W. SUDEKUM.

MOLD.

APPLICATION FILED APR. 17, 1912.

1,046,121.

Patented Dec. 3, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

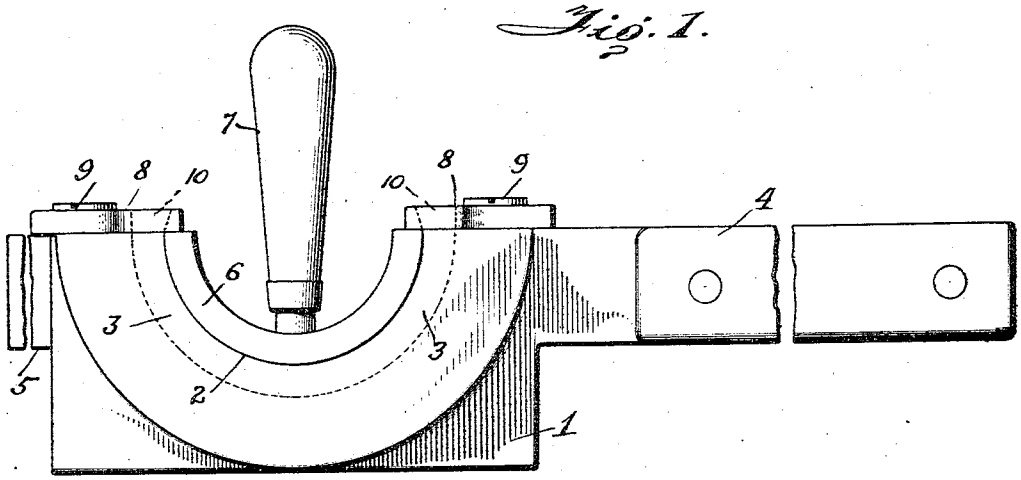


Fig. 2.

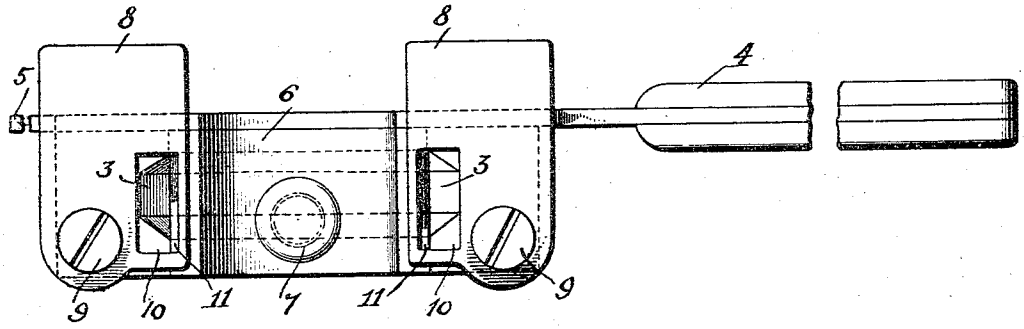
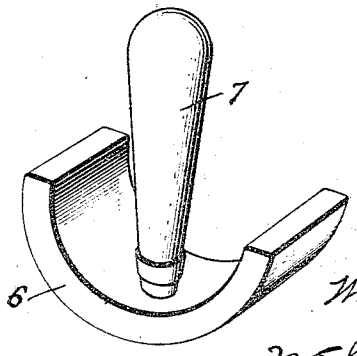


Fig. 3.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 4.

