

(No Model.)

W. H. PRENDERGAST.
METALLIC PACKING.

No. 603,736.

Patented May 10, 1898.

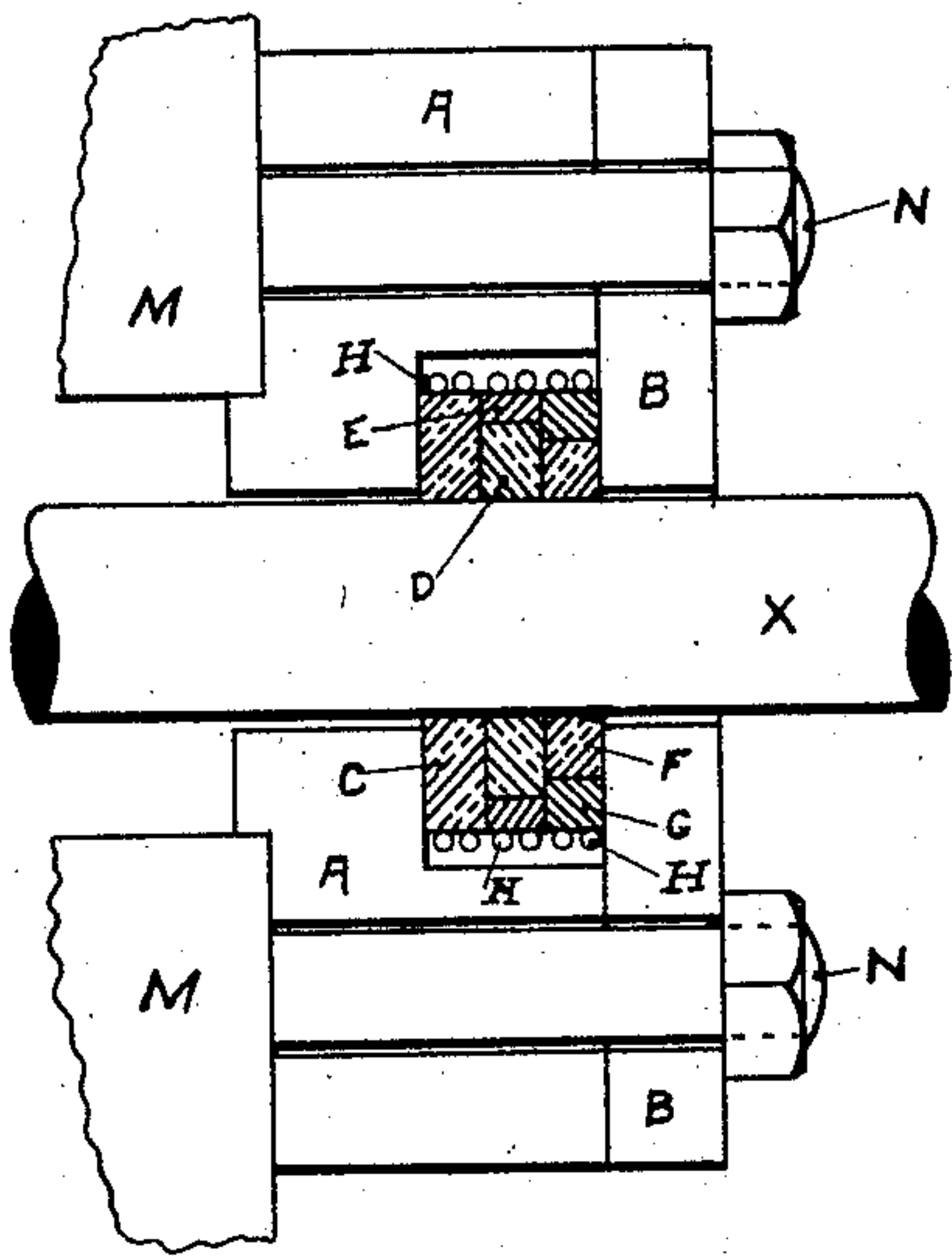


FIG. 1.

