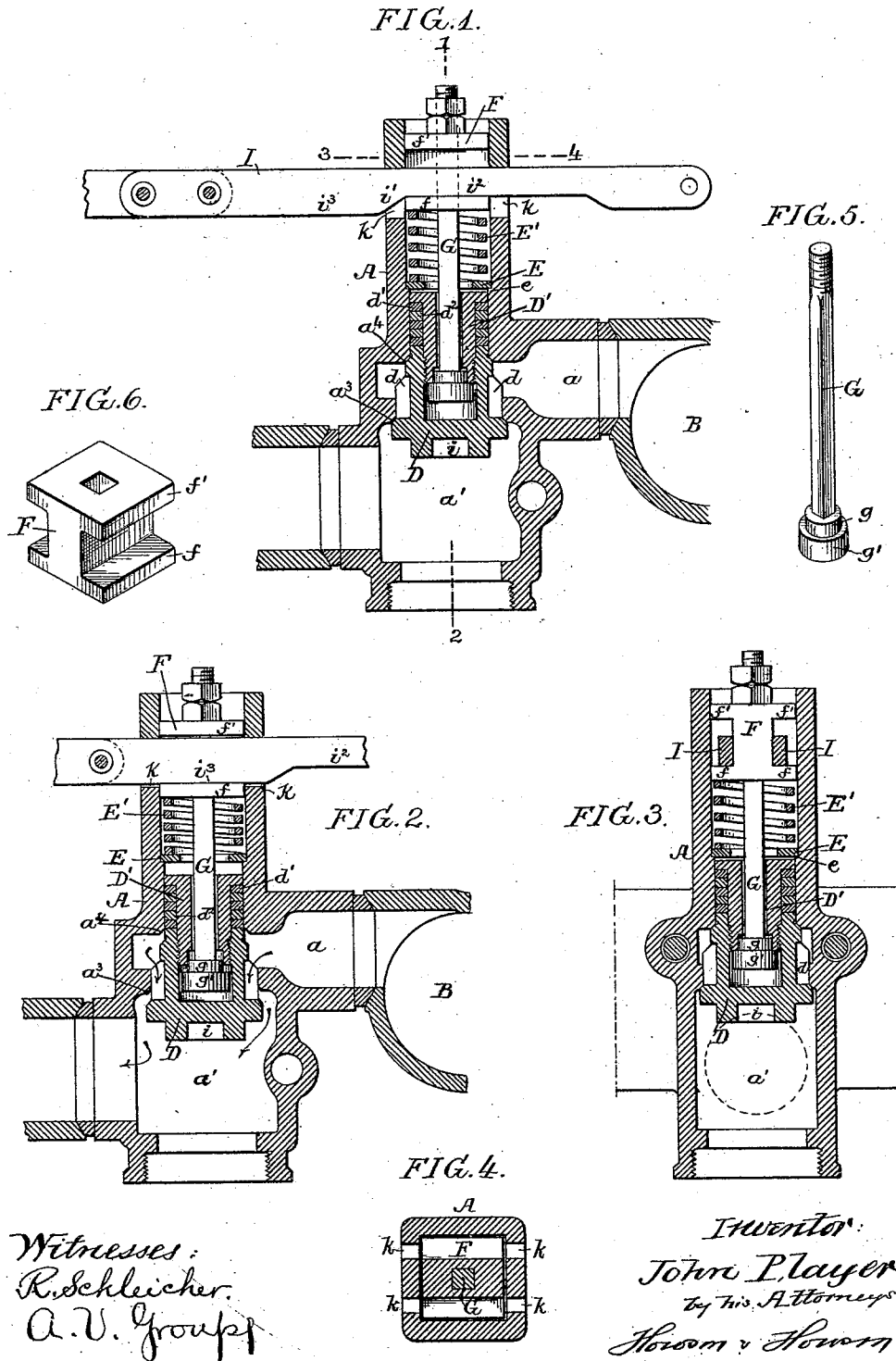


(No Model.)

J. PLAYER.
REDUCING STARTING VALVE.

No. 499,588.

Patented June 13, 1893.



UNITED STATES PATENT OFFICE.

JOHN PLAYER, OF DUNKIRK, NEW YORK, ASSIGNOR TO THE BROOKS
LOCOMOTIVE WORKS, OF SAME PLACE.

REDUCING STARTING-VALVE.

SPECIFICATION forming part of Letters Patent No. 499,588, dated June 13, 1893.

Application filed August 18, 1892. Serial No. 443,376. (No model.)

