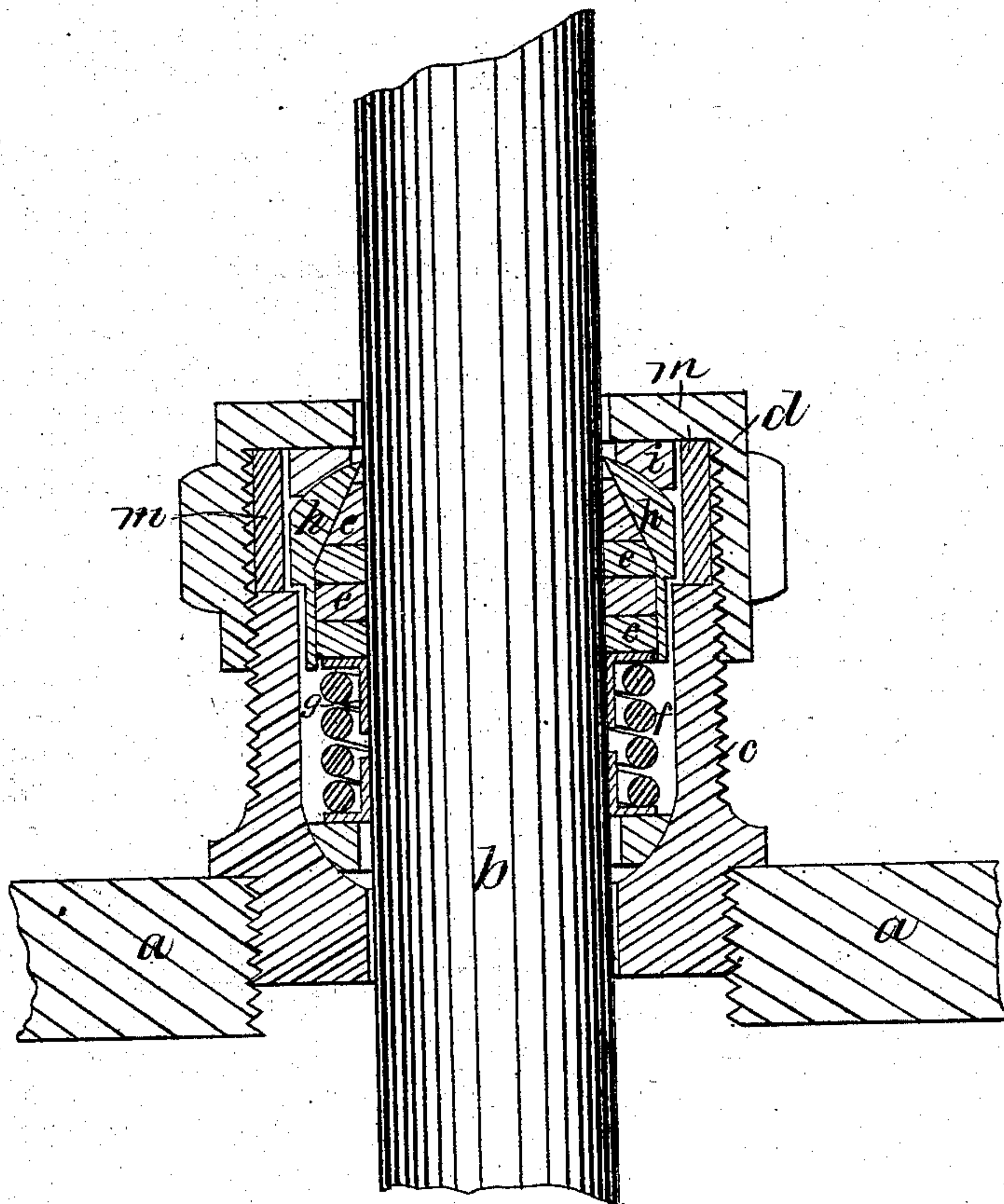


(No Model.)

J. A. OSGOOD.
METALLIC PACKING.

No. 274,816.

Patented Mar. 27, 1883.



WITNESSES

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JOSIAH A. OSGOOD, OF BOSTON, MASSACHUSETTS.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 274,816, dated March 27, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH A. OSGOOD, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Metallic Packing, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

My invention relates to the box by which a metallic packing for a reciprocating rod is attached to the cylinder-head or partition through which the said rod reciprocates, the object of invention being to enable a metallic packing to be substituted for the usual fibrous packing without alteration of the stuffing-box and gland in which the said fibrous packing has been previously contained.

A stuffing-box for fibrous packing consists of two portions, one fixed to the cylinder-head or partition and chambered to receive the fibrous packing, and the other acting as a follower to compress the said packing, and being movable relative to the said fixed portion. It will be seen that from this construction the chamber formed by the said two portions of the stuffing-box is of variable size, depending upon the amount of fibrous packing that is used, and also upon the amount of compression that is brought to bear on the said packing. It is also true that the joint between the said fixed and movable portions of the stuffing-box does not need to be tight, as the fluid has no access to the said joint, it being obstructed by the fibrous material that is in the chamber between the reciprocating rod and the fixed portion of the stuffing-box. When, however, a metallic packing is employed, the chamber in which it is located should be of definite size, the different portions of the packing co-operating with the walls of the said chamber, which also has to be, as a whole, steam-tight, since the metallic packing does not serve to prevent the passage of steam or other fluid into the packing-chamber, but only to prevent its escape from the said chamber through the opening through which the rod passes.

