

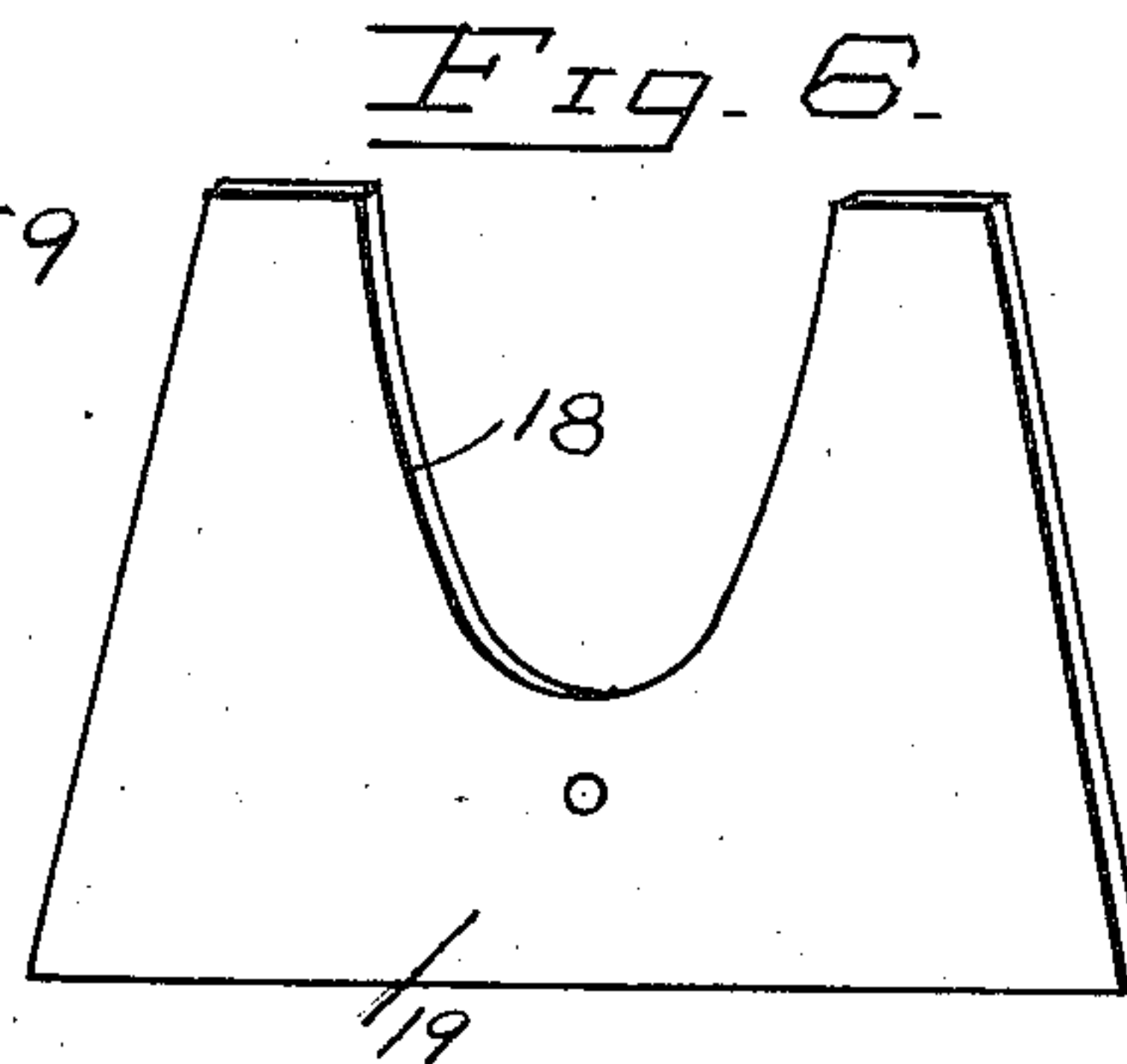
