

C. C. JEROME.
PISTON ROD PACKING.

No. 454,740.

Patented June 23, 1891.

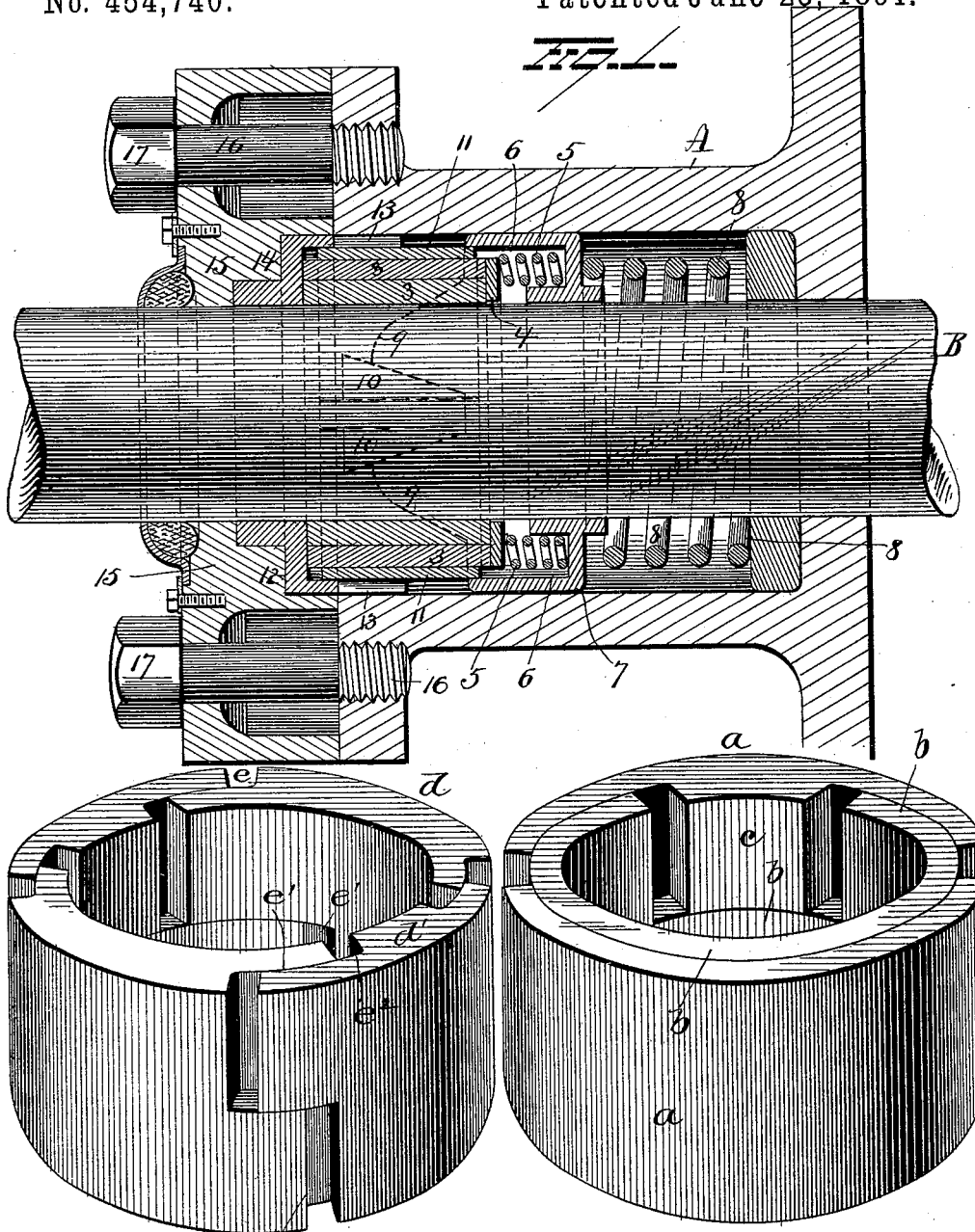


Fig. 4.

Fig. 3.

