L. W. NORCROSS.

PEDAL ACTION FOR PIANOS.

APPLICATION FILED APR. 5, 1909.

966,232.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 1.

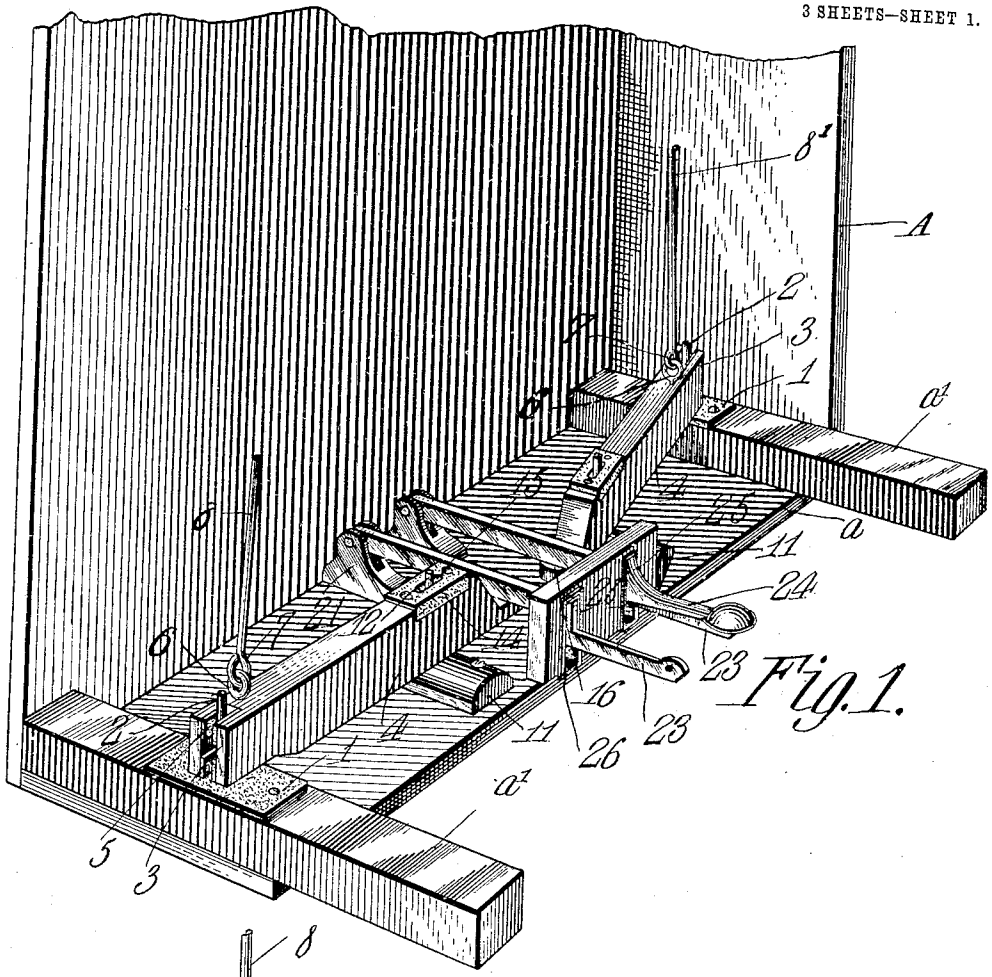

Fig. 1.

