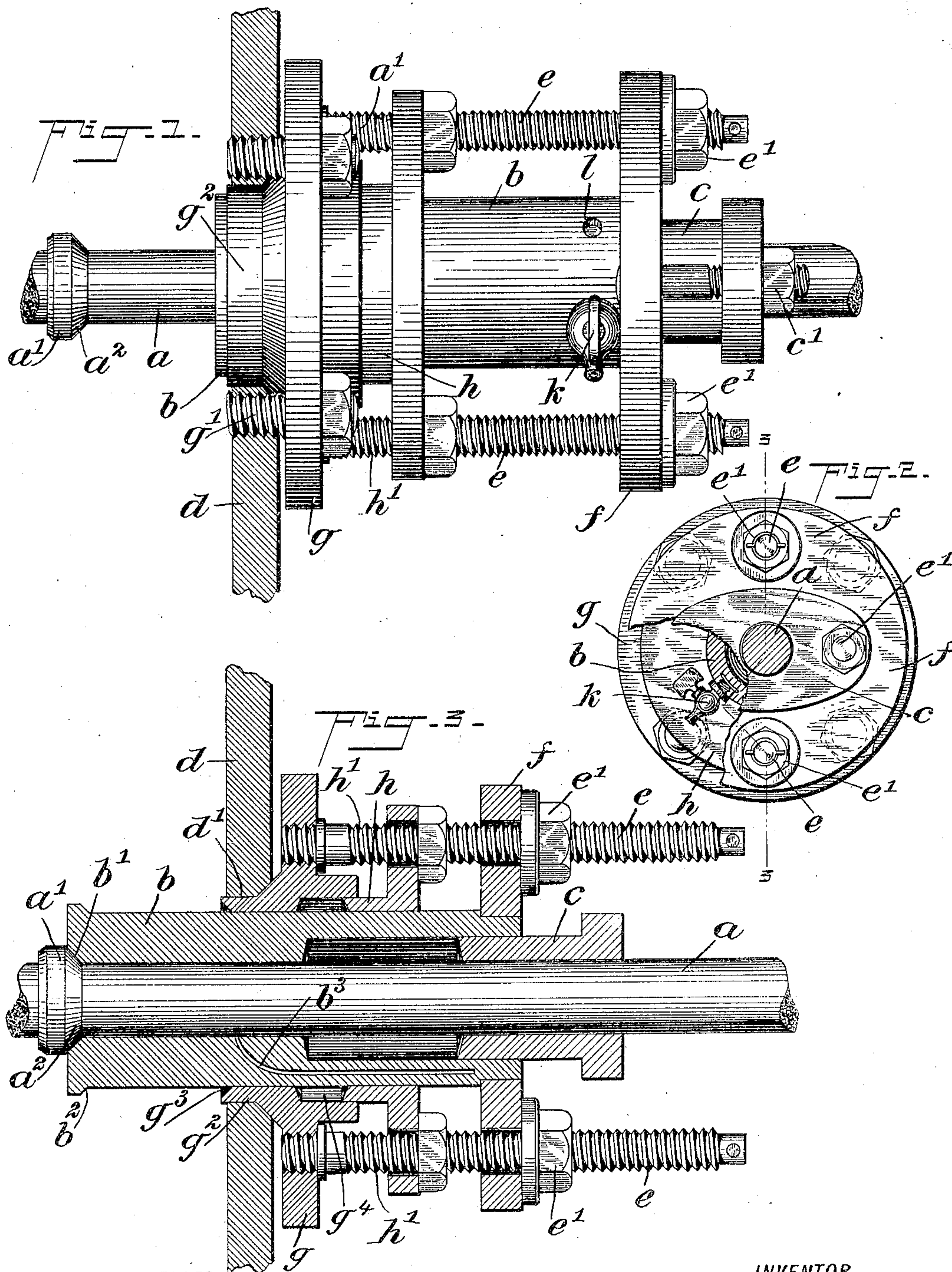


No. 793,461.

PATENTED JUNE 27, 1905.

R. L. MOSSMAN.  
STUFFING BOX.

APPLICATION FILED NOV. 8, 1904.



WITNESSES:

John H. Brachvogel.  
A. E. Fay.

