

May 9, 1933.

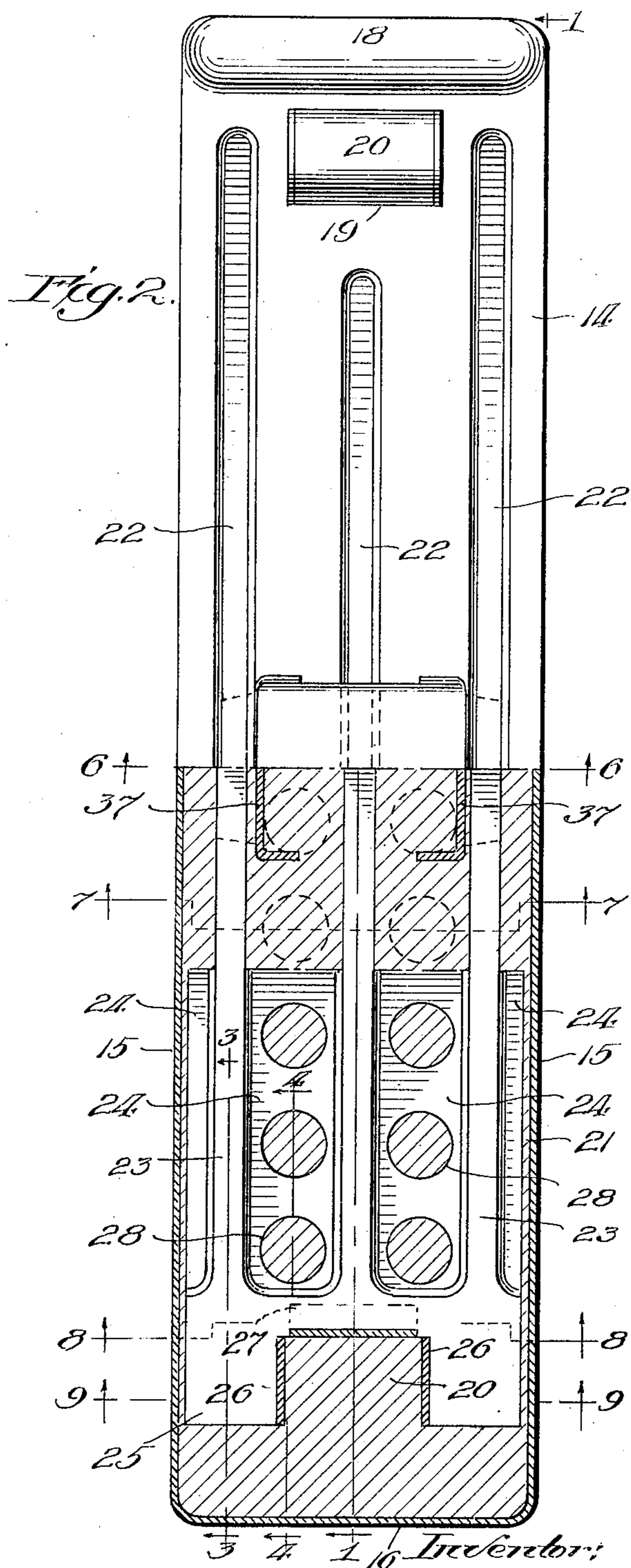
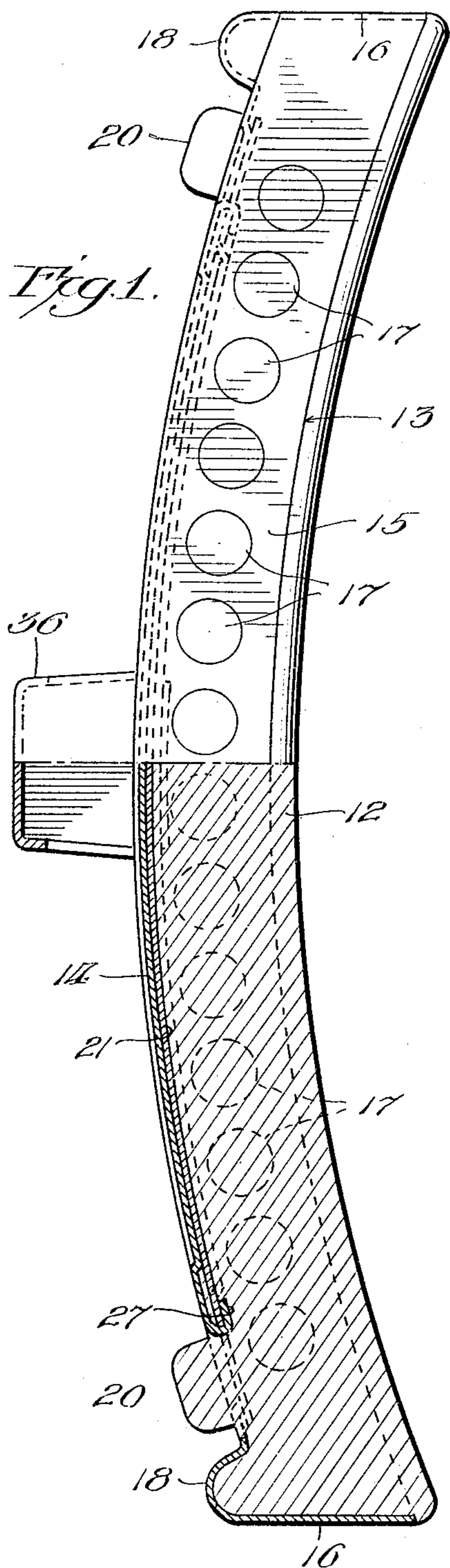
W. H. WINTERS

