

T. H. LUNDE & R. MOE.
 PEDAL ACTION FOR PIANOS.
 APPLICATION FILED JUNE 11, 1910.

1,090,487.

Patented Mar. 17, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

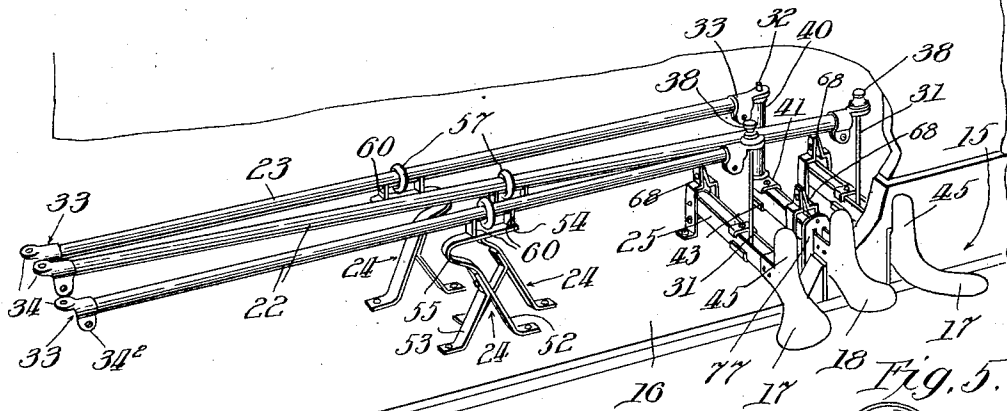


Fig. 2.

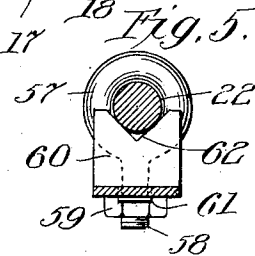
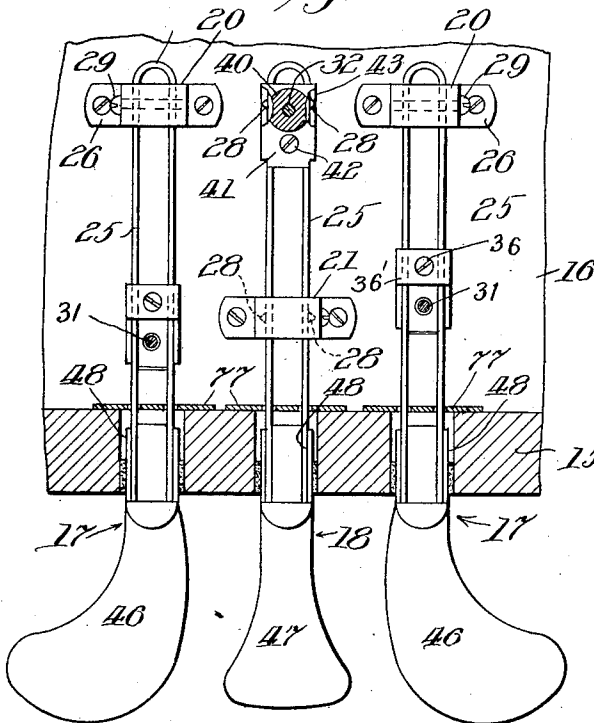


Fig. 3.

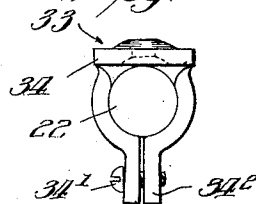
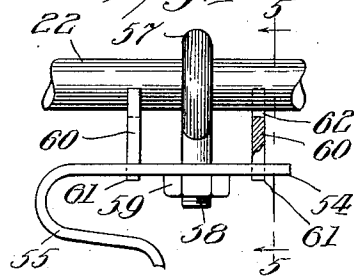


Fig. 4.



