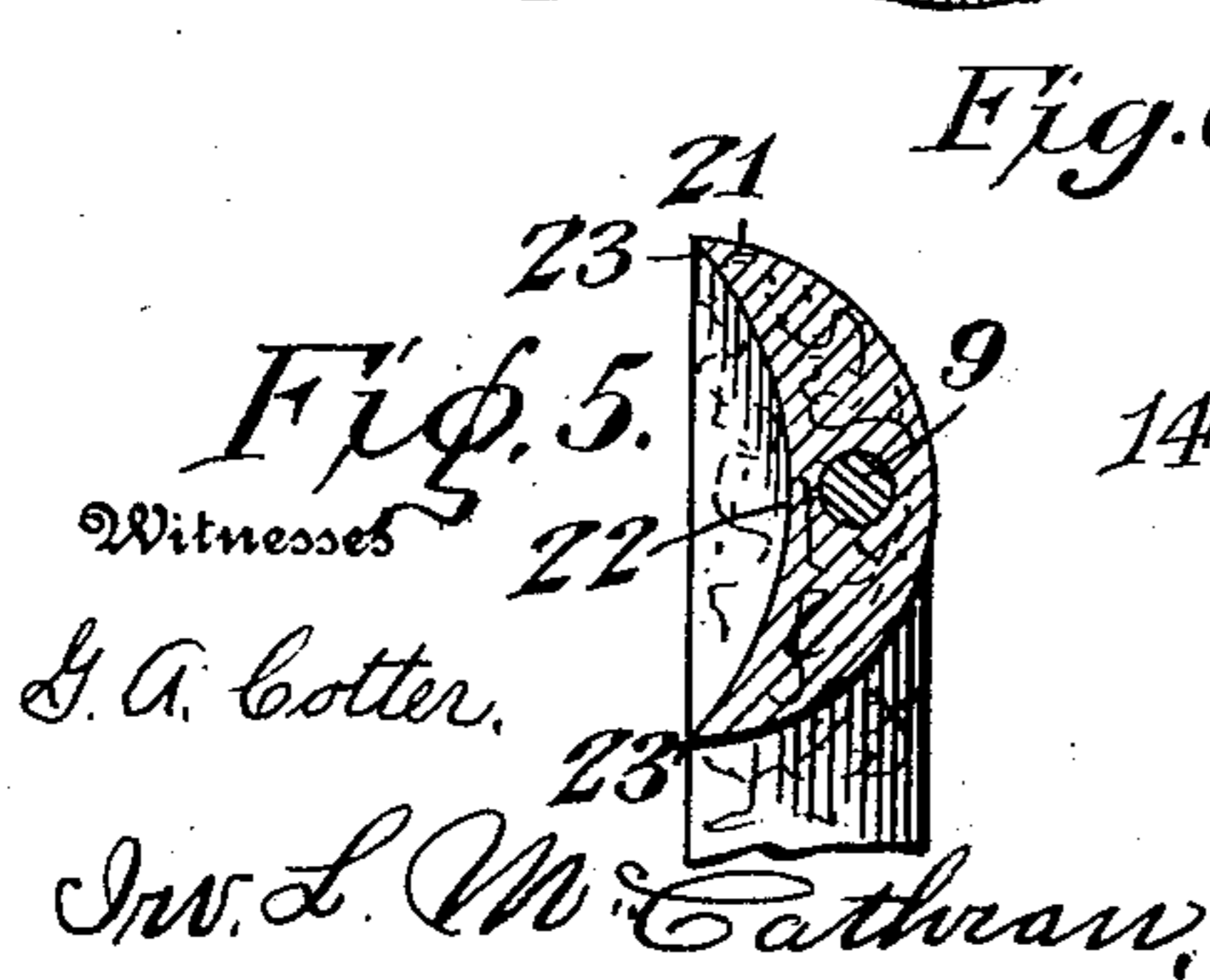
