L. B. ATKINS.

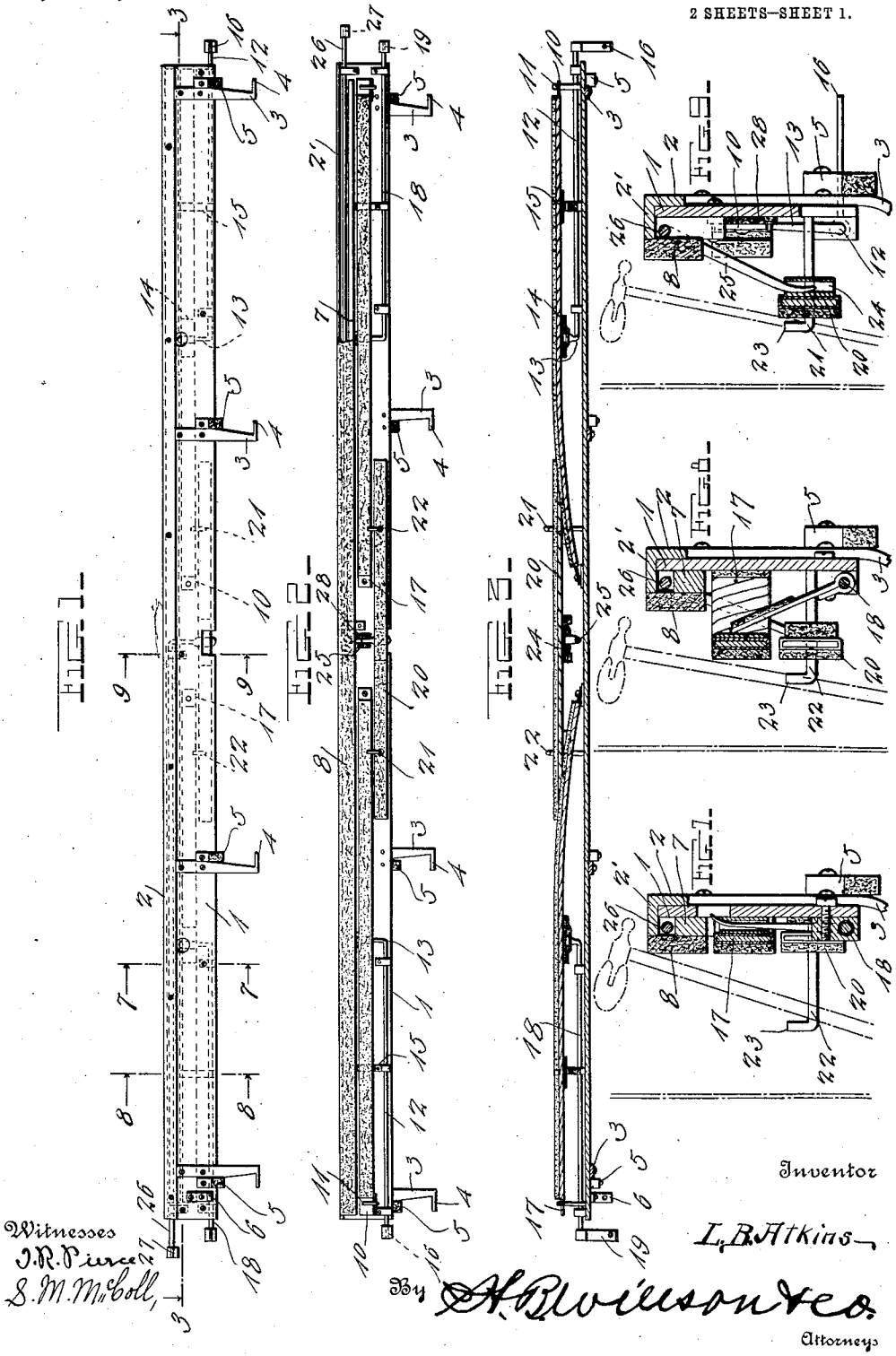
EXPRESSION RAIL FOR PIANOS.