Witnesses:

Harry S. Gaither
 W. Goldberger.

by

Inventors:

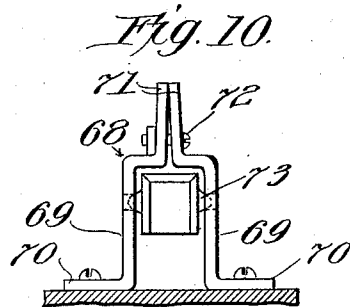
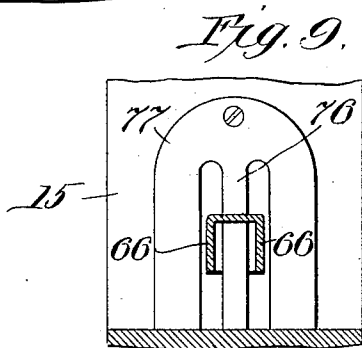
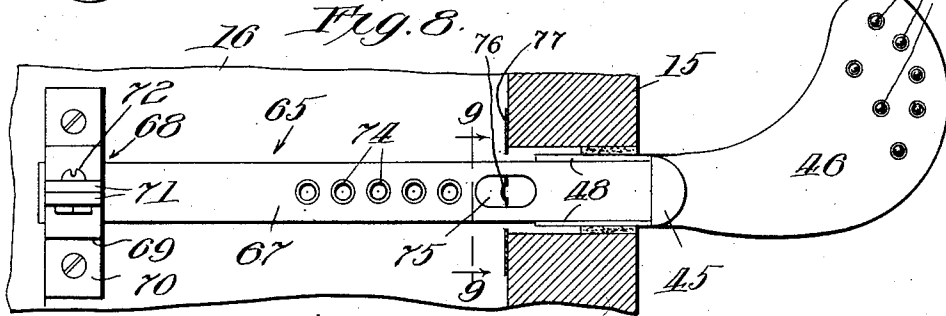
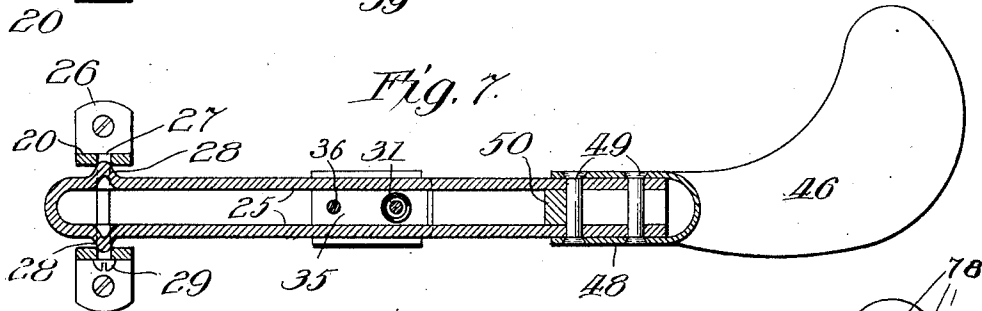
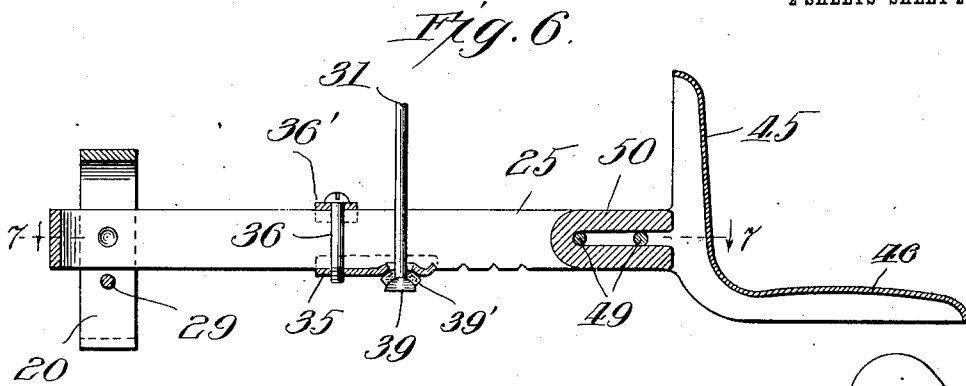
Theodore H. Lund
 Rudolf Moe
 William H. Hall, atty.

T. H. LUNDE & R. MOE.
 PEDAL ACTION FOR PIANOS.
 APPLICATION FILED JUNE 11, 1910.

1,090,487.

Patented Mar. 17, 1914.

2 SHEETS—SHEET 2.



Witnesses:

Harry S. Gaither
 W. Goldberger.

by

Inventors:

Theodore H. Lund
 Rudolf Moe
 William Hall, atty.

UNITED STATES PATENT OFFICE.

THEODORE H. LUNDE AND RUDOLF MOE, OF CHICAGO, ILLINOIS.

PEDAL-ACTION FOR PIANOS.

1,090,487.

Specification of Letters Patent.

Patented Mar. 17, 1914.

Application filed June 11, 1910. Serial No. 566,457.