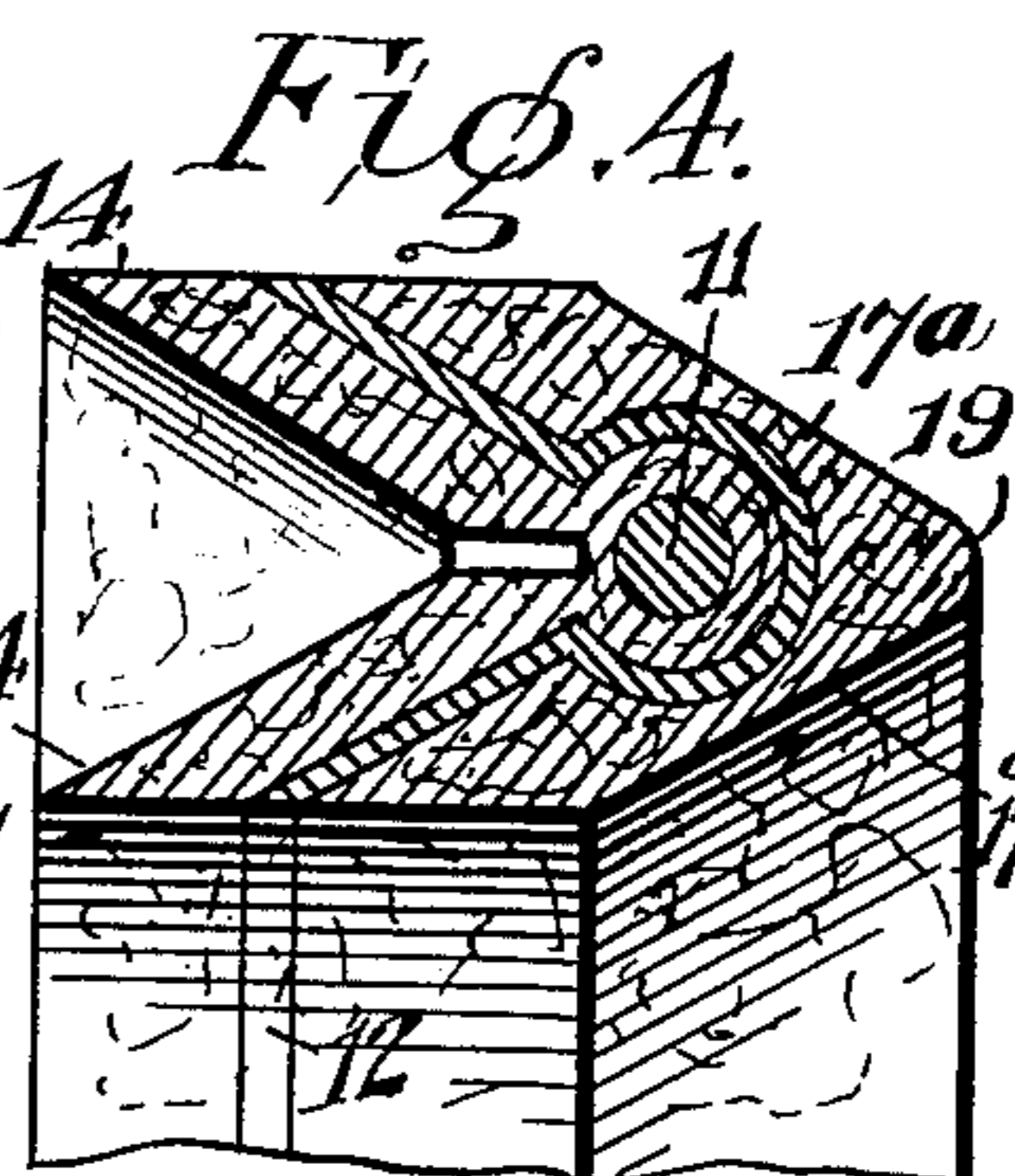
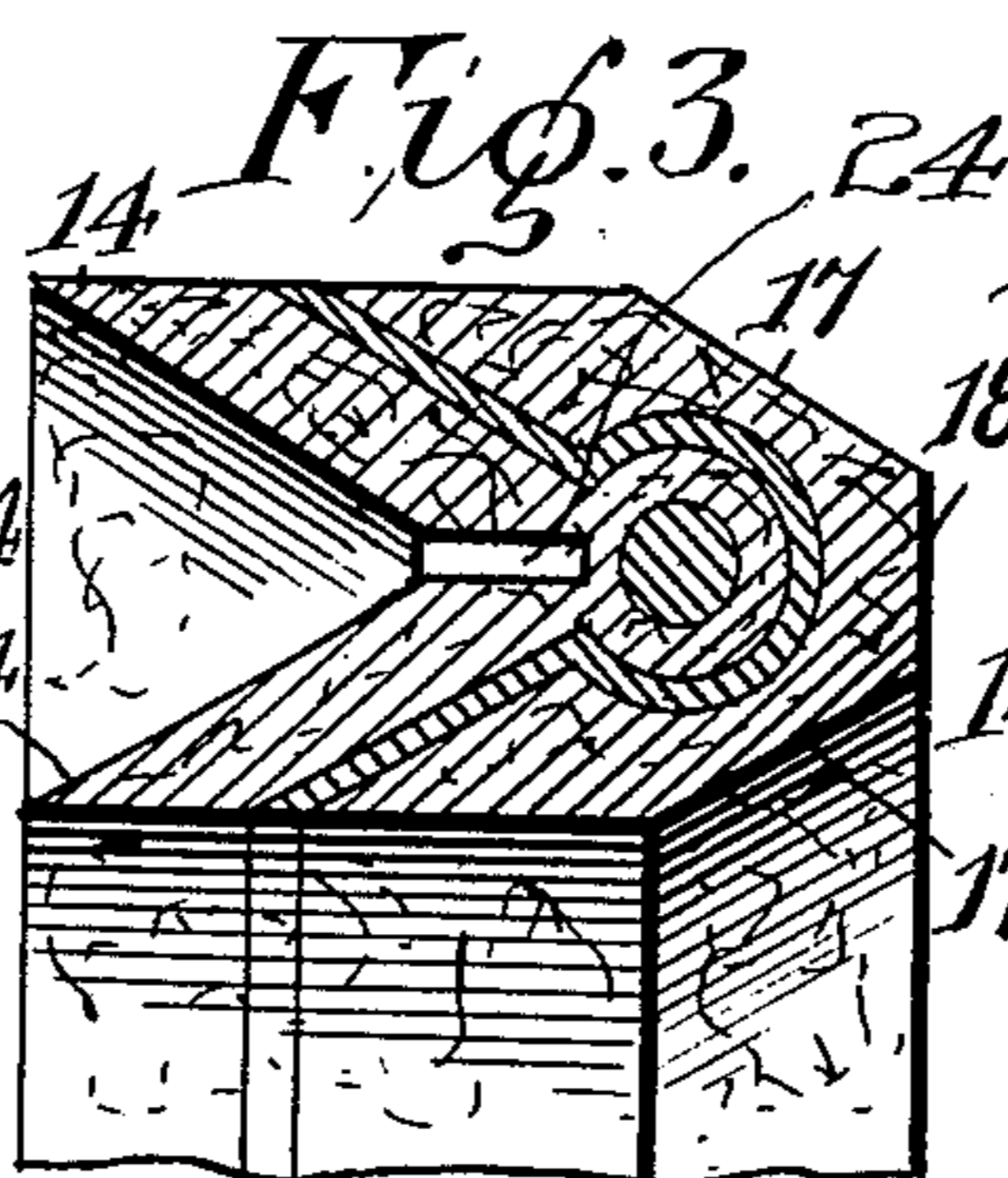
