

No. 897,995.

PATENTED SEPT. 8, 1908.

G. B. NORGRAVE.

ROOF JOINT.

APPLICATION FILED OCT. 10, 1907.

2 SHEETS—SHEET 1.

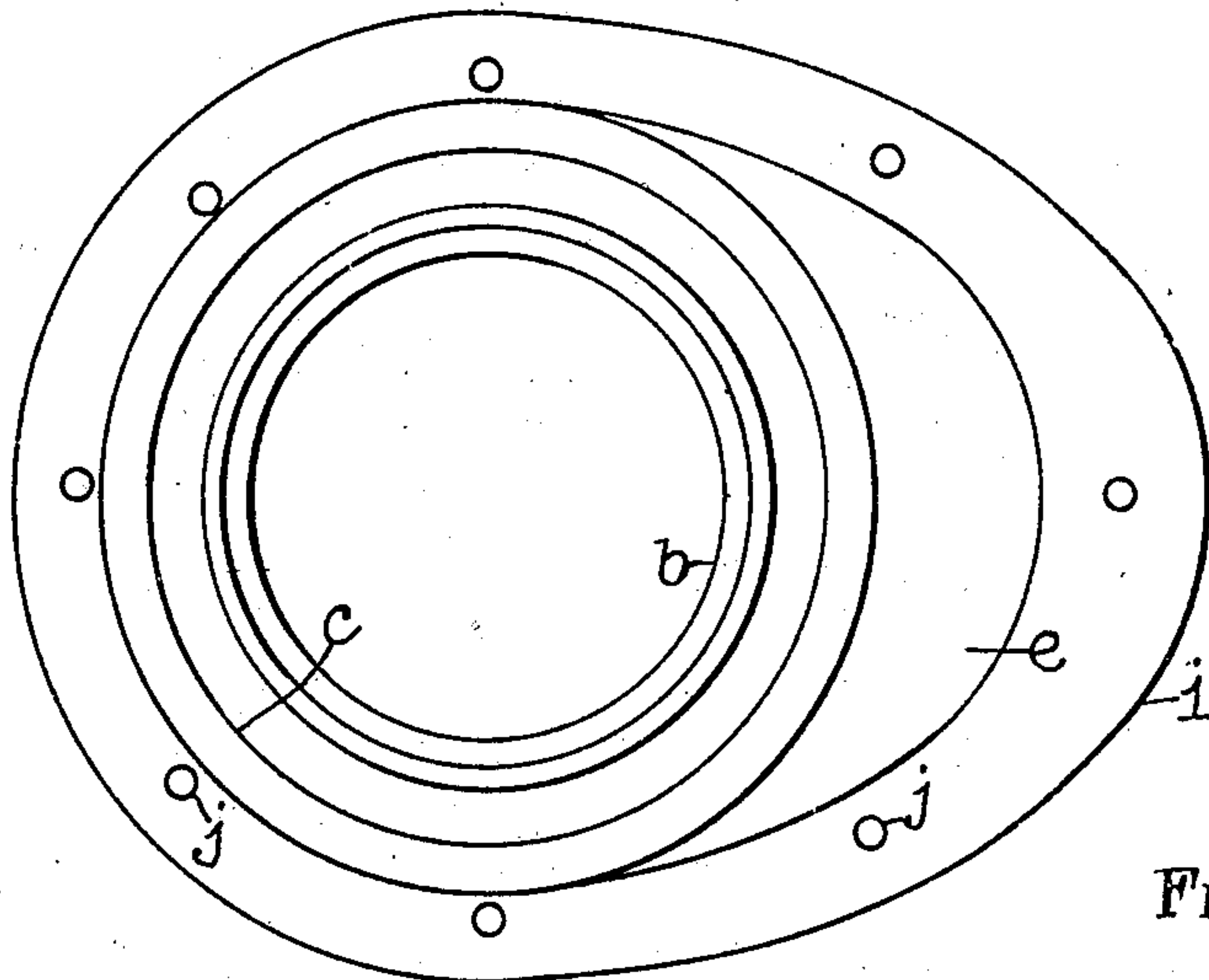


Fig. 1.