1,907,635

BRAKE SHOE

Filed May 23, 1932

2 Sheets-Sheet 1



Inventor:
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2 Sheets-Sheet 2

Fig. 3 Fig. 4.

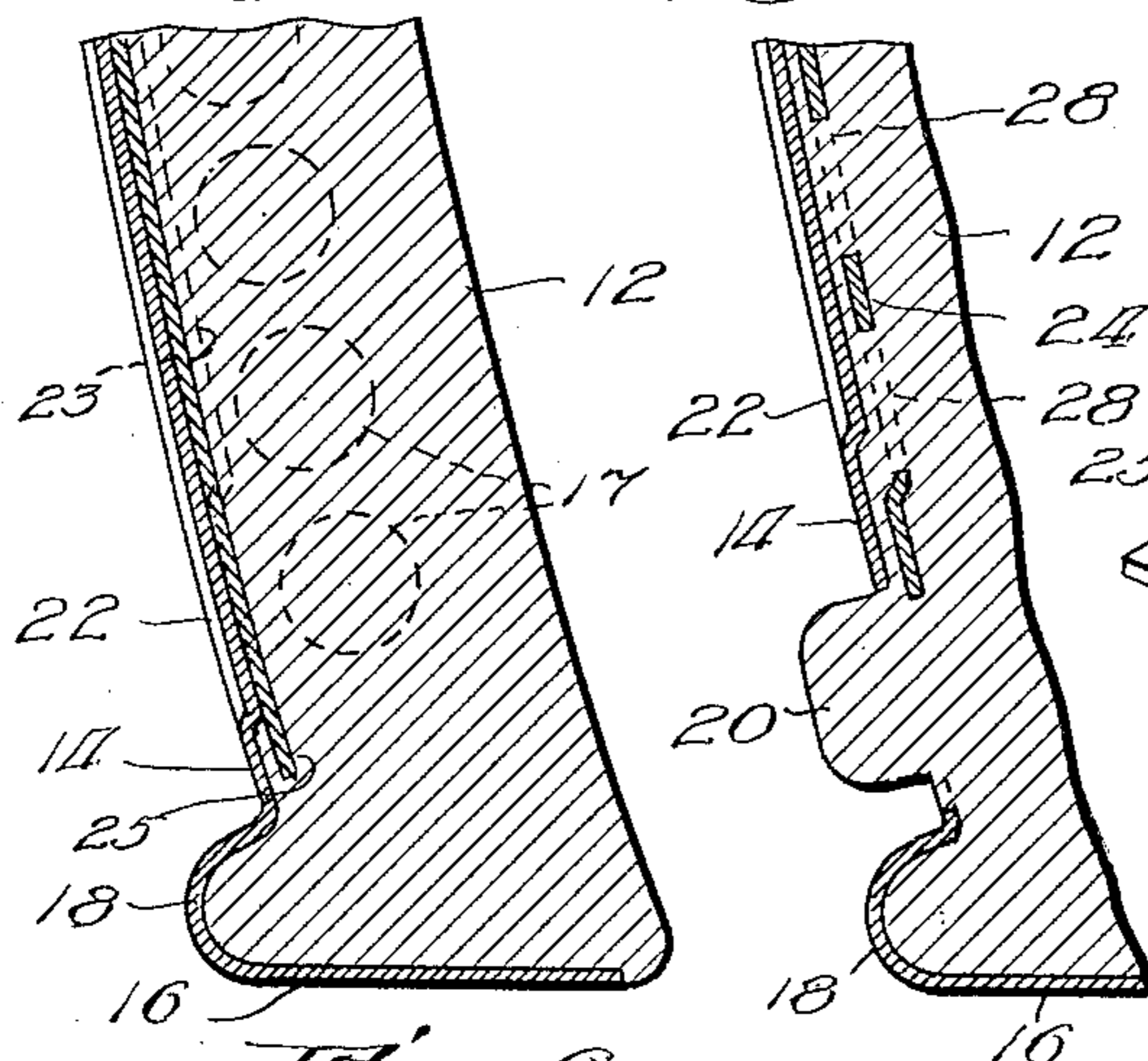


Fig. 5.

