

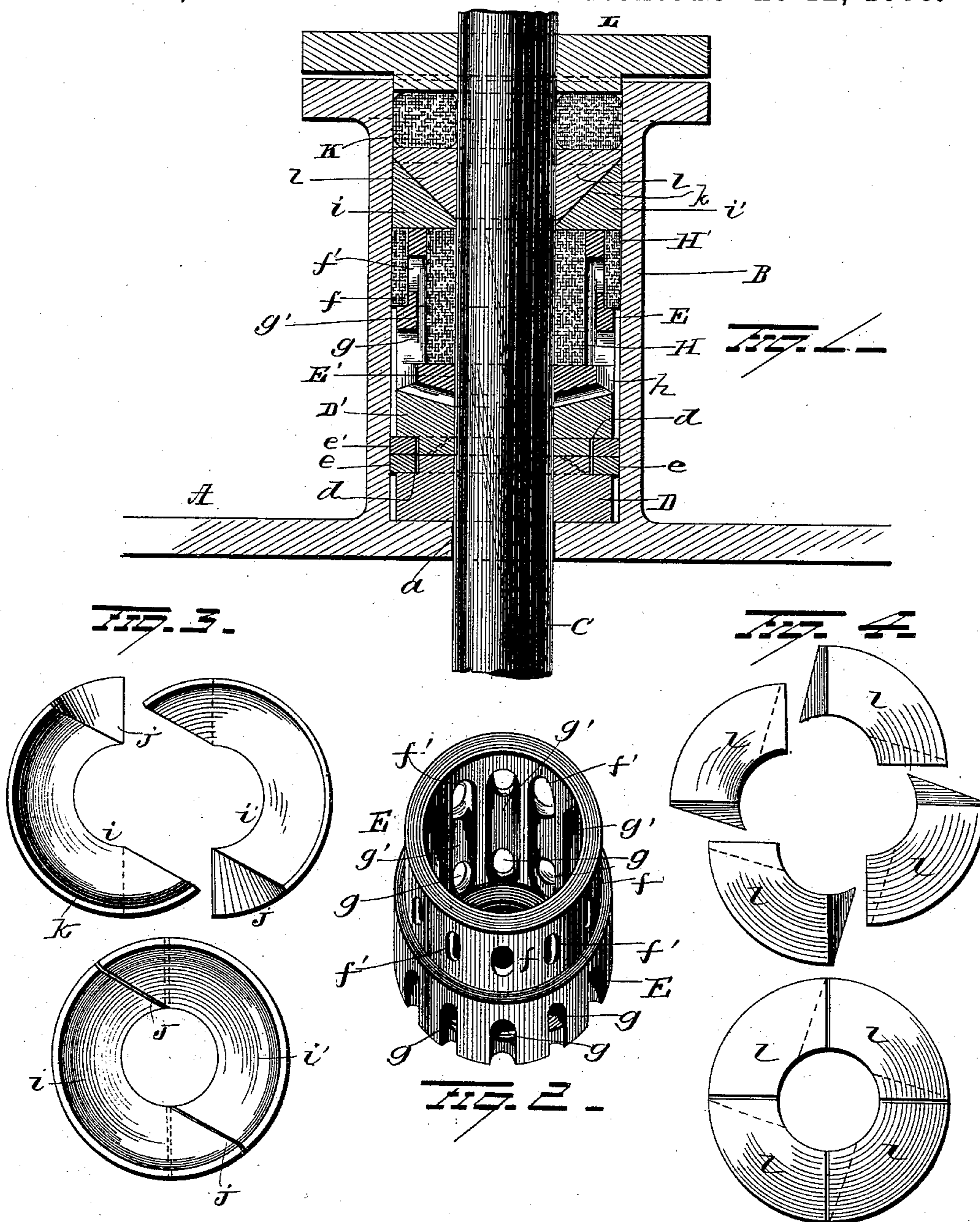
(No Model.)

A. H. CLARK.

STUFFING BOX.

No. 384,424.

Patented June 12, 1888.



Witnesses  
 E. Nottingham.  
 G. F. Downing.

Inventor,  
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By his Attorney,  
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# UNITED STATES PATENT OFFICE.

ALEXANDER H. CLARK, OF FOND DU LAC, WISCONSIN.

## STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 384,424, dated June 12, 1888.

Application filed September 23, 1887. Serial No. 250,510. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER H. CLARK, of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Stuffing-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in stuffing-boxes.