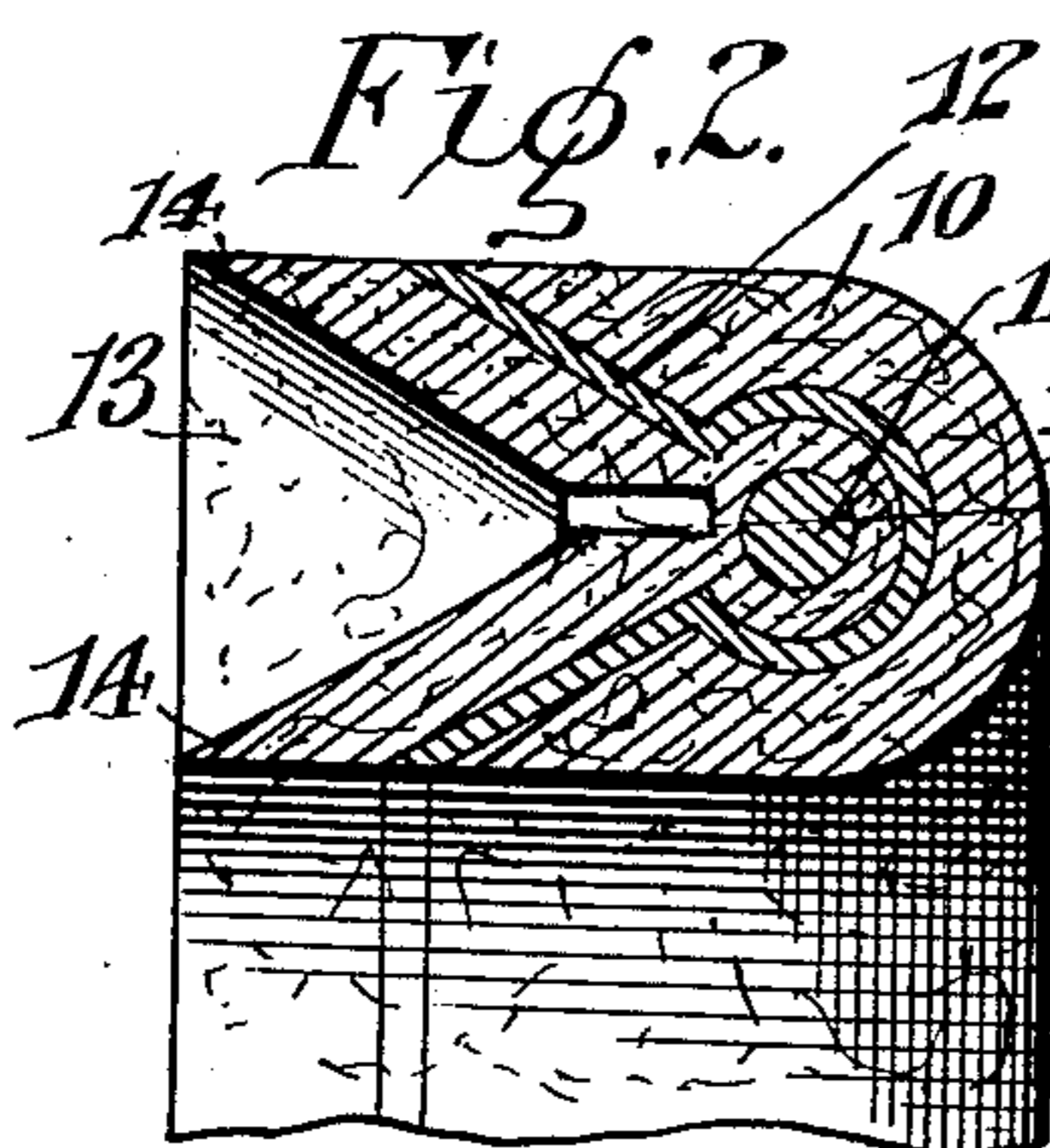