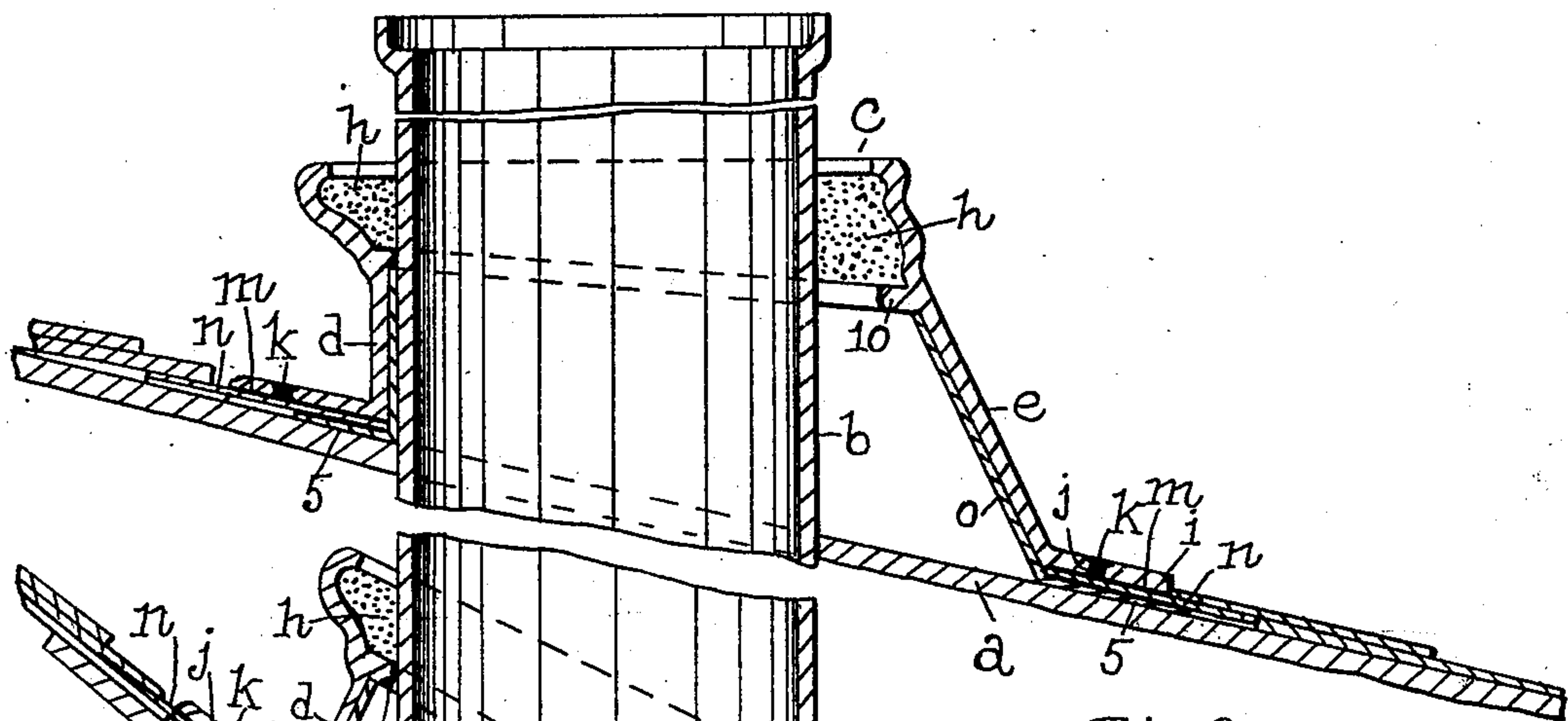


Fig. 2.

