

Oct. 25, 1949.

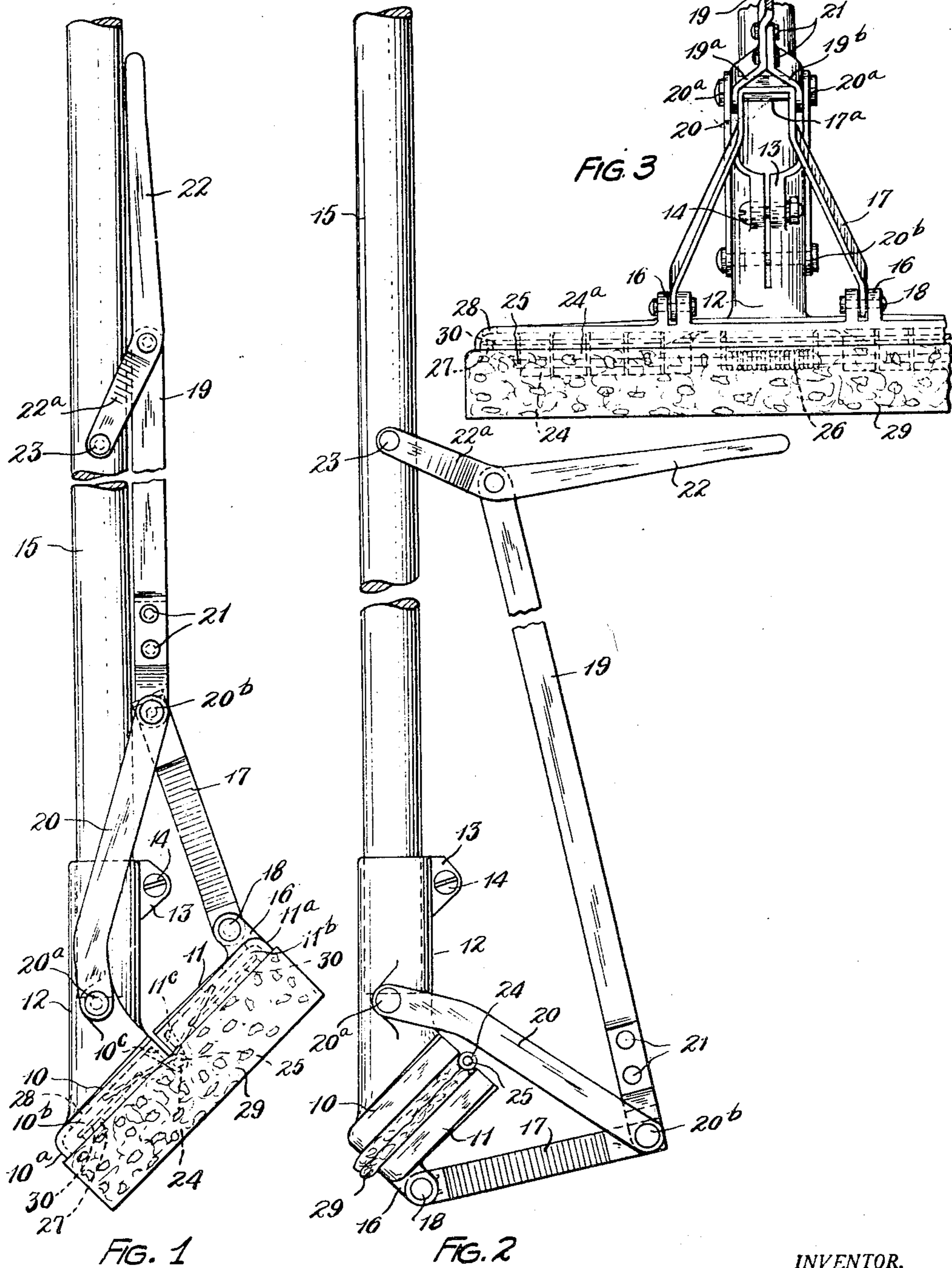
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2,486,102

