

G. A. RADINSKY.
 Harmony Attachment for Piano-Fortes.
 No. 221,609. Patented Nov. 11, 1879.

Fig. 1.

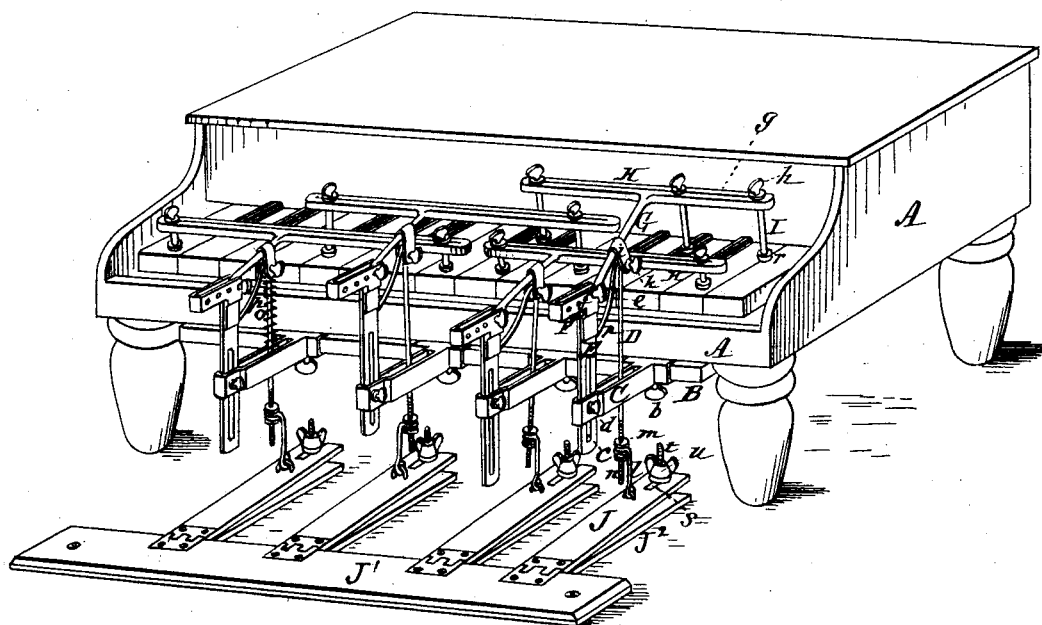
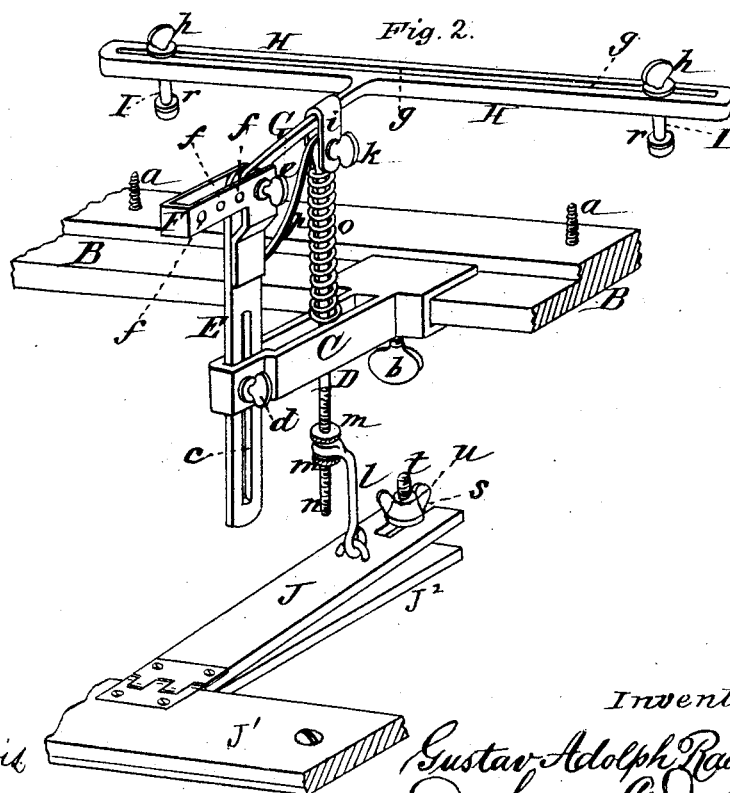


Fig. 2.



Witnesses:
 Floyd Norris
 Howell Barthe.

Inventor:
 Gustav Adolph Radinsky
 Johnson & Johnson
 Atty

UNITED STATES PATENT OFFICE.