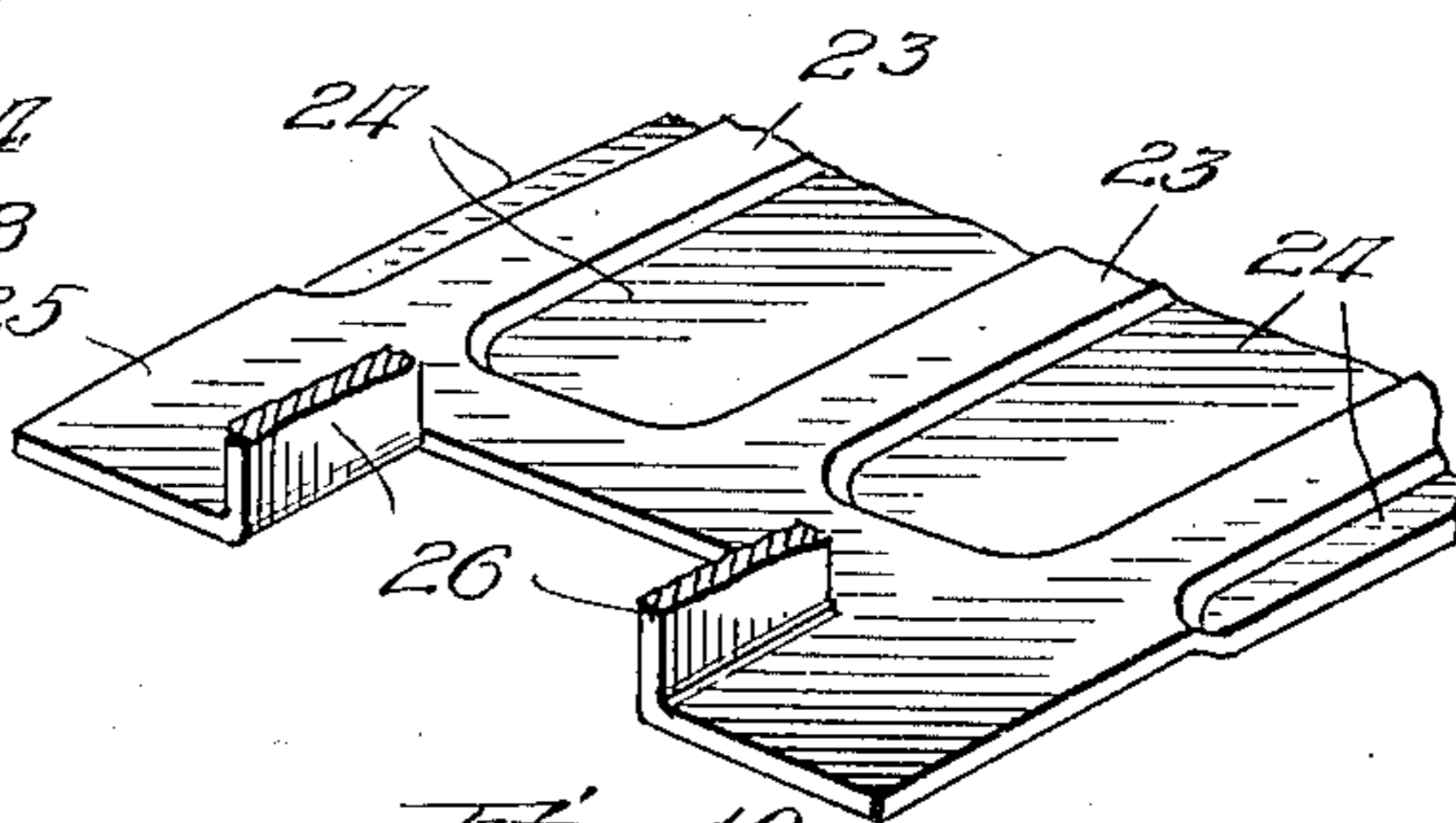


Fig. 10.