INVENTOR

Roy L. Mossman

BY

Mumma  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

ROY LYNN MOSSMAN, OF NEWCASTLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FRANK C. SCHORNDORFER, OF NEWCASTLE, PENNSYLVANIA.

## STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 793,461, dated June 27, 1905.

Application filed November 8, 1904. Serial No. 231,909.

*To all whom it may concern:*

Be it known that I, ROY LYNN MOSSMAN, a citizen of the United States, and a resident of Newcastle, in the county of Lawrence and State of Pennsylvania, have invented a new and Improved Stuffing-Box, of which the following is a full, clear, and exact description.

My invention relates to stuffing-boxes. The chief object thereof is to provide for permitting the packing of stuffing-boxes while steam is on.

While my invention is capable of application in many ways, it is especially valuable for use upon locomotives. Under ordinary conditions if the throttle-stem packing blows out it is necessary to draw the fire and blow off the steam before the stem can be repacked. Others have attempted to overcome this objection heretofore; but their devices were open to the objection that the throttle had to be open while packing. Consequently the valve-rod had to be disconnected and the ports covered, so as to permit the opening of the throttle. Even with the ports covered the opening of the throttle is a risky operation when the steam is on, and it also requires considerable manipulation and consumes time. By my invention these objections are all overcome, as the stem can be packed while the throttle is shut. In attaining this object I employ a principle which can be applied in many useful ways to other forms of mechanism, as will be seen.

Further objects of the invention will be disclosed in the course of the subjoined description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a structure embodying the principle of my invention and showing it applied to the boiler-head sheet, which is shown in section. Fig. 2 is an end

elevation thereof, partly broken away, and Fig. 3 is a sectional view on the line 3 3 of Fig. 2.

The throttle-stem *a* is provided with a ring *a'*, having a valve-surface *a''*, preferably conical in shape. Upon the throttle-stem fits a main stuffing-box *b*, having a valve-seat *b'* for receiving the conical surface *a''*. The throttle-stem passes through this stuffing-box in the usual manner, and a packing-gland *c* is provided and secured to the stuffing-box in the well-known way by means of bolts *c'* or the like. Instead of being stationary, as usual, the stuffing-box is mounted to slide with respect to the boiler-head sheet *d*, and screws *e* are provided for moving it longitudinally. These screws pass through a yoke *f*, mounted upon the outside of the stuffing-box. The inner ends of these screws are secured in a plate *g*, which is in turn secured, by means of bolts *g'*, to the boiler-head sheet. It will be readily understood that by the turning of nuts *e'* the yoke *f* and stuffing-box *b* can be forced inward to a position such as that shown in Fig. 3, the gland *c* following the yoke *f*, to which it is secured.

The plate *g* is provided with a projection *g''*, which passes through an opening *d''* in the head-sheet and is provided with a seat *g'''* within the boiler. Near the inner end of the stuffing-box is a conical valve-surface *b''*, which is adapted to engage with the seat *g'''*, so as to prevent the passage of steam through the joint between the stuffing-box proper and the projection *g''* when the stuffing-box is in its outermost position. The collar *g* is also provided with a chamber *g''''*, which constitutes a second stuffing-box and is provided with a gland *h*. This gland is adjustably fixed with respect to its stuffing-box by means of bolts *h'* or the like. A passage *b'''* leads from the interior of the stuffing-box *b* to a petcock *h*.

The operation of the device will be readily understood. When it is desired to pack the main stuffing-box, the nuts *e'* are screwed up,