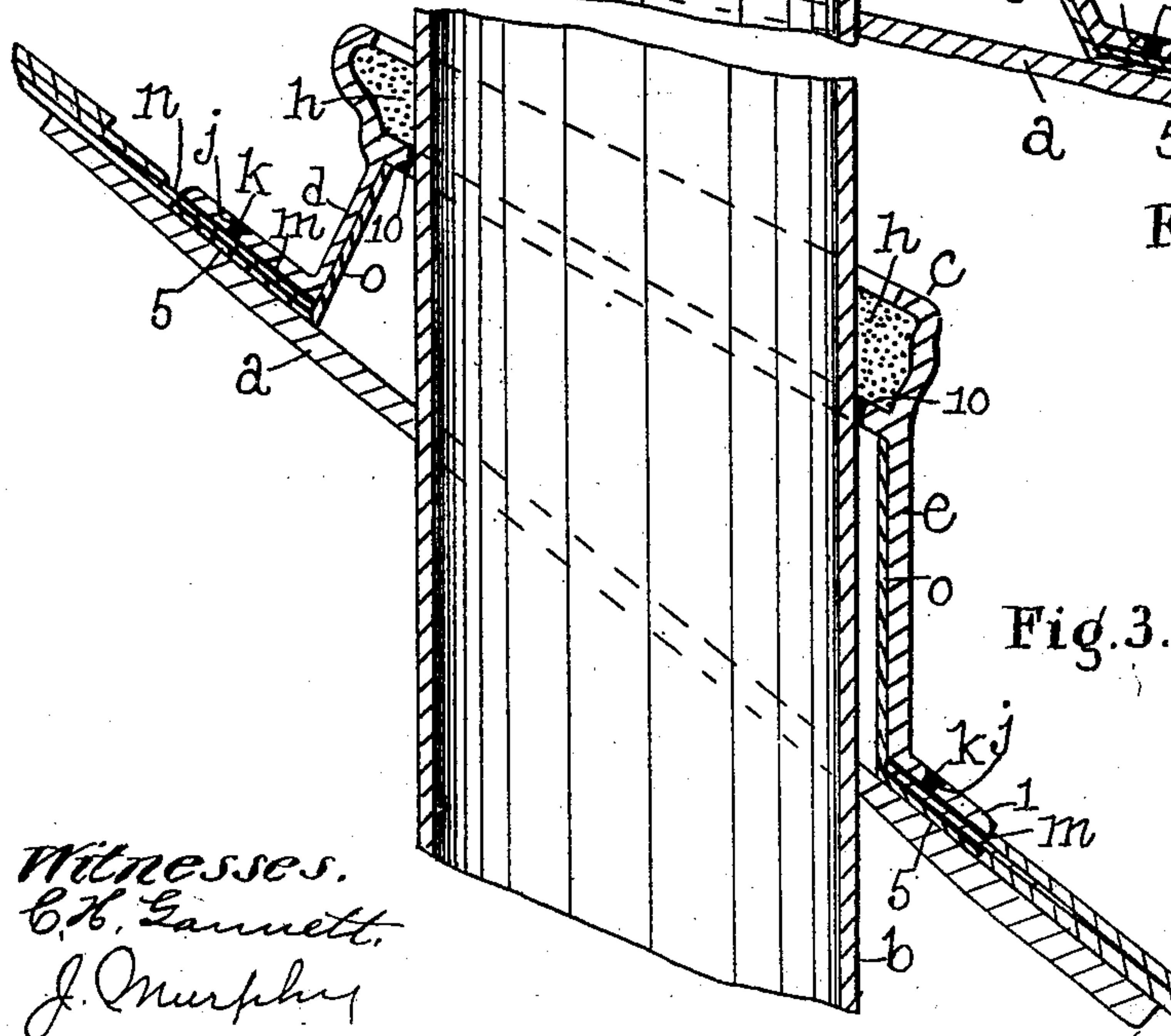


Fig. 3.

Witnesses.
C. H. Gannett,
J. Murphy

Inventor.
George B. Norgrave
by Jas. H. Churchill
Atty.

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2 SHEETS—SHEET 2.

