

April 4, 1944.

R. D. CONKLIN

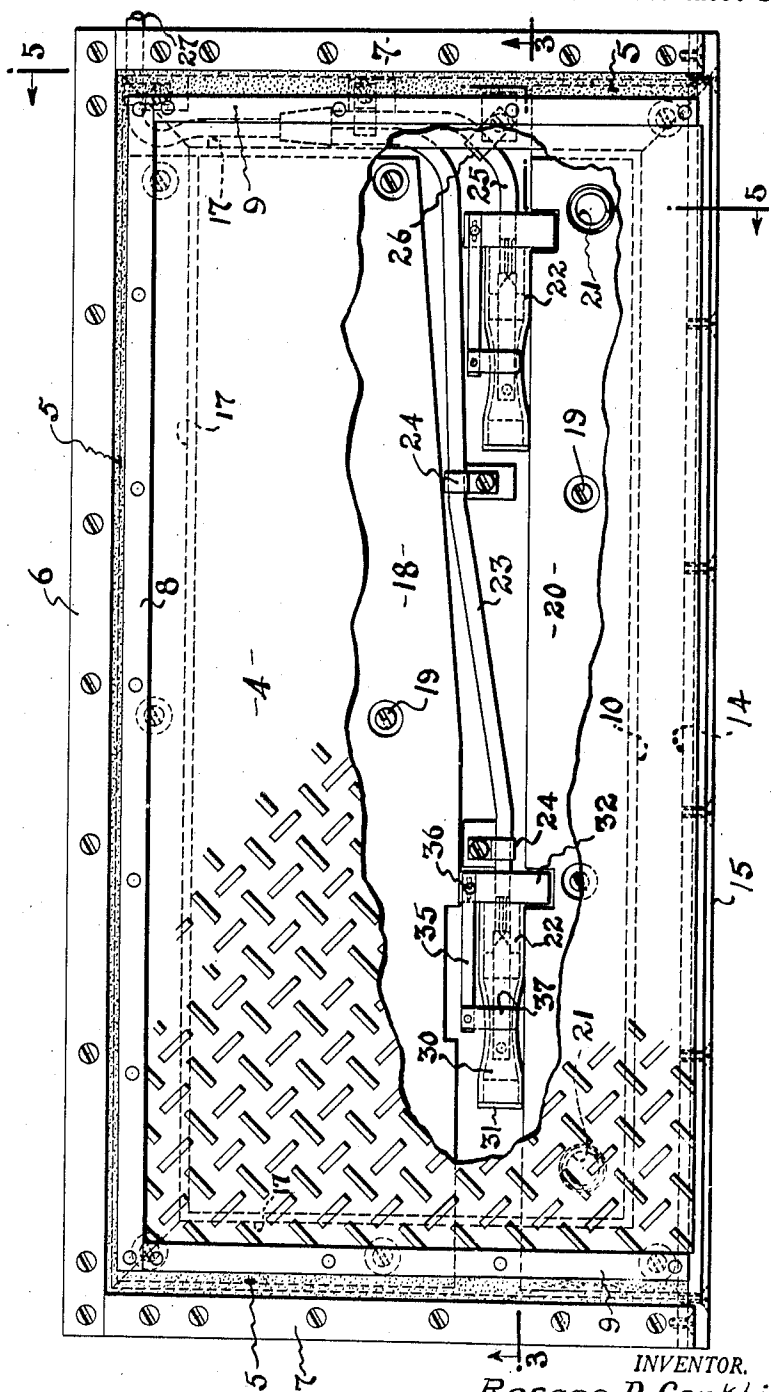
2,346,009

ELECTRIC TREADLE

Filed Aug. 6, 1942

3 Sheets-Sheet 1

Fig. 1



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Fig. 2

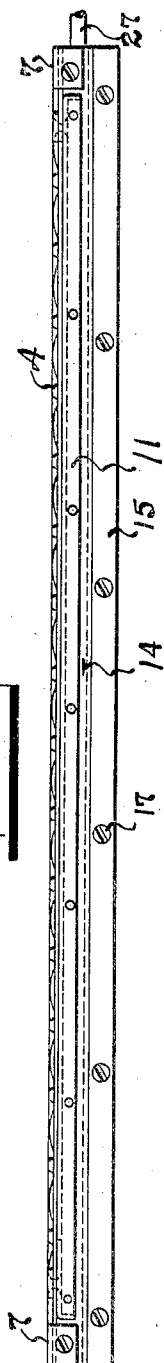


Fig. 3

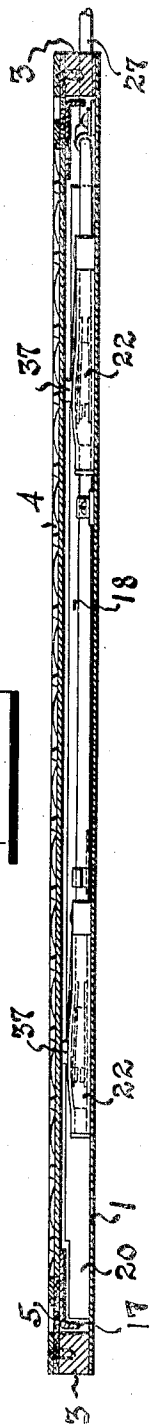


Fig. 4

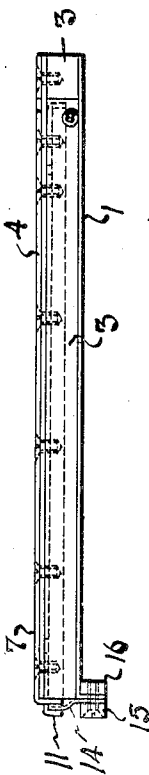
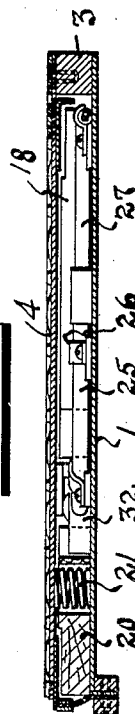


Fig. 5



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Fig. 6

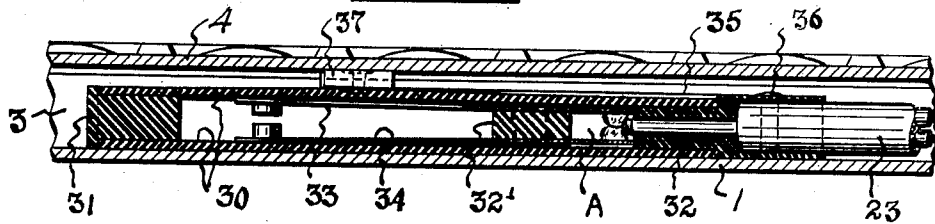