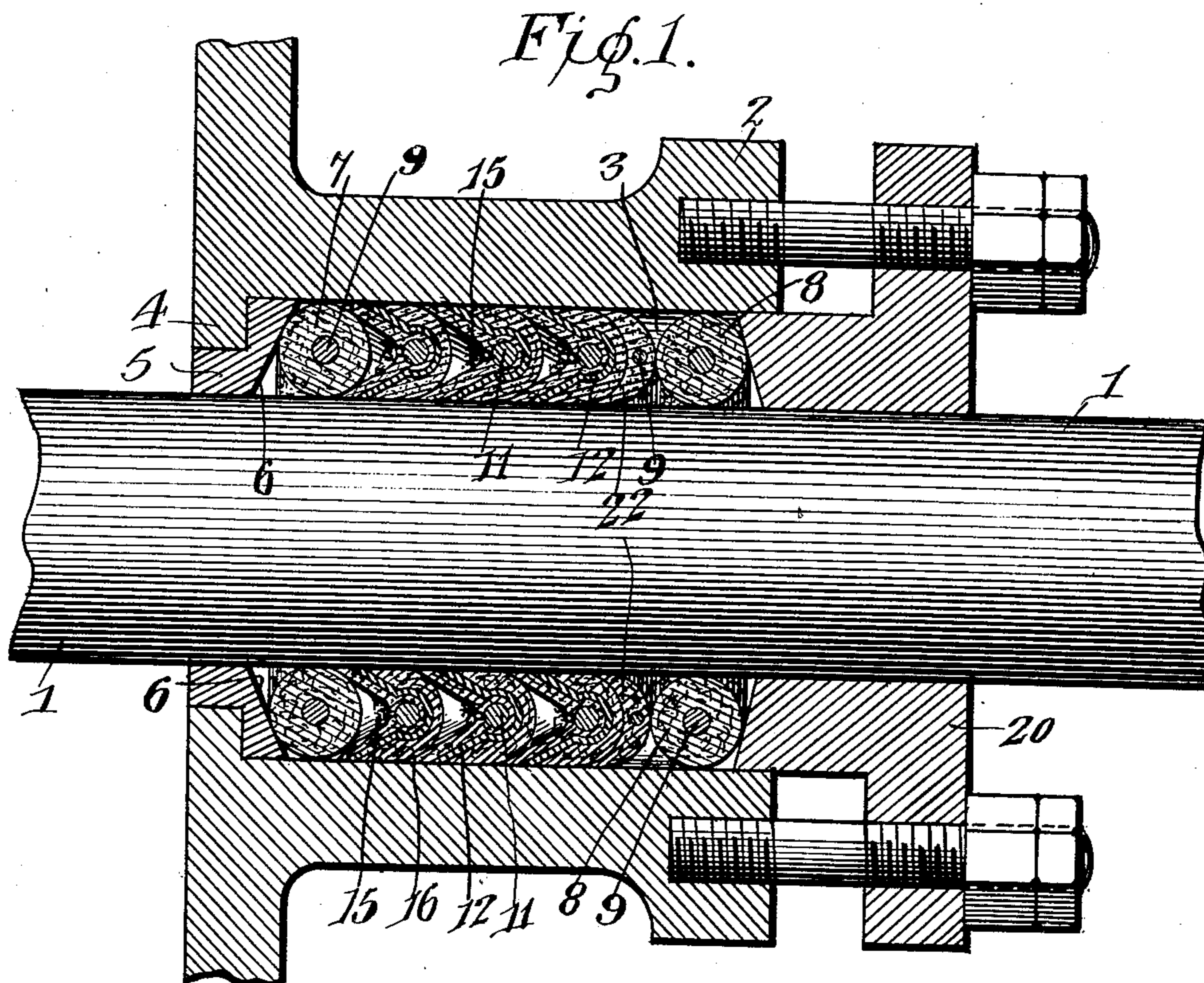