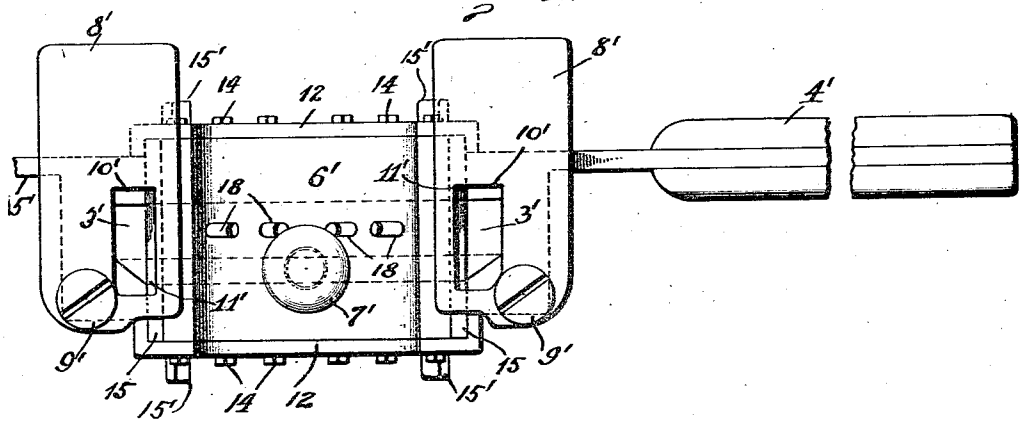


Fig 5.

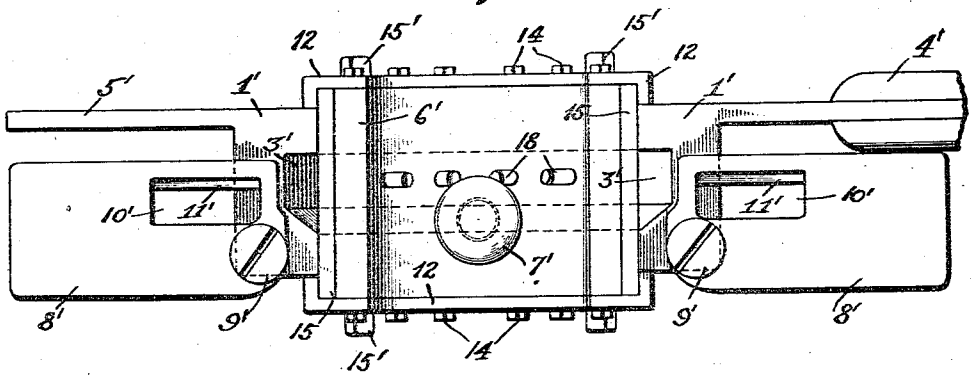


Fig. 10.

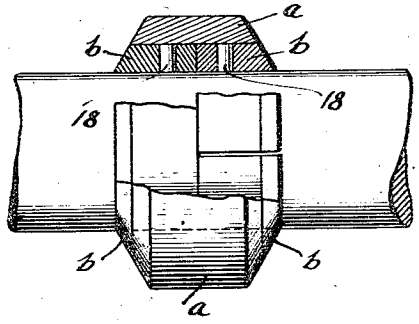
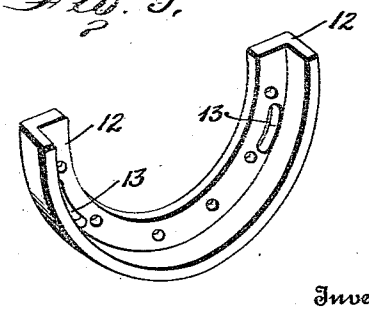


Fig. 9.



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3 SHEETS—SHEET 3.

Fig. 6.

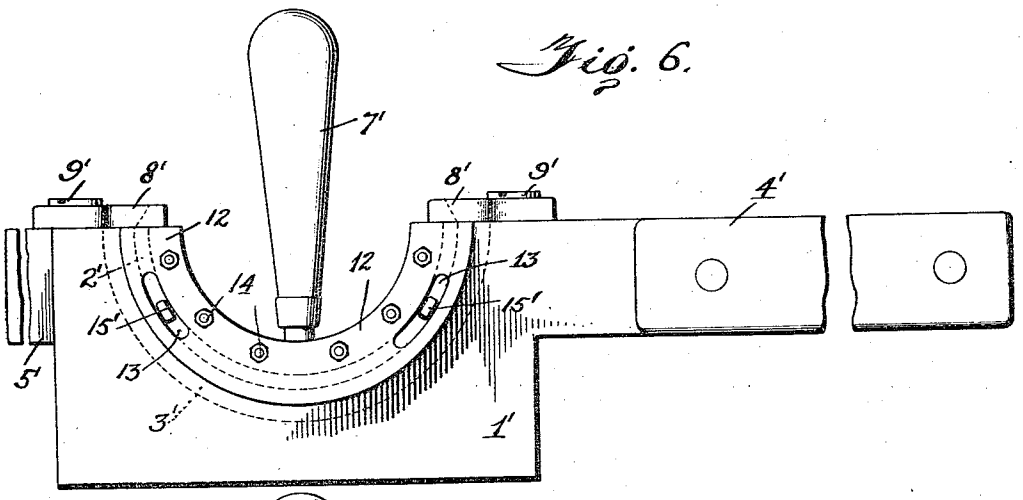


Fig. 7.