Fig. 7

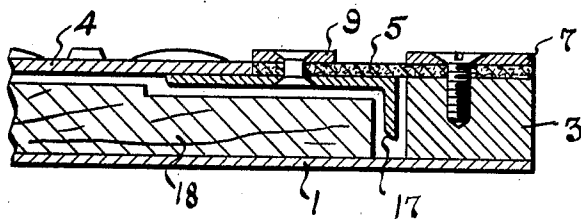
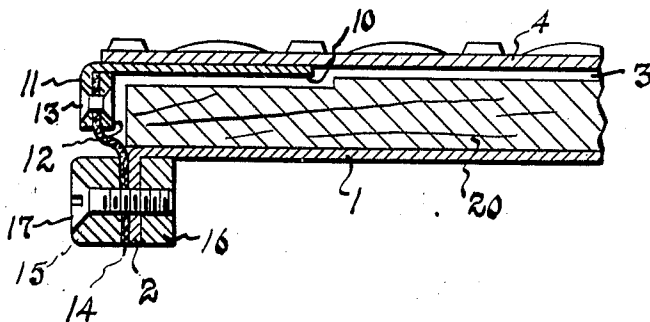


Fig. 8



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2,346,009

ELECTRIC TREADLE

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Application August 6, 1942, Serial No. 453,840

1 Claim. (Cl. 200—86)

This invention relates to improvements in electric treadles of the types used on vehicles and in buildings and the like in connection with the automatic opening and closing of the doors thereof.