O. R. WEESE.
 PACKING FOR STUFFING BOXES.
 APPLICATION FILED JULY 10, 1908.

917,690.

Patented Apr. 6, 1909.



UNITED STATES PATENT OFFICE.

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PACKING FOR STUFFING-BOXES.

No. 917,690.

Specification of Letters Patent.

Patented April 6, 1909.

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To all whom it may concern:

Be it known that I, OTIS R. WEESE, a citizen of the United States, residing at Pomeroy, in the county of Meigs and State of Ohio, have invented certain new and useful Improvements in Packing for Stuffing-Boxes, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to certain new and useful improvements in packing, and has for its object, the provision of means for facilitating the prevention of steam, gas, or liquid, from escaping through a stuffing-box.

15 Another object of the invention is the improvement of the construction of a packing *per se*, which comprises a peculiarly-constructed, reinforced body, having a member embedded therein, constituting a core.

20 A further object of the invention is the construction of a peculiar packing, which is comparatively inexpensive to manufacture, is efficient in operation, and durable in structure.

25 With these and other objects in view, the invention consists of certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

30 Figure 1 is a longitudinal, sectional view of a stuffing-box, and showing, in section, a stuffing-device or peculiarly-constructed packing in the same, which device or packing is constructed in accordance with the present invention. Figs. 2, 3, and 4 are fragmentary, sectional views of packings constructed in accordance with the present invention. Fig. 5 is a fragmentary view of a packing crescent-shaped in cross-section. Fig. 6 is a sectional, perspective view of one of the packings. Fig. 7 is a fragmentary, sectional view of one of the packings, showing the end-packing or packing round in cross-section, engaging the lips or sides and also showing in dotted lines, the end-packing in the position, which it can assume when the sides of the V-shaped packing have been greatly worn.