To all whom it may concern:

Be it known that we, THEODORE H. LUNDE and RUDOLF MOE, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pedal-Actions for Pianos; and we 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 improvements in pedal actions for pianos, and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects of the invention is to provide an improved arrangement of the three pedals of the pedal action, whereby the pedals may be readily distinguished one from the other by the touch of the foot of the player, thereby avoiding the necessity of peeping under the key-board to locate the pedals by sight.

Another object of the invention is to provide an improved horn pedal wherein the pedal body and horn are made from a single piece of sheet metal by a suitable swaging or stamping operation, and to provide an improved means of attaching the pedal to the pedal shank.

Other objects of the invention are,—to provide an improved form of pivot trunnion or lug for the pedal shanks; to provide an improved hinge or pivot spring for the swinging levers of the pedal action; to provide an improved means for connecting the levers with their hinge or pivot springs; to provide means for longitudinally adjusting said levers on their pivot mountings with relation to the pedals; to provide an improved connection between the pedal props and the pedal shanks, and to otherwise improve the general construction of pedal actions.

As shown in the drawings, Figure 1 is a perspective view of a pedal action embodying our invention, the toe rail being partially broken away to expose the action to view. Fig. 2 is a horizontal sectional view, illustrating in plan view the relative arrangement of the middle and outer pedals, and the manner of pivotally mounting the same, showing a modified form of pedal

bracket. Fig. 3 is an end view of one of the fittings at the ends of the pedal action levers. Fig. 4 illustrates the means for fixedly attaching the pedal actuated levers to the hinge or pivot springs. Fig. 5 is a section on the line 5—5 of Fig. 4. Fig. 6 is a longitudinal section of one of the side pedals. Fig. 7 is a horizontal section on the line 7—7 of Fig. 6. Fig. 8 is a top plan view of a modified form of pedal, showing its pivotal mounting and showing the toe rail in horizontal section. Fig. 9 is a transverse section on the line 9—9 of Fig. 8, looking forwardly. Fig. 10 is an end view of the pedal shown in Fig. 8 and its pivot mounting.

Certain of the features of the present invention relate more particularly to and are an improvement on the construction shown in the prior United States Patent to Rudolf Moe, Number 785,969, granted March 28th, 1905, while other features of the invention are capable of more general adaptation.

As shown in the drawing, 15 designates the toe rail of the piano and 16 the bottom or base thereof.

17, 17, designate the side pedals and 18 the middle pedal. Said pedals extend through openings in the toe rail and are pivoted to brackets 20, 20 and 21 attached to the bottom or base 16, the side pedals being fulcrumed at their rear ends to the brackets 20, while the middle pedal is shown as fulcrumed between its ends to the bracket 21. The illustrated arrangement of the middle pedal is for use with a muffler. If used for the sostenuto or base sustainer effect, said pedal will be fulcrumed at its end, as in the case of the side pedals.

22, 22 and 23 designate vertically swinging levers which are operatively connected at the center of the piano with the pedals and at their outer ends are adapted for connection with the parts of the piano mechanism which they control, in a manner not herein shown. The levers 22, 23 are mounted between their ends on hinge or pivot springs, designated as a whole by 24, which are arranged to permit the levers to swing vertically and which operate also to restore the levers and the parts which they control to normal position when pressure is released from the pedals.

As shown in Figs. 1, 2, 6 and 7, the shanks of the pedals each comprise two flat parallel

bars 25, 25 arranged vertically edgewise. The bars of each shank may be made from a single strip of metal, the strip being bent at its center to form the closed rear end of the shank, and the free ends of the strip of each shank being brought together and fixedly attached to the pedals 17, 17 and 18 in a manner hereinafter to be described.

As shown in Figs. 2, 6 and 7, the pivot brackets 20, 21 are arch shaped, the ends being formed to provide feet 26 by which they are attached to the bottom or base 16. The vertical members of the brackets between which the pedal shanks extend, are provided with pivot apertures 27 which are engaged by pivot lugs 28 extending in opposite directions from the members of the shank. As shown in Figs. 1, 8 and 10, these pivot brackets 68 are made of two parts which are adapted to the pedal shanks associated therewith, as will hereinafter more fully appear. As a further improvement, the said pivot lugs 28 are made integral with said shank members, they being punched outwardly therefrom in the form of conical lugs, the outer or smaller ends of which engage said pivot apertures 27. The two vertical members of each bracket 20, 21 are adapted to be adjusted toward and from each other and to the pivot lugs, before the bracket is fastened to the base, by means of a screw 29 which passes loosely through one of the bracket members and is screw-threaded to the other member. In order that the middle pedal may be adapted either to a sostenuto or muffler device, the shank thereof is shown as provided with two pairs of pivot lugs 28, one near its outer end and one at its middle.