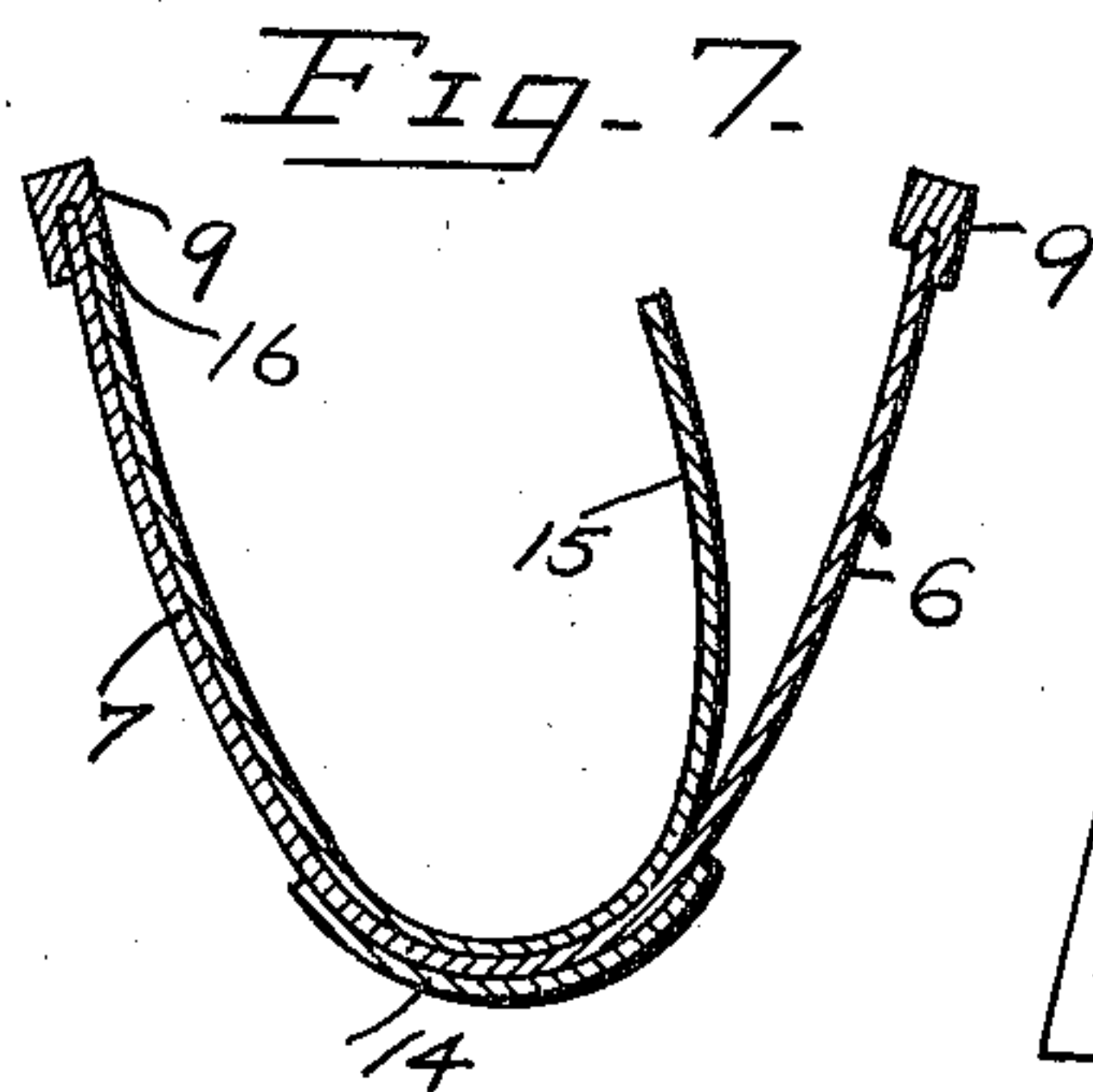
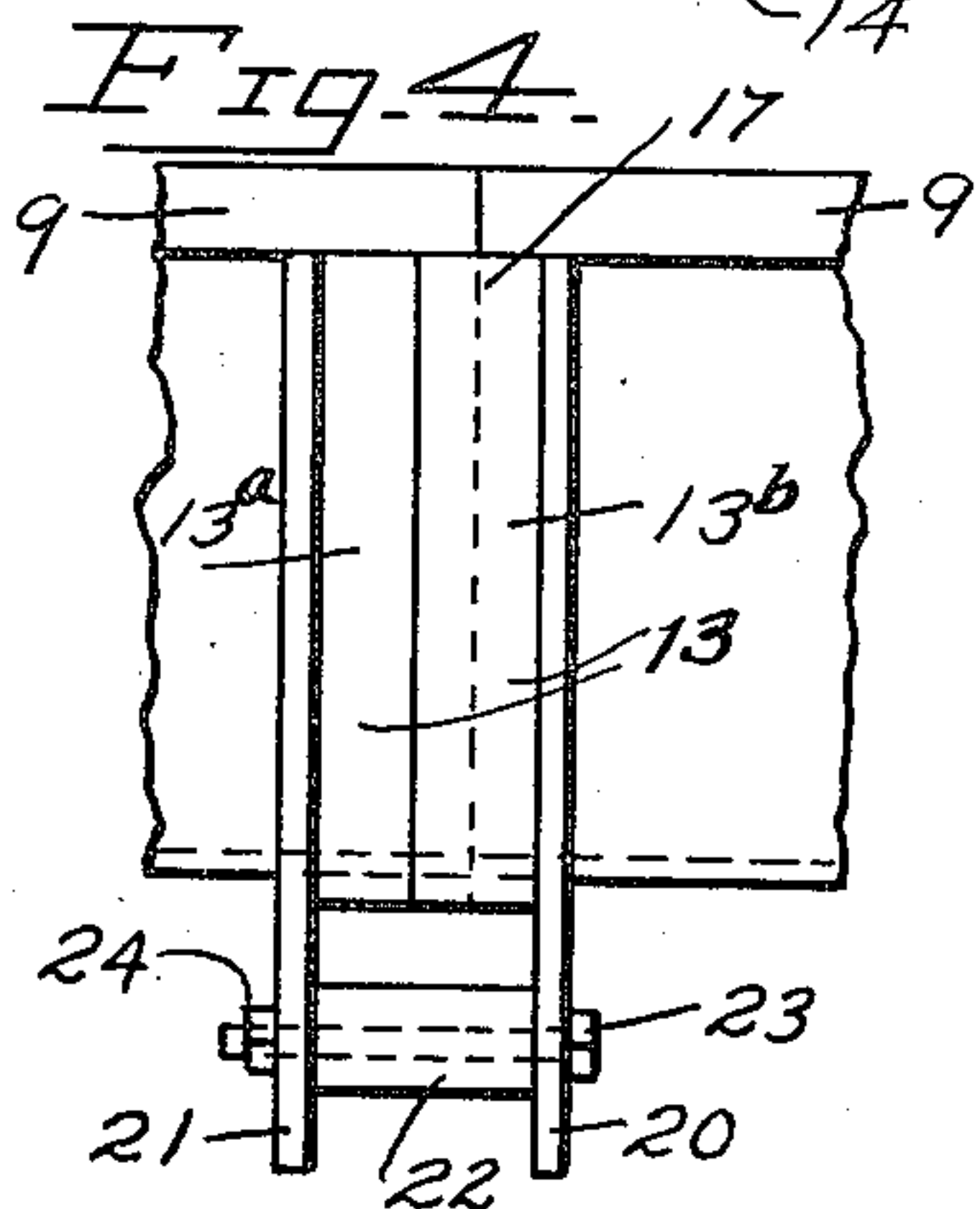