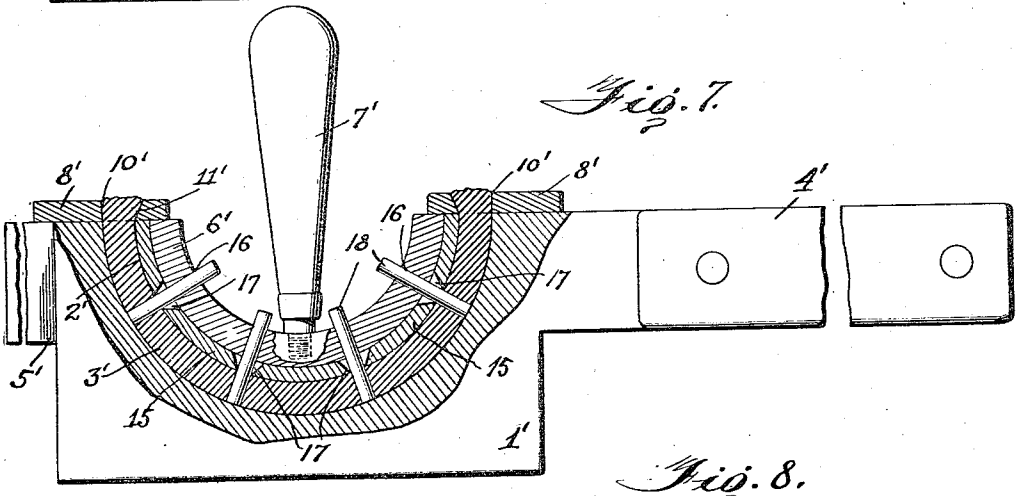
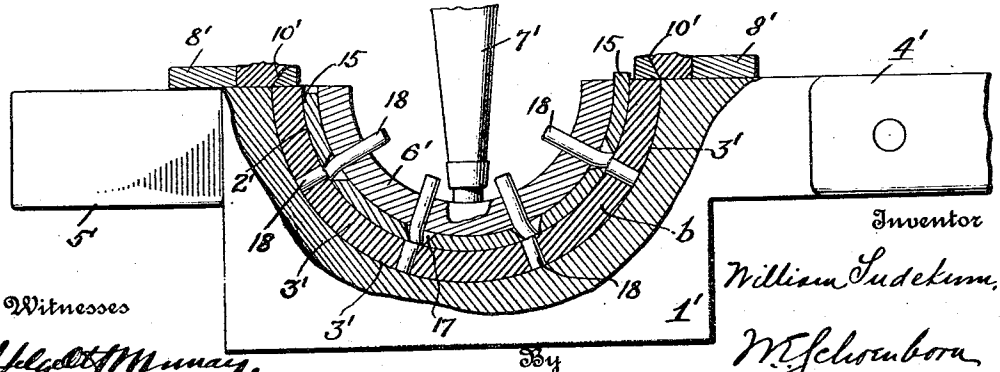


Fig. 8.



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MOLD.

1,046,121. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed April 17, 1912. Serial No. 691,349.

To all whom it may concern:

Be it known that I, WILLIAM SUDEKUM, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Molds, of which the following is a specification.

My invention relates to molds for casting metallic packing rings of any cross sectional area and if desired, providing said metallic rings with lubricating material embedded therein.

The object of my invention is to provide a mold which will be compact in form, cheap of construction and easily operated with the least amount of manual labor, thereby enabling me to produce packing rings of a uniform quality and at the lowest cost of production.

Furthermore, my objects are to construct a mold which has the least number of parts and any one of the several parts of which can be easily replaced without necessarily reconstructing or remaking any of the other parts.

Another object of my invention is to make the parts as light as possible so as to enable the same to be operated by one person and without danger of being injured from the hot metal during the pouring operation of the mold.