The connections between the inner ends of the levers 22 and 23 and the pedal shanks comprise vertically arranged props 31, 31 and 32 which are loosely connected at their lower ends to the pedal shanks and at their upper ends to fittings 33 fixed to the inner ends of said levers. The said fittings 33 comprise split sleeves which embrace the levers at their ends and are provided with apertured lugs 34 through which the props extend. The sleeved fittings are fastened to the levers by screws 34' extending through lugs 34'. Similar fittings 33 are mounted on the outer ends of said levers for connection with the links or rods (not shown) by which the levers are connected to the parts which they control. The levers shown are made of round bars or rods but may be of other cross section and may be otherwise arranged for the connection of the props thereto. The props 31 which connect the outer or side pedals to said levers consist of plain rods that are headed at their lower ends and are screw-threaded at their upper ends. The lower ends of said rods extend downwardly between the side members of the pedal

shanks and through openings in plates 35 which are clamped to the shank by means of screw bolts 36 and clamping bars 36', as shown in Fig. 6. The upper screw-threaded ends of the props 31 extend upwardly through the apertured lugs 34 of the inner fittings 33 and receive nuts 38 by which the said props are connected to the fittings. The heads 39 at the lower ends of the props 31 are preferably made convex or half round at their upper sides and oppose the correspondingly shaped sockets formed on the lower faces of the plates 35 around the holes in said plates, as clearly shown in Fig. 6. This arrangement of the prop heads and bearing plates 35 holds the props centrally in the holes of the plates and prevents the props striking against the plates around said holes and avoids rattling of the parts. Said sockets also constitute seats to receive felt washers 39' interposed between the heads and the plates 35, and the provision of the socket and convex head avoids chafing and wear on the washer by said head. The lugs 34 of the fittings 33 may likewise be provided with concave sockets to receive washers that are interposed between said lugs and the coacting parts of the props (see Fig. 3).

The prop 32 acts under compression to transmit motion from the pedal to the lever 23. It may have the form of a dowel, comprising the body portion 40 and pins driven into the ends thereof. It is interposed between the fittings 33 of the lever 23 and a plate 41 fastened to the pedal shank by means of a screw bolt 42 and a clamping bar 43, as shown in Figs. 1 and 2.

As a further and separate improvement the horns 45 of the pedals are made integral with the bodies 46, 47 thereof, and said pedal bodies and horns are formed from sheet metal by a swaging or stamping operation. The said combined sheet metal pedal bodies and horns are formed also with rearwardly extending arms 48, 48 which are arranged in overlapping relation to the front ends of the pedal shanks and are rigidly fixed thereto, as by means of the rivets 49, 49 extending through said arms and the pedal shank members. When the pedal shanks are made of a single strip of metal, with the free ends thereof brought together at the front end of the shank, a filling piece 50 may be interposed between the ends of the strip to hold the strip ends spaced apart and to thereby afford a rigid connection between the pedals and their shanks. As herein shown the said filling piece is U-shaped, the parallel members thereof being arranged above and below the attaching rivets 49.

As a further and separate improvement, the middle pedal 47 is made substantially shorter than the side pedals, so as to provide at the front of the group or bank of pedals

a central recess that may be readily distinguished by the touch of the foot of the player, so that the player may with accuracy differentiate the pedals one from the other and may unhesitatingly depress a pedal thus located without the necessity of looking under the key board to locate the pedals by sight. The player will find this feature of value when he first seats himself at the piano, or at any time thereafter in case he should remove his foot from the bank of pedals. The player will be at perfect ease, therefore, with respect to the proper manipulation of the pedals and his attention will not be distracted from the artistic side of the performance by the purely mechanical effort of locating the proper pedal. The arrangement shown is superior to an arrangement where the middle pedal is as long or slightly longer than the side pedal, for the reason that the shortening of the middle pedal provides a space or recess between the side pedals and at the end of the middle pedal which the player will always recognize by the touch of the foot. This space is centrally located with respect to the side pedals, and the player is free to depress either of the pedals without hesitation or without assuring himself by sight. The arrangement of the pedals shown brings about the result desired without marring the appearance or destroying the symmetry of the group or bank of pedals. In connection with the arrangement shown the side pedals may be turned outwardly at their ends to increase the width of the central space or recess of the pedal bank. This arrangement permits the middle pedal to be made slightly wider to afford a wider bearing for the foot thereon, and also in a like manner increases the width of the side or outer pedals.