so as to force the parts into the position shown in Fig. 3. In this position the seat  $b'$  is forced into operative connection with the valve  $a^2$ . This prevents the steam from blowing into the main stuffing-box. The stuffing-box  $g^4$  also prevents steam from blowing out around the outside of the main stuffing-box. By turning the petcock  $k$  the operator can determine whether the valve  $a^2$  is firmly seated or not, as if it is no steam will pass through the cock from the passage  $b^3$ . The gland  $c$  can then be removed and the box packed in the usual way. After the replacement of the gland the nuts  $e'$  can be unscrewed and the pressure of steam on the inner face of the box will force it out into the position shown in Fig. 1. In this position the valve  $b^2$  will be seated on the seat  $g^3$ , so as to prevent steam from passing into the box  $g^4$ . The gland  $h$  can then be removed and that box packed without danger of steam passing through it, and all parts will then be ready for use. The stem  $a$  can be rotated while the valve  $a^2$  is on its seat  $b'$ , so as to remove scale and grind the two surfaces together to form a steam-tight joint. All these operations can be performed while the steam is on the engine and while the throttle is shut. Therefore the valve-rods do not have to be disconnected nor the ports covered. Furthermore, it is not necessary to swivel the throttle-stem to provide a means for grinding the seat of the valve  $a^2$ , as it can be done by the use of a spanner-wrench applied to a hole  $l$  in the box  $b$ . The valve-seat  $g^3$  can also be ground in the same manner. The outside stuffing-box  $g^4$  can be packed at any time while the engine is in service, as the seat  $g^3$  prevents steam from blowing into it except when the parts are in the position for packing the other box.

While I have described my invention with particular reference to its application to a locomotive, it will be readily understood that it can be used in other connections and that it may be embodied in other forms without departing from the spirit thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a stem having a ring thereon, of a stuffing-box having a seat for said ring and a passage for the stem, a gland for said stuffing-box, and a collar in which said stuffing-box is slidingly mounted, said stuffing-box being provided with a valve-surface near its inner end, and said collar being provided with a valve-seat therefor.

2. The combination with a stem having a valve thereon, of a main stuffing-box provided with a passage for the stem, a seat for the valve and a gland, and a second stuffing-box mounted on the outside of the main stuffing-box and provided with a valve-seat, the main

stuffing-box being provided near its inner end with a valve for said last-mentioned seat.

3. The combination with a stem having a ring-valve thereon, of a stuffing-box having a seat at its inner end for said valve, a passage for said stem and a passage from said first-mentioned passage to the exterior of the stuffing-box, a cock connected with said last-mentioned passage, a collar in which said stuffing-box is slidingly mounted, and means for preventing the exit of steam between the collar and the box.

4. The combination with a stem having a ring-valve thereon, of a stuffing-box having a seat for said valve and a passage for the stem, and a collar mounted on the outside of said stuffing-box and provided with a valve-seat, said stuffing-box also having a valve near its inner end for said seat, and means for moving the stuffing-box longitudinally within the collar.

5. The combination with the head-sheet of a boiler having a passage therethrough, of a collar mounted in said passage and provided with a valve-seat on its interior surface and a passage therethrough, a main stuffing-box removably mounted in said last-mentioned passage and provided with a valve-surface near its inner end adapted to seat on said valve-seat, said main valve also being provided with a valve-seat on its inner end, and a throttle-stem passing through said main stuffing-box and provided with a valve adapted to be seated on said last-mentioned seat, said collar being provided with a stuffing-box fitting the exterior of said main stuffing-box.

6. The combination with the head-sheet of a boiler having a passage therethrough, of a collar mounted in said passage and provided with a valve-seat on its interior surface and a passage therethrough, a main stuffing-box removably mounted in said last-mentioned passage and provided with a valve-surface near its inner end adapted to seat on said valve-seat, said main valve also being provided with a valve-seat on its inner end, a throttle-stem passing through said main stuffing-box and provided with a valve adapted to be seated on said last-mentioned seat, said collar being provided with a stuffing-box fitting the exterior of said main stuffing-box, and means for moving said main stuffing-box longitudinally, whereby either the valve on the main stuffing-box or the valve on the throttle-stem can be brought to its seat.

7. The combination with a stem, of a stuffing-box having a passage therefor and a passage from said first-mentioned passage to the exterior of the stuffing-box, and a cock communicating with said last-mentioned passage.

8. The combination with a stem, of a stuffing-box having a passage therefor and a pas-

sage from said first-mentioned passage to the exterior of the stuffing-box, a cock communicating with said last-mentioned passage, a collar in which said stuffing-box is slidingly mounted, and means for preventing the exit of steam or the like between the collar and box.

9. The combination with a stem, of a stuffing-box having a passage therefor, and a collar mounted on the outside of said stuffing-

box and provided with a valve-seat, said stuffing-box also having a valve near its inner end for said seat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 15

ROY LYNN MOSSMAN.

Witnesses:

I. P. DEAN,

F. C. SHORNDORFER