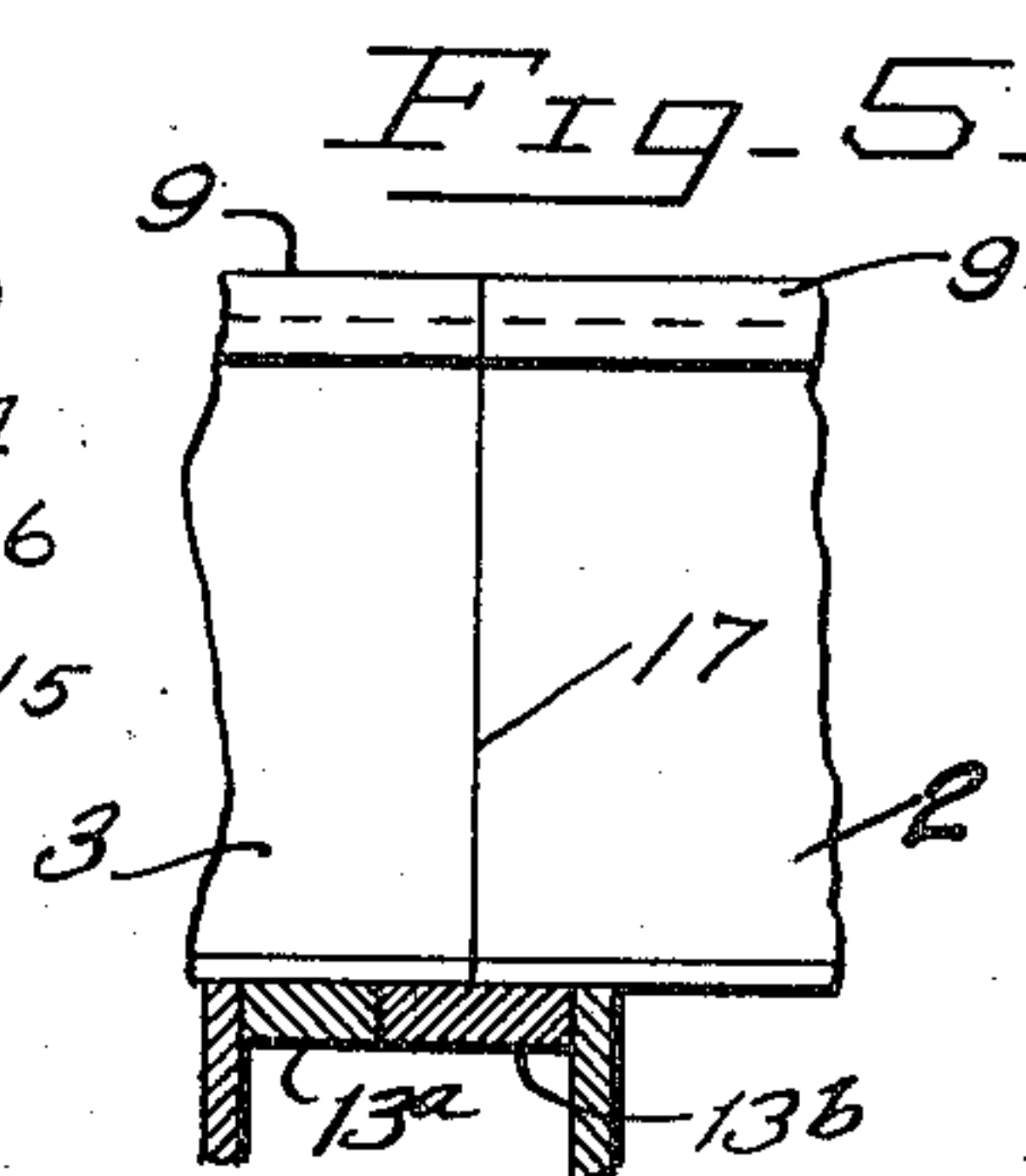