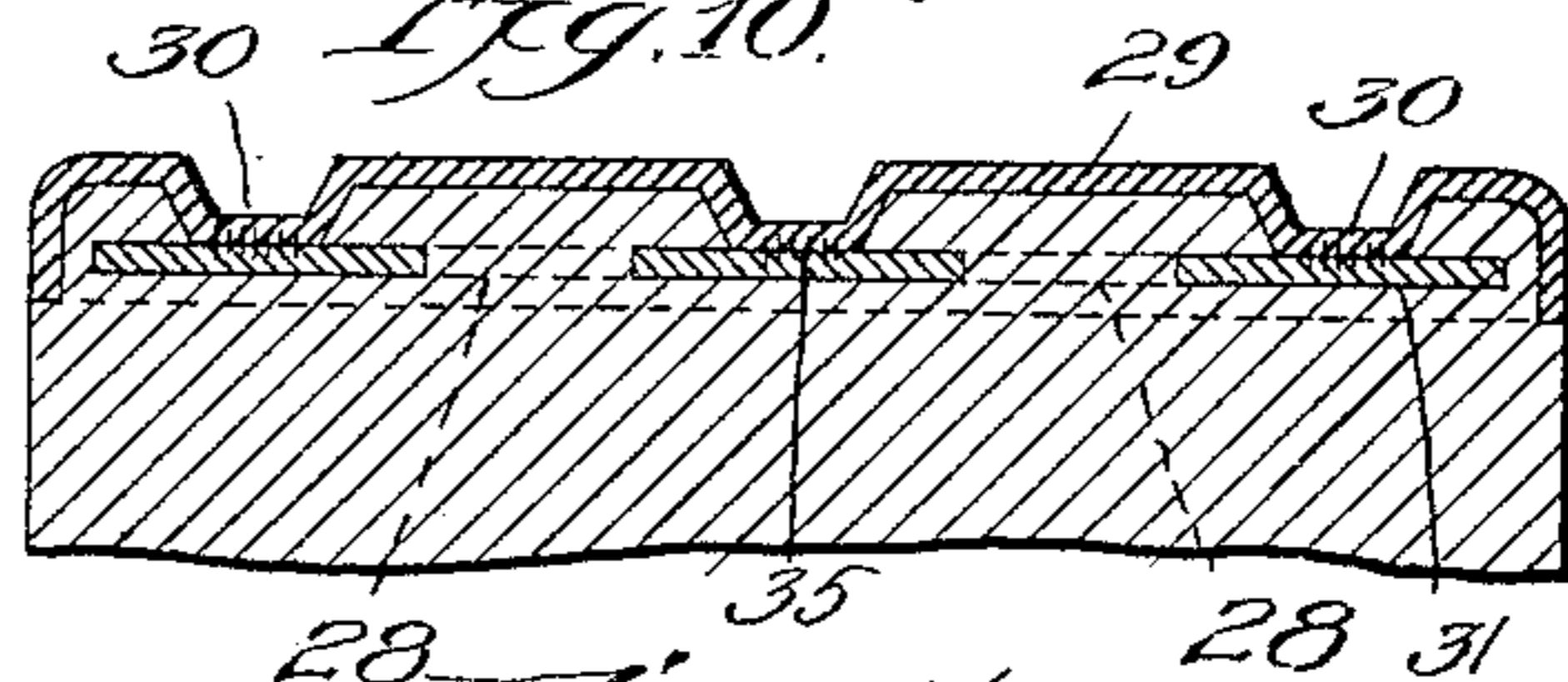


Fig. 7.

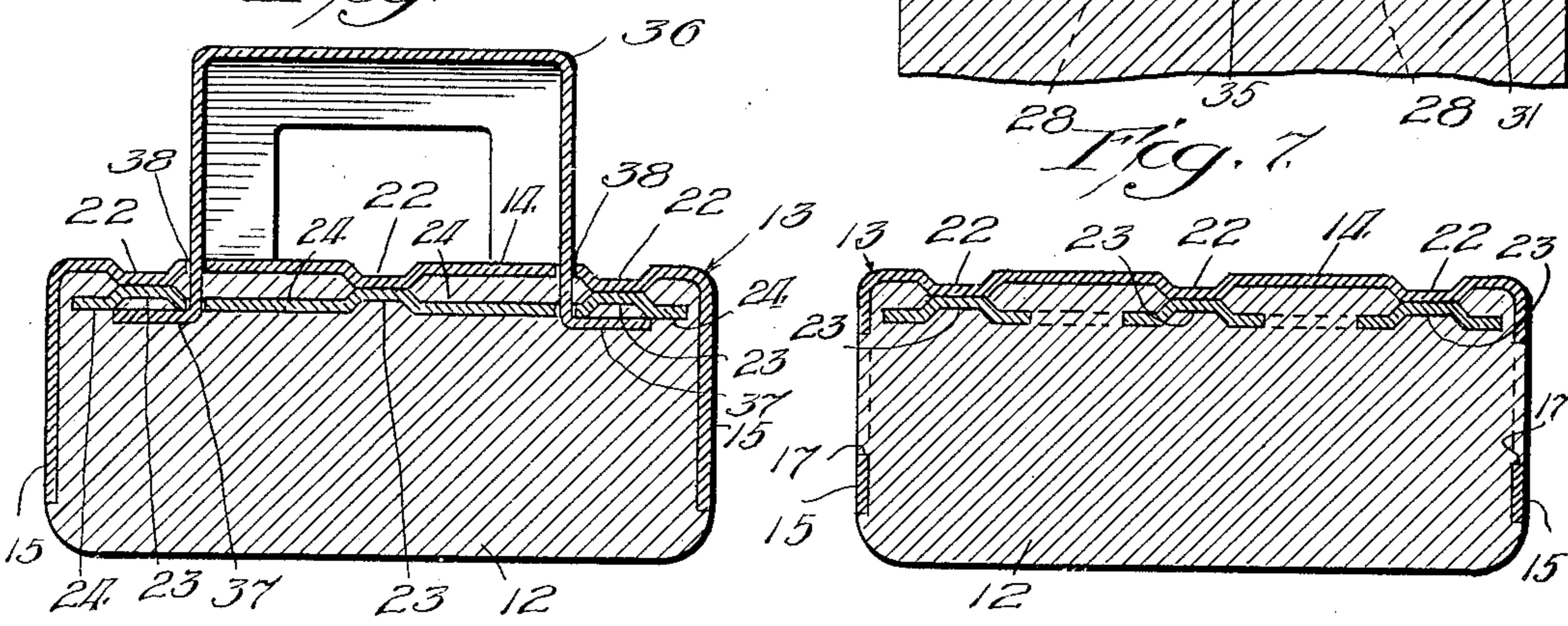


Fig. 8.

