

T. TRIPP.
METALLIC PACKING.

No. 490.051.

Patented Jan. 17, 1893.

Fig. 1.

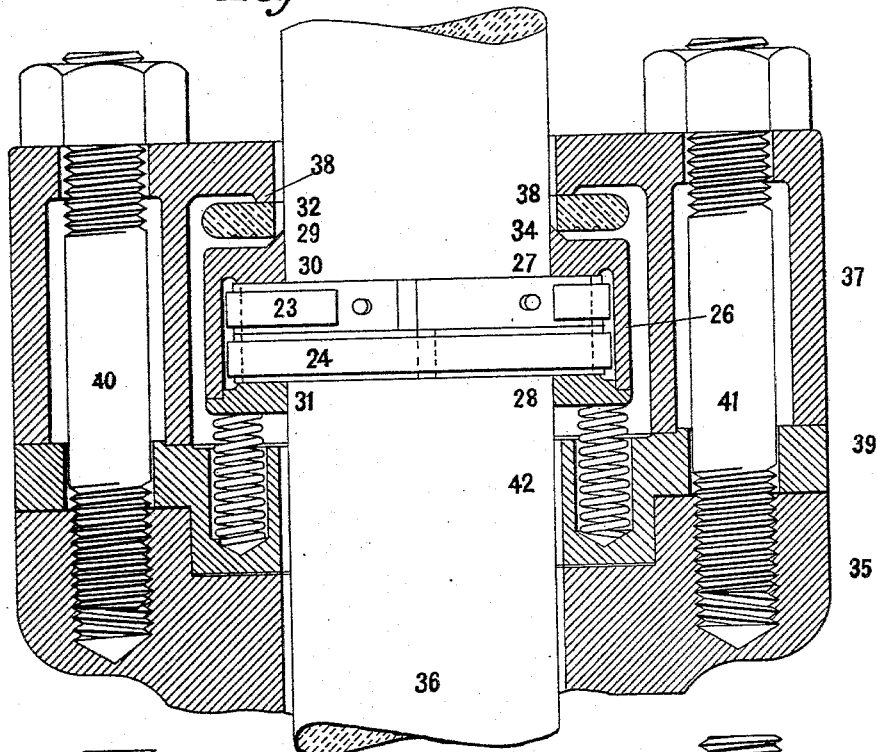
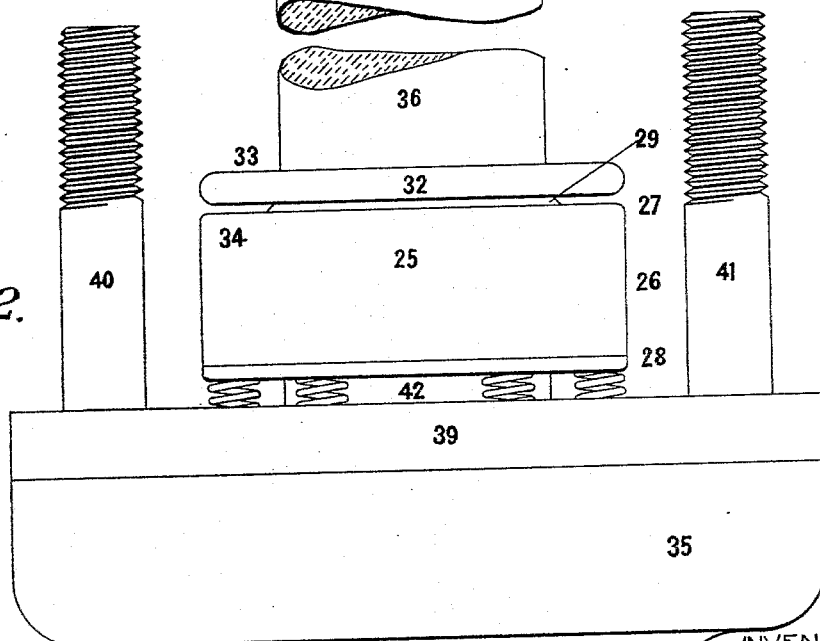


Fig. 2.



WITNESSES.

