No. 878,009. PATENTED FEB. 4, 1908.

J. MALOY & A. WHITE.

STUFFING BOX FOR THROTTLES AND VALVE STEMS.

APPLICATION FILED NOV. 28, 1905.

FIG. 1.

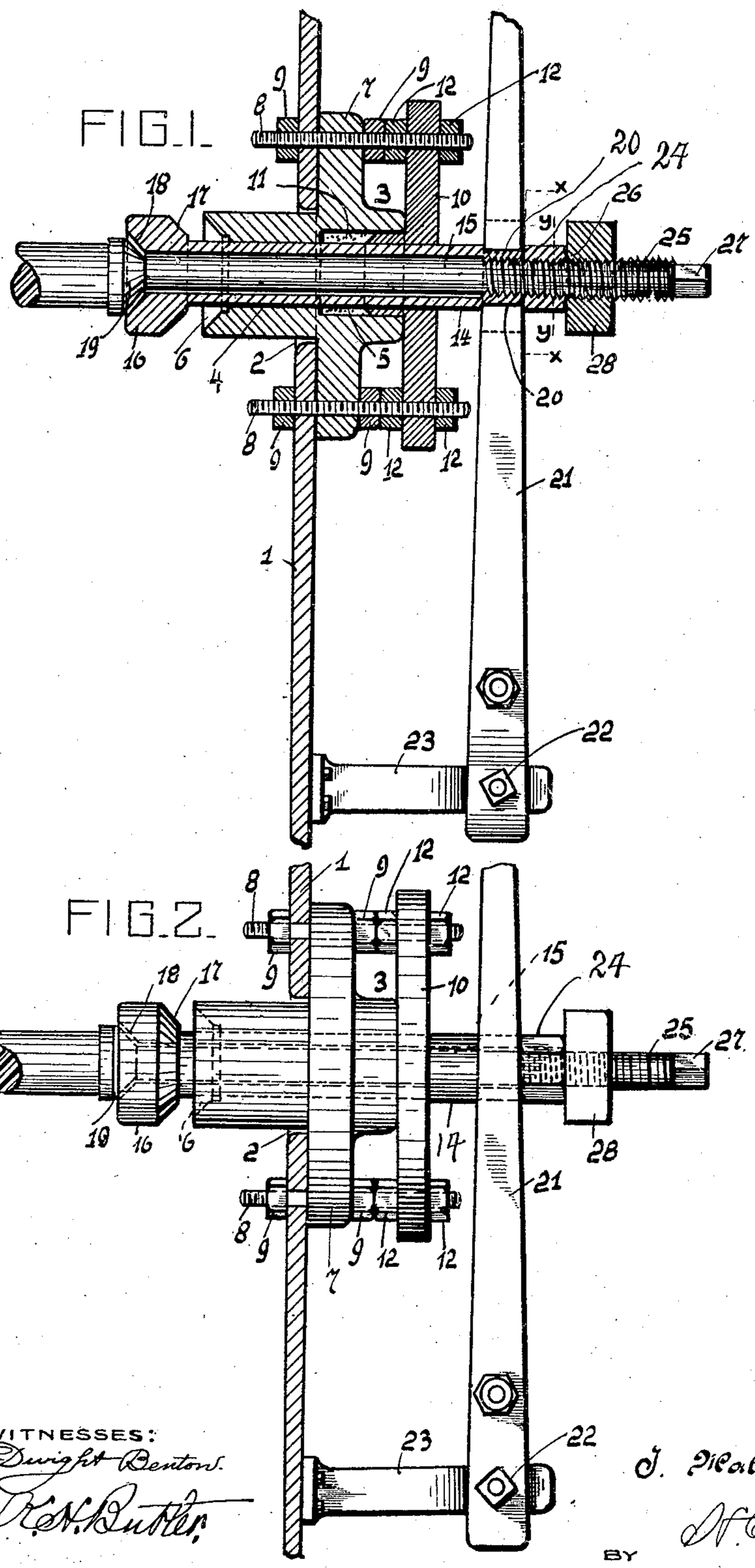
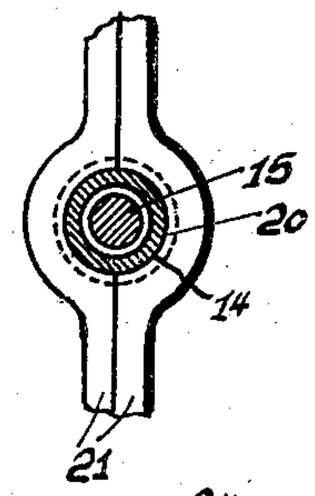


FIG. 3.