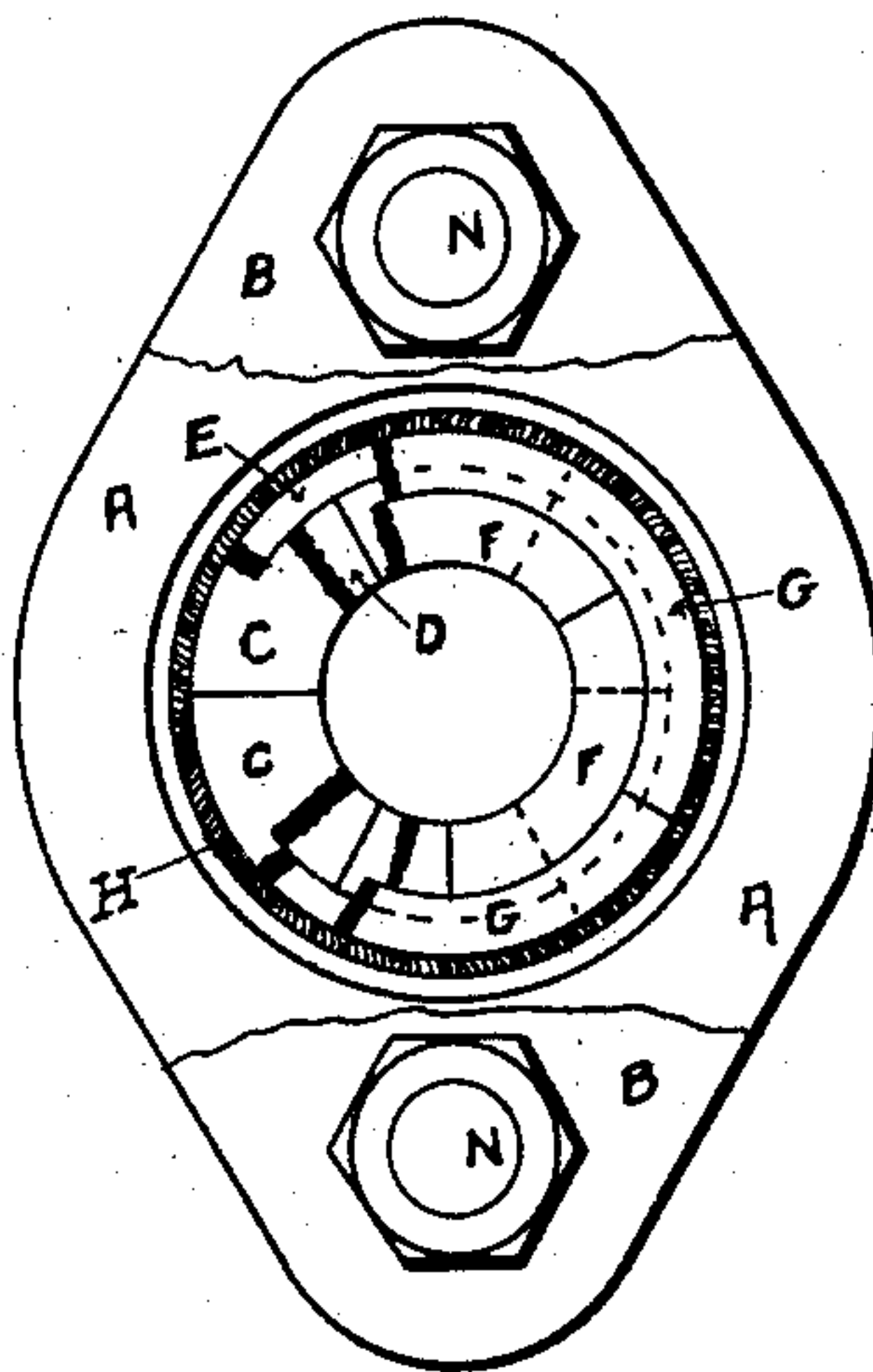


FIG. 2.