APPLICATION FILED DEC. 28, 1911.

1,050,329.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



Witnesses
J. R. Pierce
S. M. McColl,

Inventor
L. B. Atkins

By H. B. Williamson & Co.
Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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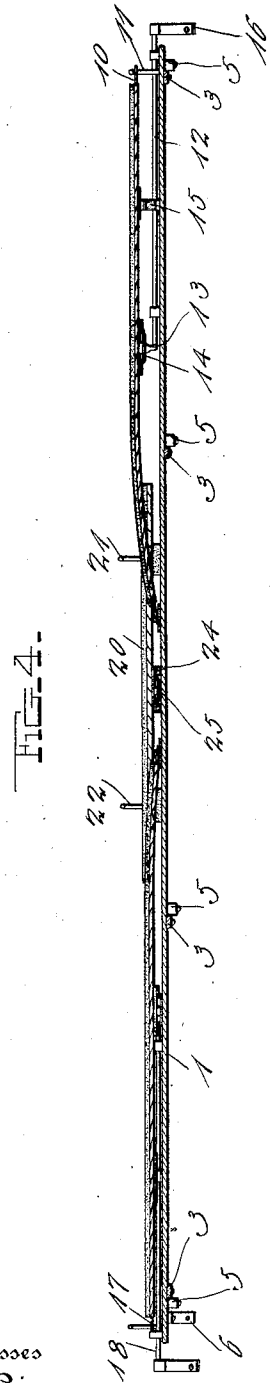

FIG. 4.

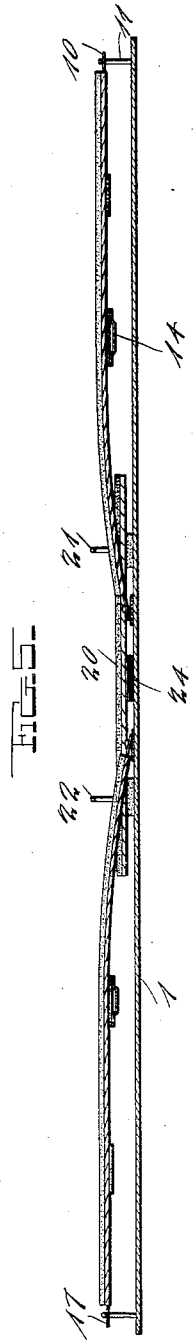

FIG. 5.

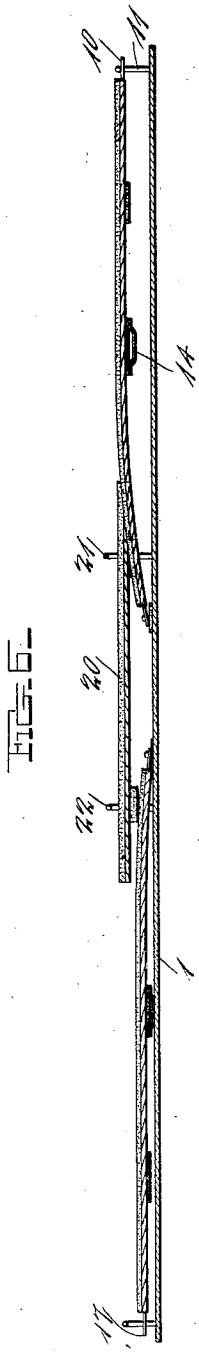

FIG. 6.

Witnesses

J. R. Pierce

L. M. McColl

Inventor

L. B. Atkins

By A. B. Williamson & Co.

Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LESLIE B. ATKINS, OF DAYTON, KENTUCKY, ASSIGNOR OF ONE-HALF TO GUSTAVE OLDEWAGE, OF BELLEVUE, KENTUCKY.

EXPRESSION-RAIL FOR PIANOS.

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To all whom it may concern:

Be it known that I, LESLIE B. ATKINS, a citizen of the United States of America, and a resident of Dayton, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Expression-Rails for Pianos, of which the following is a specification.

This invention relates to expression rails for pianos.