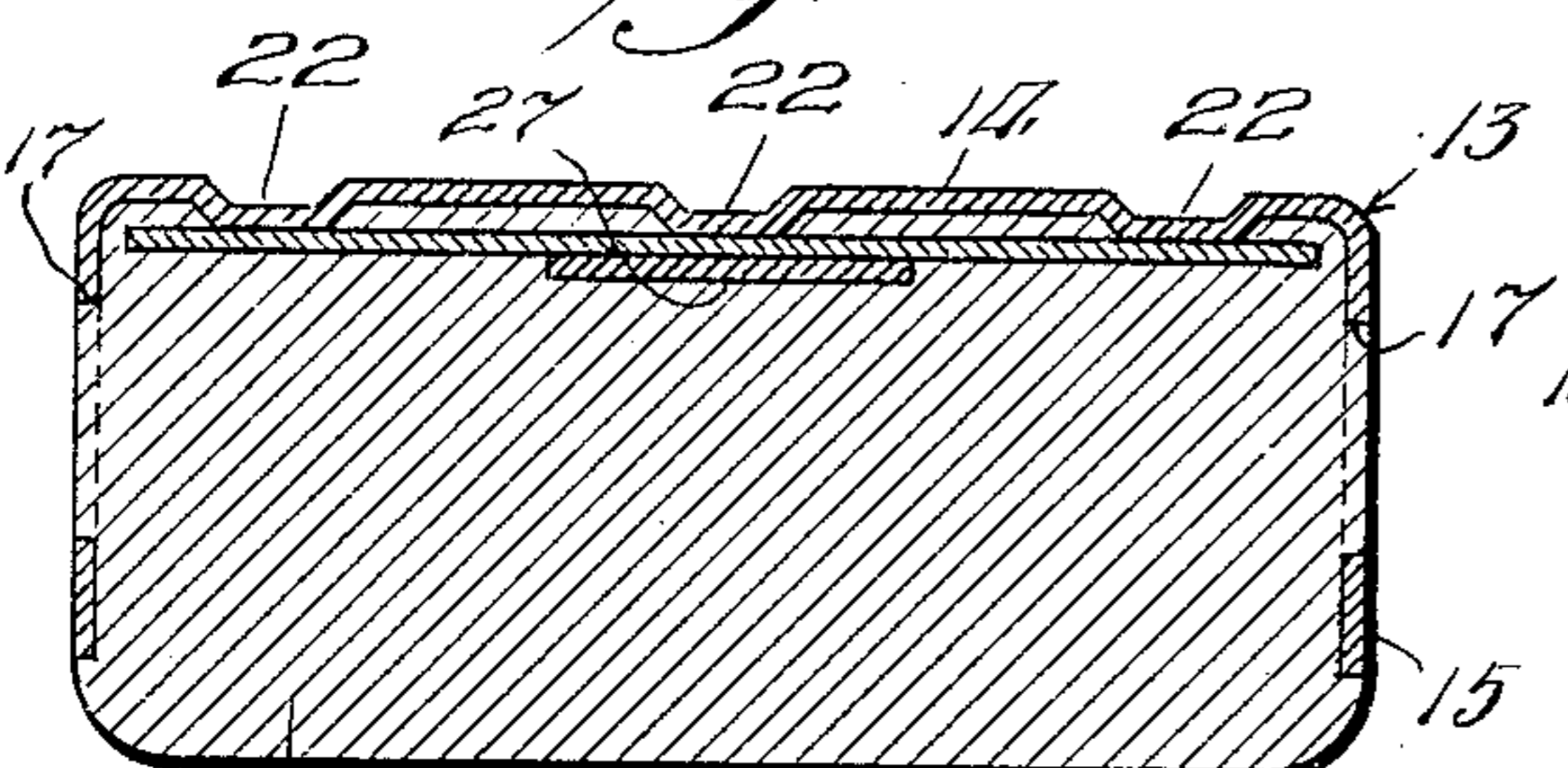


Fig. 9.