The present invention consists in the combination, with the metallic packing and the fixed and movable portions of the box to receive it, of a gaging and packing ring interposed between the said fixed and movable portions, whereby the movement of the latter is

definitely limited and a tight connection is formed between the said parts, thus forming a tight chamber of definite size to receive the metallic packing.

The drawing shows in longitudinal section a portion of a rod and cylinder-head or projection through which the said rod reciprocates, provided with a metallic packing and box therefor, embodying this invention.

The cylinder-head *a* and rod *b*, reciprocating therethrough, may be of any usual construction, the former having a box, *c*, fixed thereon, of larger internal diameter than the rod *b*, it having been intended to receive a fibrous packing or stuffing forced into the space between the said rod and box to form an obstruction for the passage of fluid. The said fibrous packing is compressed to a sufficient density by screwing the movable portion *d* of the box (shown as a threaded collar) down upon the fixed portion *c* of the box, threaded for the purpose, as shown. It will be seen that when the said box is used in this manner, in connection with fibrous packing, there is no definite limit to the distance, the collar *d* is screwed down on the box *c*, this depending upon the amount of fibrous packing contained in the said box and the amount of compression it is desired to give it; or, in other words, the space or chamber formed within the box is of variable size. It will also be seen that the tightness of the packing or prevention of the passage of the fluid does not depend upon the tightness of the threaded joint between the fixed portion *c* and movable portion *d* of the stuffing-box, as the obstruction to the passage of the fluid is located in the said box *c*, below the said joint.

When it is desired to use the said box in connection with metallic packing, as shown, the fibrous material is removed from the box *c* and the steam or other fluid has access to the interior of the said box. In this instance the metallic packing is shown as consisting of rings *e*, of soft metal, forced by the spring *f*, acting on a suitable follower, *g*, into a conical socket in the socket-piece *h*, having a spherical bearing in a bearing-piece, *i*, which has a plain bearing on the inner surface of the movable portion *d* of the box. By this arrangement the rings *e* are wedged tightly against the rod *b* to prevent the passage of fluid between them

and the said rod, and the socket-piece *h* and bearing-piece *i* have accurately-fitted surfaces pressed together and against a seat in the portion *d* of the box by the action of the spring *f*,
 5 and also by the fluid-pressure in the box *c*, to thus prevent the passage of vapor between the bearing-surfaces. It will be seen that with a packing of this kind, which forms no part of the present invention, the portion *d* of the box
 10 should be in fixed relation to the portion *c*, in order to make the said packing operate to the best advantage, and it cannot be screwed down indefinitely without injury to the said packing, as is the case when fibrous packing is employed.
 15 It will also be seen that the said metallic packing serves only to prevent the escape of the fluid from between the rod and the opening through the portion *d* of the box through which the rod passes, and that since the said fluid
 20 occupies the interior of the said box it is necessary that the box *c d*, as a whole, should be tight, or, in other words, that all escape should be prevented at the threaded joint between the movable portion *d* and the fixed portion *c* of
 25 the said box. This is effected, in accordance with the present invention, by means of the packing and gaging ring *m*, preferably made of somewhat malleable metal—as copper—it being interposed between the end of the fixed
 30 portion *c* of the box and the inner surface of the movable portions *d* thereof. The said packing and gaging ring thus enables the movable portion *d* to be screwed down upon the fixed portion *c* of the box as tightly as is consistent
 35 with the strength of the screw-threads, and it serves not only to regulate the distance between the surface of the movable portion *d* and the end of the fixed portion *c*, to thus form a chamber of the proper size for the metallic
 40 packing, but also effectively packs the threaded joint between the said portions *c d*, prevent-

ing the access of steam thereto and its escape therefrom.

By means of this invention it is possible to provide packings that will fit the stuffing-boxes 45 of a series of engines or cylinder-heads that have been made of uniform size, and apply the said packings without any alteration in the said stuffing-boxes, which effects a great saving when it is desirable to provide a large num- 50 ber of engines of uniform construction with metallic packing in place of stuffing-boxes and fibrous packing.

It is obvious that the invention is equally applicable to stuffing-boxes in which the gland 55 or movable portion of the box has been pressed down by means of bolts instead of by the threaded joint, as herein shown. The packing and gaging ring might then be inserted between the end of the fixed portion of the stuff- 60 ing-box and the flange of the gland. By the employment of the ring *m* the box *c d* becomes practically a single chamber having unbroken walls to retain the fluid, and of fixed unchangeable size for the reception of metallic packing. 65

I claim—

The combination, with the metallic packing, of the box to receive it, consisting of fixed and movable portions and the rigid gaging and packing ring interposed between them, where- 70 by the chamber within the box is gaged to definite proper size and the joint between its two portions is tightly packed or sealed, substantially as and for the purpose set forth.

In testimony whereof I have signed my name 75 to this specification in the presence of two subscribing witnesses.

JOSIAH A. OSGOOD.

Witnesses:

JOS. P. LIVERMORE,
 FRED A. POWELL.