The invention consists of structural features and relative arrangements of the various elements which will be hereinafter more fully described and particularly pointed out in the appended claims.

In the drawings: Figure 1 is an end view of a mold for making one of the sections of a packing ring; Fig. 2 is a top plan view of the mold shown in Fig. 1; Fig. 3 is a perspective view of the core removed from the mold shown in Figs. 1 and 2; Fig. 4 is a top plan view of the mold for making the section of a packing ring having lubricating material embedded therein; Fig. 5 is a similar view of the same mold shown in Fig. 4 with the combined core holder and sprue cutter disengaged from the core; Fig. 6 is an end view of the mold shown in Fig. 4; Fig. 7 is a partial longitudinal section of the mold after the metal has been poured; Fig. 8 is a sectional view of the mold shown in Figs. 4 and 7 after the cutter has been moved to sever the embedded lubricating sticks; Fig. 9 is a perspective detail view of the side plates used to connect the cutter with the core; and Fig. 10 is a combined elevation and sectional view of the packing ring sections surrounding a piston rod.

Referring to the drawings in which similar reference characters indicate the same parts in the several views, 1 represents a base having its upper surface cut out in the form of a semi-circular groove 2. The upper surface of this groove 2 is provided with a recess 3 which may be of any cross sectional area corresponding to the cross section of the packing ring and I wish it to be distinctly understood that I do not limit myself to the form of recesses shown in the several figures of drawing.

Referring to the form shown in Figs. 1, 2 and 3, the base 1 is provided on one end with a handle 4 and on the other end with an extension 5 against which the mold may be struck to remove the packing ring section after the mold has been poured. 6 is a core of the same contour as the semi-circular groove 2, said core being provided with a handle 7. The core rests in the groove 2 and is held in a locked position by means of a sprue cutter 8 pivoted on each side by pivot screws 9. The sprue cutters are provided with pour openings 10.

The above description refers to a mold in its simplest form and is for the purpose of making the sections of a packing ring *a* shown in Fig. 10.

In using the mold shown in Figs. 1–3, the core 6 is placed in the semi-circular groove 2 of the base 1, after the cutters 8 have been turned outwardly. After placing the core properly in the base 1 the cutters 8 are turned into position, as shown in Fig. 2, and as will be seen, will firmly hold the sections of the mold, that is, the base 1 and core 6, together. The molten metal of any suitable composition for making packing rings is poured into the semi-annular chamber formed by the recess 3 in the base 1 and the core 6, through one of the openings 10. As the metal passes down through one of the openings 10 the displaced air passes out through the opening 10 in the opposite cutter 8 and in this way no air is confined in the mold, and a perfectly solid and homogeneous packing ring is cast. After the metal has been sufficiently cooled the combined holders and cutters 8 are turned on their pivot pins or screws 9. The openings

10 are provided with cutting edges 11 and as the cutters 8 are swung around on their pivots 9 the cast metal which is projecting above the upper surface of the base 1 and out of the recess 3 is sheared off. When the cutters 8 are turned in this last position, the core 6 can be easily removed by the handle 7 from the base 1 by one hand and the other hand can grasp the handle 4 and thus reverse the base 1 and strike the mold on the projection 5 and thereby quickly remove the cast packing ring section loosely held in the recess 3.

Referring to Figs. 4–7, the above described mold shown in Figs. 1–3 is the same in the broad essentials, and different in that expedients are provided for holding sticks of lubricating material in such relation that they may be cast integral with the metal forming the sections of the packing ring. As shown in Figs. 4–7 the core 6′ is preferably provided with side plates 12 (see Fig. 9) which have slots 13 and are secured to the sides of the core by means of bolts 14. Movably supported on the under side of the core 6′ by the side plates 12 is a cutter 15 which is provided with a series of countersunk openings 17 which correspond to openings 16 in the core 6′ to receive the lubricating sticks 18 to be presently described. The cutter 15 is also provided on its side with pins 15′ which project through the slots 13 of the plates 12 for purposes to be hereinafter referred to.