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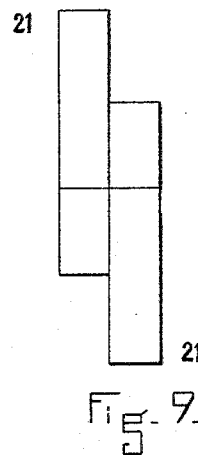
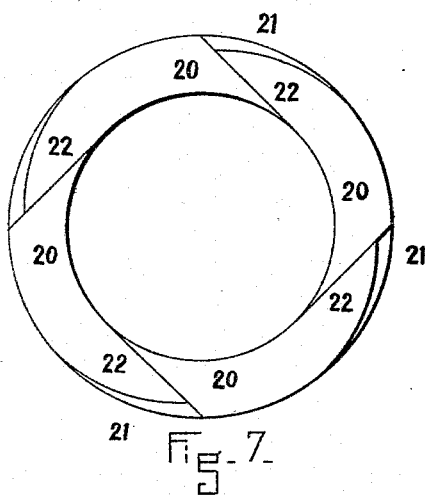
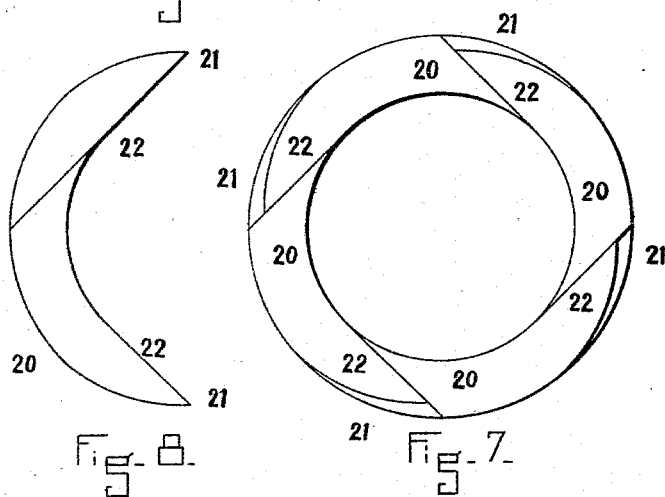
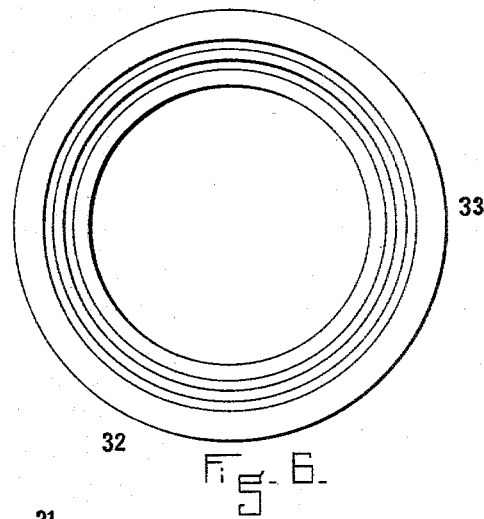
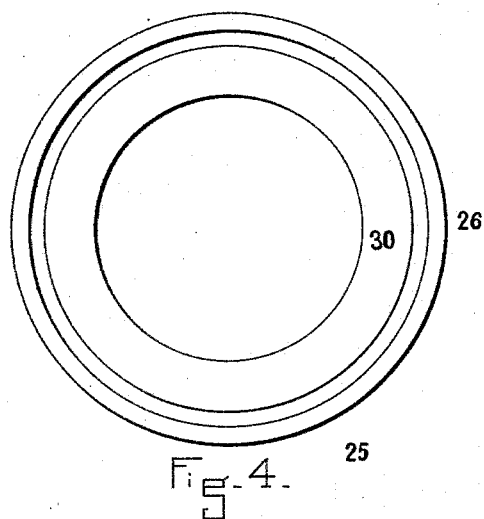
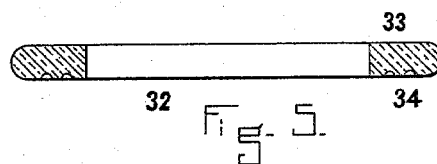
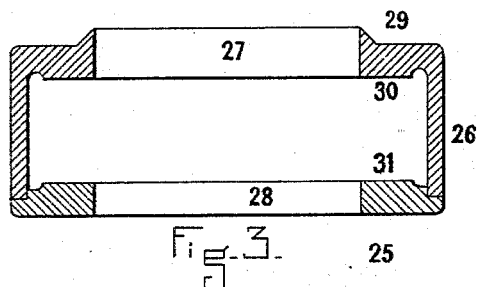
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

THOMAS TRIPP, OF AVON, MASSACHUSETTS.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 490,051, dated January 17, 1893.