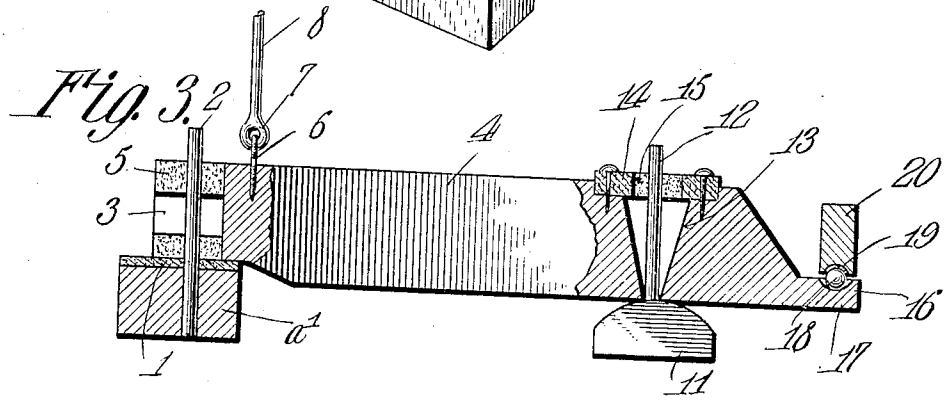

Fig. 3.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

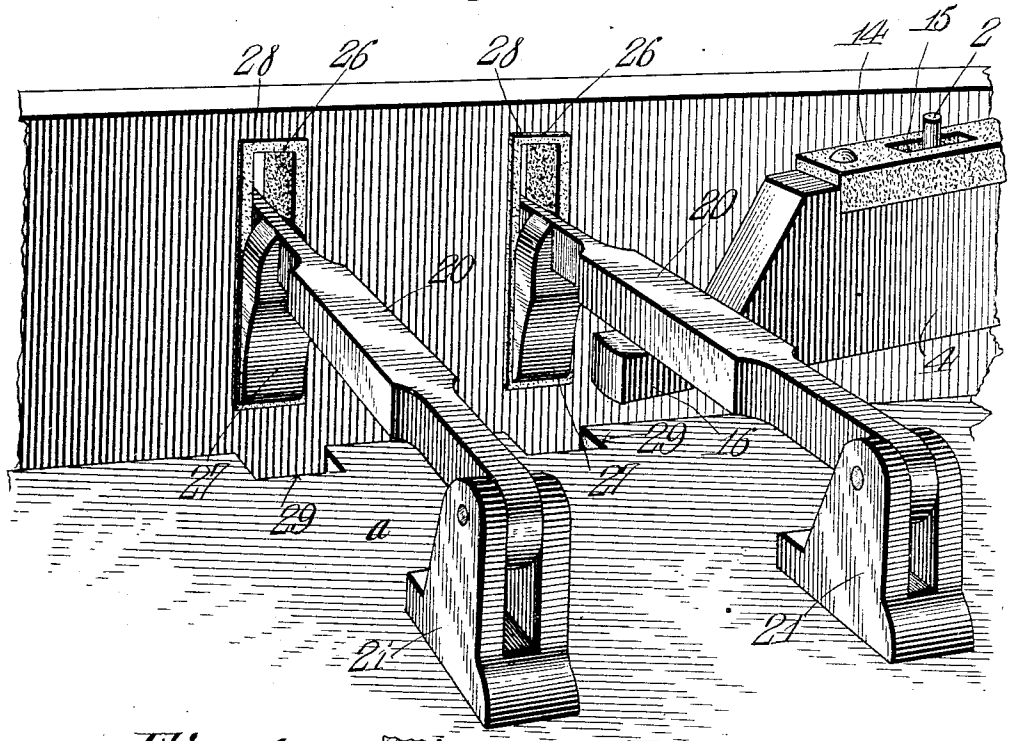
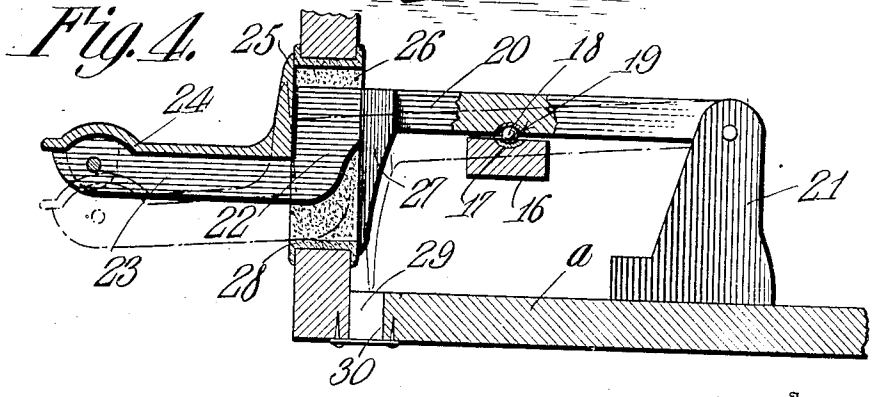


Fig. 4.



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3 SHEETS—SHEET 3.

