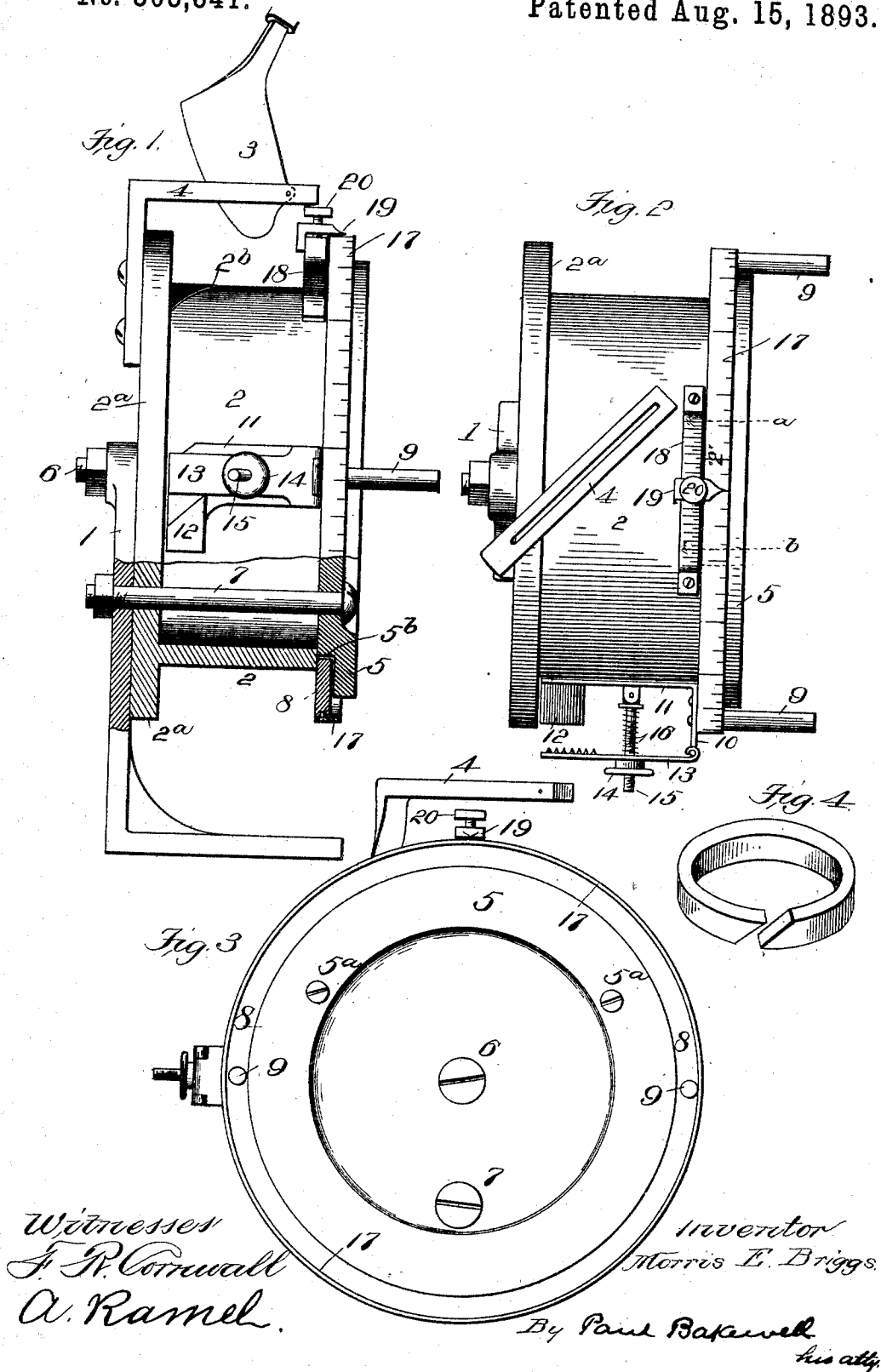


(No Model.)

M. E. BRIGGS.
MACHINE FOR CUTTING PACKING RINGS.

No. 503,341.

Patented Aug. 15, 1893.



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UNITED STATES PATENT OFFICE.

MORRIS E. BRIGGS, OF ST. LOUIS, MISSOURI.

MACHINE FOR CUTTING PACKING-RINGS.

SPECIFICATION forming part of Letters Patent No. 503,341, dated August 15, 1893.

Application filed May 2, 1893. Serial No. 472,739. (No model.)