In the use of the mold shown in Figs. 4–7, the core 6′ with its cutter attached is placed into the groove 2′ in base 1′ and clamped in position by means of the cutters 8′ as heretofore explained. The lubricating sticks 18 are then passed through the openings 16 of the core 6′, thence through the registering countersunk openings 17 of the cutter 15 until they touch the bottom of the semi-annular recess in the base 1′, as shown in Fig. 7. The metal is then poured in the opening 10′ of one of the cutters 8′ when the parts are in adjusted position, as shown in Fig. 4. The molten metal passes into the recess 3′ and surrounds and firmly takes hold of the sections of the lubricating sticks 18 which are projecting into the recess 3′ of the base 1′, and the metal gradually rises and displaces the air up to the opening 10′ in the opposite cutter 8′ of the mold and will assume the position as shown in Fig. 7. After the poured metal has been sufficiently cooled the cutters 8′ are turned on their pivots until the superfluous metal projecting out of the recess 3′ has been sheared off from the packing section in the mold by the cutting edges 11′. The cutter 15 is then slightly moved by tapping on the pins 15′ to move the cutter either to the right or left when the same will shear or disconnect the lubricating sticks from the poured packing section, thereby leaving sections of the lubricating sticks firmly embedded in the poured metal comprising the packing section, as indicated in Fig. 8. After the cutters 8′ are swung so as to be entirely free of the core with its cutter 15, and the outer edges of the metal packing which has been cast, the core with its cutter 15 is removed by the handle 7′ and the mold is reversed and tapped on its extended end 5′, and the finished metal packing knocked out in a manner similar to that described with reference to Figs. 1–3. The packing section *b* provided with lubricating plugs embedded therein is shown in its operative relation in Fig. 10.

From the foregoing disclosure it will be seen that by my improved mold I am able to cast with the least effort either the outer or inner rings of a metallic packing and if desired provide any of the sections with lubricating material embedded therein. It will also be seen that the parts are firmly held together and no possible displacement of the same can be had while the metal is poured.

While I have described my preferred form of invention it will be understood that many changes will readily suggest themselves to those skilled in the art without departing from the spirit of my invention, and I wish it to be distinctly understood that I do not limit myself to the exact structural characteristics and relative arrangements herein described.

What I claim is:—

1. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess of the base, and a sprue cutter on each side and over the ends of the recess for locking the core to the base.

2. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess of the base, a sprue cutter having an opening at each end of the recess in the base and adapted to lock the core in the groove of the base.

3. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess of the base, and a sprue cutter with a pour opening pivoted to the base and projecting over the ends of the recess and the core for locking said core to the base.

4. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at

right angles to the axis of the groove, a core supported in said groove and over the recess of the base, a sprue cutter having an opening pivoted at each end of the recess in the base and adapted to lock the core in the groove of the base.

5. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess, a movable cutter interposed between the core and the base, said core and cutter having registering openings adapted to receive sticks of lubricating material and permit the ends of the sticks to project into the recess of the base.

6. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess, a movable cutter interposed between the core and the base, said core and cutter having registering openings adapted to receive sticks of lubricating material and permit the ends of the sticks to project into the recess of the base, and sprue cutters over the ends of the recess adapted to lock the core in the groove and to the base.

7. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess, a cutter movably supported on the underside of the core, said core and cutter having registering openings adapted to receive sticks of lubricating material and permit the ends of the sticks to project into the recess of the base.

8. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess, a cutter movably supported on the underside of the core, said core and cutter having registering openings adapted to receive sticks of lubricating material and permit the ends of the sticks to project into the recess of the base, and means for moving the relative position of said cutter with respect to the core and base.

9. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess at right angles to the axis of the groove, a core supported in said groove and over the recess, a cutter movably supported on the underside of the core, said core and cutter having registering openings adapted to receive sticks of lubricating material and permit the ends of the sticks to project into the recess of the base, and sprue cutters over the ends of the recess adapted to lock the core and cutter in the groove and to the base.

10. A mold for casting packing rings which comprises a base having a semi-circular groove in its upper side and a recess whose axis is substantially at right angles to the axis of the groove, a core supported in said groove and over the recess of the base, whereby a mold cavity is formed having both ends connecting with the atmosphere, and means containing combined pour openings and sprue cutters for holding said core to the base.

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

WILLIAM SUDEKUM.

Witnesses:
W. E. SCHOENBORN,
H. P. ROBERTS.