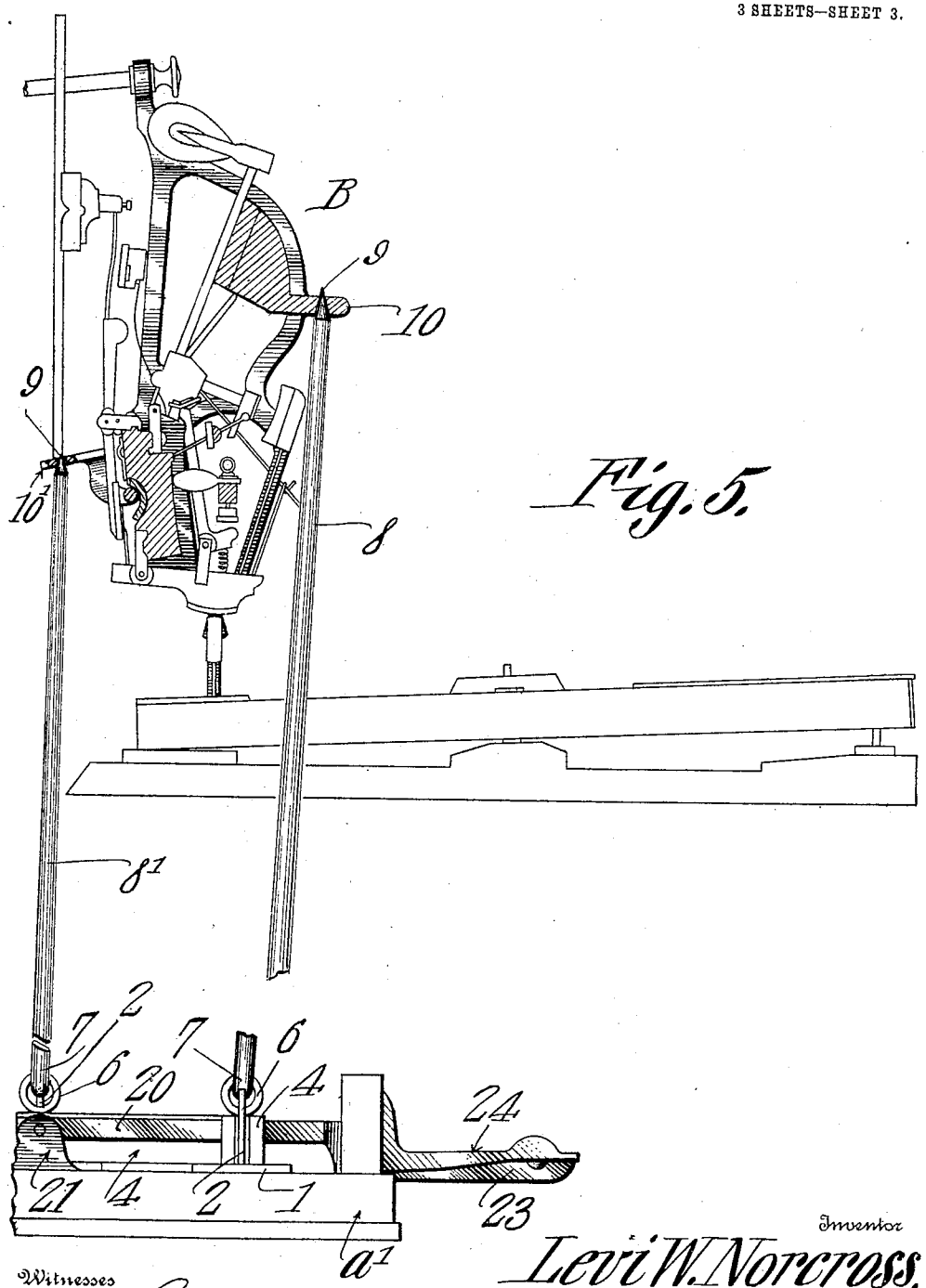

Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

LEVI WATSON NORCROSS, OF FORT WORTH, TEXAS.

PEDAL-ACTION FOR PIANOS.

966,232. Specification of Letters Patent. Patented Aug. 2, 1910.

Application filed April 5, 1909. Serial No. 488,001.

