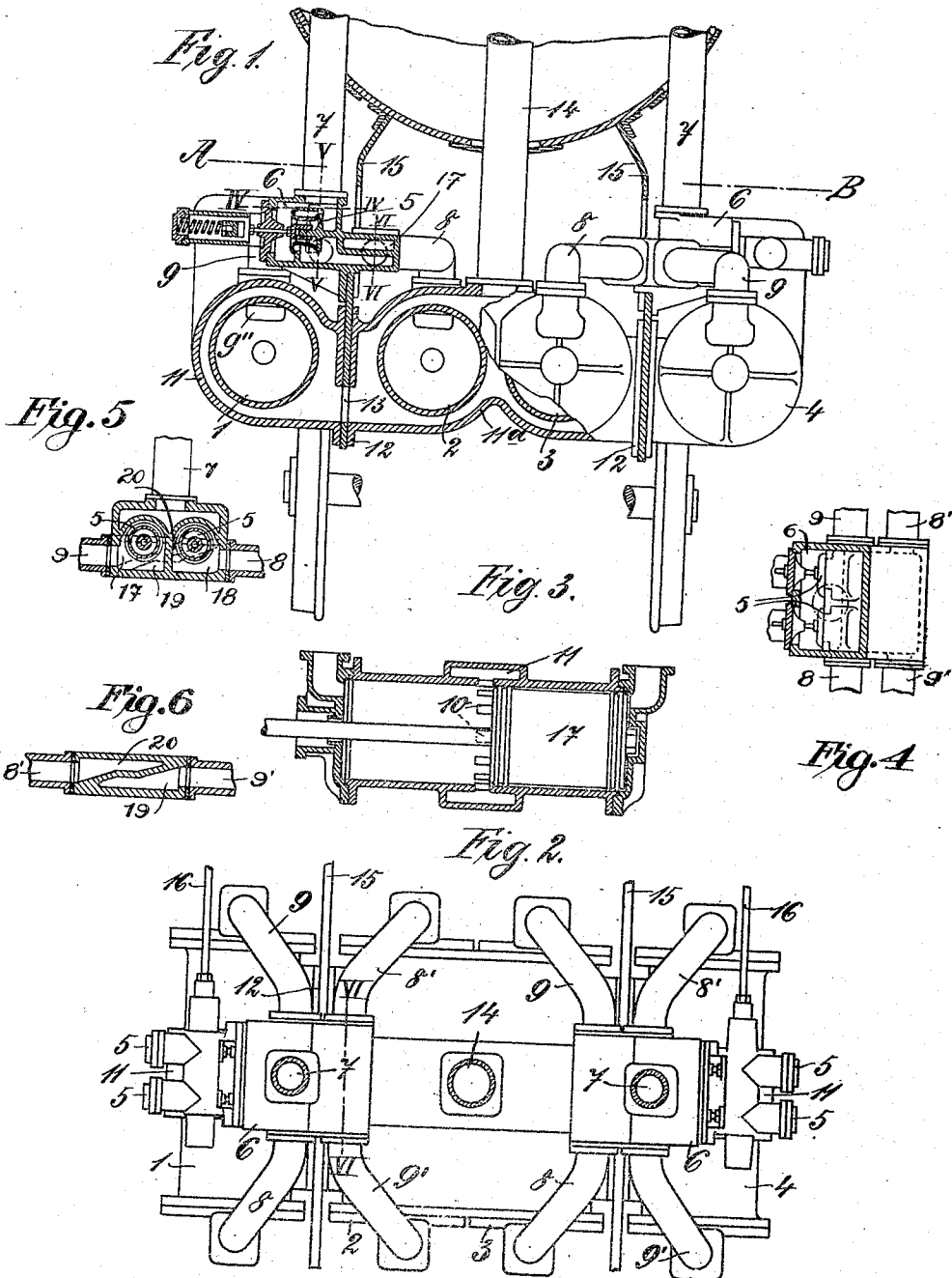


J. STUMPF.
FOUR CYLINDER LOCOMOTIVE ENGINE.
APPLICATION FILED JULY 24, 1909.

980,572.

Patented Jan. 3, 1911.



Witnesses:
Flora Greenwald.
Alfred Lepus.

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Attorney.

UNITED STATES PATENT OFFICE.

THOMAS H. SYMINGTON, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE T. H. SYMINGTON COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MAINE.

DUST-GUARD.

980,573.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed September 30, 1908. Serial No. 455,551.

To all whom it may concern:

Be it known that I, THOMAS H. SYMINGTON, a citizen of the United States of America, residing at the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Dust-Guards, of which the following is a specification.

The present invention relates to dust guards for journal boxes and contemplates the provision of a new and improved device of this character which may be applied to the various types of journal boxes now in use without involving their alteration.

The dust guard is adapted to be placed in the usual dust guard slot and provided with means whereby it is supported therein.

My device consists in a continuous screen of flexible material closing the end of the box and a bearing member by which the screen is held in close contact with the axle and the walls of the dust guard slot. The bearing member is circular in form, inclosing the axle, and the upper edge of the screen is provided with a support. This support serves, in the preferred embodiment of my invention, as a plug to close the well. The screen above the axle, between the plug and the bearing member, is made of ample extent, so that it hangs loosely, as shown. This permits the box to be raised for the purpose of changing brasses and eliminates the necessity of removing the shaft from the box when this operation is to be performed.