The hinge or pivot springs for the levers 22, 23 each comprises an oblique foot member 52 attached to the base 16, a brace member 53 attached to said foot member and to the base and a straight, horizontally arranged attaching member 54 which is joined to the foot member by a curved spring member 55. The said horizontal attaching members 54 are arranged beneath and parallel to the swinging levers 22, 23 and said swinging levers are attached rigidly thereto by the following devices: 57 designates an eye bolt through the eye of which the lever extends, and the shank 58 of said eye bolt extends downwardly through an opening in the horizontal attaching member 54 of the pivot spring and is screw-threaded at its lower end to receive a clamping nut 59. Interposed between said attaching member 54 and the lever, and arranged one at each side of the eye bolt, are filling pieces 60, which, as shown have the form of relatively thin plates. They are shown as formed with lugs 61 which set into apertures in the at-

taching member 54 and are formed at their upper ends with saddle notches 62 for engagement with the under sides of the levers at each side of each eye bolt. The action of the nuts on the shanks of the eye bolts serves to draw the levers down against the filling pieces 60 and to fixedly clamp said filling pieces between the attaching members of the springs and the levers; and the engagement of the filling pieces with the levers and said attaching members serves to rigidly maintain the levers in fixed relation with respect to the springs. The arrangement of the oblique foot pieces 52 and braces 53 serve to hold the springs from shifting laterally with respect to the base or support when the levers are operated. The spring action occurs at the curved connecting portions 55 which admit of practically no lateral deviation of the springs and corresponding longitudinal shifting of the levers, such as would tend to occur if the entire spring structure, from the base up, yielded in the action of the springs.

A further feature of the lever mounting described lies in the endwise adjustability of the levers on their seats on the pivot or fulcrum springs with respect to their pedals; it being obvious that, by loosening the nuts 59, the levers may be thus shifted or adjusted endwise. This arrangement permits the inner ends of the levers to be adjusted accurately over the pedals and the other ends to be likewise adjusted with respect to the mechanism which they control and avoids canting of the props one way or the other and a consequent irregular action of the levers and the parts which they control. A limited adjustment of the fittings 33 on the levers 22 and 23 may be effected for a like purpose, such adjustment being permissible by reason of the clamping engagement of the fittings with said levers.

In Figs. 8, 9 and 10 is shown a modified form of pedal shank 65 which may be employed with the form of pedal shown. As shown in said figures, the shank is made of a single piece of sheet metal stamped to form parallel side members 66, 66 and an integral top connecting web 67, and the attaching arms 48 of the pedal overlap the forward ends of the side members and may be riveted thereto in the same manner shown in Figs. 6 and 7. The fulcrum bracket 68 for the pedal shanks shown in Figs. 1, 8 and 10 comprises two like-shaped members 69, 69 provided with feet 70 by which they are fastened to the base. They are provided at their upper ends with lugs 71, 71 which have contact with each other only at their upper ends and which are apertured below their upper ends to receive a clamping screw or bolt 72 by which the two members of the bracket are clamped together upon the pivot lugs 73 that are formed in the side members 66 for engage-

ment with pivot apertures in the bracket members. This form of fulcrum or pivot bracket may also be employed with other forms of pedals. The top or connecting web of the shank 65 is provided with a plurality of apertures 74 either one of which is adapted to receive the lower end of the pedal prop or rod by which the pedal is connected to its lever. The said web is also formed near the toe rail 15 with an elongated opening or slot 75 through which extends the central member 76 of a vertically notched mouse guard 77 attached to the inner face of the toe rail over the pedal opening, said mouse guard being like that shown in the aforesaid prior patent to Moe. The said mouse guard bears the same relation to the pedal shank shown in Figs. 1, 2, 6 and 7 as to the construction shown in the aforesaid patent to Moe.

The pedals may be provided with a plurality of relatively low raised protuberances 78, 78, as indicated in Fig. 8, the purpose of which is to take the direct wear off the surface finish or plating of the pedal.

It will be understood that the structural details hereinbefore set forth are capable of some variations within the spirit and scope of the invention, and the invention is not limited to said details except as the same are made the subject of specific claims.