SPONGE TYPE MOP WITH TWO-PART HINGED BACKING PLATE

Filed Oct. 8, 1945

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

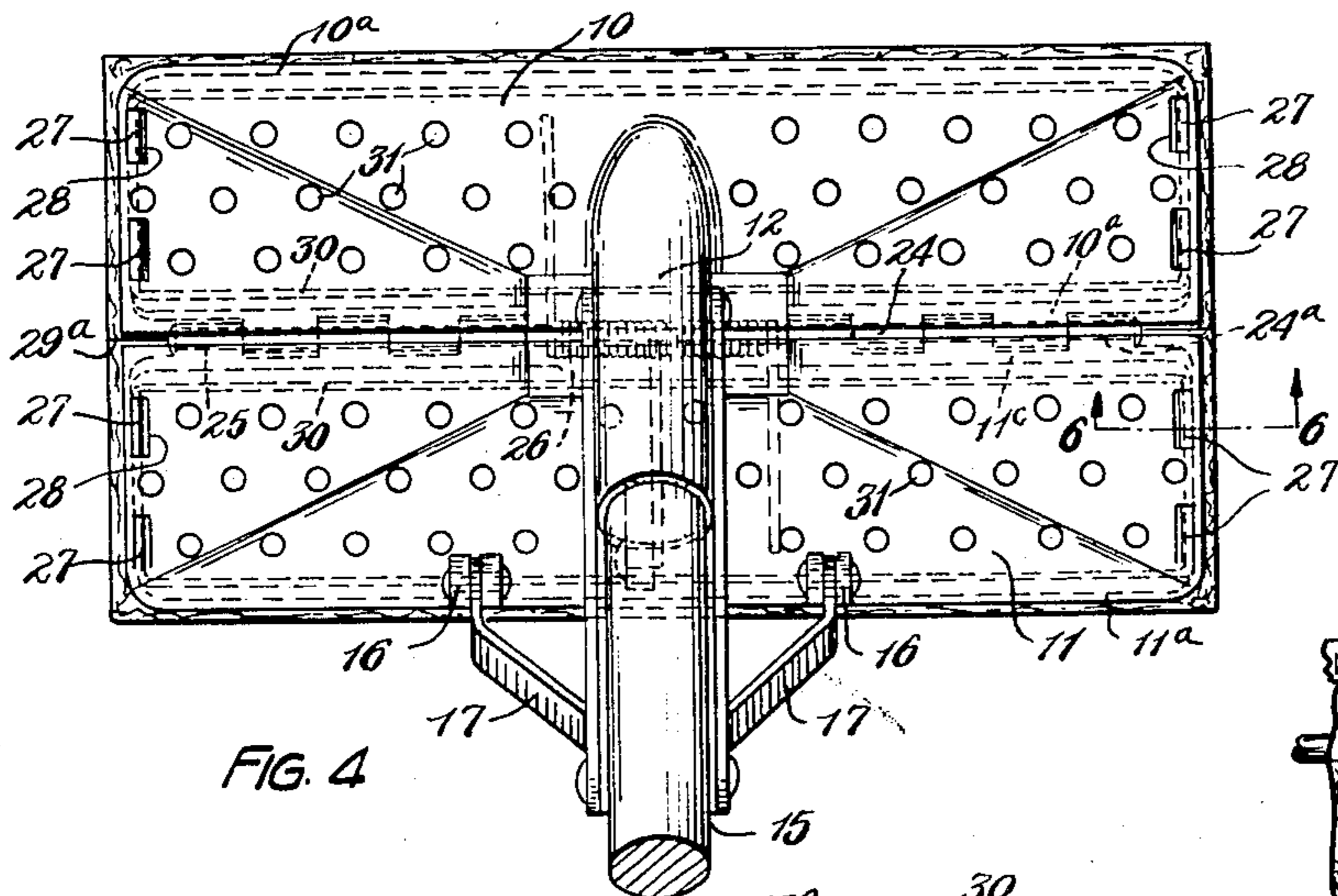


FIG. 4

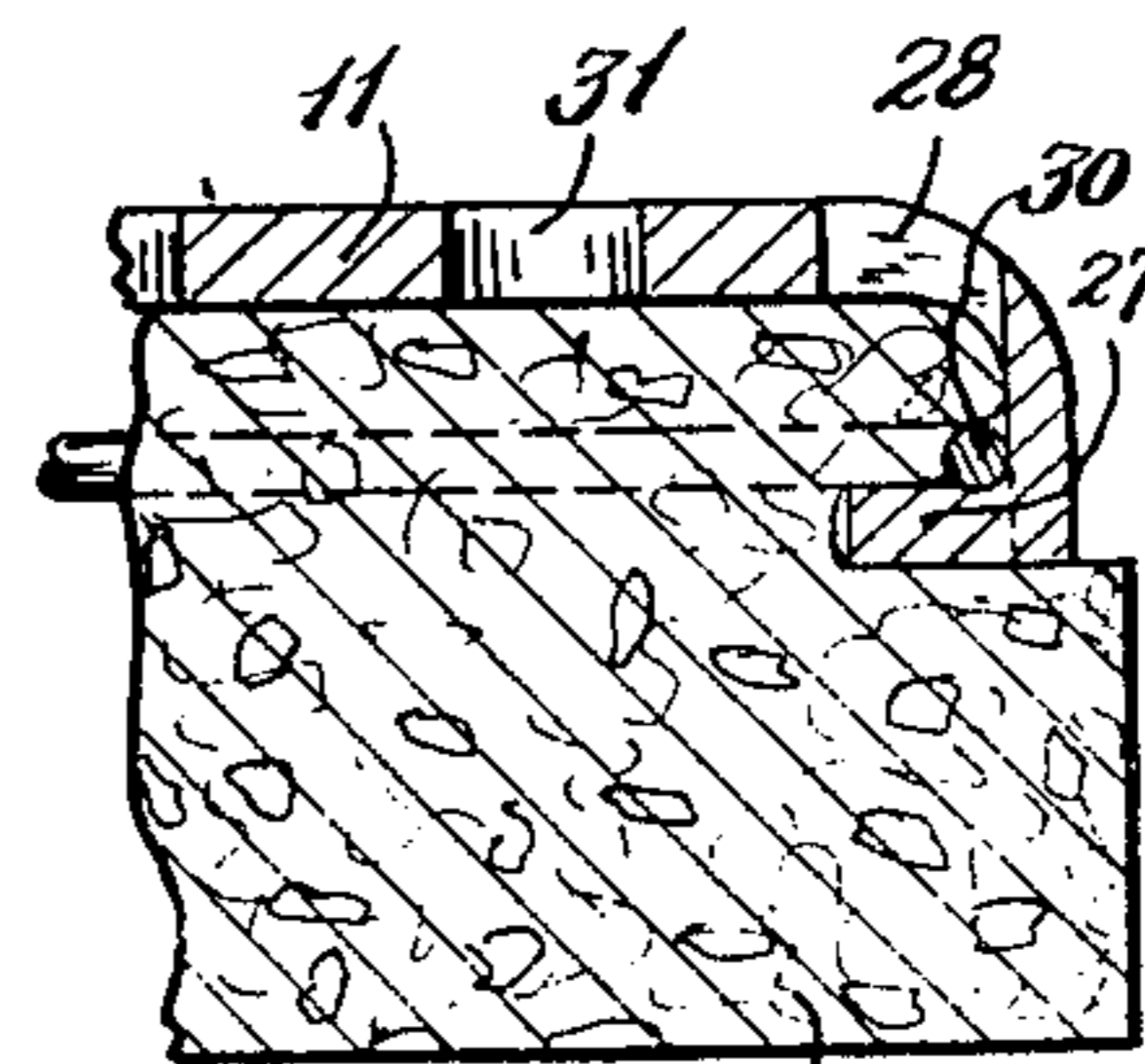


FIG. 6

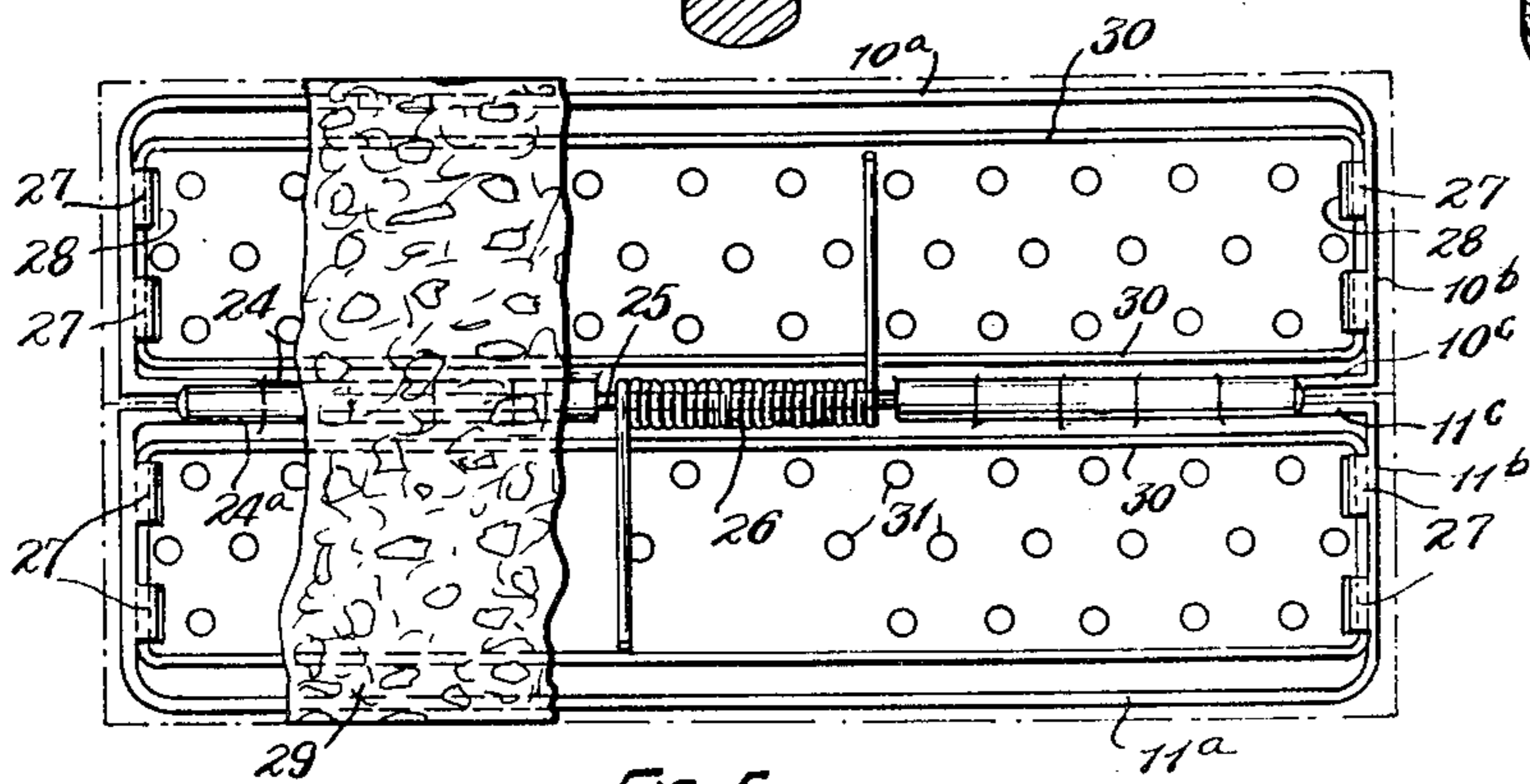


FIG. 5

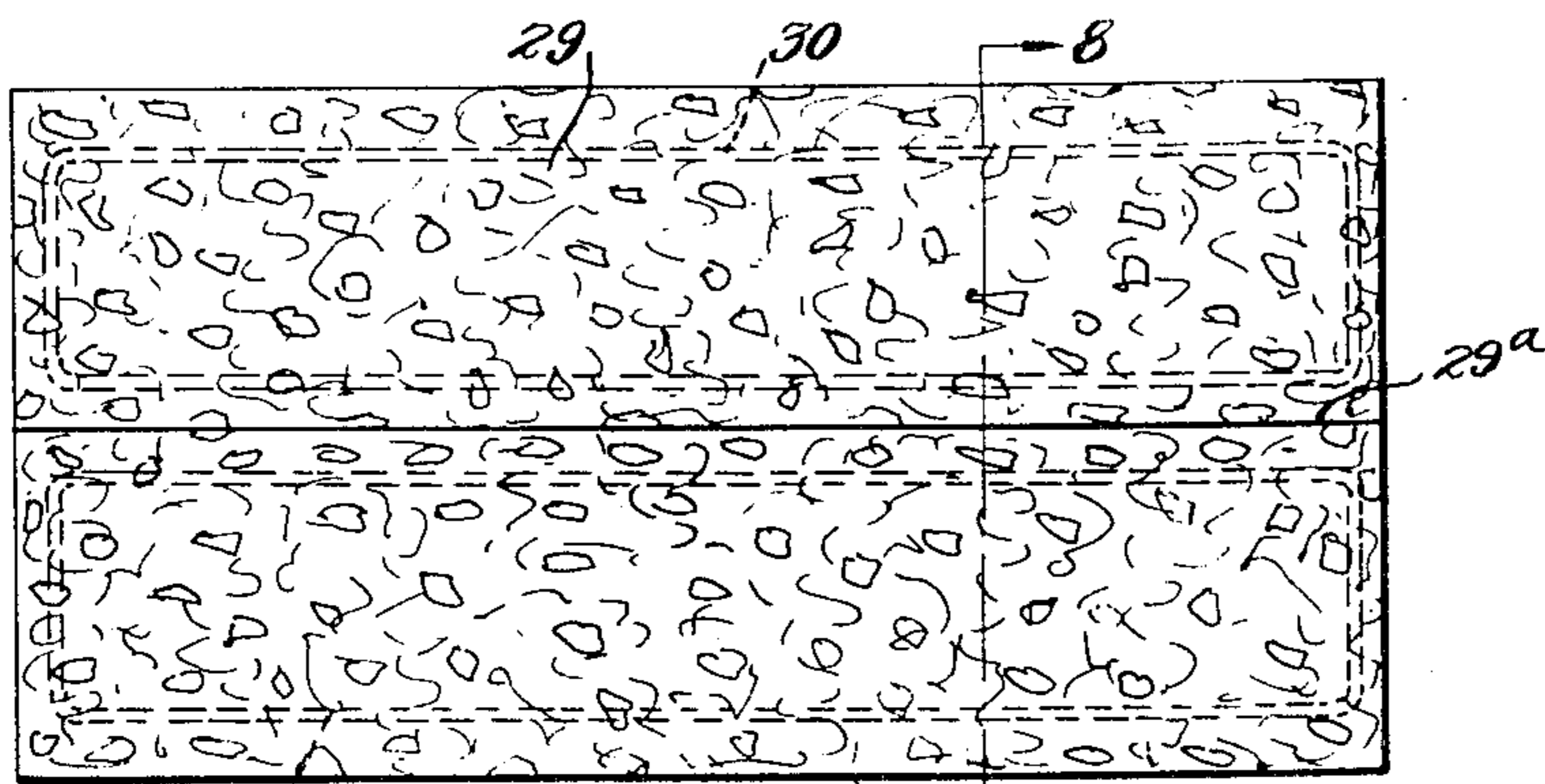


FIG. 7

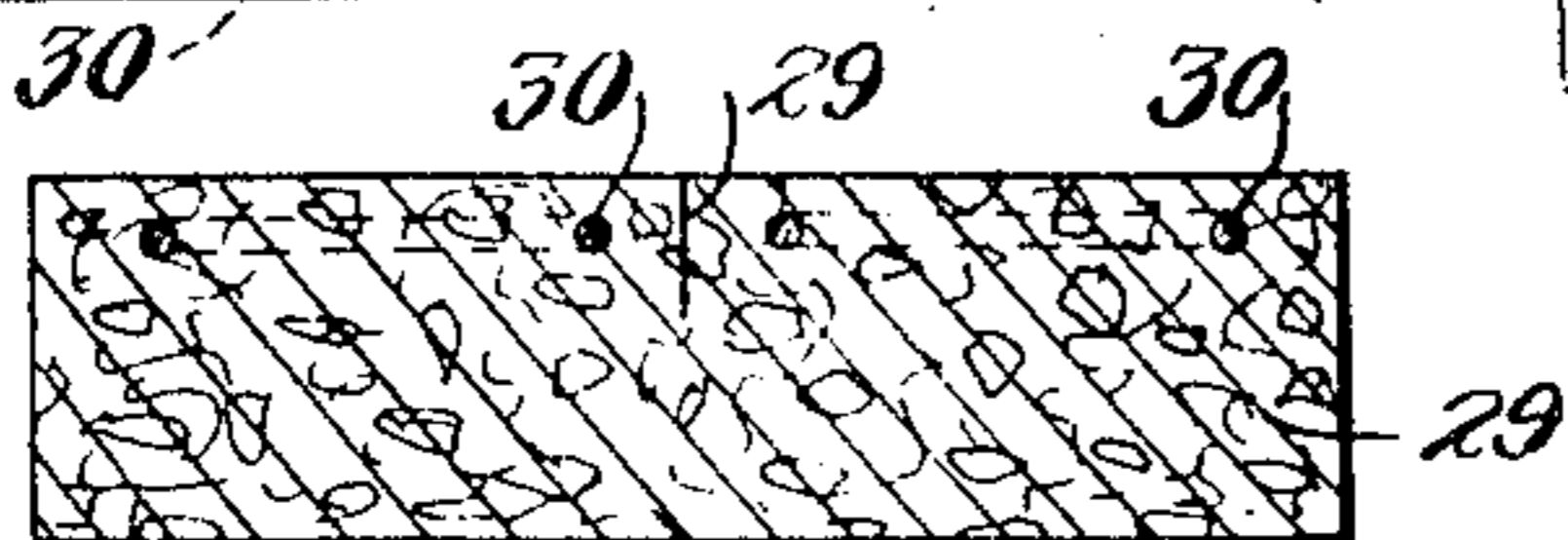


FIG. 8

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2,486,102

SPONGE TYPE MOP WITH TWO-PART