GUSTAV A. RADINSKY, OF MARSHALL, TEXAS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO CARL RADINSKY, OF SAME PLACE.

IMPROVEMENT IN HARMONY ATTACHMENTS FOR PIANO-FORTES.

Specification forming part of Letters Patent No. **221,609**, dated November 11, 1879; application filed August 5, 1879.

To all whom it may concern:

Be it known that I, GUSTAV ADOLPH RADINSKY, of Marshall, in the county of Harrison and State of Texas, have invented certain new and useful Improvements in Harmony Attachments for Piano-Fortes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to an attachment for piano-fortes, whereby the musician may play the melody upon an instrument like the violin with his hands in the usual manner, and the accompaniment or harmony by operating the attachment with his feet.

The keys of the piano are operated by fingers adapted to be slid into proper position in a rack, and there are a number of these racks, each carrying its quota of fingers and each adapted to impact its fingers on the keys at the proper moment by the direct action of the musician's feet or by the help of treadles and levers.

Arms carry the racks of fingers, and said arms are adjustably fastened in uprights, so that the finger-racks may be brought to strike the white or black keys, or either kind, in the place that the human finger would strike. These uprights have horizontal extensions with holes and thumb-screws for this purpose of adjustment. The uprights are also adjustable as to their height, as will be described. They rise from brackets extending from a board screwed to the under side of the piano-body. The racks of fingers are operated by connecting rods or wires with elastic movements for the purpose of lifting the fingers automatically, being united at their upper ends to the rack-arms and at their lower ends to treadles; but my invention also contemplates the working of the pivoted rack-arms themselves from a high stool, the piano being then lower than the musician's seat, in which case the treadles would not be required.

The invention will be fully understood from

the following description and accompanying drawings.

In the drawings, Figure 1 represents a perspective view of a piano-forte provided with my attachment, four finger-racks only being shown, but sufficient to play an accompaniment of a single key, although fifty-two racks might be used in a seven-octave piano; and Fig. 2, a view in perspective, on a larger scale, of one of the finger-racks and its connections with the fastening-board and treadle.

Having given above a brief description of the nature and object of the invention, and generally of the devices, I shall now describe a single rack of fingers with reference to Fig. 2, particularly as to the operating parts and their combinations and connections, it being well understood from Fig. 1 that the racks are all constructed and operated in the same manner.

The construction being hereinafter described sufficiently for the skilled mechanic, it is an easy matter for any musician of ordinary skill to not only attach the apparatus to a piano having in view the necessary adjustments, but to readily operate it.

Fastened by screws *a* to the bottom of the piano *A* is a board, *B*, suitable for supporting the mechanisms. Clamped to this board by a set-screw, *b*, is an extension guide-bracket, *C*, of any proper form, for the purpose of guiding the play of a wire rod, *D*, for operating the finger-rack, as will be presently described, and for supporting an upright, *E*, the lower part of which has a slot, *c*, through which slot a clamp-screw, *d*, passes to adjust the upright at the desired height. At the top of the upright is a frontward horizontal slotted extension, *F*, in which is pivoted the arm *G*, carrying the finger-rack *H*, the pivot being the stem of a clamp-screw, *e*, adapted to be set in the different holes *f f* of said extension for the purpose of altering the point of the arm's pivot to bring the rack of fingers at the desired point over the keys, as heretofore stated.

The rack *H* is a long wire link, preferably; but, of whatever construction, it must have a longitudinal slot, *g*, within which are held the

fingers I, set in their desired positions by set-screws *h*, and adapted to strike the proper keys vertically.

The wire rod D connects the arm G with the treadle J, the connection with the arm G being by strap *i* and clamp-screw *k*, for the purpose of adjustment, while the connection with the treadle is also adjustable, in this case by loose link *l* in connection with thumb-screws *m m* on the lower threaded end, *n*, of the wire. It must be understood by the mechanic that he may use any approved means of producing these adjustments. They are rendered necessary in adapting the apparatus to different pianos, and in changing the keys.

In order that the fingers may retract after their impact with the keys, I provide a surrounding spiral spring, *o*, for the connecting-rod, suitably seated at top and bottom, and also a strap-spring, *p*, connected to the upright at one end, and held by the clamp-screw of rod D connection with the arm at the other end.

I provide the fingers with hammers *r*, made analogous to piano-string hammers.

To prevent the treadle from rising too far and from side movement, I provide its free end with a slot, *s*, through which a screw-stem, *t*, passes, provided with a cushioned stop, *u*, to avoid harsh contact and noise, said screw-stem rising from the floor.