We claim as our invention:

1. A pedal comprising a foot piece, and a shank, the latter formed of a single strip of metal bent upon itself to provide laterally separated, vertical members, said foot piece being provided with rearwardly extending arms embracing the vertical members of the shank at the forward end of the latter, a spacing piece between said members and rivets extending through said arms, said vertical members and spacing piece, said members being punched outwardly to form integral pivot lugs.

2. A pedal comprising a foot piece, and a shank embracing laterally separated members, the foot piece being provided with rearwardly extending arms arranged in overlapping relation to said members at the forward end of the shank, rivets extending through said arms and said members, and a separate spacing piece between said members of the shank at the riveted end thereof and held in place by said rivets.

3. A pedal comprising a foot piece and a shank, the latter made of a single piece of metal bent upon itself at a point intermediate its ends to form parallel shank members, the ends of said strip being brought toward each other with a spacing piece between them, and said foot piece being provided with rearwardly extending arms which are arranged in overlapping relation to the shank strip and are riveted thereto,

said strip being punched outwardly to form outwardly extending lugs.

4. A pedal comprising a foot piece, and a shank made of a single strip of metal bent to form parallel shank members, the ends of said strip being brought toward each other at the front end of the shank and the foot piece being provided with rearwardly extending arms which overlap the strip ends, rivets extending through said arms and strip ends and a U-shaped filling piece arranged between the ends of said strip with its members arranged above and below said rivets.

5. In a pedal action, the combination with a pedal provided with oppositely disposed pivot means, of a two-part bracket comprising two separated side members provided with pivot means complementary to the pivot means of the pedal, and a bolt for springing the members of the two-part bracket together and for fastening the parts together.

6. A pedal action comprising, in combination, a pedal, and a bracket comprising separated side members between which the pedal is fulcrumed, said members provided with means whereby they may be attached to a support and with means for springing said members yieldingly toward the pedal, the latter means also serving to fasten the parts together.

7. A pedal action comprising, in combination, a pedal, and a bracket comprising separated side members between which the pedal is fulcrumed, said side members having apertured attaching feet and provided at their upper ends with apertured lugs which engage only at their upper ends, and a clamping bolt extending through the apertures in said lugs.

8. In a pedal action, the combination with the pedal actuated lever and the hinge or pivot spring having an attaching member, of an eye bolt placed over said lever with its shank extending through said attaching member, filling pieces arranged between the lever and attaching member, one at each side of the eye bolt, and a clamping nut screw-threaded to the end of the shank of the eye bolt.

9. In a pedal action, the combination with the pedal actuated lever and the hinge or pivot spring having an attaching member, of an eye bolt placed over said lever with its shank extending through said attaching member, clamping means engaged with said eye bolt and filling pieces engaged with said attaching member, one at each side of said bolt and formed with saddle notches to receive said lever.

10. In a pedal action, the combination with the pedal, and the swinging, pedal-actuated lever, of a fitting engaged over one

end of the lever and comprising a split sleeve having at one side apertured lugs and also formed at one end with an apertured lug, and a clamping bolt extending 5 through the first-mentioned apertured lugs.

11. In a pedal action, the combination with the pedal and the swinging, pedal actuated lever, of a prop connecting the pedal and lever, the said prop being headed at 10 its end and the pedal provided with an aperture through which the prop extends, and provided around said opening with a concave socket, and the prop head being convexly rounded, and a cushioning washer 15 between said socket and the rounded or convex portion of said head.

12. A fitting for connecting a pedal prop to a pedal-actuated, swinging lever comprising a split sleeve provided at the sides 20 of its split portion with apertured lugs to receive a clamping bolt and provided at its outer end with a horizontal apertured lug to engage a prop.

13. A swinging, pedal-actuated lever provided at one end with a fitting having 25

means for fastening it to one end of the lever and provided at one end with a lug having an opening and formed around said opening with a convex socket to receive the rounded portion of a prop connection. 30

14. A bank of three pedals arranged side by side, the two side pedals having forwardly diverging ends, and the middle pedal terminating at its forward end short of the forwardmost portions of the side pedals 35 to thereby provide a recess between the forward extremities of the side pedals and in front of the extremity of the middle pedal to guide the player in positioning the foot upon the pedals.

In testimony, that we claim the foregoing as our invention we affix our signatures in the presence of two witnesses, this 11th day of May A. D. 1910. 40

THEODORE H. LUNDE.
RUDOLF MOE.

Witnesses:

W. L. HALL,
WILLIAM GOLDBERGER.

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