Application filed June 13, 1892. Serial No. 436,583. (No model.)

To all whom it may concern:

Be it known that I, THOMAS TRIPP, a citizen of the United States, residing at Avon, in the county of Norfolk, in the State of Massachusetts, have invented a new and useful Metallic Packing and Case, of which the following is a specification.

My invention relates to metallic packing and case designed for use upon pump plungers, piston rods, and the like; and it is especially designed for use in places where high pressures of steam and of other gases or fluids are used.

It has for its object:—The relieving of the pressure of the packing against the rod; the relieving of the pressure upon the packing itself; the inclosure of the packing within the case, in such a manner, as to greatly increase its efficiency and durability. The construction of the packing being such as will permit its being handled readily and safely. The construction of the packing and its case and the mode of application being such as will insure the highest economical results, and it is designed as an improvement upon my invention, as shown and described by application for United States Letters Patent, filed June 4, 1892. Serial No. 435,553.

Figure 1 represents the packing and case as applied to the piston rod of a steam engine, the packing, piston rod, spiral springs, gland bolts being shown in elevation, the gland, outer case, inner case, and cone joint ring being shown in central section. Fig. 2 is a full view, in elevation, of Fig. 1, the gland bolt nuts and outer case being removed to show more clearly the inner case and cone joint ring. Fig. 3, shows the inner case in central section, and Fig. 4, represents, in full inverted plan, the upper portion of the inner case as shown by Fig. 3. Fig. 5, shows the cone joint ring in central section, and Fig. 6, represents in full inverted plan, the cone joint ring as shown by Fig. 5. Fig. 7, represents, in plan, the metallic packing, shown in elevation in Fig. 1. Fig. 8, represents, in plan, one of the packing pieces, and Fig. 9, represents, in side elevation, one of the packing pieces.

The packing, represented by Figs. 7—8 and 9 and shown in elevation in Fig. 1 (which may

be composed of any even number of packing pieces, four or more in number) is composed of four like packing pieces, and it is constructed as follows:—Each packing piece 20, 55 is made in the manner shown by Figs. 8 and 9 and is composed of two segmental portions, preferably cast together as one piece, one portion slightly overlapping the other. The interlocking fingers 21, are cut back as represented in order to prevent the projecting of the fingers beyond the outer circumference of the packing, as the packing pieces advance toward the rod, when in use, to compensate for wear. The interlocking surfaces 22 are 65 so made that opposite surfaces are parallel, and the packing is bored to fit the rod. When the packing pieces are assembled, as shown by Fig. 1, they are held in contact with the rod by the use of the springs 23 and 24. The 70 inner case 25, represented by Figs. 3 and 4, and shown in Figs. 1 and 2, is constructed as follows:—The shell or cylindrical portion 26 is provided with the head 27, and they are preferably cast together. The follower 28 75 forms the lower head, and both heads are bored to fit the piston rod. The head 27 is provided with the cone 29.

The cylindrical portion of the case is sufficiently large to receive loosely within it the 80 packing as shown by Fig. 1. The case is provided with the joint surfaces 30 and 31 and the packing is designed to fill the space between these surfaces.

The cone joint ring 32, represented by Figs. 85 5 and 6 and shown in Figs. 1 and 2, is provided with the joint surface 33 the roughened surface 34.

Figs. 1 and 2, illustrate the application of the packing and case to the piston rod of an 90 engine. The gland 35 and rod 36 being of an ordinary construction and arrangement. The double outer case 37, provided with the joint surface 38, and base portion 39, is securely and tightly bolted to the gland by 95 means of the gland bolts 40 and 41. The base portion is provided with the set of spiral springs 42, as shown.