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G. F. Downing

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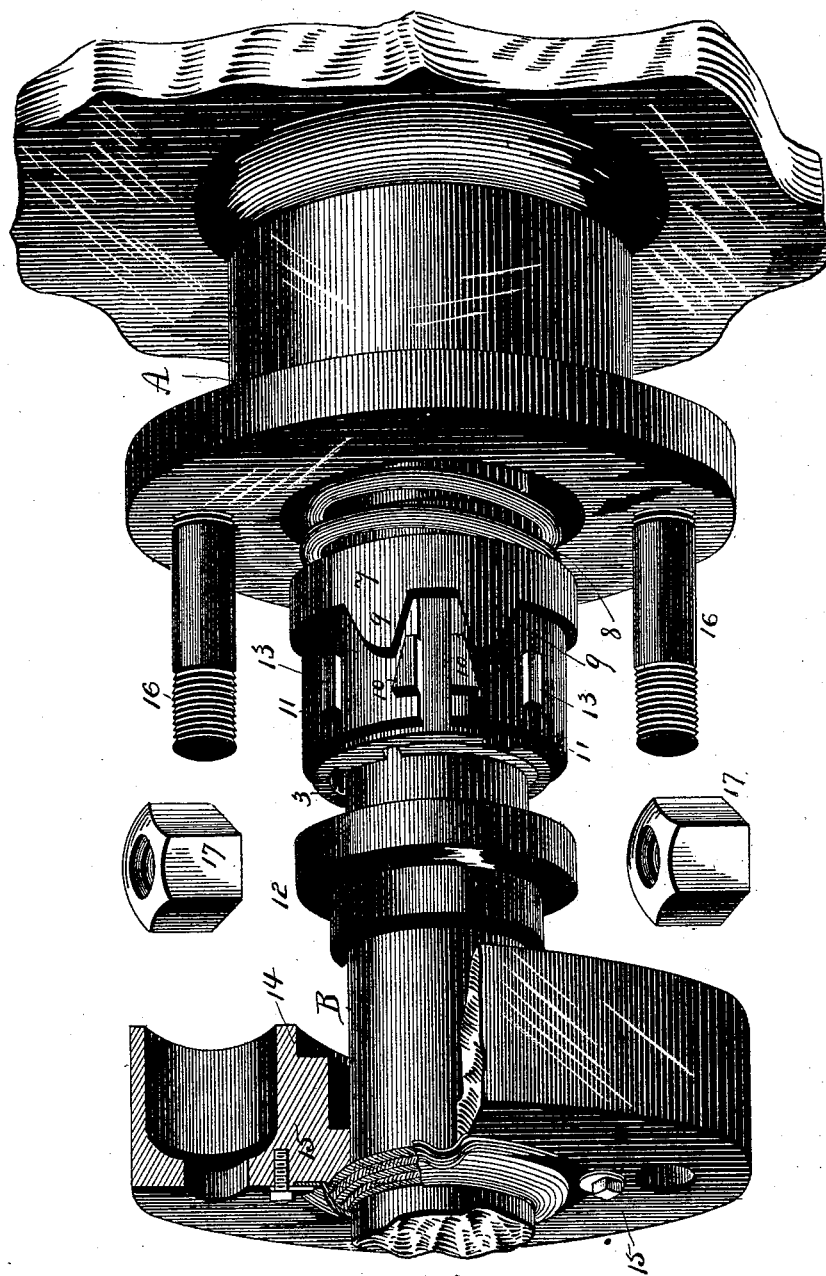
(No Model.)

2 Sheets—Sheet 2.

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Fig. 2

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UNITED STATES PATENT OFFICE.

CHARLES C. JEROME, OF CHICAGO, ILLINOIS.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 454,740, dated June 23, 1891.

Application filed April 7, 1891. Serial No. 387,988. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. JEROME, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Piston-Rod Packing; 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 piston-rod packing, the object of the invention being to simplify the construction of metallic packing for pistons and provide a self-adjusting or automatic packing that can be applied to any ordinary stuffing-box; and it consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a stuffing-box with my improvement therein. Fig. 2 is a view in perspective showing the parts separated. Fig. 3 is a view of the packing-ring, and Fig. 4 is a view of a modified form of packing-ring.

A represents an ordinary stuffing-box formed on one head of a steam-cylinder, and B the piston-rod. The interior of the stuffing-box is of course considerably greater in diameter than the piston, and is adapted to receive the packing and the packing-retaining devices, to be hereinafter described.

The packing is composed of sectional rings 3 3, one ring being greater in diameter than the other and adapted to surround the other, each ring being made up of interlocking sections and the two rings when assembled breaking joints with each other.