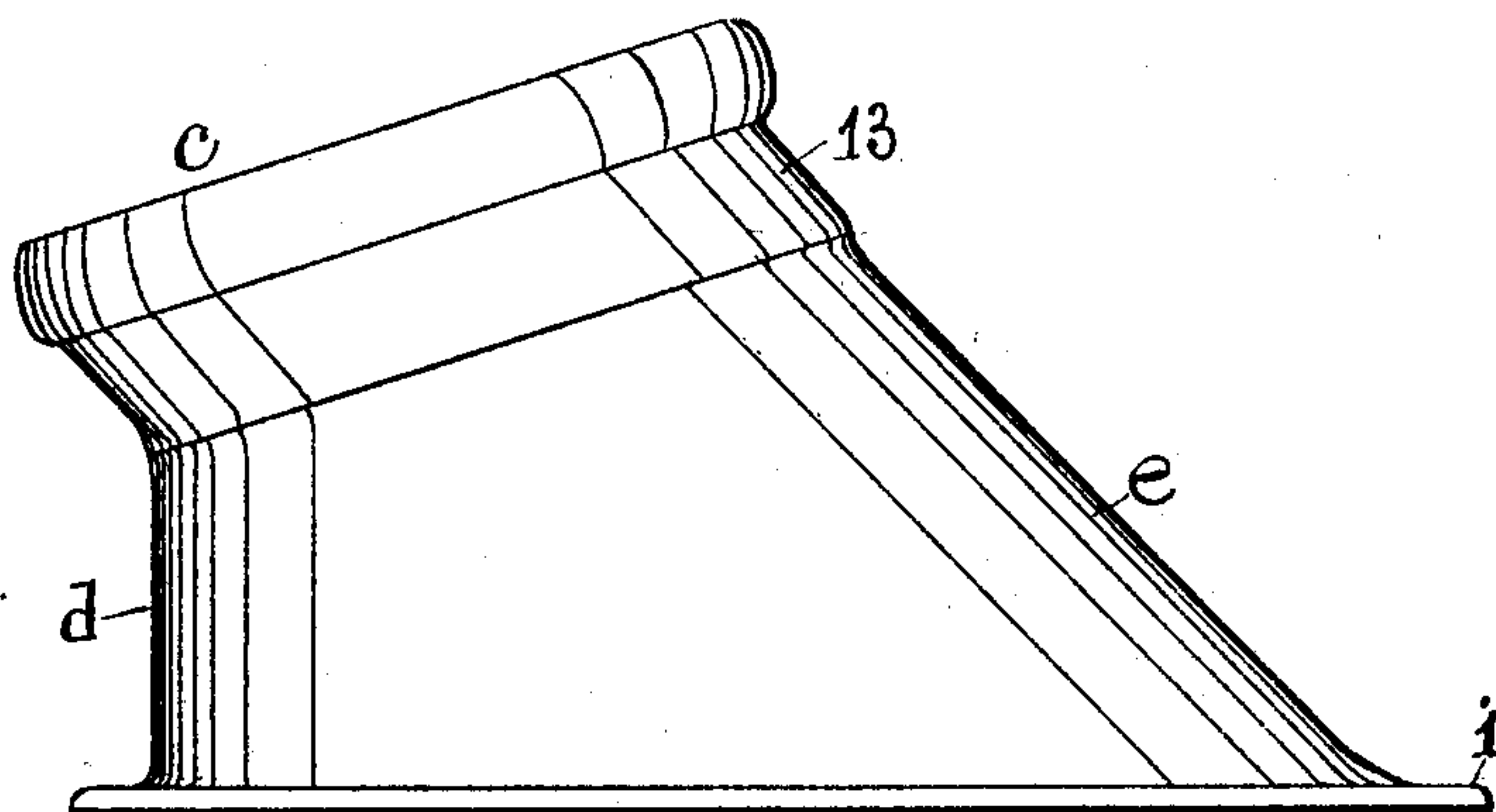


Fig. 4.