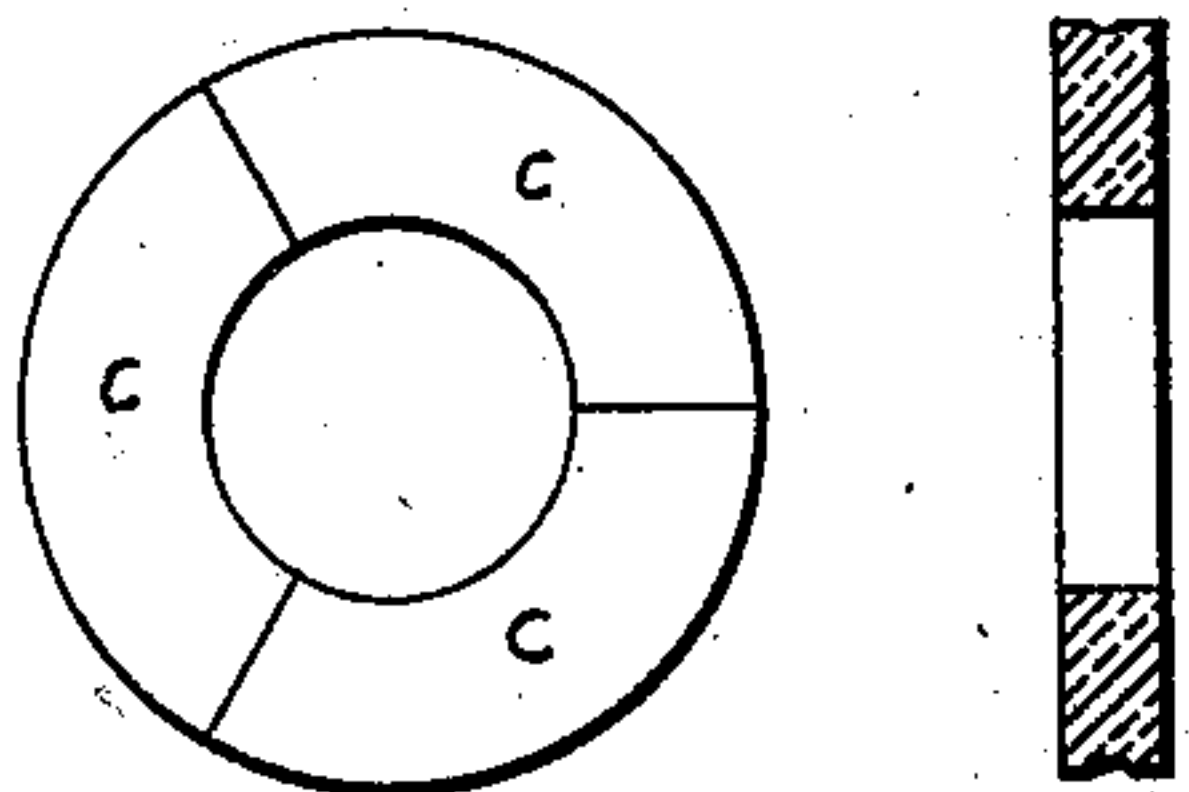


FIG. 3.