The metallic packing is assembled and applied as shown by Figs. 1 and 2, as follows:— 100 The base portion of the outer case provided with the spiral springs is first fitted to the

gland, the inner case containing the packing is then placed on the rod, the cone joint ring is placed in its position, and finally the outer case is bolted to the gland.

5 The following are some of the special points of construction and arrangement: These should be, as shown, annular spaces left between the rod and the gland, and joint ring and outer case, to permit the slightly irregular
10 movements, in operation, of the piston rod, and for the same reason, an annular space should be left between the inner and outer cases. The spiral springs should be of a strength sufficient to keep the cone joint
15 tight between the cone, on the inner case, and the cone joint ring, also, to keep tight, the joint between the cone joint ring and joint surface of the outer case. The packing should be fitted between the joint sur-
20 faces of the inner case, in a manner similar to the fitting of piston rings of common type. By the use of the cone joint, any slight tipping of the inner case will not particularly affect the tightness of the cone joint. The
25 cone joint ring in operation, when under pressure is out of balance only to the extent of the area of the ring in contact with the joint surface of the outer case which is made so as to present a small joint surface area.
30 The springs around the packing should be only of a strength sufficient to keep the packing in contact with the piston rod.

Among the many advantages possessed by my device, in operation, may be found the
35 following: The packing being fitted into the practically steam tight inner case, it is relieved, wholly or in part, from steam pressure, therefore it is free to operate, as a packing, without being subjected to the strains and
40 pressure, to which it would be subjected, if the packing were exposed, as is usually the case with this class of packing, to the full pressure of the steam. The result is, that the
45 friction of the packing against the rod is greatly reduced, and the packing will wear a long time, thereby producing highly economical results. And at the same time the packing is not subjected to wear, due to the ac-
50 tion of the spiral springs, by reason of its being inclosed in the inner case. All or nearly all of the pressure exerted by the spiral springs and steam to keep the cone joint tight is borne by the inner case, the packing not being affected.

55 The construction of the cone joint and cone joint ring is such that the highest results are obtained, for reasons, previously specified.

The packing, being inclosed in the inner case, may be readily and safely applied, re-
60 moved, and handled.

The packing, by reason of its interlocking construction may be made quite narrow, thereby occupying very little space, without affect-
65 ing its efficiency.

In some cases, especially where the pack-

ing is of considerable size, the cone joint may be dispensed with.

It is obvious, that other forms or styles of metallic packing than that shown and de-
scribed, may be used, in connection with the
70 inner case, with advantageous results.

For special purposes, the spiral springs, cone joint, and cone joint ring may be dis-
pensed with and the inner case may be fitted
75 within the outer case, same as the metallic packing is fitted within the inner case.

What I claim as new and desire to secure by Letters Patent is—

1. In a steam packing, the combination of an outer case, a steam tight inner case dis-
posed in said outer case and movable later-
ally therein, and provided with an annular
cone joint on one face, a cone joint ring dis-
posed in said outer case between a joint sur-
85 face thereon and said cone joint, and a pack- ing disposed in said inner case, substantially as set forth.

2. In a steam packing, the combination of an outer case, an annular steam tight inner case disposed in said outer case and movable
90 laterally therein, springs disposed in said outer case and bearing against said inner case, a packing disposed in said inner case, and springs within said inner case for forcing the packing into contact with the wear-
95 ing surface.

3. In a steam packing, the combination of an outer case, having a downwardly project-
ing lip provided with a joint surface, a steam
tight inner case disposed in said outer case
100 and movable laterally therein, and provided with an annular cone joint on one face, a cone joint ring, disposed in said outer case between said lip and said cone joint, and a packing disposed in said inner case.

4. In a steam packing, the combination of an outer case, an annular steam tight inner case disposed in said outer case and movable
therein, and a packing within said steam
tight inner case, said packing being composed
110 of an even number of packing pieces, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, the interlocking faces of
said packing pieces being parallel on oppo-
115 site sides of the packing, substantially as set forth.

5. In a steam packing, the combination of an outer case, a steam tight inner case dis-
posed in said outer case and movable later-
ally therein, and a metallic packing disposed
120 in said inner case and movable therein, sub-
stantially as set forth.

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

THOMAS TRIPP.

Witnesses:

E. FRANK. WOODBURY,
CHARLES L. ELLIS.