T. I. DUFFY.

PEDAL FOOT PIECE.

APPLICATION FILED OCT. 12, 1914.

1,151,766. Patented Aug. 31, 1915.

Fig. 1

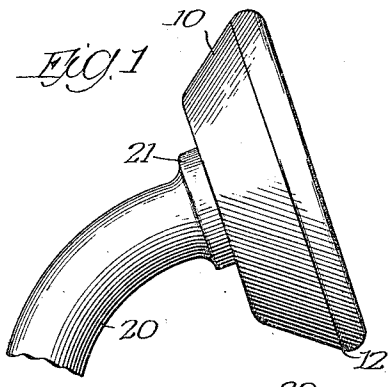
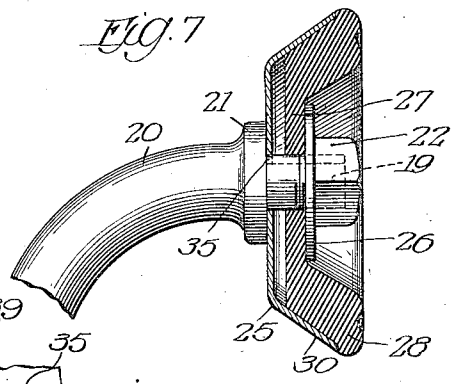


Fig. 7



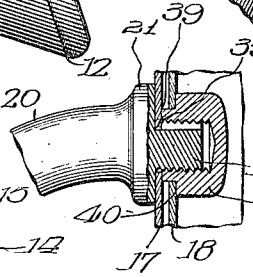


Fig. 8

Fig. 2

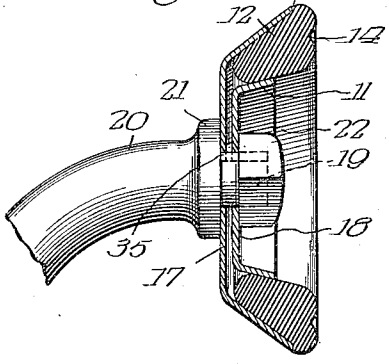


Fig. 3

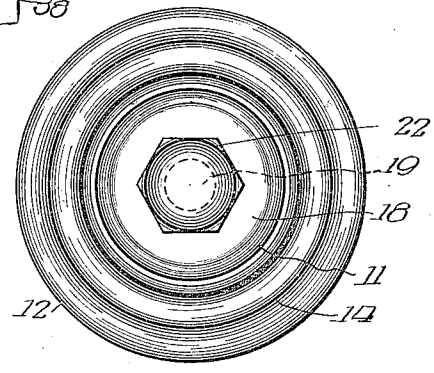


Fig. 4

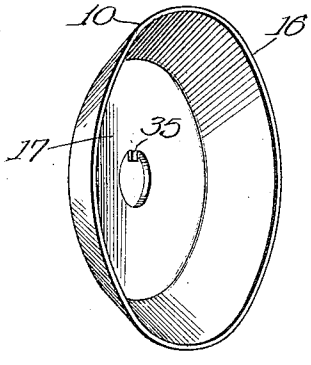


Fig. 5

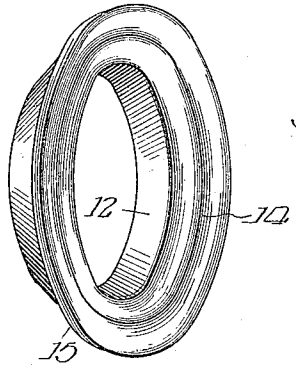
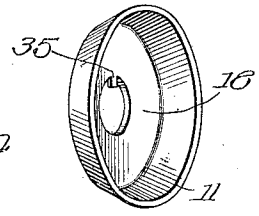


Fig. 6



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PEDAL FOOT-PIECE.

1,151,766. Specification of Letters Patent. Patented Aug. 31, 1915.

Application filed October 12, 1914. Serial No. 866,284.

To all whom it may concern:

Be it known that I, THOMAS I. DUFFY, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pedal Foot-Pieces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a novel pedal through which power may be applied to operate any kind of mechanism by foot pressure. The pedal is particularly adapted for use in connection with brake or clutch mechanisms for automobiles.

One of the objects of the invention is to provide a pedal having a part for contact with the foot of such shape and character that foot pressure may be applied thereto without giving particular attention to fitting the foot to the pedal pad, and further constructed to prevent the foot slipping off the pad in case the sole of the shoe or the pad be moistened.

Another object of the invention is to provide a pedal possessing these characteristics which may be economically made and assembled.

A further object of the invention is to provide a pedal structure which is very rigid and durable and which is capable of withstanding severe usage without danger of breakage.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings: Figure 1 is a side elevation of a pedal embodying my invention. Fig. 2 is an axial section thereof, with the shank in elevation. Fig. 3 is a face view of the pedal. Figs. 4, 5 and 6 are perspective views of the elements of the pedal. Fig. 7 is an axial section of a modification. Fig. 8 is a fragmentary section of a modification.

A pedal embodying my invention consists mainly of three elements, outer and inner cup-shaped members 10, 11, respectively, and an intermediate pad 12 which is provided with a face 14 adapted for direct contact with the foot of the driver, the said pad being confined between the frame members 10 and 11. Said pad is made of a material having a comparatively high coefficient of friction, such as rubber, cork, leather or the like, so as to prevent the foot slipping therefrom, regardless of the angle at which the foot is presented to the pad and also regardless of the fact that the shoe or the pad may be covered with water or mud.