To all whom it may concern:

Be it known that I, MORRIS E. BRIGGS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Machines for Cutting Packing-Rings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, wherein like symbols of reference refer to like parts wherever they occur, and in which—

Figure 1 is a side elevation, partly in section. Fig. 2 is a top plan view with the knife removed. Fig. 3 is a front elevation. Fig. 4 is a form of ring, cut on the machine.

My invention relates to a new and useful improvement in machines for cutting packing rings, for piston-rods, &c., in which a movable carrier is used for clamping and drawing the continuous packing (as it is handled commercially), a given distance from the knife, (which determines the diameter of the piston by a scale;) and in combining therewith, means for determining the varying compressions and consequent differences of the interior circumferences of rings of different thicknesses. This I accomplish by the construction illustrated in the accompanying drawings, in which—

1 indicates the base of any suitable form and construction, said base forming a support for a stationary drum 2, which is bolted or otherwise secured thereto. This drum 2 is formed with a guide flange 2^a which is preferably provided with a gage (not shown), for determining the thickness of the packing to be cut, thus obviating the necessity of first measuring the same. The upper portion of this drum is slotted as at 2^b to afford reception of the blade of a knife 3 which is pivoted in the outer end of a hanger 4 secured to the drum at an angle of about forty-five degrees. By so arranging the knife, when the packing to be cut is in position against the guide flange 2^a, the knife 3 when forced down, will, by its peculiar shaped cutting edge, sever the same, at the same time crowding the packing against the guide flange, thereby preventing any variance due to the possible displacement of the packing from its position against the flange.

On the front end of the drum, is a face plate 5, which is preferably secured thereto, by through clamping bolts 6 and 7, the former being centrally located to center the respective parts, and the latter being located to one side to add rigidity to the structure. These bolts preferably extend through the support 1, where they are clamped by their respective nuts. If desirable additional screws 5^a may be added, which are received into the drum 2 after passing through the face plate 5. This plate 5 is formed with a shoulder 5^b on its inner side upon which is revolvably received a movable carrier 8, in the form of a ring as shown, being provided with handles 9 for rotating the same. Secured to this ring and extending over the drum 2, is a clamp in which one end of the continuous packing is secured; this clamp comprising a securing member 10 which is secured to the carrier 8, a right angle extension 11 which extends over the drum 2, which extension is provided on its end with a stop block 12, the operating face of which is cut on a plane parallel with the cut of the knife 3, and a plate 13 provided with teeth on its inner clamping edge, said plate being hinged to the securing member 10, and being operated by a thumb nut 14 mounted on a screw 15 which is pivotally mounted on the right angle extension 11 to accommodate the varying angles assumed by the plate 13 in its movement. I preferably surround the screw 15 by a spring 16 which tends at all times to hold the plate away from the drum.

On the carrier ring 8, is a gage plate 17, which indicates the length it is required to cut a piece of packing, in order to insure a snug fit around a shaft of given diameter. This length is of course determined by the distance from the knife 3 to the stop block 12, it requiring, say for a piston of two inches diameter, a distance of 6.2832 inches between the two. This distance of 6.2832 inches of lineal measurement between the knife and the stop block, would of course be taken on the curved line of the drum, and, as is well known, that the same lengths of packing of different thicknesses will not encircle the same shaft, it is necessary to compensate for this variance in the thickness. This variance is attributable to the reasons which I will illustrate as follows: Assuming, for the pur-

pose of illustration you have a shaft two inches in diameter which you desire to encircle with packing rings, one ring to be one-eighth of an inch thick, and the other to be one inch. The ring of one-eighth inch thickness would be cut nearly six and five sixteenths of an inch long, in order to allow for the compression of the inner circumference, while the ring of one inch thickness would have to be cut about eight and one-half inches in length to compensate for greater compression of its inner circumference which is due to the greater bulk of material. To compensate for this, I mount on the drum a scale plate 18 which indicates the additional length necessary for the various thicknesses, over and above that required for a flat inelastic ring, which would be 3.1416 times the diameter of the shaft. Slidingly mounted on this plate 18, is an indicator 19 provided with the set screw 20 for holding it in its adjusted position.

