

(No Model.)

T. CRABTREE.
METALLIC PACKING.

No. 545,580.

Patented Sept. 3, 1895.

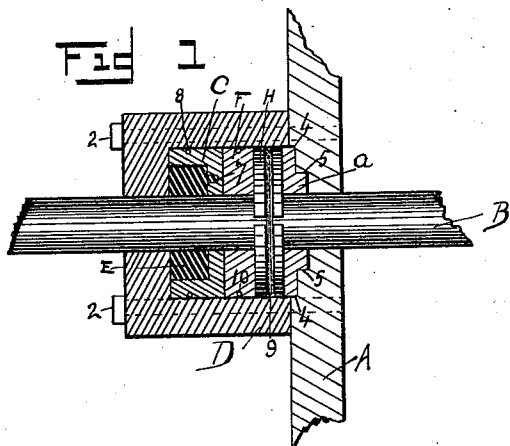


Fig 2

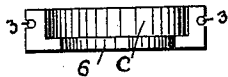


Fig 3

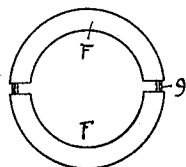
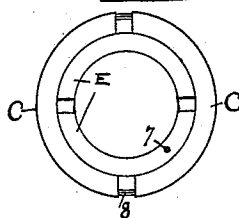


Fig 4



WITNESSES:

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THOMAS CRABTREE, OF McCOOK, NEBRASKA.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 545,580, dated September 3, 1895.

Application filed November 15, 1894. Serial No. 528,946. (No model.)

To all whom it may concern:

Be it known that I, THOMAS CRABTREE, residing at McCook, in the county of Red Willow and State of Nebraska, have invented certain useful Improvements in Metallic Packing; and I do hereby declare that the following is 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, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to a new and novel improvement in metallic packing. This improved packing is more especially adapted to be used in connection with piston-rods.

In the accompanying drawings, Figure 1 shows a central sectional view, with parts broken away, of my improved metallic packing as applied to a piston-rod, while Figs. 2, 3, and 4 show detached detail views of the same.

A represents the broken front portion of an ordinary cylinder-head provided with the usual opening to accommodate the piston-rod B. Secured to the piston-head, and preferably upon the outer forward edge, is a preferably rectangular metallic housing D. This housing is secured to the cylinder-head A by means of bolts 2. This housing D is provided with a central opening through which the piston-rod B works. Surrounding the piston-opening I prefer providing the cylinder-head A with a dished opening of preferably two diameters, as is shown at 4 and 5 in Fig. 1. Within this opening I place an ordinary packing-ring *a*, which may be of metal or any other suitable material or composition. Within the hollow housing D is contained my improved metallic packing, comprising three rings in section and held together by suitable springs. The first or principal packing-ring comprises the dished ring C, which is in two parts, one of which is shown in Fig. 2. This ring has an annular groove 3, to accommodate a suitable spring, and a central opening 6, through which the piston-rod B is made to pass. Working within this sectional ring C, which is preferably composed of two parts, is a two-part metallic packing-ring E, which is preferably provided

with a pin 7, working in a suitable opening within one of the half-sections C of the dished packing-ring. A spring 8 encompasses the dished ring C and normally tends to force these two sectional rings C C against one another. The inner rings E, however, are also in two parts, and both sectional rings E and C are so made that when they encompass the piston-rod B there is considerable space between the ring-sections, as is shown in Fig. 4, so that as this packing wears it will be gradually bound upon the piston and so take up this wear, preventing an opening. It will be noticed that a perfectly clear binding space or surface is presented by means of this duplex packing-ring C E, as the openings between the ring-sections E E are closed by the solid portions of the rings C, while the outer openings of the packing-rings C are of course closed by the solid portions of the sectional rings E. The pin 7 prevents these rings E from shifting, so that the two openings cannot come opposite one another and so permit the escape of steam. To escape the steam would have to pass along the piston and then between the face of the two packing-rings, and finally escape between the inner and outer edges of these two packing-rings. The spring aids, of course, to normally hold these rings together. To further increase the tightness and efficiency of the packing I provide the sectional packing-rings F and H. (Shown in Fig. 1 and in detail in Fig. 3.) These rings are identical in that they are composed of two sections, each section being less than half a circle and being provided with a circumferential groove within which is held a spring 9, normally tending to close these two ring-sections. These sections are placed within the housing D, so that the removed portions lie ninety degrees from one another, so that a solid wearing surface is presented by the combined rings F and H to the piston B, but which wearing surface is, of course, permitted an adjustment, as it were, in that as it is worn the spring closes these rings and so continues to bind them one upon the other. It is of course understood that these interior rings C, F, and H are preferably made of Babbitt metal or some other anti-friction material such as is used in stuffing-boxes.

It will be noticed by the arrangement of the instrumentalities that I have provided a stuffing-box encompassing a cylinder-rod, which cylinder-rod is encompassed by four sectional rings. Each of these sectional rings is of a diameter somewhat less than half a circle, and all four of these sectional rings are spring-actuated, so that a wearing or face surface is presented to the piston-rod, which automatically adjusts itself to the diameter of the piston-rod. The instrumentalities are, further, exceedingly simple of construction, inexpensive, and can be readily inserted or removed by simply unthreading the bolts 2 and then removing the housing D, when any one or all of the metallic packing-rings can be removed or placed upon the piston-rod.

Now, having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

In a metallic packing, the combination of the following instrumentalities, to wit: the housing D adapted to receive an ordinary piston rod, of the packing ring, A the principal two-part dished packing ring C, said ring having an annular groove 3, and a central opening 6, the two-part metallic packing E, said ring being provided with the pin 7, the spring 8 encompassing the dished ring C, the sectional packing rings F and H, each section being less than half a circle and being provided with a circumferential groove, and the spring 9 within said groove, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS CRABTREE.

Witnesses:

J. P. LEE,

JAMES I. LEE.