In Fig. 3 is shown a ring designed for new work, or, in other words, designed for use when the packing is first applied, and Fig. 4 shows a single ring 3', which can be applied when necessary to renew worn rings without the necessity of disconnecting the piston. The rings shown in Fig. 3 are double rings made up of four sections—two outer sections *a* and two inner sections *b*—each outer section *a* having a projection *c* adapted to rest between the adjacent ends of the inner ring-section. Each inner section is approximately half the depth or length of the ring, while the

outer sections *b* are the full depth and of somewhat less than half the diameter of the ring. The ring shown in Fig. 4 is also made up of four sections *d*, each section being of a thickness equal to the thickness of the inner and outer rings of the construction disclosed in Fig. 3. Two of the sections *d* are cut away on their outer faces near their upper or outer ends, as shown at *e*, and on their inner faces near the lower ends, as shown at *e'*, while the other sections are cut away at the upper or outer ends of their inner faces, as shown at *e''*, and at their outer faces near their lower ends, as shown at *e'''*. When the sections are assembled, the sections overlap, as shown, and are capable of expansion and contraction without separating or leaving an opening between any two sections.

The double rings shown in Fig. 3 or the ring shown in Fig. 4 rest on a follower-ring 4, which latter in turn is supported on a series of coiled springs 5, seated within the annular chamber 6 of the inner or rear cap 7. This cap 7 is supported by the heavy spiral spring 8, which latter rests against the head of the cylinder at the inner end of the box or against a bushing resting against said head and is forced outwardly by said spring.

The cap is provided on its outer edge, as clearly shown in Fig. 2, with lugs 9, the adjacent faces of which are beveled or inclined and form bearings, against which the lugs on the opposite ends of the yielding or expandible band 11 bear. This band or split ring is made, preferably, of spring metal and has a tendency to spring outwardly, and is contracted around the packing-ring by the movement of the lugs 9 against the outer inclined faces of the lugs. The lower end of the band rests within the outer rim of the rear cap 7, and hence is prevented from undue expansion by said cap and by the upper or outer cap 12, which also laps over the ring and band. The yielding or expansible band 11 is also provided with lugs 13, which abut against the edge of cap 12 and prevent the band from coming in contact with the seat in the cap 12. The packing-ring has close contact with the seat in upper cap 12, and the latter is preferably ground on its outer face to form a steam-tight joint with the seat 14 on the gland 15. Thus it will be seen that when the parts

are assembled, steam entering the stuffing-box is prevented from escaping beyond the cap 12, while the band 11, surrounding the packing-ring, is exposed to the action of the steam. The gland 15 is secured snugly against the outer face of the stuffing-box by screws 16 and nuts 17. The spring 8 holds the ring in steam-tight contact with the cap 12 and the cap 12 in contact with the seat 14 on the gland 15, while the lugs 9, bearing against the lugs 10, hold the band in contact with the sectional ring or rings and cause the latter to closely embrace the piston and compensate for wear of the ring or piston.

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

1. The combination, with a stuffing-box and piston-rod, of a cap or seat having the inclined bearing-surfaces, a sectional ring, and a band surrounding said ring and having inclined lugs at or near its free ends, the said lugs resting in contact with the inclined bearing-surfaces on the cap or seat.

2. The combination, with a stuffing-box and piston-rod, of a cap resting on a yielding support and provided with inclined bearing-surfaces, a sectional packing-ring, and a band having projections provided with inclined bearing-surfaces which rest in contact with the inclined bearing-surfaces on the cap.

3. The combination, with a stuffing-box and a piston-rod, of front and rear caps, the rear cap having converging bearing-surfaces, a sectional packing-ring located between the caps, and a band surrounding the ring and provided with lugs for engaging the inclined

bearing-surfaces on the rear cap and with lugs or abutments for engaging the front cap.

4. The combination, with a stuffing-box and a piston-rod, of a spring-pressed cap, a series of small springs within the cap, a follower seated on the smaller springs, a sectional ring resting against the follower, a band surrounding the ring, and means for contracting the band, substantially as set forth.

5. The combination, with a stuffing-box, piston-rod, and gland, of a cap bearing against the gland, sectional packing-ring bearing against the cap, a split band surrounding the packing-ring and provided with lugs having inclined bearing-surfaces, and inclined converging bearings, against which the lugs on the split band rest, substantially as set forth.

6. The combination, with a stuffing-box, piston-rod, and gland, of an inner or rear cap resting against a yielding support and provided with inclined converging lugs, springs located within the cap and supporting a follower, a sectional ring resting against the follower, a split band encircling the ring and having inclined lugs which rest in contact with the inclined bearings on the rear cap, and a front cap having a steam-tight bearing against the gland and against the outer end of the sectional ring, substantially as set forth.

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

CHARLES C. JEROME.

Witnesses:

GEO. C. JEROME,
A. B. ELLIOTT.