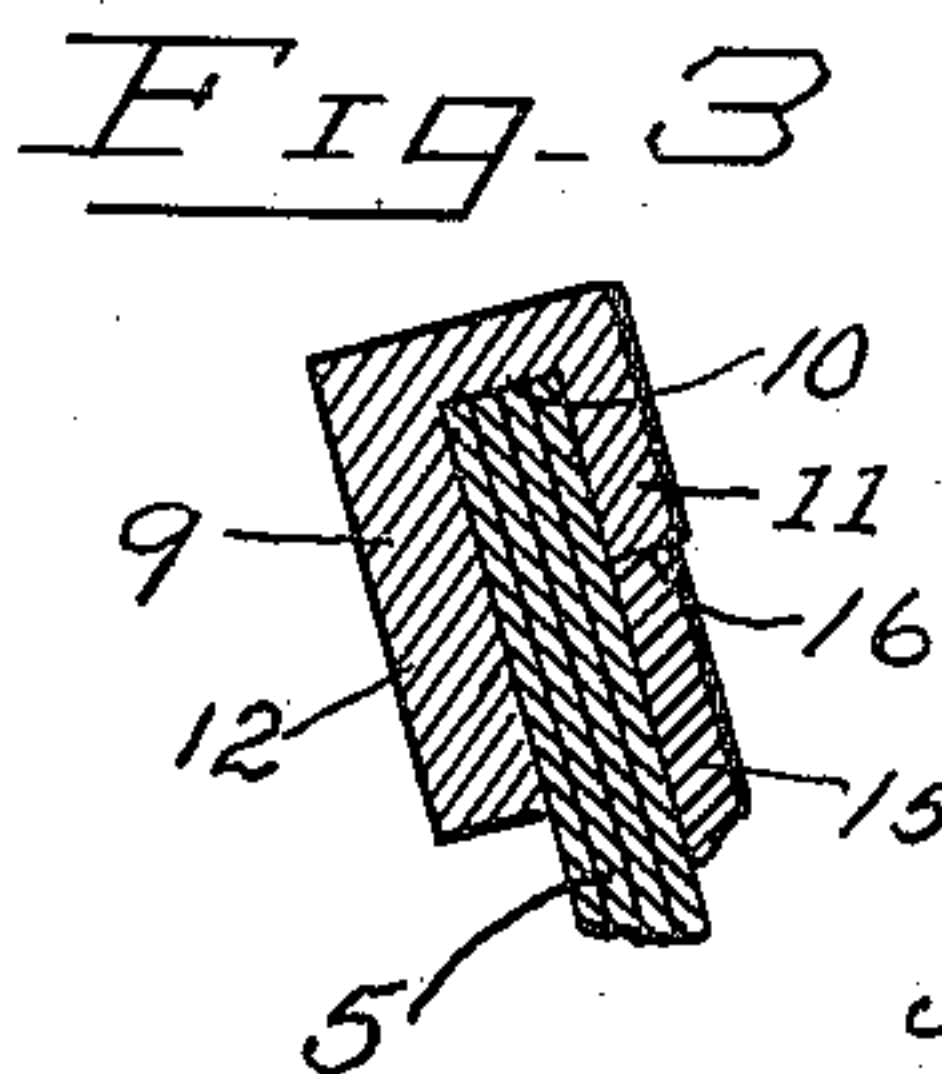
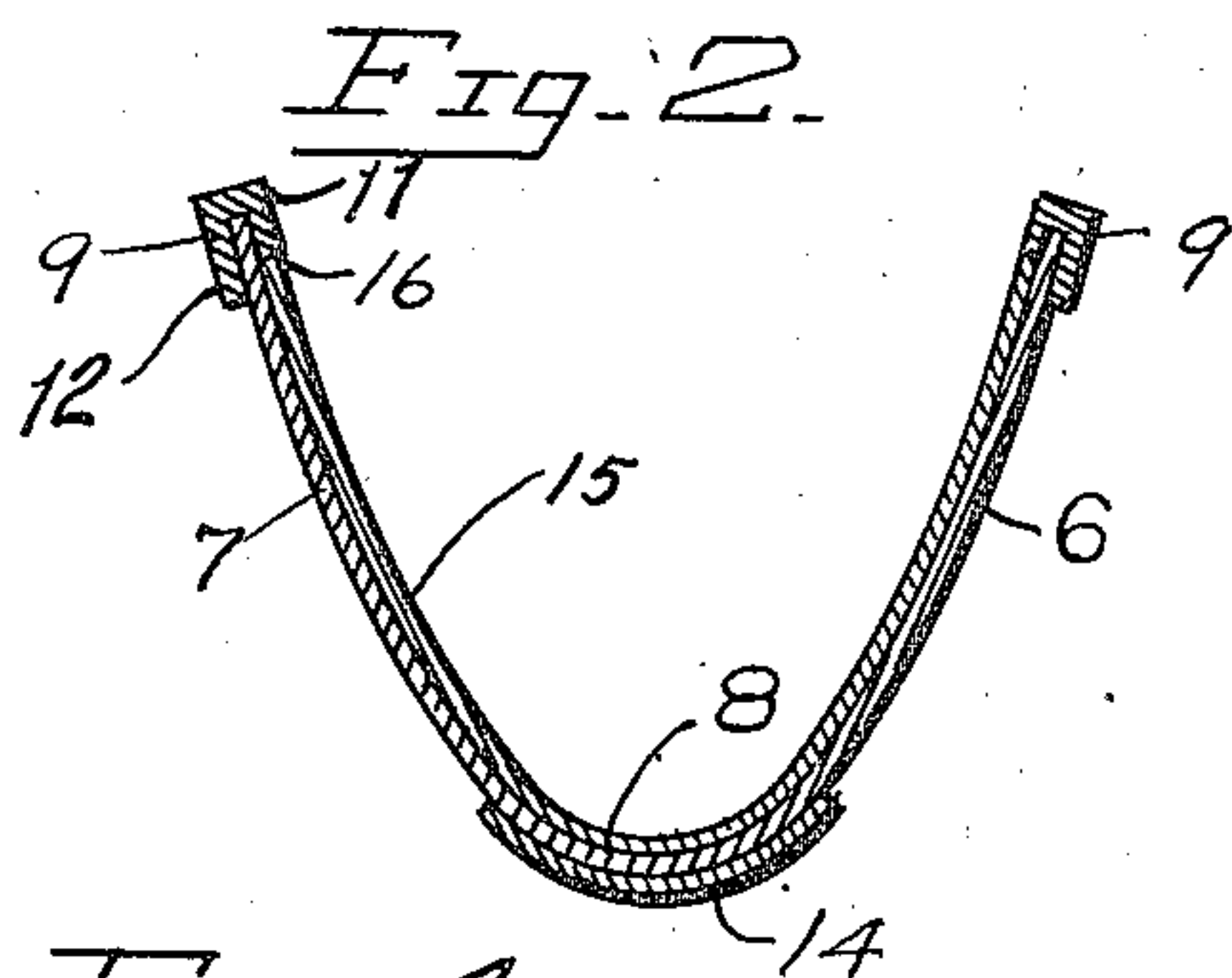