HINGED BACKING PLATEWilliam E. Berndsen, Cleveland, Ohio, assignor of
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4 Claims. (Cl. 15—244)

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This invention relates to mops, and more particularly to mops of the type shown in my abandoned application, Serial No. 538,664, filed June 2, 1944, (of which this application is a continuation in part) wherein the operating portion of the mop comprises a pair of back plates which are hingedly connected and which support a pad of liquid-absorbent material and wherein means are associated with the handle for the application of power to one of the backing plates whereby it, together with the portion of the pad supported thereby, may be moved toward the other backing plate and the other portion of the pad for the purpose of expelling liquid from the pad when the latter shall have been saturated to an extent requiring such expulsion.

It is the general purpose and object of my invention to improve the construction and reduce the cost of production of mops of the aforesaid type and, as an incident to such improvement and construction, to provide the same with a particularly effective power-applying means, associated with the handle, for effecting the movement of one of the backing plates and the portion of the pad supported thereby toward the opposed backing plate and the portion of the pad supported thereby.

Further and more limited objects of the invention are: to provide an efficient connection between the movable backing plate and the power-operated member which is connected thereto; to provide an efficient manner of hingedly connecting the back plates; and to provide an inexpensive construction of backing plates and pads whereby the former may be produced by a pressure-casting operation and the latter may be conveniently and removably supported by the former.