The operation of the device may be described as follows: Suppose that it is desired to cut a piece of packing one eighth of an inch thick, to surround a two inch shaft. The end is first cut by the knife to make the meeting faces of the same angle. This cut end is then placed against the stop block 12 and the movable jaw or plate 13 forced down thereupon by its binding screw. The indicator 19 is then moved on the plate 18 until its side (say for convenience the right side face) is over the line marked " $\frac{1}{8}$ " which I will indicate with the dotted line *a*. The carrier is then moved away from the knife until the line on the dial 17 marked "2" registers with the point of the indicator 19, at which time the knife is depressed, severing the packing to form a ring as shown in Fig. 4. Should it be desired to cut a piece of packing, say of one inch thickness, the end is first cut at an angle and clamped in the clamping device or carrier, as before. The indicator 19 will be moved to the left (or right, depending upon the movement of the direction of the carrier away from the knife) until the right side face is over the line marked "one inch" on the scale plate 18. The carrier is then moved to the left until the line marked "2" registers with point of the indicator 19, at which time the knife will be operated to sever the packing. The line for indicating the "one inch" thickness of packing, I will represent by the dotted line *b* and it will be the length of the distance between these lines *a* and *b* relative to the position of the clamping device, which is required for a one inch packing in excess of a one eighth inch packing, to compensate for the difference in thickness and consequent difference in resiliency, due to the variance in the bulk of material, in order to cut the different thicknesses of packing to fit a shaft of a given diameter. It will of course be understood, that the scale 17 is measured and marked to include shafts of different diameters, and the scale 18 is measured and

marked to indicate the position of the pointer 19 for various thicknesses of packing other than those mentioned.

I am aware that many minor changes in the construction and arrangement of the several parts of my device can be made and substituted for those herein shown and described, without in the least departing from the nature and principle of my invention; such, for instance, instead of arranging the parts in the form of a circle as shown, I can form a straight track for the carrier, which would perform the same function, the scales being present.

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

1. In a machine for cutting packing rings, the combination with a suitable knife, and a support therefor of a carrier upon which the packing material is received, which carrier is provided with a clamping device for securing the end of the packing, a scale for indicating the diameter of the shaft, arranged so that the movement of the carrier can be regulated thereby, and a scale for indicating the increased length required to compensate for the varying circumferences of the packing when shaped in the form of a ring, due to their varying resiliences and differences in bulk, substantially as and for the purposes described.

2. In a machine for cutting packing rings, the combination with a suitable knife pivotally mounted, of a movable carrier provided with a clamping device in which the end of the packing is secured, a scale for determining the distance between the knife and the clamping device which scale is marked with the diameters of different sized pistons, a movable indicator for said scale, and a scale for said indicator, for determining the increased length necessary for packings of different thicknesses, substantially as and for the purposes described.

3. In a machine for cutting packing, the combination with a drum formed with a knife slot, of a knife mounted on said drum at an angle, a circular carrier provided with handles, and a clamping device mounted upon said carrier, substantially as and for the purposes described.

4. In a machine for cutting packing, the combination with a circular drum formed with a guide flange and provided with a knife slot, of a knife mounted thereon at an angle, a carrier plate concentrically mounted with relation to said drum, a clamping device mounted on the carrier, and a scale on the carrier for determining the length of movement necessary for the clamping device from the knife, for shafts or pistons of different diameters, substantially as and for the purposes described.

5. In a machine for cutting packing, the combination with a circular drum provided with a knife slot, of a knife mounted thereon at an angle, a carrier ring concentrically arranged relative to the drum, a clamping de-

vice mounted on the carrier, a scale for said carrier for determining the length of movement necessary for the clamping device from the knife, for shafts or pistons of different diameters, a scale mounted on the drum for indicating the position of a movable pointer to determine the lengths required for different thicknesses of packing, substantially as and for the purposes described.

10 6. In a machine for cutting packing the combination with a drum provided with a knife slot of a knife mounted thereon at an angle, a carrier mounted on the drum, a clamping device on the carrier, and a stop block on
15 the clamping device having its abutting face arranged at an angle corresponding to the blade of the knife, substantially as and for the purposes described.

20 7. In a machine for cutting packing the combination with a drum provided with a knife slot, a knife mounted thereon, a face plate formed with a shoulder clamped to the front end of the drum, through bolts for clamp-

ing said plate, a carrier revolvingly mounted on the shoulder of the face plate, and a 25 clamping device mounted on said ring and extending over the drum, substantially as and for the purposes described.

8. In a machine for cutting packing, the combination with a suitable knife and carrier, of a clamping device comprising a rigid 30 jaw, a stop block formed with an inclined operating face mounted on the rigid jaw, a pivoted clamping jaw, a threaded bolt passing therethrough, said bolt being pivoted on the 35 rigid jaw, a spring surrounding the bolt for forcing the jaws apart, and a thumb nut on the bolt for forcing the jaws together, substantially as and for the purposes described.

In testimony whereof I hereunto affix my 40 signature, in presence of two witnesses, this 22d day of April, 1893.

MORRIS E. BRIGGS.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.