

J. E. OSMER.
 AIR BRAKE PISTON PACKING EXPANDER.
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1,033,116.

Patented July 23, 1912.

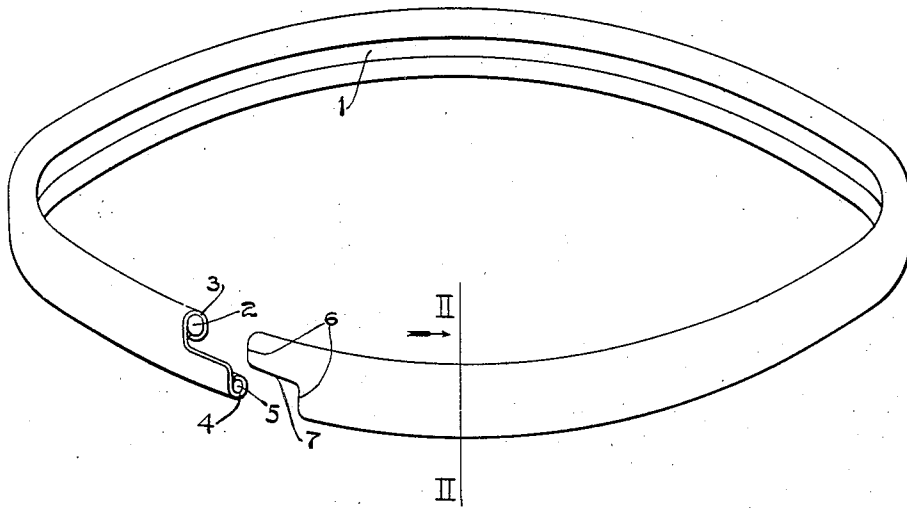


FIG. 1.

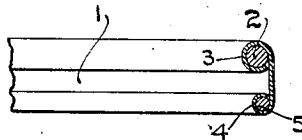


FIG. 2.

WITNESSES-

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JOHN E. OSMER, OF BOONE, IOWA, ASSIGNOR TO ALLIS-CHALMERS COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF NEW JERSEY.

AIR-BRAKE-PISTON-PACKING EXPANDER.

1,033,116.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed March 27, 1911. Serial No. 617,035.

To all whom it may concern:

Be it known that I, JOHN E. OSMER, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented a certain new and useful Improvement in Air-Brake-Piston-Packing Expanders, of which the following is a specification.

This invention relates to packing expanders for pistons, and is particularly adapted for use on pistons in the cylinders of air brakes.

The present invention is an improvement on the construction shown in United States Patent No. 862,540, dated Aug. 6, 1907, granted to George Christenson, and that shown in the United States Patent No. 924,087, dated June 8, 1909, granted to John Emory Meek, and is the same invention as that of United States Patent No. 984,888, dated February 21, 1911, granted to said Christenson.

In a packing expander for air brake pistons of the general character shown in the earlier Christenson patent, it is desirable, both for economy of material, and for reasons of adaptability to existing structures, to make the flange portion as thin as possible, as set out in the patent to Meek above noted. But in order to secure the highest degree of elasticity and resiliency in the completed structure, it is necessary to use a highly tempered steel, and such highly tempered steel can not conveniently be drawn down to the thin flange desired, when the structure is made integral by the process of drawing through a die or rolling same, which are economical methods of manufacture. To avoid the difficulties arising from these conflicting conditions the present composite structure is presented in which the resiliency is furnished by rings of spring steel of preferably circular cross section while the flange is formed of a thin strip of sheet steel which may be of low temper and less resiliency.

The best form of apparatus at present known embodying this invention is illustrated in accompanying sheet of drawing, in which:

Figure 1 is a perspective view of the expander ring, and Fig. 2 is a cross section on the line II-II of a fragment of the ring shown in Fig. 1 looking in the direction of the arrow.

Throughout the drawings like reference characters indicate like parts.

The ring 2 of highly tempered steel, preferably of circular cross section may be formed by cutting the required length from a steel rod of the proper size and bending same to form a circle. The ring 5 also of highly tempered steel of similar circular cross section but of smaller size may be similarly formed. The strip 1 of thin sheet metal or mild steel is cut from an ordinary sheet of such metal. This thin strip of metal may be attached to the rings 2, 5, in any convenient way, as by welding, but they are preferably fastened to them by bending portions 3, 4, on the edges of the strip about the rings 2, 5, respectively, as shown in the drawings. Preferably the abutting ends of the circular structure so formed are cut in step form looking in the plane of the ring toward the center, the upright portions 6 of one of the ends being connected by the longitudinal portions 7, as indicated in Fig. 1.

The advantages of this invention include the production at a low cost of a packing expander having the highest resiliency and the thinnest possible flange. The flange being formed of metal of low temper will bend without breaking, so that the possibilities of destruction in use and handling are decreased, as well as those in manufacture.

Various changes in shape and proportions of parts could be made without departing from the principle of this invention. In some cases the rings 2, 5, or either of them, might be omitted if the remaining structure had sufficient elasticity and resiliency, but preferably both rings 2, 5, are employed as they can be given the necessary temper to produce exactly the graduated degree of resiliency desired for different sizes of cylinder and different degrees of air pressure, while it would be practically difficult, if not impossible, to give a very high temper to the thin strip 1 and then bend it or draw it into the shape required.

It is claimed and desired to secure by Letters Patent:

1. A composite piston packing expander ring comprising a strip of sheet metal bent into a circle with abutting disconnected ends, and having its side edge portions curved back upon themselves and each of said curved portions enwrapping a wire ring of circular cross section, the remain-

ing portion of said strip extending at right angles to the plane of said ring.

2. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring.

3. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said strip being bent around one of said rings.

4. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said strip being bent around one of the rings and the other edge of the strip being bent around the other ring.

5. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said strip being attached to one of said rings.

6. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said

strip being attached to one of said rings and the other edge of said strip being attached to the other of said rings.

7. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, the main portion of the strip being arranged at right angles to the plane of the rings.

8. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said strip being attached to one ring, and the main portion of the strip being arranged at right angles to the plane of the rings.

9. A piston packing expander having in combination a thin strip of sheet material bent into a ring with abutting ends, and two rings of elastic material located within said first mentioned ring, one edge of said strip being attached to one ring, and the said elastic rings also having abutting ends.

In testimony whereof, the signature of the inventor is affixed hereto in the presence of two witnesses.

JOHN E. OSMER.

Witnesses:

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