One object of the invention is to replace the regular hammer rest rail of either manually or automatically operated pianos, with a specially constructed rail positioned to enable the operator to accent—either by automatic or hand levers—the melody of a piece of music, or to suppress the same, separately or in connection with either bass or treble or both.

Another object is to provide a rail of this character operable to accent the treble notes or to suppress them, either separately or in connection with either the bass or middle notes or both.

Another object is to provide such a rail operable to accent the bass or to suppress it, separately or in connection with either the treble or middle notes or both.

Another object is to provide an expression rail operable to graduate or blend the chromatic tones in either bass or treble, and which is especially fitted for all player pianos.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 represents a front view of this improved rail with the parts in inoperative position; Fig. 2 is a rear elevation thereof; Fig. 3 is a horizontal section on the line 3—3 of Fig. 1 with the treble, bass and middle note controlling levers in operative position to render the bass, middle notes and treble soft; Fig. 4 is a similar view showing the treble blended to soft with no abrupt break; Fig. 5 is a similar view with parts omitted, showing a blending from soft bass to loud middle notes, and again to soft treble; Fig. 6 is a similar view showing the treble blended to soft with an abrupt break; Figs. 7, 8 and 9 are transverse vertical sections taken respectively on the lines 7—7, 8—8 and 9—9 of Fig. 1.

In the embodiment illustrated, a metal base bar 1 is shown, preferably composed of cold rolled iron about two inches wide, more or less, and one-eighth inch thick. The employment of this bar results in a great economy in space, which is especially valuable in player or automatic pianos and furnishes a solid base for screw threads, bolts and brackets at various points. An angle iron 2 of about one-half inch by one-half inch is secured to one edge of the bar 1 to insure a rigid and unchanging position. A plurality of longitudinally spaced curved brackets 3 are secured to one face of said bar 1 and project laterally from the edge of the bar 1 opposite that to which the angle iron is secured, the free ends of said brackets being provided with laterally extending studs 4 for connecting the rail to the piano action. The inner ends of these brackets preferably abut against the edge of the angle iron 2 which serves as a stop to hold them securely in position in connection with the fastening elements which pass through the brackets into the bar 1. The position of these brackets may be varied to adapt the rail to different pianos. Felt capped blocks 5 are secured to the bar 1, preferably adjacent the brackets 3, and are designed as rests for the rail. An L-shaped bracket 6 has one arm thereof secured to the bar 1 near one end with its other arm extending laterally in a plane at right angles to said bar 1, and which is apertured to adapt it for connection with the soft foot pedal in the ordinary manner. A strip 7, preferably of wood, is secured to the bar 1 adjacent the flange or arm 2′ of the angle iron 2, and preferably extends flush with the free edge of said arm. A felt covering 8 is secured to the outer face of this wooden strip 7 and is designed as a rest for the piano hammers.

The features above described are common to the ordinary expression rail for pianos, the only advantage being in the economy of space resulting in the use of the metal bar 1.

A spring steel bar 10 is secured at one end to one face of the bar 1 at a point substantially midway the ends thereof, and is