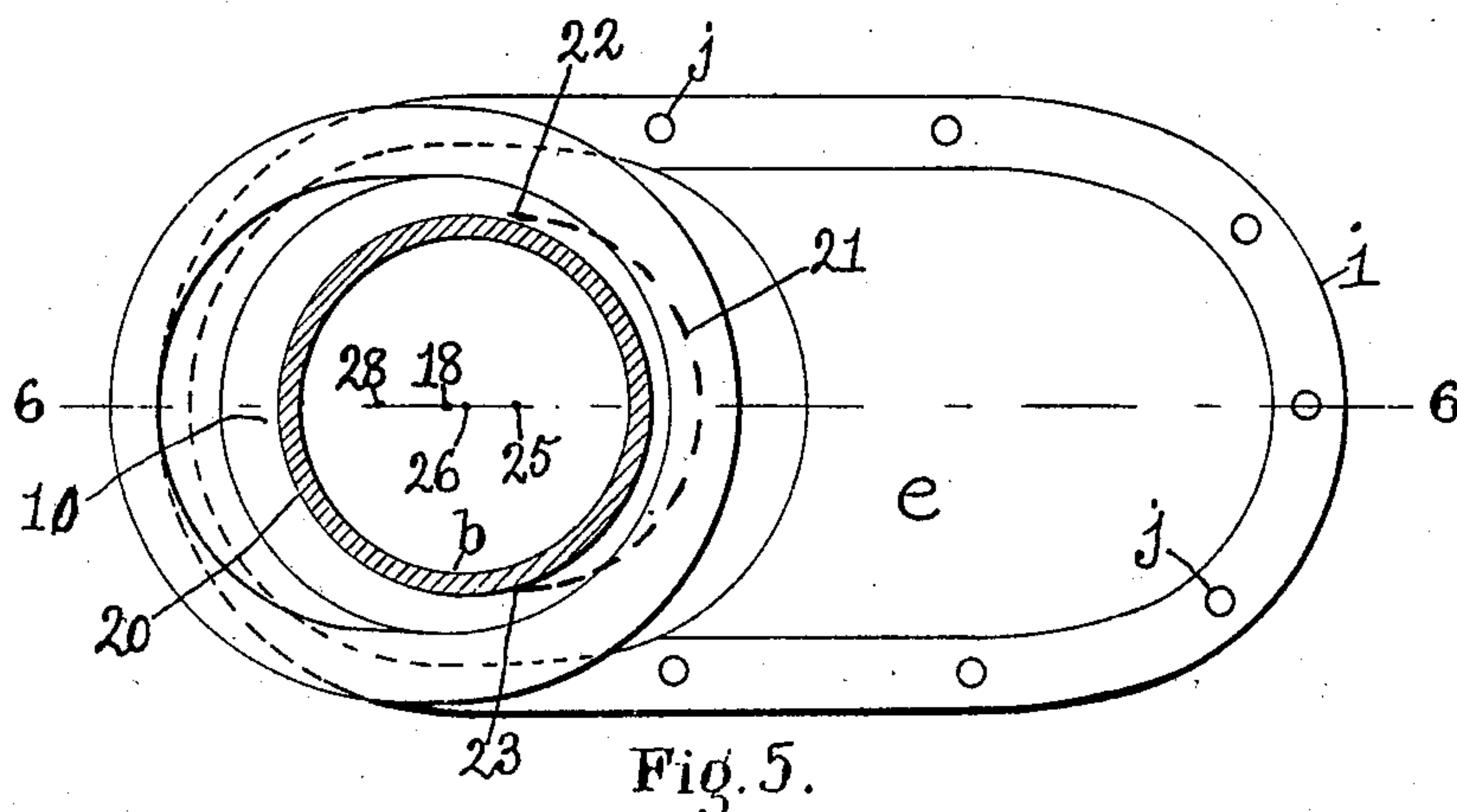


Fig. 5.

