

N. J. LOCKYER.
STEAM VALVE.
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1,126,537.

Patented Jan. 26, 1915.

Fig. 1.

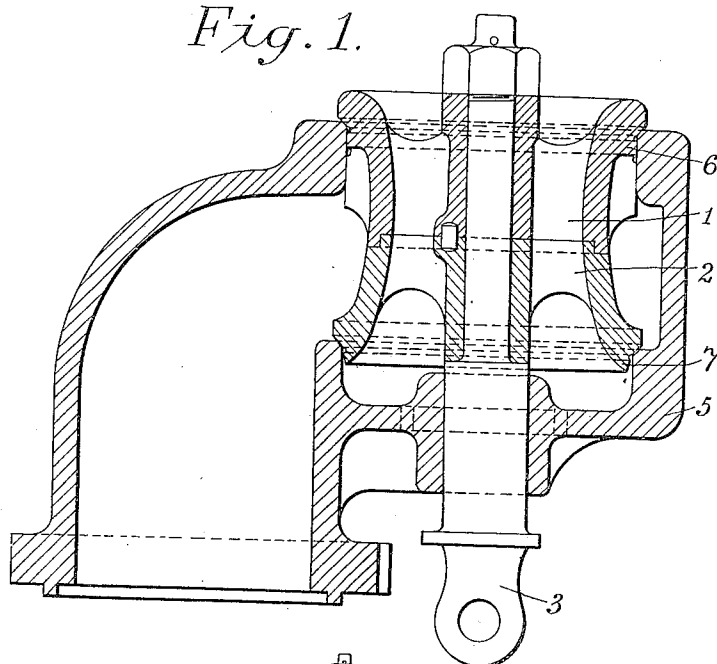


Fig. 2.

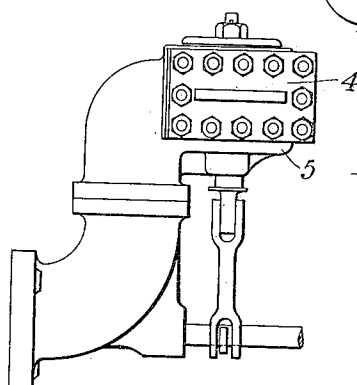
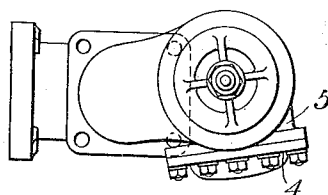


Fig. 3.



WITNESSES.

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STEAM-VALVE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NORMAN JOSEPH LOCKYER, a subject of His Majesty the King of Great Britain and Ireland, residing at Darlington, England, have invented new and useful Improvements in Steam-Valves, of which the following is a specification.

This invention relates to a valve chiefly intended for use in steam locomotives but also applicable to other purposes.

In the double beat regulator as usually designed for locomotives the valve is in one piece, and rests on double seats in the valve chest or head when closed, thus necessitating one valve seat being smaller than the other, the latter being the upper one so as to enable the valve to be placed in position. This difference in diameter represents an unbalanced area, the pressure of the steam on which tends to keep the valve shut and is the measure of the power required to open it. This type of valve has a large opening in proportion to the lift, an objectionable feature when applied to a locomotive since careful regulation of the steam is very necessary when putting a locomotive into motion, more particularly in the running sheds.

According to this invention in order to attain the good qualities of easy opening and complete control of the steam supply, the two valve portions of the regulator are made of an equal diameter or effective area and the steam is baffled as the valve is being opened, thus insuring complete regulation. Since the two valve portions are of equal diameter or effective area, it is necessary to form the regulator valve in two parts since the lower valve portion (the portion within the valve chest) cannot be passed through the upper valve seat. To enable the lower valve portion to be put on its seat a door is provided in the valve head or chest through which said valve portion may be introduced and the upper half of the valve then placed in position in the usual way, and the two portions bolted together on the spindle which actuates them.

The regulation and graduation of the steam supply is attained in the valve itself. Below the miter of the upper valve portion there is a plain cylindrical part or baffle of a given depth which prevents any rush of steam passing this valve as it opens. Below the miter of the lower valve portion there is

provided a plain conical part or baffle so that when the valve begins to move, the annular space between the conical part and the valve seat gradually increases. When the regulator valve lifts the distance equal to the depth of the baffles, both valve portions allow the free passage of steam until the maximum opening is reached.

To enable the invention to be fully understood it will now be described by reference to the accompanying drawings, in which:—

Figure 1 is a sectional elevation of a portion of a steam regulator having a double beat valve constructed according to one form of the invention. Fig. 2 is an elevation of the valve chest and steam pipe drawn to a smaller scale and Fig. 3 is a plan view of same.

As shown, the regulator valve consists of an upper valve portion 1 and a lower valve portion 2 of equal diameter mounted on a spindle 3. To enable the valve to be assembled a door 4 is provided in the valve chest 5 through which the lower valve portion 2 may be introduced and seated, the upper portion 1 being inserted in the usual manner and the two portions secured together upon the spindle 3. The valve portion 1 is provided with a plain cylindrical part or baffle 6, and the lower valve portion 2 with a plain conical part or baffle 7. The baffle 6 prevents a rush of steam past the valve portion 1 as the valve lifts and the conical baffle 7 insures a gradual opening of the lower valve portion 2. If desired the conical baffle may be provided on the upper valve portion and the cylindrical baffle on the lower valve portion.

Although the invention has been described in connection with the steam regulator of a locomotive it will be obvious that the valve arrangement may be applied to other purposes, for example it is adapted for use with stationary engines and is capable of very general use in power stations where large volumes of steam are handled. It will be understood that by the term "lower valve portion" that the portion of the valve within the valve chest is meant.

What I claim is:—

1. In steam valves for locomotives and for other purposes, a valve chest, a valve formed in two detachable parts therein, a seat for each valve part, and a door in said

valve chest through which one valve part can be introduced to enable the valve to be assembled.

2. In steam valves for locomotives and for
5 other purposes, a valve chest, a valve formed
in two detachable parts therein, a plain cylindrical baffle on one valve part, a plain
conical baffle on the other valve part, a seat
for each valve part and a door in said valve
10 chest through which one valve part can be
introduced to enable the valve to be assembled.

3. In steam valves for locomotives and for
other purposes, a valve chest, a valve formed

in two detachable parts of equal area, a 15
plain cylindrical baffle on one valve part, a
plain conical baffle on the other valve part,
a seat for each valve part and a door in said
valve chest through which one valve part
can be introduced to enable the valve to be 20
assembled.

In witness whereof I have hereunto set my
hand in the presence of two subscribing
witnesses.

NORMAN JOSEPH LOCKYER.

Witnesses:

WILLIAM HARDAKER,

WILLIAM STEVENSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."