covered with tape and felt. This bar is of a length sufficient to extend to the end of the bar 1 and is adapted to be moved laterally at this end about one inch, more or less, and is limited in its outward movement by means of a stop 11 shown in the form of an L-shaped bracket projecting laterally from the end of the bar 1 with the free arm of said bracket extended upwardly in position to engage the outer face of the spring bar 10, and thereby limit its outward movement. The means shown for actuating this spring bar 10 comprises a crank rod 12 rotatably mounted in suitable bearings on the bar 1 and having an arm 13 extending into a pocket 14 on the inner face of the bar 10, said pocket being formed in any suitable manner and of any suitable material. Another arm 15 secured to the rod 12 intermediately of its ends, projects under said bar 10 and assists in raising it when the rod is turned by another arm 16 secured to the outer end of the rod 12, and which may be operated automatically or otherwise, as may be desired. This arm 16 extends in a plane substantially at right angles to the plane of the arms 13 and 15, and when raised causes said arms to project the bar 10 and bring the felt face thereof into engagement with the hammers adjacent thereto for softening the tone. A bar 17 similar to the bar 10 is secured to the bar 1 at one end at a point near the center of said bar 1 and spaced from the connection of the bar 10 a suitable distance to permit certain parts hereinafter described to be inserted between the connections of said bars 10 and 17. A crank rod 18, constructed similarly to the rod 12, is mounted to actuate the bar 17 in the same manner that the rod 12 actuates the bar 10, and a similar stop 11 is arranged at the other end of the bar 1 to limit the outward movement of the bar 17. An arm or lever 19 is secured to the outer end of the rod 18 and is adapted to be connected with suitable actuating means whereby the bar 17 is operated for controlling the treble notes, the bar 10 being arranged for controlling the bass notes. A bar 20 is mounted to slide on longitudinally spaced pins 21 and 22 projecting laterally from the bar 1 at opposite sides of the center thereof, and which are provided with lateral extensions or heads 23 for limiting the outward movement of said bar 20. This bar 20, which is designed for controlling the notes used principally in piano accompaniments, is much shorter than either of the bars 10 or 17, being about one-third the length thereof, more or less, and composed of spring steel wrapped with tape and covered with felt. This bar 20 is provided on its inner face with a pocket 24 similar to the pocket 14 and with which is engaged an arm 25 extending laterally from a crank rod 26 which extends longitudinally of the plate or bar 1 in a recess in the outer edge of the wooden strip 7 adjacent the inner face of the flange or arm of the angle bar 2, as is shown clearly in Fig. 8. This crank rod 26 is actuated by a lever 27 at its outer end connected with suitable actuating means. Suitable pads 28, preferably of felt, are secured to the bar 1 in position to receive the arm of the crank rods when said rods are in inoperative position, thereby preventing the contact of said arms with the metal bar 1 and avoiding the noise consequent thereto. The arm 25 of the rod 26 extends transversely across the bar 1 between the inner ends of the bars 10 and 17, which are spaced sufficiently for this purpose. By the use of these three bars, 10, 17 and 20, seven distinct positions may be obtained for controlling the notes of the piano, several of which are shown in the accompanying drawings. In Fig. 3 all three of the bars are shown at their extreme outward movement, thereby bringing them in contact with all the hammers of the piano and rendering all the notes soft. In Fig. 4 the bar 10 is shown moved outwardly, whereby the treble notes are blended to soft without any abrupt break. To produce an abrupt break the bars 10 and 20 are projected to their extreme outward limit whereby a soft treble is produced with a loud bass. In Fig. 5 the bars 10 and 17 are shown moved outwardly, thereby producing a blending from soft bass to loud middle notes and again to soft treble, and in Fig. 6 the reverse is produced; that is, soft middle notes to a loud bass and a soft treble.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

I claim as my invention:

1. A piano expression rail comprising a base bar, a spring metal bar secured at one end to said bar and having a sound deadening material thereon, and means connected with the free end of said spring bar for actuating it.

2. A piano expression rail comprising a base bar, a plurality of spring bars secured at one end to said base bar with their free ends extending in opposite directions, said bars being provided on one face with fibrous material, and means for actuating said bars.

3. A piano expression rail comprising a base bar, a spring steel bar secured at one end to said base bar intermediately of the ends of said base bar, means for moving the free

end of said spring bar laterally, and means for limiting the lateral movement of said bar.

4. A piano expression rail comprising a base bar, a plurality of spring bars secured at one end to said base bar with their free ends extending in opposite directions, the connected ends of said spring bars being spaced apart, and a bar mounted to slide laterally relative to said base bar.

5. A piano expression rail comprising a base bar, a plurality of spring bars secured at one end to said base bar with their free ends extending in opposite directions, the connected ends of said spring bars being spaced apart, and a bar mounted to slide laterally relative to said base bar, said slidable bar being parallel with said spring bars and adjacent the inner ends thereof.

LESLIE B. ATKINS.

Witnesses:
ROBERT J. MAYER,
GUSTAV OLDEWAGE.

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