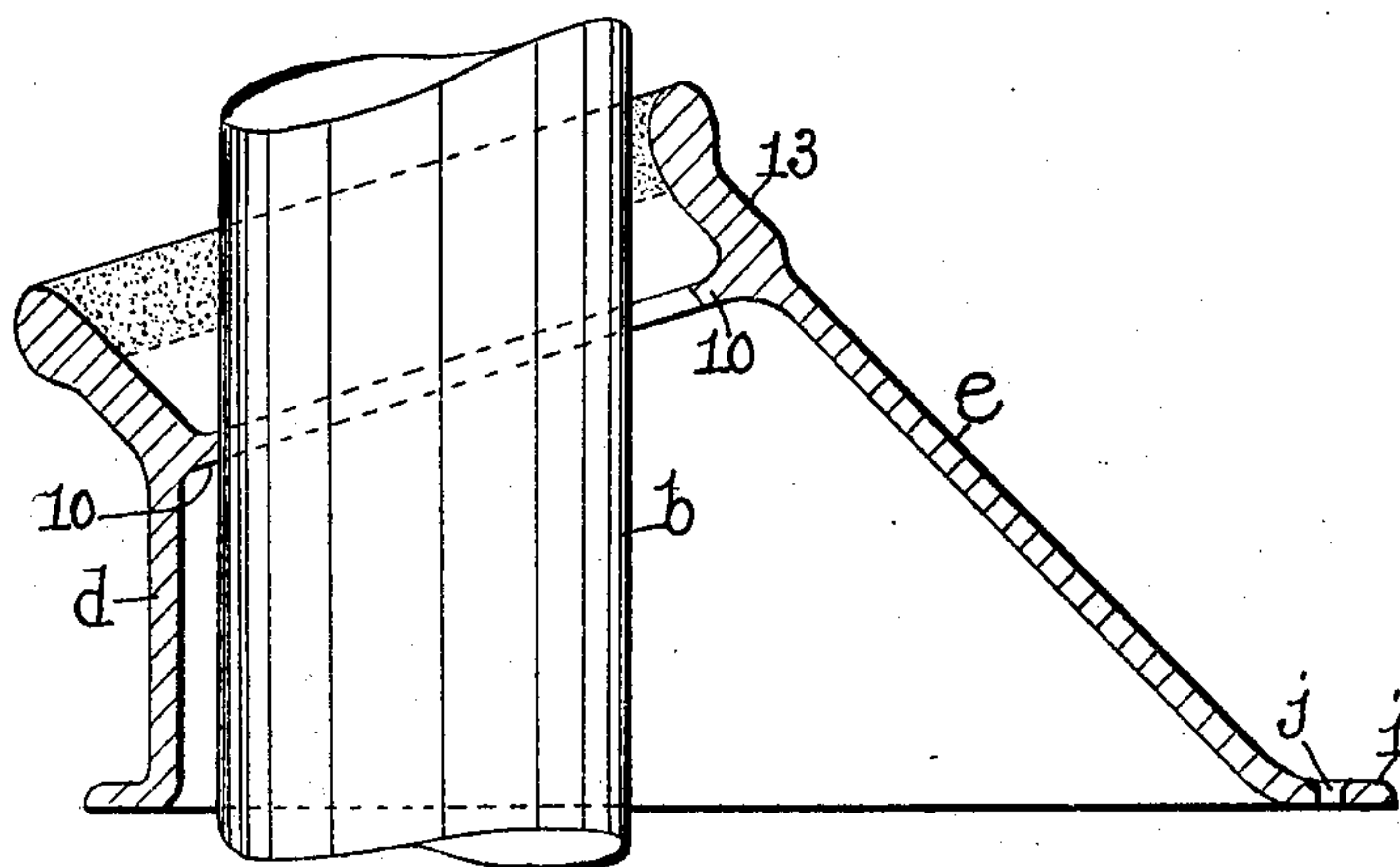


Fig. 6.

Witnesses.
C. H. Sammett.
J. Murphy.

Inventor.
George B. Norgrave
by Jas. H. Churchill
Att'y.

UNITED STATES PATENT OFFICE.

GEORGE B. NORGRAVE, OF PEABODY, MASSACHUSETTS.

ROOF-JOINT.

No. 897,995.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed October 10, 1907. Serial No. 396,780.

To all whom it may concern:

Be it known that I, GEORGE B. NORGRAVE, a citizen of the United States, residing in Peabody, in the county of Essex and State of Massachusetts, have invented an Improvement in Roof-Joints, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a roof joint for soil pipes, and has for its object to provide a simple and efficient device, which is capable of conforming to any angle or pitch of the roof without altering the device and with which a water-tight joint is obtained with the soil pipe and with flashings of standard or regular size, which joint is unaffected by settling of the roof. To this end, the device is provided with a short upright end portion which is substantially semi-circular in form, and with a long opposite end portion, which is inclined downwardly away from said upright end portion and is substantially elliptical in shape so as to form an elongated opening at its top and bottom, whereby the device can be tilted or inclined in the direction of the long axis of the top opening, on a pipe whose diameter is substantially equal to the width or shorter axis of the elongated opening, so that the device may be made of iron or other rigid material and in one piece and yet be adjusted to roofs of different pitches on a pipe of the diameter substantially equal to the shorter axis of the top opening, which is made of a length greater than the diameter of the pipe and such that its opposite ends will make contact with the opposite sides of the pipe when the device is applied to a roof of maximum pitch.

The body portion of the device referred to is provided at its upper end with a hub which is constructed so as to retain the oakum and lead usually employed for effecting a water-tight joint between the soil pipe and the roof joint, and yet allow of the adjustment of the roof joint to roofs of different pitch.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a plan view of a roof joint embodying this invention, as applied to a roof having a maximum pitch and shown in Fig. 3. Fig. 2, a vertical section of the roof joint shown in Fig. 1 in operative position on a

roof approximately flat. Fig. 3, a like section showing the joint applied to a roof having a maximum pitch. Fig. 4, a side elevation of the roof joint before being applied to the pipe and resting on a horizontal base. Fig. 5, a plan view of the roof joint shown in Fig. 4, as applied to a pipe on a substantially flat roof, and Fig. 6, a section on the line 6—6, Fig. 5, with the pipe in elevation.