In the particular embodiment of the invention herein shown the frame members 10, 11 are of conical cross section and the pad is annular and tapered at its rear edge to be confined between the lip of the flange of the smaller inner cup-shaped member and the base portion of the flange of the outer member. The inner and outer frame members are preferably made of sheet metal by a suitable stamping or swaging operation. The bottom walls 17, 18 of said frame members are provided with registering openings to receive the screw-threaded stud 19 of the shank or arm 20 of the pedal. The particular type of shank or arm employed depends upon the character of brake or clutch mechanism (or other equipment in which the pedal is incorporated). As shown, the shank is rigid with the pad frame, but may be loosely or pivotally connected thereto. The shank is provided in front of the pedal pad with a shoulder 21 which bears against the front flat wall of the outer cup-shaped member, and between which and a nut 22, screw-threaded to the stud 19 and bearing against the rear or inner side of the flat wall of the inner cup member, said walls are pressed to clamp the flanged portions of said cup-shaped members upon the pad 12. It will be observed from an inspection of Fig. 2 that the flat walls of the cup-shaped members are separated to such extent as to cause said walls to spring slightly toward each other, whereby the clamping action of the flanges or walls of said cup-shaped members are brought with a yielding pressure against the annular wall of the pad. The pad 12 is provided with an exterior, forwardly facing annular shoulder 15 which is adapted to bear against the larger edge 16 of the outer cup-shaped member, as shown in Fig. 2, so as to properly support the bearing face of the pad. The bearing face of said pad is preferably roughened or fluted to give reliable friction holding properties thereto.

The construction, when assembled, is very rigid and possesses great strength. It pre-

sents a contact face to the foot of the driver of such shape that it does not become necessary for the driver to give particular attention to fit the foot to the pedal, as is true of the types of pedals usually employed in automobile practice. Furthermore, by reason of the frictional character of the pedal pad the foot is not likely to slip off the pedal even when presented at an unfavorable angle to the pedal or when the pad or sole of the shoe is wet.

In Fig. 6 I have shown a modified construction wherein the clamping frame members consist of a conical cup 25, a flat central plate or disk 26 apertured to receive the stud of the pedal shank or arm, and a pad consisting of a central body portion 27 through which the stud 19 extends and a conical wall or flange 28 that is supported by the tapered wall 30 of the cup and extends rearwardly beyond the said conical wall for contact with the foot of the driver. In the latter construction, the pad is confined in place by the clamping action of the flat plate 26 and the wall of the cup 25.

Preferably an interlocking connection is provided between the shank 20 and one or both of the frame members which may consist of lugs 35 in the central openings of the frame members adapted to engage grooves formed in the studs 19 of the shanks 20. Any other suitable interlocking connection may be provided between the shank and the frame to avoid rotation of the foot piece relatively to the shank.

In Fig. 7 the nut 38 which locks the pad frame to the shank is formed with a central reduced extension 39 which extends through a central opening of the frame member wall 18 and bears against the frame member wall 17 to press the latter against the shouldered portion of the shank with a positive metal to metal clamping effect. The shoulder 40 between the extension 39 and the body of the nut acts against the wall 18 to press said walls together to clamp the frame members upon the pad.

It will be obvious that the invention may be embodied in other forms of devices which structurally differ from the forms herein shown. For instance, while the pad shown has a circular contact face it may be made oval. It is preferable, however, that the shape of the pad face be such as to present no sharp corners, although the latter contour is intended to fall within the spirit of the invention as embraced in the broader claims hereto appended.

I claim as my invention:—

1. In a pedal, a frictional pad, frame members between which the pad is adapted to be clamped and a shank extending through alined openings in the frame members and provided with clamping means to clamp the said frame members on the pad.

2. A foot pedal comprising two clamping frame members and an interposed ring like pad having an exposed broad frictional face and having a thinner portion that is adapted to be clamped between the frame members and means to clamp said frame members upon the pad to hold the parts fixedly together.

3. A foot pedal comprising inner and outer clamping frame members and an interposed ring like pad having an exposed frictional face, and confined partially between said frame members upon the pad, said pad having an exterior shoulder to engage a supporting shoulder on one of the frame members.

4. A foot pedal comprising inner and outer cup-shaped frame members of conic section and an interposed pad having its forward portion confined between the walls of said frame members and having its rear bearing portion supported by the forward edge of the outer frame member and clamping means to clamp said frame members on said pad.

5. A foot pedal comprising inner and outer cup-shaped frame members of conic section and an interposed pad having its forward portion confined between the walls of said frame members and having its rear bearing portion supported by the forward edge of the outer frame member, said frame members being perforated and a pedal shank extending therethrough, with clamping means thereon to clamp the frame members on the pad.

6. A foot pedal comprising inner and outer cup-shaped members provided with apertured walls and conic walls or flanges, an annular frictional pad confined between the said conic walls and a shouldered screw-threaded shank member extending through said apertured end walls and provided with a clamping nut which opposes the shoulder on the shank.

7. A foot pedal comprising inner and outer cup-shaped members provided with apertured walls and conic walls or flanges, an annular frictional pad confined between the said conic walls and a shouldered screw-threaded shank member extending through said apertured end walls and provided with a clamping nut which opposes the shoulder on the shank, said contact member being provided with an exterior rearwardly facing shoulder to engage and be supported by a shoulder on the outer cup-shaped member.

8. A foot pedal comprising inner and outer cup-shaped frame members of conic cross section, an interposed pad having its forward portion confining between the walls of said frame members and having its rear bearing portion supported by the forward edge of the outer frame member, said frame members being perforated and a pedal shank

extending therethrough, with clamping means thereon to clamp the frame members on the pad, and non-rotative interlocking connections between said shank and frame members.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 22nd day of September, A. D. 1914.

THOMAS I. DUFFY.

Witnesses:
W. L. HALL,
G. E. DOWLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."