I accomplish the foregoing objects, as well as others which will be pointed out hereinafter, by the construction and arrangement of the parts shown in the drawings hereof, wherein Fig. 1 shows a side elevational view of a mop constructed in accordance with my invention, the upper portion of the handle being broken away and showing the parts of the mop proper in the positions which they occupy when in operation; Fig. 2 a view, similar to Fig. 1, and showing the positions occupied by the parts when the sections of the mop pad are compacted against each other for the purpose of expelling liquid therefrom; Fig. 3 a rear elevational view of a portion of the mop, showing more particularly the connections between the movable backing plate and the linkage by which the said plate is operated; Fig. 4 a plan view of the mop proper and a portion of the handle which is connected thereto; Fig. 5 a bottom plan showing the backing plates in open or distended position, with a fragment of the pad extending thereacross; Fig. 6 an enlarged detail in section taken on the line 6—6 of Fig. 4 and looking in the direction of the arrows; Fig. 7

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a plan view of the pad; and Fig. 8 a sectional view of the pad taken on the line 8—8 of Fig. 7.

Describing the various parts herein by reference characters, 10 and 11 denote the backing plates of the mop, the pad whereof is designated as 29, the former plate being shown as having a split socket 12 rigidly connected thereto and preferably cast therewith, the socket being provided with ears 13 and a screw bolt 14 connecting said ears, whereby the lower end of the handle 15 may be detachably secured to and within the socket. The backing plate 11 is provided with laterally spaced pairs of lugs 16 for the reception therebetween of the lower ends of arms 17 of a yoke, said arms converging from the lower ends thereof and having their upper ends connected by an integral cross member 17^a, the lower ends of said arms being pivotally connected to and between the said lugs, as by means of rivets 18. The upper end of the yoke is received between forked arms 19^a, 19^b, the arm 19^a being shown as secured at its upper end to the lower portion of a link 19 of which the arm 19^a forms a continuation. 20 denotes a pair of links which are pivoted to opposite sides of the socket 12, as by means of a rivet 20^a, and the opposite ends of which extend alongside the lower ends of the arms 19^a, 19^b, the upper ends of the yoke arms 17 and the lower ends of the arms 19^a, 19^b and the swinging ends of the links 20 being all pivotally connected by means of a pivot pin 20^b. The upper end of the link 19 is pivotally connected to and between the outer ends of fork arms 22^a forming part of a lever having an operating arm 22, the inner ends of the fork arms being pivotally connected to the handle 15 by means of a screw bolt 23.

Except for the fact that the backing plate 10 is rigidly connected to the socket 12 and that the backing plate 11 is movably connected to the backing plate 10 and is provided with the lugs 16, the said backing plates are identical in construction, each being provided with an outer side flange 10^a, 11^a, respectively, and with end flanges 10^b and 11^b, respectively, and at their proximate side edges with inner side flanges 10^c and 11^c, respectively, which extend inwardly from their respective end flanges toward each other, but are spaced apart at their inner ends. Each of these flanges has formed therewith hinge eyes 24, 24^a, respectively, for the reception of the pintle 25, the relatively wide space provided between their inner ends being occupied by a coiled spring 26 mounted upon the pintle and having extended ends engaging the inner faces of the backing plates 10 and 11. It will be noted that the hinge construction extends substantially to the ends of the backing plates, thereby contributing to the strength and life of the former.

Each end of each of the backing plates is provided with integral short inwardly projecting shelves 27, these shelves extending beneath elongated drainage openings thereabove, as shown at

28 on Figs. 4, 5 and 6. These shelves provide seats for the ends of continuous rectangular wire springs 30 each having its sides and ends in proximity to the sides and ends of the portion of the pad 29 in which it is embedded, the said springs being so embedded during the process of molding the pad. The pad is preferably made of cellulose sponge and, owing to the nature of the material of which it is made, it is unnecessary to provide the same with a recess for the reception of the hinge members, it being necessary only to provide the same with a slot 29^a in its lower surface, midway between its side edges and extending substantially the full length thereof, for the reception of the flanges 10^c and 11^c and the hinge eyes 24 and 24^a. The elongated openings 28 above the shelves are substantially coextensive in length and width with the length and width of the shelves. This enables me to insert in these openings cores of the same width and length as the openings, whereby the backing plates containing these openings and the shelves 27 and the liquid-expelling openings 31 can be produced by a die-casting operation, thereby enabling the backing plates to be manufactured at low cost.