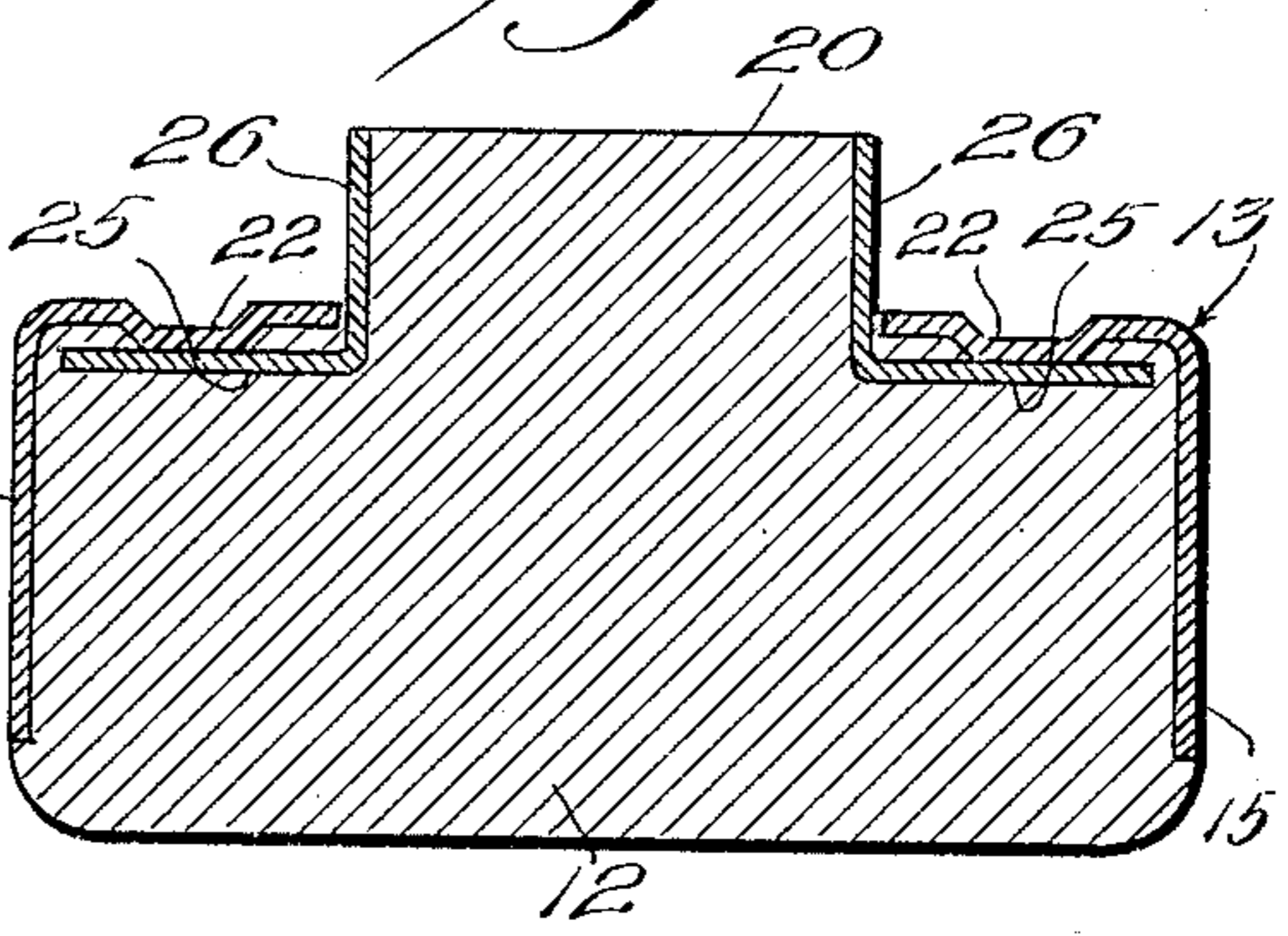
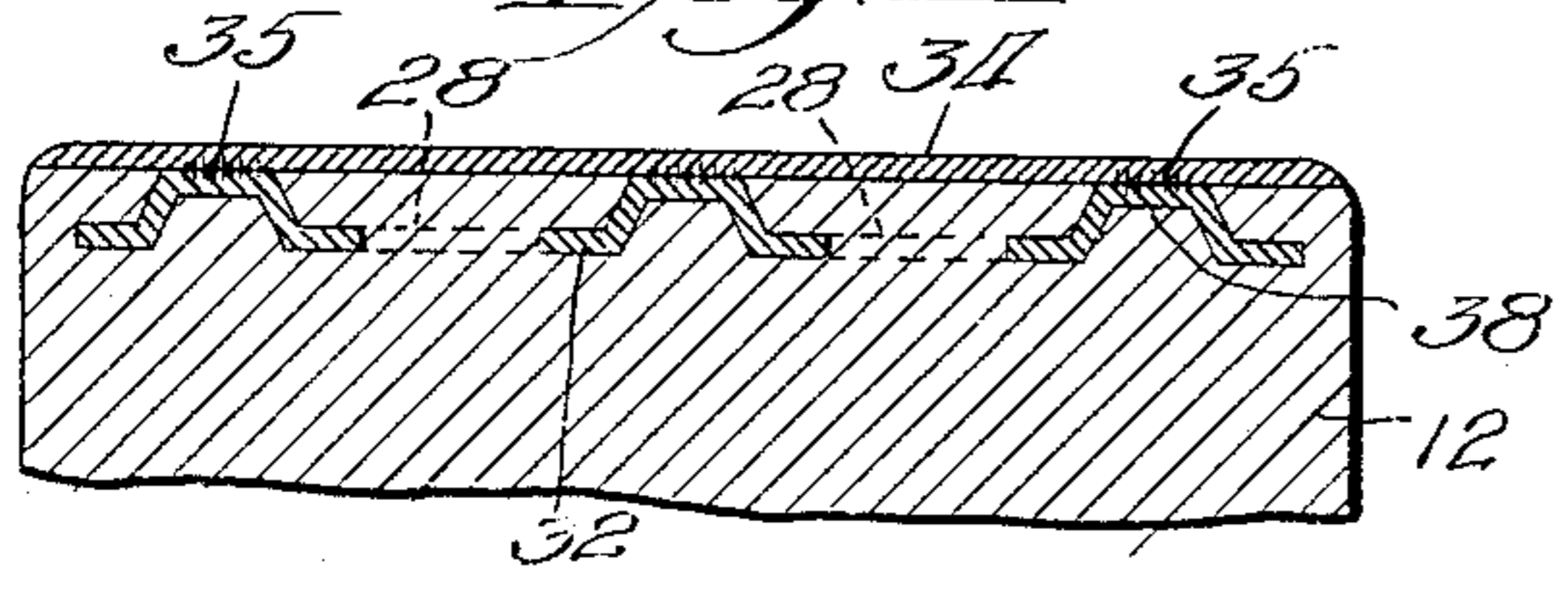