Referring to the drawing, *a* represents a roof, and *b*, a soil pipe extended up through it and over which is fitted a device or roof joint *c*, which, in accordance with this invention is provided with a body portion having a short upright end portion *d*, which is substantially semi-circular in form and having a downwardly inclined opposite end portion *e*, which is substantially elliptical in form and which forms with the shorter upright end portion an elongated opening at the upper part or top of the device and a larger opening at the bottom of said device.

The body portion is preferably provided on its inner side near its top with an annular flange or bead 10, which serves as a support for the packing material *h* and also serves as a bearing to facilitate adjustment of the joint to the pipe and roof, materially reducing the amount of packing required.

The annular bead or flange 10 forms the walls of the elongated top opening and is composed of two end curves 20, 21, connected by substantially straight intermediate side portions 22, 23 (see Fig. 5).

The upper part of the body portion may be enlarged to form a hub 13 for the reception of the lead or other packing material *h*, now commonly used and by means of which a water-tight joint about the soil or other pipe *b* is obtained. The lower end of the body portion is provided with an outwardly extended flange *i*, which may have suitable holes or openings *j*, preferably countersunk, and which are designed to be filled with solder or other metal, which is poured into the said holes or openings to form rivets *k*, which are united with the solder *m* employed on the copper flashing, which latter may be of the standard or usual construction and comprises the parts *n*, *o*, the part *o* extending up into the body portion of the roof joint and having an outwardly extended flange 5 upon which is soldered the part *n*, which latter is united to the flange *i* of the roof joint by the rivets *k*.

It will thus be seen that the flashing is

firmly secured to the roof joint and is held up by the latter and prevented from dropping down with the roof *a* in case the latter settles, thereby avoiding the danger of leaks occurring between the roof joint and flashing from the settling of the roof.

In Fig. 1, the roof joint is represented as applied to a roof of maximum inclination, shown in Fig. 3, with the result, that the elongated opening at the top of the body portion is not shown as clearly as in Fig. 5, which is a plan view of the roof joint as applied to a flat or substantially flat roof, and by reference to Fig. 5, the invention may be more clearly seen than in Fig. 1.

Referring to Fig. 5, it will be seen that the flange or bead 10 forms the wall of the top opening in the body portion of the device, and that this wall is composed of curved end portions 20, 21, which are struck from different centers but of equal radius, the curve 20 being struck from the center 26, and the curve 21 from the center 25. The ends of the curves 20, 21 are joined by substantially straight intermediate portions 22, 23 forming the sides of the elongated top opening.

It will be also observed that the radius of the curves 20, 21 is the same or substantially the same as that of the external circumference of the pipe *b*, with the result that the curve 20 makes contact with the pipe in all positions of the roof joint or device and that the curve 21 makes contact with the opposite side of the pipe when the roof joint is applied to a roof of maximum pitch as shown in Fig. 3. The elongated top opening permits a roof joint of rigid material, such as iron, to be tilted or turned when on the pipe *b* so as to conform to roofs of different inclinations.

In Fig. 6 the roof joint is shown in the position it would assume on a flat roof, and by reference to this figure, it will be seen that the curve 20 of the flange or bead 10 is in contact with the pipe *b*, while the curve 21 is out of contact therewith.

In Fig. 2, the device is shown as applied to a roof having what may be considered a slight pitch and in this case, it will be seen that in adjusting the device to the pitch of roof the long side of the device is lowered from the position shown in Fig. 6, and that the device turns on the curved end portion 20 of the flange or bead 10 as a pivot.

In Fig. 2, it will be observed that the curved end portion 21 is still separated from the pipe by a considerable space. In Fig. 3, the device is shown as applied to a roof of maximum pitch and in this case it will be seen that the curved portion 21 of the flange or bead 10 makes contact with the pipe on the side opposite to that which is engaged by the curved portion 20 of the flange or bead, but at a materially lower point on the pipe. The hub portion of the device is also provided with an elongated opening, whose long

axis extends in the same direction as the long axis of the top opening in the body portion.