The object is to provide a packing-cylinder in connection with a stuffing-box of such construction that live steam may enter it, and by its expansion therein be automatically prevented from escaping through the box by means of its expansive action on certain elastic rings; and with this end in view the invention consists in a hollow packing-cylinder having elastic material inside and outside, adapted to be expanded to form a tight joint between the piston-rod and packing-box by the action of steam between these elastic rings.

It further consists in a collection and arrangement of metallic lap-jointed rings of such construction as to automatically pack the box even when they become worn in their interior.

It further consists in certain features of construction, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through a stuffing-box and piston-rod, showing my improved packing mechanism connected therewith. Fig. 2 is a detached view of the packing-cylinder. Fig. 3 shows one of the split spring packing-rings, and Fig. 4 shows the sectional lap-joint metallic rings.

A represents one head of a cylinder, having the stuffing-box B rigidly secured thereto and formed integral therewith, the opening *a* being formed through its axial center for the passage of the piston-rod C. A pair of rings, D D', are adjacent to each other, and have an annular recess, *d*, on their contiguous faces adapted to receive the split spring-rings *e e'*. The rings, by virtue of their spring action, impinge against the inner wall of the stuffing-box, their split portions being opposite each other, and thus, with their united action and

that of rings D D', limit to a certain extent the free entrance of steam into the stuffing-box. These rings D D' are similar in shape, except that the ring D' is beveled on one face.

A skeleton packing-cylinder, E, slides longitudinally into the stuffing-box, and one of its ends is beveled and adapted to be seated in the beveled face of the ring D'. This cylinder has an annular recess, *f*, formed on its exterior, and perforations *f'* are formed in this portion. Similar perforations, *g*, are formed in the main portion of the cylinder, and the two sets are connected by grooves *g'* in the interior of the cylinder, while grooves *h* pass from perforation *g* around the end of the cylinder to the opening E' for the piston-rod. Filling the interior space between the rod and the cylinder is the elastic or textile material, H, and a similar band, H', is seated in and fills the recess *f*. Thus continuous spaces or ducts are formed for steam escaping into the box to pass between the textiles, expand them, and thereby always insure a tight joint or fit between the packing and piston-rod to compensate for any wearing away of the parts.

A sectional metallic ring, preferably formed in similar half-sections, *i i'*, is connected by lap-joints *j*. These sections are preferably of lead or Babbitt metal, and adapted to be seated on the packing-cylinder and around the piston. One face of this sectional ring is beveled on the inside, *k*, and within this beveled portion the bevel-shaped metallic ring *l* is seated. The latter-mentioned ring is also of lead or Babbitt metal, and consists of four similar pieces, the object of this particular formation of rings being that they automatically slide into close contact with the piston-rod, compensating for wear by sliding closer together, and hence closer about the piston-rod. Outside of these sectional rings the textile or elastic ring K is located, and a follower, L, enters the stuffing-box, holding the packing in place, the two being held together with draw-bolts in the usual fashion.

While my improved packing-box is applicable to use in any places where packing is needed, it is also particularly applicable to steam-feed engines for saw-mills in driving and reversing the carriage.

It is evident that slight changes might be

resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the particular construction herein set forth; but,

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

1. The combination, with the stuffing-box and a piston-rod extending centrally through the same, of a hollow packing-cylinder located within the stuffing box and having perforations and connecting-ducts therein and elastic packing inside and outside, and automatically-adjustable packing-rings adjacent to the opposite ends of the packing-cylinder, substantially as set forth.

2. The combination, with a stuffing-box and a piston-rod extending centrally through the same, of a hollow packing-cylinder located within the stuffing-box and provided with perforations and connecting-ducts therein and flexible packing inside and outside, and automatically-adjustable packing-rings at the opposite ends of the cylinder, one set of these rings being formed in sections of lead or Babbitt metal, and a flexible ring on the outside of said metallic sectional rings, substantially as set forth.

3. The combination, with the stuffing-box and piston-rod extending centrally therein, of a removable hollow packing-cylinder constructed in a single shell with a recessed portion, and having perforations through the main and recessed portions, and ducts or chambers connecting these perforations in the interior of the cylinder, and also chambers or ducts extending around one end of the cylinder and connecting the perforations in the main portion with the opening through the middle of the cylinder, substantially as set forth.

4. A hollow recessed packing-cylinder beveled at one end, and having perforations through its main portion, and also through the recessed portion, and ducts in the interior connecting the perforations, and also ducts on the exterior connecting the perforations in the main portion of the cylinder with the piston-rod opening, substantially as set forth.

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

ALEXANDER H. CLARK.

Witnesses:

PETER V. SANG,  
ANDREW J. DECKER.