(No Model.)

H. G. HAMMETT.

PACKING FOR BALANCED VALVES.

No. 382,300. Patented May 8, 1888.

FIG. 1.

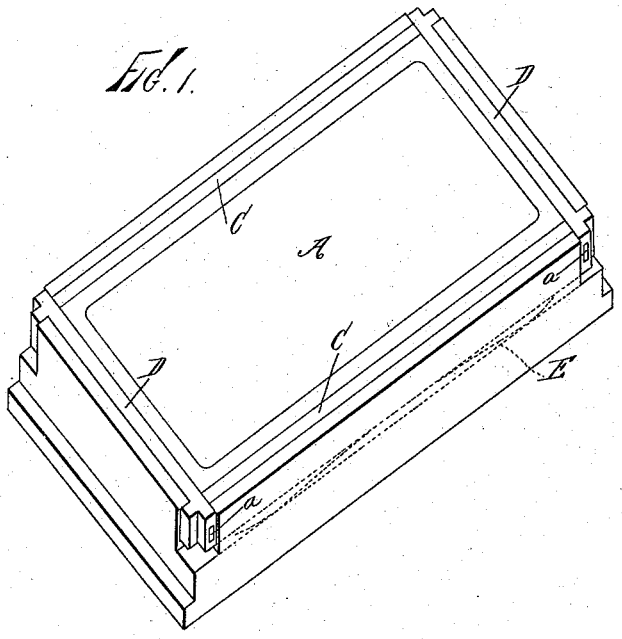


FIG. 2.

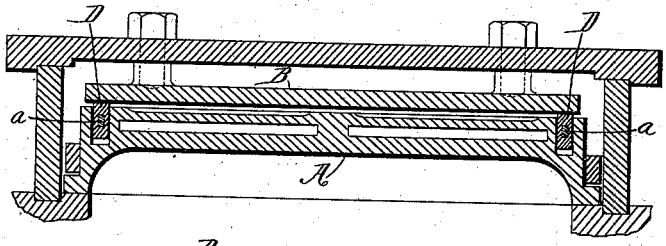


FIG. 3.

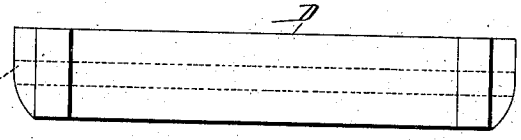


FIG. 5.

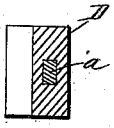
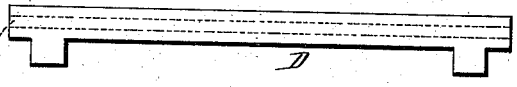


FIG. 4.



Witnessed
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UNITED STATES PATENT OFFICE.

HIRAM G. HAMMETT, OF TROY, NEW YORK.

PACKING FOR BALANCED VALVES.

SPECIFICATION forming part of Letters Patent No. 382,300, dated May 8, 1888.

Application filed December 17, 1887. Serial No. 258,146. (No model.)

To all whom it may concern:

Be it known that I, HIRAM G. HAMMETT, of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Steam-Packing for Balanced Slide-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates especially to the construction of packing-strips, such as are employed in some forms of steam-engine valves; but my improved packing-strip may be employed in connection with other moving valves, whether for governing steam or any other fluid or liquid under pressure.

The object of my invention is to provide a packing-strip which, in addition to the usual qualities or characteristics of such strips, shall possess the further advantage that if broken or cracked or damaged in use it will not injure the valve or its seat, or the wearing or bearing plate, or any of the parts, and which will cost very little more than the ordinary forms of packings. To accomplish this object my improvement involves a novel and useful form of packing-strip, which will be herein first fully described, and then pointed out in the claim.

In order to illustrate the construction and operation of my device, I have shown at Figure 1 of the accompanying drawings an isometric view of one form of valve (a balanced steam-engine valve) on which the improved strip is applied. Fig. 2 is a sectional view of the valve, showing also the bearing or wearing plate against which the strips are held in contact, which plate is commonly known as the "balance-plate." Fig. 3 is a side elevation, Fig. 4 a plan, and Fig. 5 a cross-section, of one of the packing-strips detached from the valve, the same being constructed in accordance with my invention and involving my improvements.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

A represents a valve having the packing-strips applied therein, and B the balance-plate, or plate against which the strips wear. The valve and plate are of the general form shown in the patent granted to Fred W. Richardson October 31, 1882, No. 266,721. In this form the strips operate to exclude live steam from the top of the valve, being firmly pressed against the balance-plate by steam, which finds admission beneath the strips. This exclusion of steam balances the valve in a manner that need not be here explained.

In the form shown, C C are the side strips and D D the end strips, shaped to fit channels cut for them in the top of the valve. The balance-plate and the valve are of cast metal, and obviously all portions of the strips exposed to any wear should be of the same metal to insure uniformity of wear and of expansion or contraction.

These packing-strips, as heretofore made, and especially the end strips, sometimes crack under various strains and shocks to which subjected, due to vertical movements of the valve, and when so cracked they may cock up, causing a cutting of the balance-plate, or become dislodged from their seats, pieces entering the ports and otherwise causing much damage before the engine can be stopped—damage which it is sometimes difficult and expensive to repair. To obviate this and to keep the parts of the strips together with their wearing-surfaces always in line, no matter where they may be cracked or broken, and at the same time preserve the desirable wearing qualities, I cast the strips around a central bar or rod of wrought metal which cannot crack or break. This affords the desired permanency of the whole, and in no way interferes with the wearing qualities.

The strip is represented at *a*, and is preferably of soft iron. I have found that merely uniting the cast metal with the wrought-metal strip or core will not succeed unless care be taken to produce a perfect union between the two qualities or kinds of metal. First polishing and then turning the wrought-metal strip will enable it to unite properly with the cast metal. A less perfect union may be effected after first chalking the wrought strip. Other methods may be adopted. In the style of valve shown the side packing-strips are not so liable to be broken as the end strips. Under some circumstances the side strips need not be provided with the interior core, while under others they should be. The end pieces are made in the form of gibs, so that they will be held and at the same time hold the others in place as the valve travels. Springs, as E, may be

placed under the strips to hold them normally against the balance-plate.

As before intimated, the improved packing-strips may be employed in other forms of slide-valves where subjected to strains tending to break them.

When constructed in accordance with the foregoing explanations, the improved strip has been found to admirably answer the purposes or object of the invention.

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

The herein-described packing-strip for steam and other balanced slide-valves, the same consisting of a cast-metal exterior and a wrought-metal core united therewith, substantially in the manner and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

HIRAM G. HAMMETT.

Witnesses:
JOHN BUCKLER,
WORTH OSGOOD.