Fig. 11.



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UNITED STATES PATENT OFFICE

WILBUR H. WINTERS, OF LARCHMONT, NEW YORK, ASSIGNOR TO THE AMERICAN BRAKE SHOE AND FOUNDRY COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

BRAKE SHOE

Application filed May 23, 1932 Serial No. 612,943.

This invention relates to brake shoes and its object is primarily to provide a strong and rigid reenforce back with the body securely anchored thereto.

5 The invention is particularly adapted for the type of brake shoes known as "filled" shoes which comprise a metal shell and a composition body molded therein, but it may be used in shoes having a metal body with
10 shell backs of the "pan" type or with plate backs.

Another object of the invention is to provide means for anchoring the body of the shoe securely to the reenforce back on the
15 shoe, and this back may be a part of a shell, a pan, or simply a plate, so that the body will not break away from the back in service.

And a further object of the invention is to provide a filled shoe with a double reenforce back with the composition body securely anchored thereto.

In the accompanying drawings illustrating selected embodiments of the invention,

25 Fig. 1 is a side view of a filled brake shoe with the upper half in plan and the lower half in section on the line 1—1 of Fig. 2.

Fig. 2 is a back view of a shoe corresponding to Fig. 1 with the upper half in plan and the lower half in section taken just under the back of the shell, the body material
30 being removed from a part of the inner back in this section.

Figs. 3 and 4 are longitudinal sectional views on the lines 3—3 and 4—4 respectively
35 of Fig. 2.

Fig. 5 is a fragmentary end view of a part of the inner back shown in Figs. 1 to 4, partly in section.

40 Figs. 6, 7, 8 and 9 are transverse sectional views through the complete shoe as indicated by the lines 6—6, 7—7, 8—8 and 9—9 respectively of Fig. 2.

45 Figs. 10 and 11 are transverse sectional views illustrating other embodiments of the invention.

I have illustrated the invention in a filled shoe in Figs. 1 to 9 but the body of the shoe may be made of metal instead of composition if desired. Referring to these figures, 12 is
50 the body and 13 is the shell in which the

body is molded. This shell comprises a back 14 and depending sides 15 and ends 16, the sides, and also the ends if desired, being provided with openings 17 to receive the body material during the molding operation to
55 assist in anchoring the body in the shell. I also prefer to press up the back of the shell at 18 to receive the body material and form the end lugs of the shoe and to cut openings 19 in this outer back to receive the body ma-
60 terial for forming the end guides 20.

An inner back 21 is arranged within the shell adjacent the back 14 thereof and this inner back is preferably spaced from the sides and ends of the shell to permit the body ma-
65 terial to pass over the sides and ends of the inner back. The backs are provided with longitudinal oppositely disposed ribs or corrugations which abut and space the backs apart on both sides of the ribs. The ribs
70 22 on the outer back are pressed inward and the ribs 23 on the inner back may be pressed upward to abut the ribs 22 but they are preferably formed by depressing the adjacent parts 24 of the inner back so that the end
75 portions 25 of the inner back may lie close to the outer back. The inner back is preferably bifurcated at its ends to extend on both sides of the guide lug and it is provided with flanges 26 which project through the
80 openings 19 in the outer back and form side facings for the end lugs. The inner back is rigidly secured to the outer back in any suitable manner and for this purpose the metal, or a part of it, cut in forming the
85 openings 19 in the outer back may be bent inward and hooked upon the end portions of the inner back at 27; or the inner back may be welded to the outer back. The inner back is provided with openings 28 dis-
90 posed in the depressed portions 24 between the ribs 23 and, when the body is molded in the shell, the body material passes through these openings and into the depressions to assist in anchoring the body in the shell. The
95 body material will flow in the depressions and more or less fill the same but at any rate sufficiently to button and anchor the body material to the inner back. The body material will also flow over the side and end
100

edges of the inner back and it is contemplated that all the space between the inner and outer backs will be filled or substantially filled with body material and will securely anchor the body to the inner back and within the shell.