With the parts constructed and arranged as described, the operation will be readily understood. The mop may be operated in the usual manner by means of the handle 15 until such time as it is desired to wring the same, at which time the operating arm 22 of the lever, which normally rests against the underside of the handle, (due to the proportioning of the parts 17, 19 and 20), will be swung downwardly to the position shown in Fig. 2, thereby swinging the link 19 downwardly and applying sufficient power to the movable backing plate 11 to insure the effective expulsion of liquid from the pad, in part through the openings 28 and 31. After this operation, the lever will be folded upwardly to the position shown in Fig. 1, and the backing plates and the pad will be restored to their operating positions by the spring 26. The pad may be secured to the backing plates by inserting opposed ends of the wire springs 30 between the shelves 27 at opposite ends of the backing plates and the bodies of the plates themselves, whereupon, by buckling the central portions of the said springs upwardly, their opposite ends can be inserted in like manner between the shelves at the opposite ends of the backing plates and the bodies of the plates. The pad can be removed by pulling outwardly upon the side portion of the pad which will contract the lengths of the springs sufficiently to disengage them from their seats on the shelves and be replaced thereafter by a like new pad. The wire springs referred to constitute stiffening members for the pad as well as means whereby the pad may be detachably connected to the backing plates.

From the foregoing, it will be evident that I have produced a mop which is unusually efficient in operation and which is equally economical of production.

Having thus described my invention, what I claim is:

1. A mop comprising, in combination, a pair of opposed backing plates each having end flanges, an outer side flange and inner side flanges extending from their respective end flanges with their inner ends spaced apart, the space provided between the inner ends of the inner side flanges of one of said plates being substantially coextensive with the space provided between the inner ends of the inner side flanges on the other of said

plates, the last mentioned side flanges being provided with complementary hinge eyes and spaces therebetween, said complementary hinge eyes and spaces being formed in two longitudinally spaced portions of the said backing plates, a pintle extending through the aforesaid hinge eyes, a coil spring mounted on said pintle in the space between the inner ends of the inner side flanges and having ends adapted to engage respectively the inner walls of said plates, said coil spring being positioned intermediate the longitudinally spaced portions of the hinge so as to be retained on said pintle by the hinge sections, and a pad of liquid absorbent material detachably supported by said backing plates.

2. In the mop set forth in claim 1, the said pad being composed of cellular sponge-like material and having a slot extending longitudinally thereof in its inner surface for the reception of the hinge eyes, pintle and spring.

3. A mop comprising, in combination, a pair of opposed backing plates pivotally connected at their proximate edges and each having side and end flanges, shelves projecting inwardly from each of the end flanges and spaced from the end portions of the backing plate thereabove, a pad of liquid-absorbent material comprising sections each adapted to be fitted between the end flanges of each backing plate and each having therein a substantially rectangular spring frame the sides whereof are of sufficient length to enable the ends of the spring frame to be snapped into place between the said shelves and the portions of the backing plate thereabove.

4. A mop comprising, in combination, a pair of opposed backing plates pivotally connected at their proximate edges and each having side and end flanges and each having openings there-through, each backing plate being also provided with an elongated opening adjacent to each corner thereof and within and adjacent to the side and end flanges thereof, each of the said backing plates having shelves projecting inwardly beneath the said elongated openings and being substantially coextensive in length with the length of said openings, a pad of liquid absorbent material comprising sections each adapted to be fitted within the flanges of each backing plate and each having therein a substantially rectangular spring frame the sides whereof are of sufficient length to enable the ends of the spring frame to be snapped into place above the said shelves.

WILLIAM E. BERNDSEN.

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