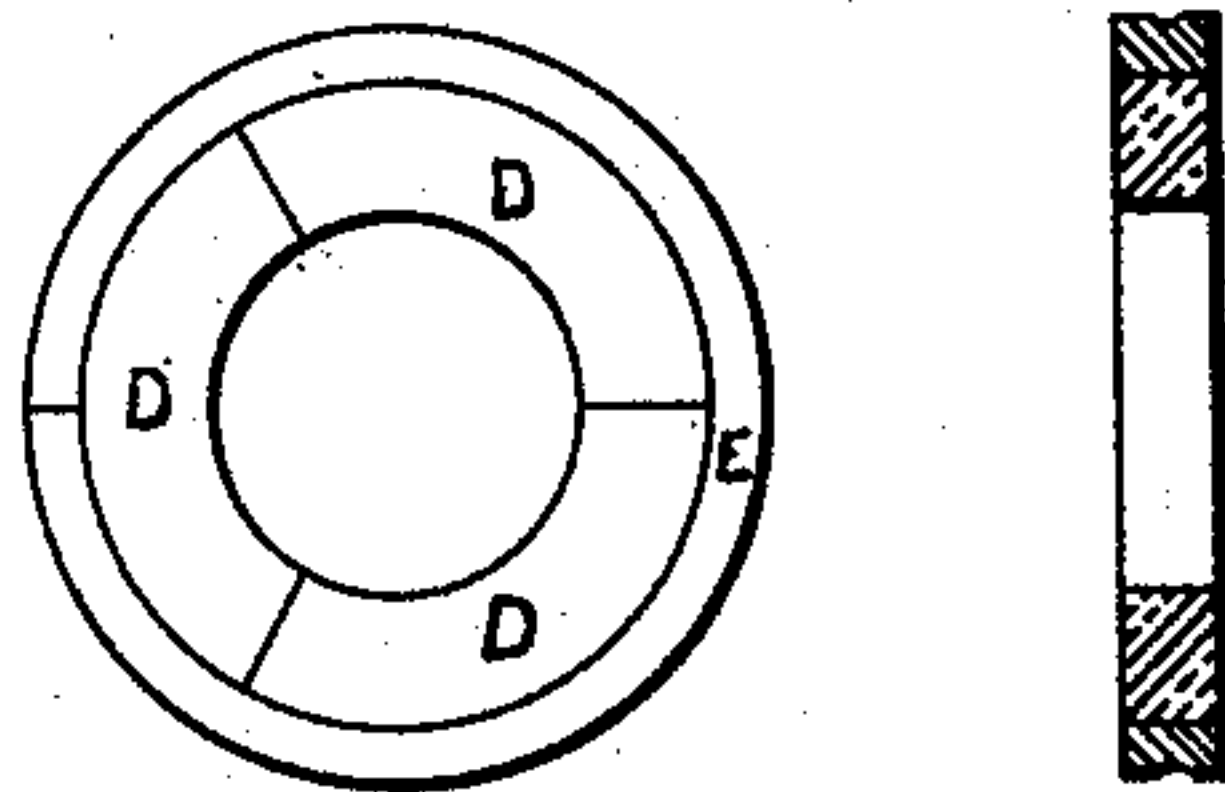


FIG. 4.

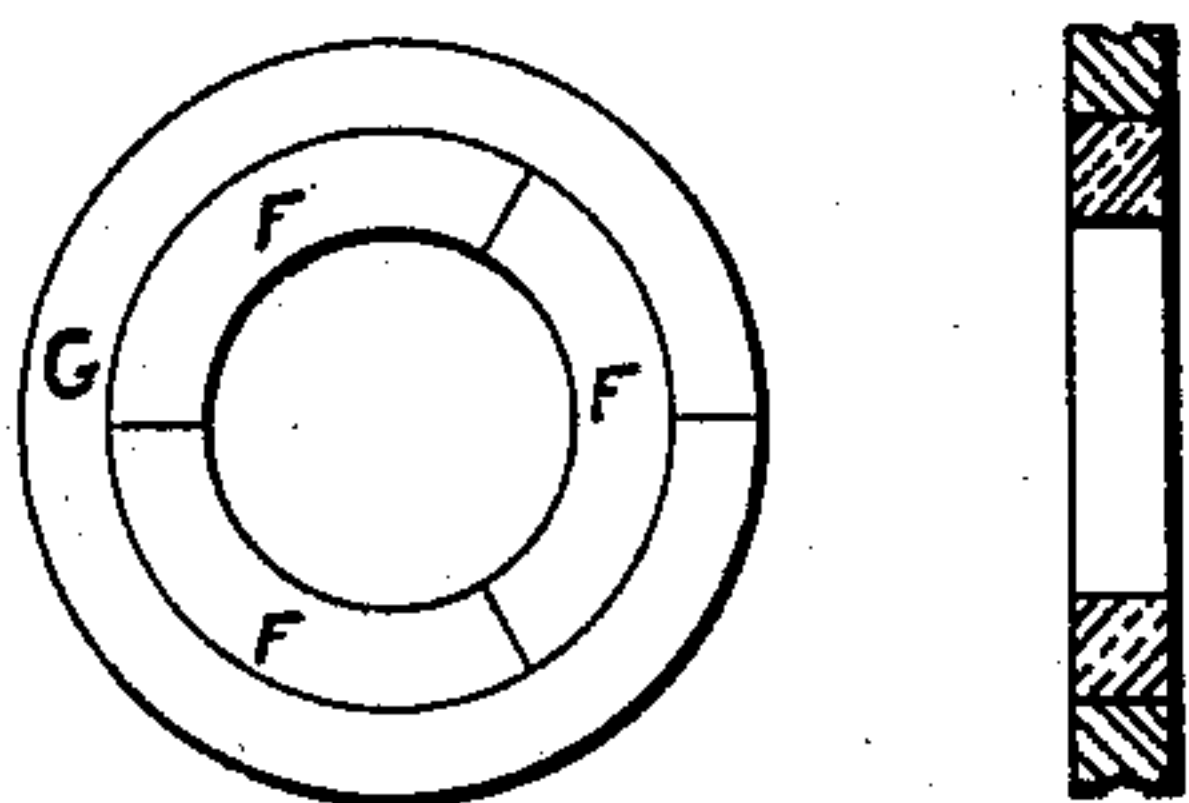


FIG. 5.