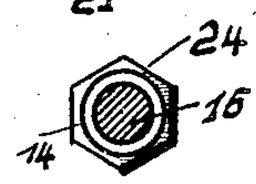


FIG. 4.

FIG. 2.

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UNITED STATES PATENT OFFICE.

JOHN MALOY AND ARCHIBALD WHITE, OF DUNBAR, PENNSYLVANIA, ASSIGNORS OF ONE-THIRD TO F. J. McFARLAND, OF DUNBAR, PENNSYLVANIA.

STUFFING-BOX FOR THROTTLES AND VALVE-STEMS.

No. 878,009. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed November 28, 1905. Serial No. 289,446.

To all whom it may concern:

Be it known that we, JOHN MALOY and ARCHIBALD WHITE, citizens of the United States of America, residing at Dunbar, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Stuffing-Boxes for Throttles and Valve-Stems, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in stuffing boxes for throttles and valve stems, and the invention relates more particularly to a novel form of stuffing box adapted to be used in connection with the throttles of locomotives.

The primary object of this invention is the provision of novel means in connection with a stuffing box whereby the packing of the box can be renewed or removed without causing the cessation in the operation of the locomotive, that is, withdrawing the fire from the boiler to reduce the pressure of steam within the boiler.

Our invention aims to provide a stuffing box which will prevent steam from escaping from the boiler, while the packing of the box is being removed or renewed, and in this connection, we employ a construction which can be easily and quickly manipulated at any time it is desired to renew the packing of the stuffing box. The construction of our improved stuffing box is simple and free from all danger of being injured by constant use, certain novel features of construction being employed whereby the different parts of the stuffing box can be adjusted to normally maintain a steam tight box.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be hereinafter more fully described and then specifically pointed out in the claims, and referring to the drawing accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which:—

Figure 1 is a vertical sectional view of a boiler plate equipped with a throttle and our improved stuffing box, Fig. 2 is a side elevation of the same, Fig. 3 is a transverse sectional view taken on the line x—x of Fig. 1, Fig. 4 is a similar view taken on the line y—y of Fig. 1.

In the accompanying drawing, the reference numeral 1 designates the front plate of a locomotive boiler, which is provided with an opening 2 into which protrudes a stuffing box 3. The stuffing box is provided with a central bore 4, one end of which terminates in the packing receiving recess 5, while the opposite end of the bore terminates in the seat 6. The flanges 7 of the stuffing box are secured to the plate 1 by screws 8, 8 and nuts 9, 9. A gland 10 is mounted in the recess 5, together with packing 11. The gland is secured to the stuffing box through the medium of the screws 8, 8 and nuts 12, 12, said nuts being employed to hold the gland in engagement with the screws 8, 8, as clearly illustrated in the accompanying drawing.

Passing through the gland 10 and the bore 4 of the stuffing box is a sleeve 14 through which passes a throttle rod 15. Our invention resides particularly in the construction of the throttle rod 15 and the sleeve 14, together with the provision of the seats 6 in the inner end of the stuffing box 3. The sleeve 14 upon its inner end is provided with an enlarged head 16 having an annular beveled edge 17 adapted to engage in the seat 6. The opposite side of the head is formed with a beveled seat 18, and adapted to engage in this seat is a beveled collar 19 carried by the throttle rod 15. This rod extends within the boiler to the dome of the boiler, where it controls a throttle valve mounted therein, said dome and throttle valve not being shown in the accompanying drawing, as they are of a conventional form common to the present type of locomotive.

The outer end of the sleeve 14 is provided with an annular groove 20, and engaging said sleeve within the groove is a two-part throttle lever 21, said lever being pivotally connected as at 22 to a bracket 23 carried by the front plate 1 of the boiler. The sleeve 14 adjacent to the throttle lever 21 is pro-

vided with flattened faces 24, the periphery of the sleeve conforming to a hexagon to receive an operating wrench.

The outer end of the throttle rod 15 is threaded as at 25 and is adapted to engage similar threads 26 formed upon the interior outer end of the sleeve 14. The extreme end of the rod 15 is rectangular in cross section, as at 27, to permit of a wrench being placed upon the end of the rod. A jam nut 28 is mounted upon the screw threaded end of the rod to lock the rod 25 in a fixed position relative to the sleeve 14.