To all whom it may concern:

Be it known that I, LEVI W. NORCROSS, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented a new and useful Pedal-Action for Pianos, of which the following is a specification.

This invention relates to pedal actions for pianos and more particularly is designed as an improvement upon the structure disclosed in an application filed by me on May 18th, 1908, Serial No. 433,559.

One of the objects of the invention is to provide means whereby the opening in which the pedal is movably mounted, is sealed, while the pedal is at rest, so as to prevent the admission of insects, rodents, dust etc., to the interior of the case.

Another object is to provide an improved connection between the pedal and intermediate levers of the action, said connection being of such a nature as to permit any necessary lateral play between the parts without producing undesirable friction.

A still further object is to provide a lifter rod of novel construction, the same being connected to the intermediate lever of the action in a simple and efficient manner.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of the pedal action, a portion of the case of the piano being shown and the cap of one of the pedals being removed. Fig. 2 is a rear perspective view of the pedal levers and a portion of one of the intermediate levers, said levers being shown in their normal positions. Fig. 3 is a view, partly in elevation and partly in section, of one of the intermediate levers, the pedal lever thereon being shown in section. Fig. 4 is a section through a portion of the case and showing one of the pedal levers partly in elevation and partly in section, the intermediate lever thereunder being shown in section and the position of the pedal lever when lowered being indicated by dotted lines. Fig. 5 is a side elevation of the pedal action showing the connections between the intermediate levers and the damper rod and the hammer rest rail respectively.

Referring to the figures by characters of reference A designates a portion of the case of a piano, the floor *a* thereof being provided with end sills *a'* on which are arranged felt cushions 1, having guide pins 2 upstanding therefrom. These guide pins project into the forked outer ends 3 of intermediate levers 4, said forked portions being preferably provided with interior cushions or pads 5 designed to contact with the pins 2 and thus prevent noise at these points during the operation of the mechanism.

Eye screws 6 engage the intermediate levers 4 adjacent the forks 3 thereof and extend from the upper faces of the levers, these eyes being in engagement with eyes 7 formed at the lower ends of metallic lifter rods 8 and 8'. The upper ends of the lifter rods are pointed as shown at 9. The rod 8 of one pedal has its upper pointed end designed to project into a lug 10 which may be screwed or otherwise secured to the hammer rest-rail such as shown, for example, in the ordinary Wessell, Nickel & Gross action, so that when the pedal is depressed, the rail is pushed toward the strings and the hammer stroke is thus reduced and the tone softened. The upper end of the other lifter rod 8' engages the short crank of the ordinary damper rod so that when the other pedal is depressed the dampers are carried away from the strings. The crank of the damper rod has been indicated at 10' in Fig. 1. In this connection it might be stated that heretofore it has been customary to use a guide for each lifter rod, the end of the rod being placed under the flat end of the damper rod. It has been found that where such an arrangement is utilized the upper end of the lifter rod slips to and fro as the short crank of the damper rod is raised and lowered. This, in time, causes the buckskin on the damper rod and the cloth in the guide to wear away, thus resulting in considerable lost motion and the production of undesirable noise. By providing lifter rods of metal and which have pointed upper ends designed to engage and lock within the members to be actuated thereby, the foregoing objections are obviated.

Each intermediate lever 4 bears upon the rounded upper face of a cleat 11 secured upon the floor *a*, said cleat having a guide pin 12 upstanding therefrom and projecting through a V-shaped opening 13 extending transversely within the lever 4, there being

a cushion 14 secured upon the lever and around the opening, said cushion having a slot 15 for the reception of the pin 12. This cushion is formed of felt and serves to prevent noise by this part of the mechanism during the operation of the pedal action.

One end of the intermediate lever 4 is reduced to form a tongue 16, in the upper face of which is formed a recess 17. A ball 18 is loosely mounted in this recess and projects into a corresponding recess 19 formed in the bottom face of a pedal lever 20. The rear end of the pedal lever is pivotally mounted within a forked bracket 21 arranged upon the floor *a*. A stem 22 extends downwardly from the front portion of the lever and has an arm 23 projecting forwardly therefrom and designed to support the pedal cap 24. Said cap has an extension 25 projecting upwardly from the rear end thereof, and designed, when the pedal is at rest, to close the upper portion of a slot 26 in the front of the casing and in which the pedal is mounted to move. A wing 27 extends laterally and downwardly from the lever 20 close to but back of the stem 22 and is designed, when the said pedal lever is in its normal position, to bear upon the inner face of the front of the casing so as to close the lower portion of the slot or opening 26. It is of course to be understood that this slot is lined and surrounded with felt 28, so as to render the action of the parts noiseless at this point.