By reference to Fig. 5, it will be seen that the inner circumference of the portion of the hub which forms a continuation of the longer side *e* of the body portion is curved and struck from the center 18, while the inner circumference of the portion of the hub which extends from the short upright side *d*, is struck from a different center, namely, 28. The curve struck from the center 18 is of the same radius as the curve struck from the center 28, and consequently the hub 13 is provided with an elongated opening in the form of an ellipse, which allows for the proper space for the reception of the calking or packing in the different positions into which the roof joint or device may be adjusted, as clearly represented in Figs. 2, 3 and 6 and which also permits of the adjustment of the roof joint to roofs of different pitch, while yet serving to retain the packing material with which a water-tight joint is obtained between the roof and the soil pipe.

By reference to Fig. 3, it will be seen that when the device is applied to a roof of maximum pitch and the end walls of the top opening in the body portion engage the opposite sides of the pipe *b*, that the contact points of the end walls of the opening are separated a materially greater distance than the diameter of the pipe, and that said opening is materially longer than the diameter of the pipe, although the width of the opening is of the same or substantially the same diameter as the pipe. The bottom opening formed by the downwardly inclined side *e* is also materially longer than the top opening, and by means of this construction, the roof joint may be made in one piece of iron or other rigid material and yet be capable of being fitted over a pipe of a diameter substantially equal to the width of the top opening and be adjusted thereon to conform to the pitch of the roof, which may vary from a substantially flat roof to one having a pitch of forty-five degrees.

From the above description, it will be seen that the roof joint is simple in construction and can be applied in the least possible time, as it is only necessary to drop or slip the same over the soil pipe, thereby materially reducing the cost of the joint and the time and labor of applying the same.

Claims.

1. In a roof joint, a rigid body portion having an upright substantially circular short end portion, and a longer end portion downwardly and outwardly inclined with relation to said short end portion and forming therewith elongated top and bottom openings to permit the rigid body portion to be turned into different angular positions with relation to a pipe extended through said device and

of a diameter substantially equal to the width of the elongated top opening and an elongated hub attached to the said body portion at its top and having its long axis extended in the same direction as the long axis of the elongated top opening of the body portion and adapted to receive a tamped packing, substantially as described.

2. In a roof joint, a rigid body portion having an elongated opening at its top to permit it to be turned into different angular positions with relation to a pipe extended through said body portion and of a diameter substantially equal to the width of the said opening and a hub attached to the said body portion at its top and having one end wall extended in substantially the same plane as one end wall of the body portion, and having its opposite end wall extended at an angle to the opposite end wall of the body portion, said hub being adapted to receive a tamped packing, substantially as described.

3. In a roof joint, a body portion having an elongated top opening, and a hub integral with said body portion and having an elongated opening whose long axis extends in the same direction as the long axis of the top opening in the body portion and adapted to receive a tamped packing, substantially as described.

4. In a roof joint, a body portion of one piece having an elongated top opening and with a larger bottom opening and a hub of larger area than said opening integral with said body portion and adapted to receive a tamped packing, substantially as described.

5. In a roof joint, a body portion having at its upper end an inwardly extended bead or flange forming the walls of an elongated opening, and a hub portion extended above said flange and having one end wall inclined upwardly and outwardly to the adjacent wall of said body portion to form an elongated

hub of larger area than said opening, substantially as described. 45

6. In a roof joint, a body portion having a substantially short upper end portion, and a longer lower end portion inclined to said upper end portion and forming therewith an elongated opening at the top of the said body portion and a hub of larger area than said elongated opening extended from the top of said body portion and adapted to receive a tamped packing, substantially as described. 50

7. In a roof joint, a body portion having a substantially short upper end portion, and a longer lower end portion inclined to said upper end portion and forming therewith an elongated opening at the top of the said body portion, an internally extended flange at the top of said body portion forming the walls of the elongated opening and a hub of larger area than said flange and extended upwardly therefrom and adapted to receive a tamped packing, substantially as described. 55

8. In a roof joint, a body portion having a substantially short upper end portion, and a longer lower end portion inclined to said upper end portion and forming therewith an elongated opening at the top of the said body portion, an internally extended flange at the top of said body portion forming the walls of the elongated opening, and a hub attached to the upper end of said body portion and having its walls forming an elongated opening which extends in the same direction as the elongated opening in the body portion, substantially as described. 60

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses. 65

GEORGE B. NORGRAVE.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.