To all whom it may concern:

Be it known that I, JOHN PLAYER, a resident of Dunkirk, Chautauqua county, New York, have invented a certain Improvement
5 in Reducing Starting-Valves, of which the following is a specification.

The object of my invention is to so construct a reducing starting valve for compound engines in such a manner that it will be free to
10 act on one movement of the reversing lever, and which will be closed on the reverse movement of the lever.

My invention is especially applicable to locomotives of the compound type, where it is
15 wished to start with high pressure steam in both cylinders.

In the accompanying drawings:—Figure 1, is a vertical sectional view of my improved
20 reducing starting valve closed. Fig. 2, is a view similar to Fig. 1, with the exception that the valve is released and free to act as an automatic reducing valve. Fig. 3, is a sectional
25 view on the line 1—2, Fig. 1. Fig. 4 is a sectional view on the line 3—4, Fig. 1; and Figs. 5 and 6, are detached perspective views of parts of the valve.

A is the valve casing having two chambers a, a' . The chamber a communicates with the
30 live steam pipe B, which is connected to the high pressure valve chest. The chamber a' communicates with the low pressure steam chest through the passages a^2 .

D is the valve adapted to seat itself against the seat a^3 . When the valve is closed communication is cut off between the chambers
35 a, a' . The valve is also formed to seat itself upon the seat a^4 at the upper edge of the chamber a . The valve is guided by the fins d working in the partition between the two
40 chambers, and by the portion above the upper seat. Screwed into the valve proper is a flanged hub D' between the flange of which and the valve proper are confined the packing
45 rings d' and metallic washers d^2 forming a steam tight joint between the valve and its casing. Resting upon a flange e of the casing is a plate E which supports a spring E' upon
50 which rests a square block F shown clearly in Fig. 6, adapted to the quadrangular portion of the casing. On each side of the block is a

groove forming the flanges f, f' , for the reception of the rod I. Passing through the hub D' , the plate E, the spring and block, is a rod G, square in cross section so that it will not
55 turn either in the hub or block. This rod has a head g adapted to a cavity d in the hub D' , and has also a head g' adapted to freely move within the space between the lower end of the hub and the valve, so that the valve
60 when the rod G is depressed, will be free to act as a reducing valve. The valve D has a square cavity i into which can be inserted a tool for screwing the valve upon the hub to
65 compress or release the packing when necessary; the square rod preventing the hub from turning with the valve proper.

I is a rod connected to the reversing lever, and this rod is forked, one fork passing on
70 one side of the block F, and the other fork passing on the opposite side. The rod I extends through slots k in the casing, its upper surface being in contact with the casing, and its lower surface being in contact with the
75 block. The under surface of the rod is cut away as shown, forming a cam i' having two planes i^2, i^3 , so that when the lever is moved from the position shown in Fig. 1 to that
80 shown in Fig. 2, it depresses the block and allows the valve to act freely as a reducing valve.

As shown in Fig. 1, the block F is resting
80 against the plane i^2 of the lever I, and the spring E' is acting to hold the valve to its seat; the spring having sufficient power to overcome the pressure of steam. If however, when the
85 lever is in the position shown in Fig. 2, with the plane i^3 resting upon the block, the spring is compressed, and the head g' of the rod G is held away from the valve; the steam entering
90 from the pipe B will force the valve D off of its seat and will pass into the chamber a' and to the low pressure steam chest. The valve however, is so proportioned that when the pressure of steam in the chamber a' reaches a certain point it will close or partially close the valve, and thus reduce the
95 amount of steam entering to the low pressure steam chest.

I claim as my invention—

1. The combination in a reducing valve, of the casing, the high and low pressure cham- 100

bers therein, the valve adapted to cut off communication between the chambers, a block, a rod attached to the block and loosely connected to the valve, a spring tending to close the valve, mechanism for depressing the rod and block to allow the valve to automatically act as a reducing valve, substantially as described.

2. The combination of the casing, the high and low pressure chambers therein, a valve adapted to cut off communication between the chambers, with mechanism connected to the reversing lever of the engine, whereby the valve is locked to its seat or allowed to have a limited play so as to operate as a reducing valve, substantially as described.

3. The combination of the casing, the high

and low pressure chambers therein, a valve D adapted to a seat between the two chambers, a hub D', packing between the hub and the casing, a rod adapted to the hub, and arranged to have free vertical movement therein, a block mounted on said rod, a spring supporting said block and supported by the casing, a cam for depressing the block allowing the valve to act freely as a reducing valve, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN PLAYER.

Witnesses:

HENRY HOWSON,
WILLIAM D. CONNER.