It will of course be understood that the weight of the metallic lifter rod 8 or 8′, together with the weight of the long arm of the intermediate lever 4 will be sufficient to hold the pedal lever normally elevated. When said pedal lever is thus located the extension 25 and the wing 27 serve to completely close the opening 26 through which the lever extends, thus preventing the admission of any insect, dust, etc., to the interior of the casing. The lifter rods 8 and 8′ normally converge upwardly to a slight extent as indicated in Fig. 1.

When one of the pedals is depressed the extension 25 and the wing 27 promptly move away from the opening 26, and, if necessary, an opening 29 may be formed in the floor of the case so as to receive the lower end of the wing 27, this opening being closed by means of a metal plate 30. When the lever 20 is moved downwardly motion will be transmitted therefrom through the ball 18 to the tongue 16 on the intermediate lever 4, any necessary independent movement of the two levers being permitted in view of the fact that this ball is loosely mounted and can therefore move noiselessly to permit such action. When the tongue 16 is thus depressed the lever 4 will rock upon the cleat 11, the pin 12 serving to guide it, and the long arm of said lever will thus be elevated along the pin 2 and will push the lifter rod 8 or 8′ upwardly. The arcuate movement of the lower end of the lifter rod thus produced will be sufficient to bring said lifter rod into a vertical position, the tapered upper end 9 of the rod rocking to a slight extent within the member 10 or 10′ during this action. As soon as the pedal is released the parts are returned to their normal positions by the weight of the lifter rod and the long arm of the intermediate lever 4.

By providing the eye screw 6 the lifter rod can be adjustably connected to the intermediate lever and by tapering the upper end of the lifter rod it becomes unnecessary to utilize any securing means for holding the same properly connected to the member 10 or 10′.

Obviously various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. The combination with a piano casing, of a pedal lever fulcrumed therein and extending therebeyond, an intermediate lever lapping the pedal lever and extending transversely thereof, said lapping portions of the levers being provided with recesses, and an anti-friction device mounted to roll within the said recesses, said device having a slight movement in the direction of the length of each recess.

2. In a pedal action for pianos, a pedal lever, an intermediate lever actuated thereby, a movably supported hammer rest rail, a lifter rod having a pointed end, means upon the rail and loosely engaged by said end for supporting the rail, and a universal connection between said rod and intermediate lever.

3. In a pedal action for pianos, a pedal lever, an intermediate lever actuated thereby, a damper rod movably mounted and having an apertured arm, a lifter rod having a pointed end loosely seated within the aperture in the arm, and a universal connection between the lifter rod and the intermediate lever.

4. In a pedal action for pianos, a pedal lever, an intermediate lever actuated thereby, a fixed guide slidably engaged by one end of the intermediate lever, a movably mounted piano element, a lifter rod having a pointed end engaging said element, and a universal connection between the lifter rod and the intermediate lever.

5. The combination with a case having an opening therein, of a pedal lever movably mounted in the opening, and means carried by the lever for bearing against the inner and outer faces of the case and closing the opening when the lever is at rest.

6. In a piano action the combination with a case having an opening, of a pedal lever

movably mounted in and extending through the opening, and separate means carried by the lever and normally extending across the inner and outer ends of the opening to close the same.

7. The combination with a piano case having an opening therein, of a bracket within the case, a pedal lever pivoted at one end upon the bracket and movably mounted in and extending through the opening, and spaced means upon the lever for maintaining the inner and outer ends of the opening normally closed.

8. The combination with a piano case having an opening therein, of a pedal lever extending through and movably mounted in the opening, a wing extending from the lever and normally bearing against one face of the case to close a portion of the opening, and means upon the lever and normally bearing against the opposed face of the case to close the remaining portion of the opening.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LEVI WATSON NORCROSS.

Witnesses:
F. G. SMITH,
H. L. BAKER.