40 Referring to the drawings, 1 designates, preferably, a piston-rod or shaft working in the stuffing-box 2, which stuffing-box is provided with a chamber 3. The inner end of the stuffing-box is provided with an an-

nular flange 4, that is engaged by a ring 5. 55 The ring 5 is provided with a pair of portions, each of which is positioned at substantially right-angles to the other, and the inner face of ring 5 is beveled, as at 6, for facilitating the compression of the packings 60 in chamber 3, when the packing-device is compressed manually, as the inclined beveled face 6 will permit the inner, annular packing 7, round in cross-section, to ride over the end, and being compressed with a 65 less amount of wear than if the face 6 was arranged vertically or of an ordinary flat structure. The outer, or end-packings 7 and 8, respectively, are similarly-constructed, and, therefore, it will only be 70 necessary to specifically describe one of the same. Each end-packing, as before stated, is round in cross-section, and may be formed of any suitable material, the same as the intermediate packings hereinafter de- 75 scribed. A rubber, annular core 9, is placed in the packing for reinforcing the body thereof, and producing a more durable and efficient structure, as the reinforcing core 9 will strengthen the entire body of the end- 80 packing. The intermediate or primary packings are V-shaped in cross-section, and, therefore, to facilitate the description thereof, I will hereinafter designate the intermediate packings as V-shaped packings. 85

Each V-shaped packing comprises an annular body 10, having countersunk therein, a reinforcing annular-shaped or ring-core 11. The body 10 is further reinforced by an auxiliary body 12, which body 12 in cross- 90 section is substantially cylindrical shaped and is provided with outwardly-extending or diverging sides that conform to the shape of the annular V-shaped pocket or recess 13; the recess or pocket 13 produces expansible 95 lips 14 upon the packing, which lips 14 are adapted to expand and fill in an uneven space on the piston-rod 1 or in the wall of the chamber 3 of the stuffing-box 2. The substantially cylindrical body of the auxiliary portion 12 of the packing partly surrounds, and 100 is spaced from the reinforcing, annular ring or core 11, Fig. 2, thereby producing a very efficient structure, as it will be seen that not only is the body of the packing reinforced 105 and greatly strengthened, but the sides of the packing producing the annular recess or pocket 13 is also strengthened by the

parallel reinforcing, outwardly - extending sides or extensions of the auxiliary body 12.

At the inner end of the annular box or recess 13, graphite or other lubricant, as at 15, Fig. 1, may be placed during the construction of the packing-device, for lubricating or oiling the piston-rod or the movable member working through or in the chamber 3.

The packings depicted in Figs. 3 and 4 are of the same structure as the packing depicted in Fig. 2, except that in Fig. 3, instead of having the round, outer end 16, as packing depicted in Fig. 2, this packing, Fig. 3, is provided with straight, inclined sides 17, producing a vertical, or flat end 18, and the packing in Fig. 4, is provided with a straight, inclined end 17^a; terminating, at 19, in a small, rounded or curved end. All of the packings are adapted to have their ends seated in an annular recess or socket 13, so as to facilitate the spreading of the wings or lips 14 apart when the gland is packed by either the action of steam from the cylinder or chest against the inner faces or walls of the lips 14, or by the operator pressing in the gland 20 of the stuffing-box, and, consequently, shoving the end-packing 8 against the contiguous packing of the intermediate structure, of my packing-device.