Referring to the accompanying drawings,—Figure 1 is an elevation of the dust guard, Fig. 2 is a fragmentary, vertical, axial section of a journal box, showing the dust guard well and dust guard, a portion of the axle is also shown in this view. Fig. 3 is a horizontal, axial section taken at right angles to the plane of Fig. 2.

The journal box, a portion of which is shown in Figs. 2 and 3, is provided at its inner end with the usual dust guard slot 2, the mouth of the slot being at the top. The lateral walls, 4 and 5, of the slot are apertured at 6 and 7 to admit the axle 8. The screen 9 of heavy, textile material, of vertical and lateral dimensions greater than the corresponding dimensions of the well, is suspended therein in a plane transverse to the shaft. The support for the upper end of the screen is in the form of a bar, 10, of wedge-shaped cross-section, divided longitudinally to receive the

screen. The head of the wedge is of slightly greater dimensions than the width of the slot, so that when the bar is forced down level with the top of the box, the opening of the slot is closed and the bar secured therein by friction, forming a plug. By this means, the screen is suspended transversely of the shaft. An opening 11, circular in form and of a diameter slightly, perhaps a quarter of an inch, less than the diameter of the axle at this point, is formed near the center of the screen. Surrounding the opening 11, a set of segmental wooden blocks 13 on the inside, *i. e.* toward the car body, and 14 on the outside, are secured to the screen. The blocks 13 break joints with the blocks 14. The pins 25 extend through the screen and the blocks, one block of the set 13 being secured to two blocks of the set 14, and vice versa. The continuous, circular frame thus formed of the two sets of blocks is hereinafter known as the bearing ring 26. The bearing member is of internal diameter slightly greater than the diameter of the axle. As the opening in the screen is of less diameter than the shaft, and, therefore, less than the opening, a portion of the screen extends along the shaft, forming a circular lip 12, which lies between the axle and the bearing member, and is pressed against the former by the latter.

In the operation of the dust guard, the screen and ring are introduced into the slot and placed with the opening 11 of the screen in registration with the openings 6 and 7 of the box, the bar 10 being driven into the mouth of the well. Observing Figs. 2 and 3, it will be noted that the screen is so supported by the bearing member that the edges of the former are in contact with the lateral walls of the slot at 15 and 16 and the bottom wall 17. The shaft is introduced into the journal box through the openings 6 and 7, passing through the aperture 11 in the screen, so that it is inclosed by the bearing ring 26. The lips 12 are turned inward, between the frame and the axle, and pressed against the latter by the bearing member.

Assembled for operation, the device consists of a continuous screen of flexible material in the form of a diaphragm closing the end of the box; at its outer edge in close contact with the outer walls of the dust guard slot, and at its inner edge pressed tightly against the axle. The segmental frame, or

this type the release usually takes place the last 10% of the stroke. It follows therefore that when the piston 17 in its return stroke again covers the ports 10 that 90% of the cylinder is still filled with steam. This entails of course a considerable compression which necessitates the large clearance space mentioned above, which clearance space should be from about 13-15% of the cylinder volume. This requirement renders it possible to employ the cross pipes 8 and 9 when these cross pipes are so arranged as to form part of the clearance space.

The arrangement described is further exceedingly simplified by the fact that the steam chest 6 is arranged above the cylinders and is not cast in one therewith. The casting of the cylinders is thus exceedingly simple. It will be understood that the details of the device may be considerably altered.

The engine illustrated is intended especially for use with superheated steam but of course may also be employed with saturated steam. It is also especially intended for high pressure as well as high temperature steam.

I claim:—

1. In combination, two steam engine cylinders arranged side by side and each having an inlet port at its end and separate exhaust ports, pistons in said cylinders and arranged to overrun and control said exhaust ports, a steam chest common to said cylinders, a mechanically operated admission valve in said chest, a pocket on said chest, the admission of steam to which is controlled by said mechanically operated valve and connections leading diagonally from said pocket to diagonally opposite ends of the pair of cylinders.

2. In combination, two steam engine cylinders arranged side by side and each having inlet ports at its ends and separate ex-

haust ports, pistons in said cylinders and arranged to overrun and control said exhaust ports, a steam chest common to said cylinders, mechanically operated admission valves in said chest, two pockets on said chest, the admission of steam to which is controlled by said mechanically operated valves, and connections leading diagonally from each of said pockets to the diagonally opposite ends of the pair of cylinders.

3. In combination, two steam engine cylinders arranged side by side and each having inlet ports at its ends and separate exhaust ports, pistons in said cylinders and arranged to overrun and control said exhaust ports, a common chamber into which the exhaust ports of both cylinders open, a steam chest common to said cylinders, mechanically operated admission valves in said chest, two pockets on said chest, the admission of steam to which is controlled by said mechanically operated valves and connections leading diagonally from each of said pockets to the diagonally opposite ends of the pair of cylinders.

4. In combination, two steam engine cylinders arranged side by side and each having inlet ports at its ends and separate exhaust ports, pistons in said cylinders and arranged to overrun and control said exhaust ports, a steam chest common to said cylinders, two mechanically operated lift valves in said chest, two pockets on said chest the admission of steam to which is controlled by said lift valves, and connections leading diagonally from each of said pockets to the diagonally opposite ends of the pair of cylinders.

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

JOHANN STUMPF.

Witnesses:

HERMANN BOUIN,
GOTTFRIED KERKAIN.