-off pipes, a rotatable valve disk mounted in the casing and
 65 having a single port through which all of the blow-off pipes discharge, and means for operating said valve, substantially as described.

4. In a gage-cock, a casing having a series of ports and adapted for connection to a series of blow-off pipes, of means for controlling the ports in the casing whereby each of the blow-off pipes discharges through a common port. 70

5. A three-way gage-cock having three inlet-ports and one discharge-port and adapted
 75 for connection to three blow-off pipes, and means for controlling said ports whereby the discharge from the blow-off pipes is through a port common to all.

6. In a gage-cock, a casing having a chamber and a series of inlet-ports to said chamber, disk valve having a single orifice or port common to all of the inlet-ports in the casing, a lever connected to the stem of the casing and provided with a pointer, a single discharge-port in the casing, means in the chamber of the casing for holding the disk valve seated, and means for adjusting the tension on said disk valve, substantially as described. 80

7. In a gage-cock, a casing having a series of inlet-ports and a single discharge-port, and a valve mounted in the casing and controlling each of the inlet-ports, substantially as described. 85

8. In a gage-cock, a casing having a series of inlet-ports and a single discharge-port, and a valve operative to close all the ports and to open one port independently of the other ports, substantially as described. 90

9. In a gage-cock, a casing having two or more inlet-ports, and a single discharge-port, and a valve operative to close the ports and to open each port independently of the other ports, substantially as described. 95

10. In a gage-cock, a casing having inlet-ports registering with separate blow-off ports, and a single discharge-port, a disk valve mounted in the casing and provided with a single port, means connected to said valve for operating same to close the inlet-ports and to open the same independently to the discharge-port, and adjustable means for holding said valve on its seat, substantially as described. 100

11. In a gage-cock, a casing having an indicating-plate adapted to receive indicating-marks, said casing having a series of inlet-ports each in communication with a separate blow-off pipe, and a single discharge-port, a valve operative to close the inlet-ports and to open one port to the discharge independently of the others, a lever connected to the stem of said valve for operating the same, and a pointer carried by said lever to indicate by the inscriptions on said indicating-plate the position of said valve, substantially as described. 105

In testimony whereof I affix my signature in the presence of two witnesses. 125

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