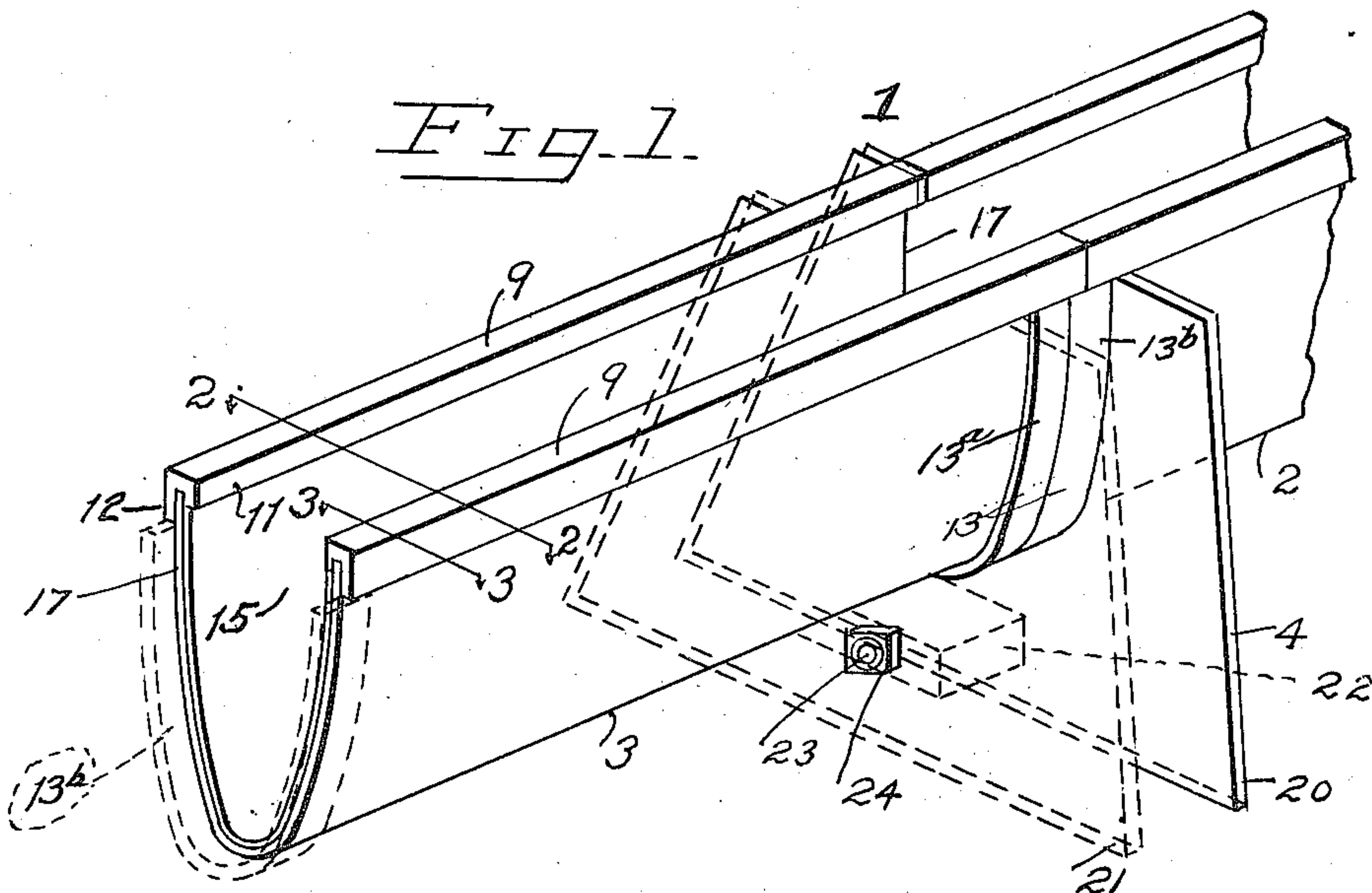
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FLUME