The invention is illustrated and described with reference to one key, but sufficient to exhibit the working of the apparatus. It is only for playing accompaniments with the feet while the hands are playing the air or melody upon a violin or other instrument.

The attachment can be made to conform to thirteen different keys and thirteen different minors without changing the fingers, and used all along the same as if a musician were employed, and without stopping to change from one to the other.

It will also be seen that by the mechanisms and their adjustments described, and by placing fingers in different racks, I may arrange the apparatus for any key desired.

The musician should be seated upon a common piano-stool, so as to have free control of his feet; but he might use an elevated seat, and operate the arms directly without the intervention of treadles.

The hammer-racks H are comparatively short, in order that each one may be carried by a single middle projecting arm, G, and the hammers are of wood, so as to make the rack as light as possible and allow of its proper movement from a single pivot-point; but two or more such pivoted arms may be used for each rack. These short hammer-racks are arranged to lap each other, so that some will stand along the front, some along the rear, and some in intermediate positions in relation to the keys.

It will be noticed that the capacity for adjustment of the short hammer-racks must be vertical to adapt the carrying-arms of some

of these racks to extend over the front racks, and it must be horizontal in the line of the keys to adapt the racks for action upon the white or black keys, and it must be adjustable along the piano-front, so as to adapt the attachment to different pianos and the hammers of each rack in proper relation to the keys, and in this connection the attachment is secured to the piano by the board B, screwed to the under side of the body in a manner not only to allow the several racks to be properly set along the piano-front, but to allow each hammer-rack to be separately applied and removed from said bottom board, as shown in Fig. 2.

The treadles J are hinged to a board, J', which is screwed to the floor, and in removing the attachments with this floor-board leaves the piano for ordinary use. The treadle-stop *u* and its screw-stem *t* are carried by an extension, J², from the treadle-board, and are removable therewith.

The treadles are kept in acting positions by the springs *o* of their connecting-rods.

An important feature of my invention is that the hammer-racks may be operated from above the keys with the feet, in which case the floor-treadles and their connecting-rods may be removed as parts of the attachment, or the treadles only may be removed, leaving the springs *o* to maintain the hammer-racks in proper relation to the keys and to counter-balance the weight of the operator's feet. In either way of operating the attachment the operator must have the full control of his feet.

Any suitable clamp may be used for the adjustable wooden hammers; but I prefer a screw-wire passing through the hammers and the rack-slots, with a thumb-nut on top of the racks.

I claim—

1. In a harmonic attachment for pianos, the slotted racks H, carried by pivoted arms G, in combination with hammers I, adapted to be adjusted in said slotted rack in relation to the keys substantially as herein set forth.

2. In a harmonic attachment for pianos, the combination, with adjustable pivoted hammer-racks G H, of adjustable hammers I, whereby said racks may be adjusted to act upon the different ranges of keys, as may be desired.

3. In combination with adjustable pivoted hammer-racks G H and adjustable hammers I, the vertically-adjustable supports E for said hammer-racks, and having the relation to the keys substantially as herein set forth.

4. In combination with adjustable pivoted hammer-racks G H, adjustable hammers I, carried thereby, and vertically-adjustable supports E for said hammer-racks, of horizontal adjustable brackets C, secured to the bottom board B, and having the relation to the keys substantially as herein set forth.

5. The attachable board B, in combination with the attachable and adjustable brackets or arms C and the clamp-screws *d*, as a means of supporting an adjustable harmonic attachment

for pianos, for being operated either above or below the keys.

6. The hammer-racks arranged to lap each other and carried by pivoted arms, substantially as herein set forth, in combination with means for effecting their adjustment both vertically and horizontally, substantially as herein set forth.

7. The treadle-connecting rods D, having adjustable connections at each end, in combination with adjustable treadles J and adjustable hammer-racks G H, substantially as herein set forth.

8. The combination, with the adjustable pivoted hammer-rack, the adjustable treadle, their adjustable connecting-rod D, and the slotted adjustable rack-support E, of the springs *o p*, substantially as and for the purpose herein set forth.

9. The treadles J, hinged to the attachable

floor-board J', in combination with an adjustable treadle-stop and guide carried by said floor-board, substantially as herein set forth.

10. The treadle provided with an adjustable cushioned guide-stop, *u*, for the purpose set forth.

11. A harmonic attachment for pianos having hammer-racks arranged to lap each other and supported by horizontal arms by pivots above and in front of the keys, whereby said hammer-racks may be operated from above through the said pivoted arms, substantially as herein set forth.

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

GUSTAV ADOLPH RADINSKY.

Witnesses:

D. G. HAWLEY,

THEO. P. HAWLEY.