I sometimes employ a packing which is crescent-shaped in cross-section, Fig. 5, for filling the space between the outer V-shaped packing and the outer or end-packing 8, for in some stuffing-boxes, the room unemployed, is not large enough to receive an additional section of V-shaped packing, whereas it is large enough to receive a crescent packing 21. The crescent-packing 21 is provided with an annular, preferably, rubber, reinforcing core 9, the same as the end-packings and the intermediate or V-shaped packings. The annular socket or recess 22 of the crescent-shaped packing 21, is adapted to fit snugly over the rounded, outer end 16 of the packing depicted in Fig. 2, and, in fact, will perform substantially the same function when engaging the ends 18 and 19 of the packings depicted in Figs. 3 and 4, to wit: They fill the space between the end of the V-shaped packing and the outer packing, and the lips 23 of the crescent-packing 21 may be expanded against the walls of the chamber 3 or movable member 1, the same as the lips or wings 14 of the intermediate or V-shaped packings.

From the foregoing description, it is to be noted that my stuffing-box packing-device comprises end-packings, intermediate or V-shaped packings interposed between said end-packings, and a filling or crescent-packing interposed between one of the end-packings and one of the V-shaped packings, the packings constituting elements of the device, and are formed in a peculiar manner. Further-

more, I have constructed a peculiar packing, for a stuffing-box, as pointed out in the following claims.

The packings of my device can be manufactured separately, placed in a packing-box in conjunction with a plurality of other packings, and the material from which all of my packings are made, can be either asbestos, cotton, linen, hemp, rubber, or any other fibrous or metallic material.

The steam pressure of the inner or end-packing 7 forces it into the substantially V-shaped pocket or annular recess of the extreme inner, intermediate, or V-shaped packing, thereby expanding the lips 14 against the rod 1 and thereby stuffing the stuffing-box, making an absolutely tight contact through which no steam can escape; should, by any careless installation of the packing, steam pass the first intermediate or V-shaped packing, it enters the annular recess 13 of the contiguous packing, expanding its lips, and making it impossible for steam to escape further. Even on an untrue or scored rod, the lips of the several packings will expand and contact against the uneven or scored face, adjusting themselves to the imperfect surface, for making a tight and un-leakable joint or contact at all times, during the piston travel. Another advantage of the elastic, expansible packing is that it requires no pressure of any member of the stuffing-box, enabling it to retain its original shape for an indefinite period, thereby greatly increasing its life.

It is to be noted that the primary body 10 is provided with an auxiliary body 12, and that the auxiliary body is a distinct body from the primary body, in so far as the primary and auxiliary bodies being one layer upon another layer, for, while the two bodies constitute a part or the complete packing *per se*, still there are two distinct elements of the packing, other than mere layers or coverings, one upon the other.

It will be obvious that the outer or primary body 10 may be formed of the same material, as the inner or auxiliary body 12, but the inner body 12 is formed of a different density, that is to say, the material is more closely woven or compressed to form a stiffer body than the outer body, whereby the inner or auxiliary body 12 reinforces the outer body, practically throughout its entire length. The inner, cylindrical end-portion of the auxiliary body 12 reinforcing the end of the V-shaped packing, as well as the reinforcing core 12, which core is round or circular in cross-section.

I have provided a stuffing-box packing with a longitudinally-extending slot or elongated recess 24, which will also pack perfectly a rod that is low in a stuffing-box by the slot closing on the lower side, and the expansible lip expanding on the top or

upper side, as well as the lower side, and thereby adjusting itself to the position of the rod in the box. It will, therefore, be seen that the slot or elongated recess 24, which is normally provided with parallel sides, greatly increases the life of the packing, as illustrated in Fig. 7, wherein dotted line 25 illustrates the position which the end-packing may assume, as the sides or lips of the V-shaped packing become worn. The giving of the V-shaped packing on one side increases the efficiency thereof, as explained before, relative to the upper or lower part giving and the opposite part expanding, owing to the condition or contour of the engaged object or surface. Another object of the slotted structure of my packing is that there will be more of the elongated surface of the packing brought in contact with the piston-rod and the sides of the chamber than with an ordinary packing, which is not provided with a slot or elongated recess.

What I claim is:

1. In a device of the character described, the combination of a plurality of end-packings, an intermediate packing V-shaped in cross-section positioned between said end-packings, and a packing crescent-shaped in cross-section interposed between the intermediate packing and one of the end-packings.

2. A packing, comprising an annular body, said body substantially V-shaped in cross-section, said body provided with an annular rubber core, and said body provided with an auxiliary reinforcing body surrounding said core and formed in the first-mentioned body.