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FLUME

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The present invention relates to flume construction of a type which is standardized as to section and may be readily joined with like flume sections to any length desired.

In many localities makeshift flumes are constructed for the purpose of sluicing wood to mills. Some of these flumes are constructed of two boards to form a V trough. These boards rapidly wear in actual use, leak badly, and must be replaced after a short time. Furthermore, flumes of this character must be supported at their ends and intermediately thereof.

The present invention has for an object the provision of a flume construction which overcomes the inconvenience and difficulties above mentioned, which is light in weight, readily resists wear over an extended period of time, does not require intermediate supports, does not leak and resists decay.

Other objects include a flume construction which is inexpensive in cost of manufacture, which is capable of being stacked one within the other to thereby save space, readily assembled and disassembled, and which is generally superior in durability to flumes now known to the inventor.

Whereas the average flume when worn must have such parts removed, thus causing a dismantling of the flume, the present invention incorporates a construction which does not require that the flume sections be separated, as the worn portion in any one section of a flume is readily replaceable. Thus an extended shutting down of the operation of the flume or any extensive repairs thereto is unnecessary.

In the drawing:

Fig. 1 is a perspective view of two sections of flume incorporating the improved invention;

Fig. 2 is a transverse sectional view on the line 2-2 of Fig. 1;

Fig. 3 is an enlarged fragmentary cross sectional view on the line 3-3 of Fig. 2, illustrating a portion of the flume construction;

Fig. 4 is a fragmentary side elevation showing one method of interconnecting and supporting two flume sections;

Fig. 5 is a fragmentary detail on an enlarged scale of a lap joint between two flume sections;

Fig. 6 is a front elevation of a trestle member for use in supporting the flume; and

Fig. 7 is a cross sectional detail similar to Fig. 2 and showing application of a liner member within a flume section.

Referring now to the drawing:

The improved flume is designated as an en-

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tirety and in one embodiment by the numeral 1, and said flume is made up of sections such as are shown in Fig. 1, at 2 and 3, which are adapted to be interconnected at their ends to form a flume of any length desired. The flume of the present invention is adapted to lie close to the ground and is so constructed and arranged as not to require any intermediate supports, the supports or trestles being positioned at the abutting or interconnected ends of a pair of sections, as for instance illustrated in Fig. 1, at 4. The flume sections are preferably formed of plywood, the plywood being characterized by the use of waterproof glue in the securing together of the laminae. Such a plywood structure is contemplated as illustrated in Fig. 3, at 5. The plywood is preformed in any known manner so as to provide sloping side walls 6 and 7, which join a curved interconnecting base 8. I have found that a flume of hyperbolic or parabolic cross section, as illustrated in Fig. 2, is efficient in actual use, as the small radius of curvature for the base 8 is most efficient for handling small flows of water. The upper edges of sides 6 and 7 carry members 9. Members 9 act to stabilize the flume sections, and said members constitute a block which is longitudinally grooved at 10, to provide two legs 11 and 12, the leg 12 being of greater length than the leg 11. A portion of the upper edge of each flume side is received in the said groove. The members 9 extend the length of the side walls of the flume section, as illustrated in Fig. 1. Each flume section is provided with ribs 13, which ribs conform to the transverse section of the flume and may be glued or otherwise held thereto. One of said ribs 13 is spaced inwardly from one end of the side wall, as shown at 13a, while a rib at the opposite end of the same section has a portion thereof extending beyond the end of the side wall, as shown at 13b. The purpose of this arrangement of the ribs on the flume sections will be detailed later. The ends of said ribs are in abutting relationship with the leg or lip ends 12 of the longitudinally extending members 9. This construction acts to stabilize and stiffen the flume section and thus overcome the necessity of providing any means intermediate the section ends for supporting the section.

I may increase the number of plys adjacent the base portion 8 of the flume section, as indicated at 14. This is a further stabilizing factor for the flume section.

When small objects are sluiced through the ordinary flume these objects strike the walls of

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the flume and wear the flume in spots, requiring the replacement of such members. I have found it expedient in the present invention to provide in the flume section a liner 15, which is hardened to withstand wear. This liner corresponds to the curvature of the side walls and base as shown in Fig. 2. The liner may be of a material such as highly compressed and impregnated wood, Masonite or a similar product, the intent being to provide a material which not only resists wear but is not subject to rot. This liner may be preformed, or may be a flexible sheet which permits its bending to form, in which instance the sheet has one of its elongated edges in abutment with the edge of leg or lip 11, as shown at 16, whereupon the liner is pressed downwardly against one of the walls of the flume and the other end portion is then bent under the edge of leg 11, as for instance illustrated in Fig. 7. This will hold the liner securely in position of service. This liner is adapted to extend the length of the side walls and base of the flume section.