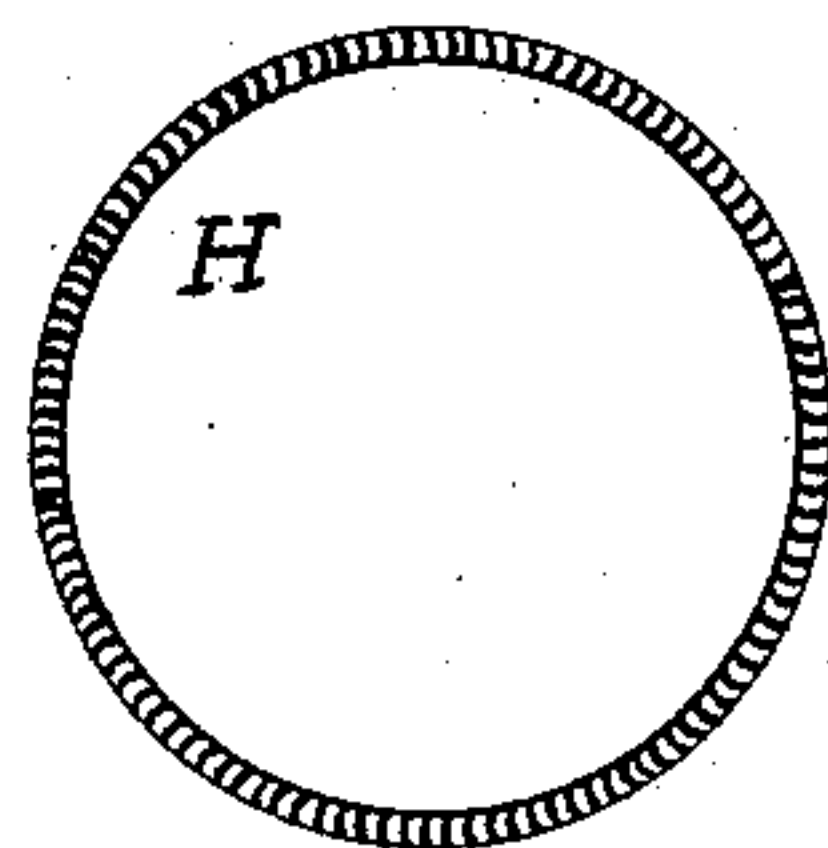


FIG. 6.

WITNESSES:

W. H. Prendergast
H. L. Barber

INVENTOR

W. H. Prendergast

UNITED STATES PATENT OFFICE.

WILLIAM H. PRENDERGAST, OF SAVANNAH, GEORGIA, ASSIGNOR OF
ONE-HALF TO CHARLES D. KLINE, OF SAME PLACE.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 603,736, dated May 10, 1898.

Application filed October 12, 1897. Serial No. 654,996. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PRENDERGAST, of Savannah, in the county of Chatham, State of Georgia, have invented a new and
5 useful Improvement in Metallic Packing, of which the following is a full, clear, and exact description, which will enable others skilled in the art to make and use the same, reference being had to the accompanying draw-
10 ings, forming a part of this specification.

Figure 1 represents a longitudinal section of piston-rod stuffing-box with packing in position. Fig. 2 represents a plan view of the piston-rod stuffing-box with cap and parts
15 of each set of rings removed, exposing the successive layers of rings. Fig. 3 represents a plan and transverse section of ring C. Fig. 4 represents a plan and transverse section of companion rings D and E. Fig. 5 represents
20 a plan and transverse section of companion rings F and G. Fig. 6 represents a plan view of a continuous spring used to hold the rings in position.