The general object of the invention is to provide a waterproof electric treadle which because of its simplicity of construction is capable of withstanding the stresses and strains incident to the use of such devices.

Other and more detailed objects of this invention will be apparent from the following description of one embodiment thereof.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, all as will be described in detail below.

In the accompanying drawings,

Figure 1 is a top plan view of an electric treadle in accordance with this invention with a portion of the top plate broken away to show the interior construction;

Figure 2 is a front edge elevational view thereof; Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a right hand elevational view of the structure of Figure 1;

Figure 5 is a cross-sectional view taken on the line 5—5 of Figure 1;

Figure 6 is a longitudinal, vertical, central, cross-sectional view enlarged showing one of the switch structures;

Figure 7 is an enlarged vertical, cross-sectional view taken through the rear edge of the treadle; and

Figure 8 is a similar view taken through the front edge of the treadle.

Heretofore in one form at least electric treadles of the type herein referred to have been made with a casing of rubber which could be vulcanized and sealed so as to insure the complete exclusion of water from the interior thereof. However, under the present war conditions it being necessary to reduce as much as possible the use of rubber it has become necessary to provide a substitute structure which can be depended upon as watertight. It is therefore an object of this invention to provide a new form of electric treadle of watertight construction without the use of rubber.

Referring to the embodiment illustrated in the drawings, it may be stated generally that the treadle shown therein is generally of a flat rectangular form which may be mounted adjacent to a door or in a suitably shaped recess in the

floor adjacent to a door in a building or vehicle so that a person approaching the door will tread upon it. The flat rectangular construction is built up of a base plate 1, preferably of metal such as sheet steel, which is rectangular in form and is provided, as clearly illustrated in Figure 8, with an integral depending flange 2 at the front edge thereof. As is clear from Figures 3 and 4 there is secured at the end and rear edges on the top face of the plate 1, strips or bars 3 of suitable material such as metal, fiber, any one of the many plastic materials, and the like, to form a shallow tray open at the front. The cover for the container thus formed comprises the treading plate 4, preferably of steel, having a roughened treading surface on the top as indicated in Figure 1. The plate 4 is connected to the strips 3 by means of flexible straps 5 made of any suitable material which is waterproof such as leather, impregnated fabrics such as water repellent canvas and the like. The outer edges of the straps 5 overlie the tray-forming strips 3, as clearly indicated in Figures 3 and 5, and are secured thereto by overlying metal strips 6 and 7 and bolts or screws as shown. The other edges of the flexible straps 5 abut the treading plate 4 at its ends and rear edge and overlie the shallow angle bars 17 welded or otherwise secured to the end and rear edges of the treading plate, as clearly shown in Figure 7, so as to project therebeyond. The edges of the straps 5 overlying the angle irons are clamped thereto by means of metal strips 7 and 9 and rivets as clearly shown.

There is likewise secured to the bottom face of the treading plate 4 along its front edge an angle plate 10 with its flange 11 extending downwardly across the open edge of the resulting housing. A strip of flexible material 14 similar to the straps 5 extends across the front of the housing and is clamped at its upper edge to the flange 11 by means of a bar 12 and the rivets 13. The other edge of the strip 14 overlies the flange 2 on the base plate 1 and is clamped thereto by means of bars 15 and 16 connected by the machine screws 17. At all joints which include the flexible straps 5 and 14 a moisture excluding seal may be accomplished, if desired, by using a suitable cement such as for example, shellac. Referring particularly to Figure 2, it will be seen that the ends of the flexible strip 14 lie under the downwardly open ends of the metal strips 7 and are secured therein to complete the sealing of the housing at these points.