When it is desired to interconnect contiguous ends of a pair of flume sections, the end rib shown at 13b abuts against the rib on the next section, shown at 13a. The end 17 of the flume section which extends beyond the rib shown at 13a overlaps the rib shown at 13b on the adjoining section. The two sections may be held together by means of a bridging piece which may extend between the members 13, or by using trestles of the type shown in Fig. 6. Trestles or supports of the type shown in Fig. 6 may constitute plywood members which are cut at 18, the form of the cut corresponding to the transverse section of the flume shown in Fig. 2. This trestle has a portion extending below the cut 18, to wit: the part 19, which functions as a support or elevational means for a flume section. Preferably I use two of the members shown in Fig. 6 in the manner illustrated in Fig. 4, at 20 and 21, wherein the portions bounding the cut 18 of each of said members engage the inner edges of members 13 of a pair of rib-lapped flume sections. A spacer block 22 is positioned between members 20 and 21, and a bolt 23, or other means, is passed through said members and secured by nut 24. The flume sections are thereby interlocked and the pair of trestles support the flume above the earth or other structure over which the flume is passed.

It is of course evident that a flume of this character will not have any leaks along a section, for the reason that the side walls and base are preformed and are in one piece. The average V-type flume consisting of two parts secured together at the apex of the V constantly leaks at this zone, and such leakage induces rot, warping of the members, splitting of the timber and rapid deterioration of the flume section.

While I have shown the liner 15 as separable from a flume section, yet it is apparent that such a liner may be integrally incorporated in the section, such as by gluing or otherwise securing the same.

The operation, uses and advantages of the invention are as follows:

As previously stated, the flume sections may be of any length desired, although the length should not be so great as to cause any sag when a section is carrying water. Generally I have found it expedient to provide a section of twenty-foot length or under. These sections may be nested together when not in use, and when ready

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for erection the sections are joined by lapping the ends in the manner illustrated in Figs. 4 and 5. The liners 15 may be inserted or form an integral part of the flume sections, although I have found it expedient to insert the liners after the erection of the flume sections, as the liner will be the portion which will wear and hence is the portion to be replaced without the necessity of tearing down the flume sections. Thus whereas in the ordinary flume the flume must be shut down for a period of time while the sections are being replaced, the present construction does not require any lengthy shutdown. All that it is necessary to do is to remove the liner from a section or sections and replace with a new liner or liners, which may be quickly done by a single worker.

It is obvious that trestles other than of the form shown in Fig. 6 may be utilized as supports for the flume sections. I have found, however, that a trestle of the type shown in the drawing aids materially in maintaining the integrity of the sections and in addition acts to lock the ends of the sections in working relationship.

It is expected that some care will be exercised in forming the flume sections so that the ends thereof will be in right angular relationship to the side. Thus when the flume sections are brought into juxtaposition and abutting end relationship the rib 13b acts to close the joint between the abutting ends, and when the ribs are locked together leakage will not occur between the ends.

I claim:

1. In means of the character disclosed, a flume section formed of plywood, longitudinal members carried on said section and functioning to increase the thickness of the section along edges thereof, and extending along the inside of the flume, and a liner within said plywood section and maintained in position by said longitudinal members.

2. In flume construction, a preformed plywood member of substantially parabolic cross section, ribs externally positioned on said plywood member and conforming in shape to a transverse section thereof, one of said ribs extending beyond one end of said plywood member, and a second of said ribs being spaced inwardly from the opposite end of said plywood member, said ribs adapted to cooperate with a like formed plywood member to provide a lap between said members.

3. In flume construction, a preformed plywood member of trough-like form, a liner within said plywood member, a member having overhanging lips longitudinally extending along the edges of said plywood member, and said liner engaging said lips for maintaining the same in working relationship to the plywood member.

4. In flume construction, a preformed plywood member of trough-like form, ribs encircling the outer surface of said plywood member, one of said ribs spaced inwardly from an end thereof and a second of said ribs extending beyond the opposite end of said member, said ribs adapted to be in abutting relationship with contiguous ends of like formed plywood members, supports for said plywood members in engagement with said ribs, and means for securing the supports in working relationship to maintain the said ribs in abutted engagement.

5. In flume construction, a preformed plywood member of substantially parabolic cross section, ribs externally positioned on said plywood mem-

ber and conforming in shape to a transverse section thereof, one of said ribs extending beyond one end of said plywood member and a second of said ribs being spaced inwardly from the opposite end of said plywood member, said ribs adapted to cooperate with a like formed plywood member to provide a lap between said members, and means whereby the ribs forming said lap may be locked in working relationship.

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