3. A packing, comprising a body, an auxiliary reinforcing body formed in said first-mentioned body, said auxiliary body provided with a portion substantially cylindrical-shaped in cross-section and with outwardly-extending sides or wings.

4. A packing, comprising a body, provided with a recess and with outwardly-extending lips or wings, and said body provided with a reinforcing core.

5. A packing, comprising an annular body, provided at one side with an annular recess and with outwardly-extending lips or wings, and an annular, flexible reinforcing core formed in said body.

6. A packing, comprising a body, provided at one end with a recess extending the entire length of the body, and said body provided with an auxiliary reinforcing body formed therein, and a reinforcing core formed in the first-mentioned body and within said auxiliary body and extending the entire length thereof.

7. A packing, comprising a body formed of a primary and an auxiliary portion, the primary portion provided with outwardly-

extending tapering lips or flanges, an auxiliary portion provided with outwardly-extending lips or flanges reinforcing the lips or flanges of the primary body.

8. A packing formed of expansible material and comprising a body substantially V-shaped in cross-section, reinforcing means substantially V-shaped in cross-section and formed in said body, the ends of the V of said body reinforced by said reinforcing means.

9. A packing, comprising a body provided with a reinforcing portion, said reinforcing portion comprising a substantially cylindrical body in cross-section, and said cylindrical body provided with outwardly-extending flanges or lips, and a reinforcing core spaced from said cylindrical portion and surrounded thereby.

10. As a new article of manufacture, an expansible packing, comprising a body provided at one side with a curved or outwardly-extending portion and at its opposite side with an inwardly-extending pocket or recess, and said body provided with a reinforcing ring-core.

11. A packing, comprising an annular body, said body substantially V-shaped in cross-section, a reinforcing body formed in said first-mentioned body, said reinforcing body provided with an end substantially cylindrical shape in cross-section, and with outwardly-extending wings or flanges, and an annular reinforcing core, round in cross-section, positioned within the cylindrical end of the reinforcing body.

12. As a new article of manufacture, a packing, comprising an inner and an outer body of substantially the same shape and formed of different material, or of different densities, and a reinforcing core positioned within the ends of said bodies.

13. In a device of the character described, the combination with a stuffing-box, of a packing-device in said stuffing-box, said packing-device comprising a pair of end-packings round in cross-section, an intermediate packing provided with expansible lips or sides, engaging opposite portions of one of the end packings, and filling means between said intermediate packing and the other end-packing.

14. In a device of the character described, the combination with a stuffing-box, of a packing device in said stuffing-box, said packing-device comprising annular end-packings, each end-packing provided with a reinforcing ring core, an intermediate packing between said end-packing, said intermediate packing provided with a reinforcing ring core, and filling means provided with a ring-core positioned between said intermediate packing and one of the end packings.

15. A packing, comprising a body pro-

vided with a reinforcing, auxiliary body embedded therein and with expansible lips, said body provided at the inner ends of said lips with an elongated slot.

5 16. As a new article of manufacture, a yieldable packing for stuffing-boxes, comprising a solid fibrous body, provided with a pair of similarly-constructed, comparatively long, expansible-lips, each lip taper-
10 ing to a point at its outer edge, the inner faces of the lips producing a V-shaped pocket, in cross-section, in the body, and the inner face of each lip terminating at the center of the body.

15 17. A flexible packing for stuffing-boxes, comprising a solid body elongated in cross-section and provided with a pair of comparatively long lips tapering to a point at their outer edges, and the inner faces of the
20 lips producing a substantially V-shaped pocket, in cross-section, and said body provided with a rubber-core embedded or in-

closed therein only beyond the inner ends of the lips.

18. A flexible packing for stuffing-boxes, 25 comprising a solid body elongated in cross-section, and provided with a pair of comparatively long lips, and a rubber ring-core in the body beyond the inner ends of the lips.

19. A flexible packing for stuffing-boxes, 30 comprising a solid body elongated in cross-section and provided with a pair of comparatively long lips, and an expansible core in the body only beyond the inner ends of 35 the lips and said core of less dimensions, in cross-section, than the body between its back and the inner ends of the lips.

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

OTIS R. WEESE.

Witnesses:

MANNING S. WEBSTER,
H. B. SMITH.