Referring to Figure 1, there is mounted within

the space formed by the housing a pair of blocks 18 and 20 of wood or other suitable material, secured therein by the screws or bolts 19 to form a space between them and to provide an outside peripheral dimension as indicated in Figure 1, slightly less than the space provided between the depending flanges of the angle irons 17 and flange 11 of the angle iron 10. Any tendency of the treading plate 4 to move laterally is limited by the interengagement of these flanges with the filler blocks 18 and 20. Holes are provided in the block 20, as is clear from Figures 1 and 5, in which a pair of springs 21 are mounted to engage the end face of the treading plate 4 near its front edge to keep it normally in raised position. As is clear from several of the figures, it will be seen that the blocks 18 and 20 limit the vertical movement of the treading plate and the springs 21 insure that it will be in its uppermost position when there is no weight on it.

In the space between the blocks 18 and 20 are a pair of switches generally designated by the reference numeral 22. These switches are further protected against moisture by being individually sealed. Referring to Figure 6 wherein one of these switches is shown in full detail, the housing 30 for the switch consists of a flexible water repellent tube which may be made of natural or artificial rubber, and which represents all of the rubber in the device except that in the insulation of the electric leads to the switches. The tubular housing 30 is closed at its outer end by means of a block 31 which is rectangular in cross section and which is sealed in the tube by any suitable cement. The other end of the tube is closed by means of a block of insulating material 32 which snugly fits in the end of the tubular housing 30 and is likewise cemented therein. The block or plug 32 is substantially T-shaped having the stem of the T forced into the tube 31. The stem is provided with a vertical hole intermediate its ends, as is clear at A in Figure 6, in which the ends of the conductors in the insulated cable 23 are exposed for connection to the spring fingers 33 and 34. These spring fingers are provided with contacts at their outer ends as shown, and with small struck-out ears which project into complementary holes at the terminal end of the stem of the T, as indicated at 32'. The ends of the conductors are soldered to the ends of the spring fingers and the conductors pulled back so as to hold the adjacent ends of the spring fingers loosely in place. The rubber insulation of the conductor 23 is cemented in the block 32 at the point where it extends thereinto, as shown in Figure 6. Thus the exposed parts of the electrical circuit are totally sealed within a flexible housing. One end of the head of the T

block 32 in each case lies in a recess in the filler block 20, as clearly shown in Figure 1. Attached by means of a rivet 36 to the top face of the block 32 at the other side, is a spring arm 35 which has a pressure block 37 which rests on the flexible housing 30 and extends transversely of the spring fingers 33 and 34. As shown in Figure 6 the vertical thickness of the block 37 is about equal to the space between the top of the tube 30 and the bottom of the treading plate 4 when there is no weight on it.

The other switch 22, as shown in Figure 1, is provided with a conductor cable 25, the conductors of which unite with the conductors in the cable 23, so that the switches are in parallel and the common cable 27 leading therefrom extends out of the treadle housing, as indicated in Figure 1, at which point a watertight seal can be made by waterproof cement. The cable 23 is secured in place by the clamps 24 and the cable 25 is likewise secured in place by the clamps 26.

From the above detailed description it will be apparent that there is provided by the invention herein a simple, rugged electric treadle which may be depended upon to be substantially watertight under all normal working conditions. This construction is accomplished with the minimum use of rubber. It will be apparent to those skilled in the art that the subject matter of this invention may be embodied in other physical forms, and I do not, therefore, desire to be strictly limited to the disclosure as given for purposes of illustration, but rather to the scope of the claim granted me.

What is claimed is:

An electric treadle comprising a base plate having a depending flange along one edge, side members secured to said plate along three edges to form a shallow pan, the rigid treading plate forming with said pan a rectangular housing and having a depending flange at its front edge, flexible strips connecting the end and rear edges of said treading plate with the corresponding side members, a flexible strip connecting the depending flanges of said base plate and treading plate whereby a sealed housing is formed, the cover of which formed by said treading plate being vertically movable, means for limiting the downward movement of said treading plate, means for normally holding said treading plate in raised position, a switch mounted in said housing and positioned to be closed when said treading plate is depressed, and means limiting transverse movement of said treading plate, said switch also being enclosed in a flexible watertight housing.

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