In Figs. 1 to 9 I have shown the backs provided with abutting ribs but the outer back 29 may be provided with ribs 30 and the inner back 31 left flat transversely as shown in Fig. 10 or the inner back 32 may be provided with ribs 33 and the outer back 34 left flat transversely as shown in Fig. 11, and the backs may be spot welded as indicated at 35. When the ribs are formed in one back only it will probably be necessary to make them deeper than when the backs are provided with abutting ribs so that sufficient anchorage space will be provided between the backs.

I have shown a shell in Figs. 1 to 9 of a general type which would ordinarily be used for filled shoes and this shell has rather deep sides and ends but I may make the shell with short sides and ends as shown in Fig. 10 or I may omit the sides and ends and provide a plate back as shown in Fig. 11.

The body in any of the forms of the invention herein shown and described may be made of composition or of cast iron or other material adapted for use in brake shoes.

The invention may be embodied in brake shoes of any kind and for any purpose for which it is or may be adapted and it may be provided with attaching lugs of any suitable kind. I have shown the invention embodied in a car shoe and provided with a center attaching lug 36 made of sheet metal stamped to shape and provided with legs 37 which extend down through slots 38 in the backs and are bent laterally to interlocking engagement with the backs.

My invention provides for securely anchoring the body to the reenforce back in a brake shoe and it is particularly important for anchoring a composition body in a shell. It is preferred to anchor the body material to the sides of the shell of a filled shoe in accordance with past practice but this is not always sufficient to secure the body in the shell for the shell is liable to spread under some conditions of service and permit disintegration of the body material and also permit it to fall away. My invention reduces the liability of the shell to spread or otherwise become deformed in service by reenforcing the shell, and it also reenforces the shoe as a whole and enables the shell to be made with an imperforate back except for the openings to receive the end lugs and the slots to receive the attaching lug and thereby avoids substantial reduction in the strength of the back which results from providing it with anchoring openings. The invention accomplishes the double object of providing substantial re-

enforcement at the back of the shoe and effective anchorage for the body of the shoe, whether the outer back is part of a shell or a separate part and whether the body is made of composition or of metal. The invention also makes use of the strengthening effect of the longitudinal ribs which enables the backs to be made of lighter gage material and still provide sufficient strength.

I do not limit the invention to the particular disclosure shown in the drawings and herein described because brake shoes are made in many different sizes and shapes and designs and I reserve the right to embody the invention in any of these sizes, shapes and designs for which it is or may be adapted and to make any changes within the scope of the following claims.

I claim:

1. A brake shoe comprising an outer back and an inner back, said backs being spaced apart and secured rigidly together, and a body anchored to said backs, a part of the body material substantially filling the space between the backs.

2. A brake shoe comprising an outer back and an inner back, said backs being spaced apart and secured rigidly together, and a body anchored to said backs, the inner back having openings therein to permit the body material to flow therethrough into the space between the backs for anchoring the body to the backs.

3. A brake shoe comprising an outer back and an inner back, said backs being rigidly secured together and having abutting ribs which space them apart adjacent the ribs, and a body anchored to said backs, a part of the body material substantially filling the space between the backs.

4. A brake shoe comprising an outer back and an inner back rigidly secured together, said backs having abutting longitudinal ribs which space them apart adjacent the ribs, the inner back having openings between the ribs, and a body anchored to said backs, the body material filling the openings in the inner back and buttoned on the inner back in the space between the backs.

5. A brake shoe comprising an outer back and an inner back, said backs being rigidly secured together and having oppositely disposed ribs which space the backs apart adjacent the ribs, the inner back having openings between the ribs, and a body anchored to the backs and filling said openings and the space between the backs.

6. A brake shoe comprising a shell having a back, an inner back secured rigidly within the shell to the back thereof, said backs having oppositely disposed longitudinal ribs which space the backs apart adjacent the ribs, the inner back being of less width than the outer back to provide space between the side edges of the inner back and the sides of the shell, the

inner back having openings between the ribs,
and a body anchored to said backs, said body
enclosing the side edges of the inner back and
the openings therein and buttoned on the
5 inner back within the space between the backs.

7. A brake shoe comprising an outer back
and an inner back, one of said backs having
ribs which engage the outer back and space
the backs apart adjacent the ribs, and a body
10 anchored to said backs and embedding the
inner back.

8. A brake shoe comprising an outer back
and an inner back, said backs being spaced
apart and secured rigidly together, and a body
15 anchored to said backs and embedding the
inner back, the outer back having openings
therein to receive the body material for form-
ing the guide lugs and the inner back having
flanges struck therefrom and projecting
20 through the outer back and forming side fac-
ings for said guide lugs.

9. A brake shoe comprising an outer back
and an inner back, said backs being secured
rigidly together and having oppositely dis-
25 posed ribs which abut and space the backs
apart adjacent the ribs, a body anchored to
said backs and embedding the inner back, an
attaching lug having depending legs, and said
backs having slots to receive said legs, the
30 inner ends of the legs being bent laterally into
locking engagement with the inner back.

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