The object of this invention is to provide
25 an adjustable soft metallic packing consisting of three contiguous rings, two of which are compound, that without opening new avenues of escape between the rings that compose it will accommodate itself to the piston-rod or valve-stem as wear alters the surfaces.
30

The invention consists in certain improvements, which will be first described in connection with all that is necessary to the full understanding thereof, and then clearly specified in the summary claim.
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The letter M in the drawings represents a vertical section of a stuffing-box of a cylinder-head of a steam-engine. The letter X represents a part of a piston-rod. Mounted
40 on this cylinder-head is box A, which contains the rings C, D, E, F, and G.

The letter B represents the follower or cap.

Gland A is made just deep enough to keep the parallel faces of the rings tightly pressed
45 together, so that steam or air cannot penetrate between them. The inside diameter of it is greater than the outside diameter of the packing-rings, so as to insure all lateral play usually found in worn guides and cross-heads
50 of steam-engines.

The letter C represents the ring situated at the steam end of gland A. It is a simple metallic ring cut in three sections and held together by a continuous spring H, which rests in a groove carved on the outer surface.
55 Through the cuts of this ring steam is intended to pass up into gland A above rings E and G, there to assist springs H H in closing said rings down on their inner rings. The space between the segments is enough to allow of considerable contraction of the outside circumference, which takes place as the ring is constantly pressed on the piston-rod to take up the wear. Resting against ring C
60 are two sets of rings consisting of two companion rings each, the external diameters of the outside rings of which are the same as that of ring C. Rings E and G, the outer rings of the said two sets, encompassed by continuous springs H H, are of one piece,
65 respectively, with sufficient opening at their joints to allow a contraction of the area encompassed by them needful to bring in use the entire thickness of ring F. The metal of these rings E and G is soft and flexible, so
70 that they easily accommodate their inner surface to the outer contour of inclosed rings D and F, which by wear contract their outer circumferences and thus convert the circular form of said circumferences into quadrangu-
75 lar figures. If the rings E and G were not flexible or were divided into segments that broke joints with the inclosed segmented rings, a little wear on the inner surface of the inclosed rings would interrupt the circular fit
80 with the inclosing rings and would allow an escape of steam or air. It is to overcome this defect in all other metallic packings that this invention is made. The inner diameter of ring E is greater than that of ring G, and as
85 both rings fit down on their rings D and F, respectively, and are of the same external diameter the ring D is thicker than its corresponding ring F. This difference in the thickness of these two rings is for the purpose of break-
90 ing circular joints in the two sets. Rings D and F, the inner rings of the inclosing rings E and G, which are made of soft metal commonly used for packing, are divided into three segments, respectively, with open joints for
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the purpose of allowing easy accommodation of the worn rings to the piston-rod or valve-stem, which they always snugly fit, receiving their form from it as they wear. As they shorten their diameter to fit the piston-rod the outer surfaces break the circular figures with which they started and assume a quadrangular one, and, as explained before, the external flexible rings meet this contingency by being subjected to the pressure of steam that is admitted to gland A through the segments of ring C, combined with that afforded by springs H and H, which force these rings into the shape of their companions. The cross-sections of all the rings are rectangular figures. When in position, all the joints of the rings are broken in reference to all others.

When gland A is in position, rings C, D, E, F, and G are placed on rod X with all the joints broken, ring E encompassing D, and G that of F. Springs H H H encircle rings C, E, and G. Cap B is attached by stud-bolts N N. Then the packing is ready for use. When thus equipped, steam enters the gland A through the segments of ring C and aids the continuous springs in perfecting the contact of companion rings E D and F G on rod

X and at the same time binds rings G and F to cap B.

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

The combination in a rod-packing of three sets of rings, all of the same external diameter; one that is simple, divided into three segments and encircled by a spring, which is situated nearest the cylinder; and the other two double, consisting of one larger inclosing ring of one piece of metal with one open joint, encircled by a spring, and a smaller inclosed ring divided into three segments with open joints, the inner ring of one of the double rings having a greater external diameter than the other with all the joints broken inclosed in a casing or gland whose internal diameter is greater than external diameter of the rings substantially as specified.

In testimony whereof I hereunto set my hand to this specification in the presence of the undersigned witnesses.

WM. H. PRENDERGAST.

Witnesses:

FRED T. SAUSSY,
C. B. ALLEN.