By the co-action of the collar 19 and the threaded sleeve 14 and the jam nut 28 the rod and sleeve are firmly united, so that they move together under the influence of the lever 21.

As the rod 15 is connected to the throttle valve within the dome of the locomotive boiler and also to the sleeve 14, it is only necessary to oscillate the throttle lever 21 to move the rod 15 to open and close said valve, the sleeve 14 and the rod 15 sliding within the stuffing box 3 of the boiler plate 1. Should it be desired to renew the packing, the two-part throttle lever 21 is released from engagement with the sleeve 14, and a wrench is placed upon the hexagon portion 24 of the sleeve to rotate it, it of course being understood that the jam nut 28 is adjusted upon the screw threaded end 25 of the rod 15 to permit of the sleeve being adjusted upon said rod. The sleeve is now rotated and as the rod 15 is a fixture, the sleeve 14 is caused to move toward the outer end of the rod, by the coöperation of the internally threaded portion of the sleeve and the threads on the rod until the beveled head 17 of the sleeve 14 engages in the seat 6 of the stuffing box. After the packing has been renewed the sleeve 14 is screwed upon the shaft 15 until the parts 18—19 are tightly engaged, this being for the purpose of preventing leakage between the sleeve and shaft. The jam nut can then be rotated again into engagement with the sleeve 14 to firmly hold it in a fixed position relative to the rod, thereby insuring a perfect engagement of the head 16 with the stuffing box. It will thus be impossible for steam to pass between the head 16 of the sleeve 14 and the stuffing box 3, consequently the recess 5 can be easily repacked without endangering the lives of the persons performing the operation.

As before stated the rod 15, is a fixture, and the sleeve 14 fitting relatively close in the stuffing box and moreover held with considerable pressure by the packing will not move readily under the pressure of the steam, consequently the box moving force exerted by the co-action of the threaded rod and internally threaded sleeve is a necessity to enable the sleeve to be seated against the stuffing box 3. In inserting the new packing it is necessary to entirely remove the gland 10, and to accomplish this result it is also necessary to entirely remove the throttle lever 21, and when this is done the necessity for positively moving the sleeve outwardly as above described will be obvious. After the stuffing box has been properly packed and the gland 10 replaced, the sleeve 14 can then be adjusted to its proper position upon the rod 15 and the throttle lever 21 firmly engaged with said sleeve whereby the throttle valve of the locomotive boiler can be again operated.

It will be noted that various changes may be made in the construction within the scope of the appended claims without departing from the spirit and scope of the invention.

What I claim and desire to secure by Letters Patent, is:—

1. The combination with a front boiler plate, a stuffing box protruding through said plate and secured thereto, said stuffing box having a seat formed in its inner end, of a sleeve extending through said stuffing box, a head carried by the inner end of said sleeve and adapted to engage in the seat of said stuffing box, a throttle rod passing through said sleeve, a collar carried by said rod and adapted to engage the head of said sleeve, the outer end of said rod being screw threaded to engage said sleeve, a throttle lever detachably connected to said sleeve and employed to actuate said sleeve and said rod, a jam nut mounted upon the end of said rod and adapted to engage said sleeve, substantially as described.

2. The combination with a stuffing box and a throttle lever, said stuffing box having a seat formed in its inner end, of a sleeve extending through said stuffing box, a head carried by said sleeve and adapted to engage in the seat of said box, a throttle rod extending through said sleeve, a collar carried by said rod and adapted to engage the head of said sleeve, means to move the head of said sleeve within the seat of said stuffing box, means to fix said head therein, means to adjust said rod relative to said sleeve, substantially as described.

3. The combination with a stuffing box and a throttle, of a sleeve extending through said stuffing box and detachably connected to said throttle, a head carried by said sleeve, a throttle rod extending through said sleeve, a collar carried by said rod and adapted to engage said head, means to move the head of said sleeve into engagement with said stuffing box, and means to adjust said rod relative to said sleeve, substantially as described.

4. The combination with a stuffing box

and a throttle lever, of a sleeve extending through said stuffing box and detachably connected to said throttle lever, a head carried by said sleeve, a throttle rod extending through said sleeve, means to move said head in engagement with said stuffing box, and means to adjust said rod, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN MALOY.
ARCHIBALD WHITE.

Witnesses:
DAVID M. JACOBS,
M. D. WILLIAMS.