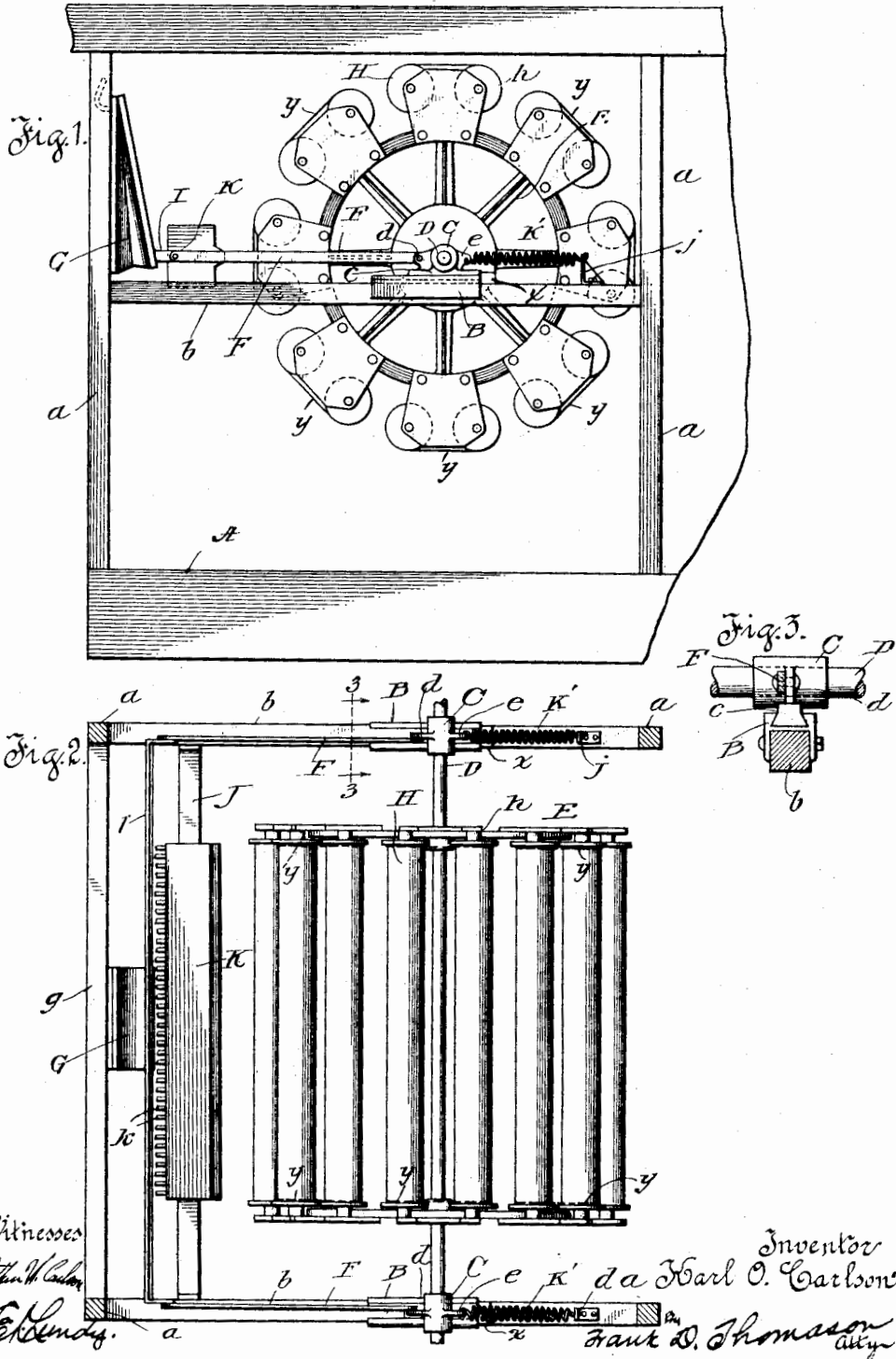


K. O. CARLSON.
 AUTOMATIC MUSICAL INSTRUMENT WITH MAGAZINE.
 APPLICATION FILED JULY 18, 1913.

1,217,271.

Patented Feb. 27, 1917.



UNITED STATES PATENT OFFICE.

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AUTOMATIC MUSICAL INSTRUMENT WITH MAGAZINE.

1,217,271.

Specification of Letters Patent. Patented Feb. 27, 1917.

Application filed July 18, 1913. Serial No. 779,735.

To all whom it may concern:

Be it known that I, KARL O. CARLSON, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Automatic Musical Instruments with Magazines, of which the following is a full, clear, and exact description.

My invention relates to improvements in automatic player pianos, and particularly that class of player pianos that employ a number of rolls of perforated music, and contain automatic mechanism for selecting any one of said rolls of music which it is desired to play, and that have a stationary tracker-board and a revolving drum for carrying said rolls of music, which is bodily moved to or away from said tracker-board.

Heretofore player pianos of the kind alluded to have bodily lifted the bearings of said revolving drum, and this has required the exercise of considerable power which heretofore has been exerted through the instrumentality of pneumatics or bellows, and a system of leverage of a more or less complicated character.

The objects of my invention are to avoid the necessity for lifting the drum, to accomplish a material reduction in the power necessary to move the drum to and from the tracker-board, and to eliminate the levers and coacting contrivances connecting the source of power and the drum. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings:

Figure 1 is an end view of the revoluble drum and coacting devices inclosed within the interior of the frame of the piano.

Fig. 2 is a plan view thereof showing the portions of the frame-work of the piano in horizontal section,

Fig. 3 is a cross-section of the bearings of the revolving drum of the said piano and its supports taken on line 3—3, Fig. 2.

In the drawings, A represents the base of a player piano which may be entirely of wood or of other material, and is provided with four uprights *a*, located, respectively, at the corners of a rectangular area within which the revolving drum and conjunctive mechanism is inclosed. At a suitable

point above base A, the pair of uprights *a*, *a*, at each end of the drum, are connected by horizontal bars *b*, *b*, extending parallel to each other at right angles to the plane of the front of the player. Between the ends of these bars *b*, *b*, preferably nearer the rear uprights *a*, *a*, are located tracks B, the portion of which resting upon said bars is provided with dove-tail grooves and also with leaves that extend down on either side of said bars and lap past the sides of the same to which they are secured by transverse bolts or otherwise.

C represents the bearings of the shaft D of the drum E, and these bearings are, preferably, mounted on or made integral with runners or shoes *c* about the center of length thereof, and these shoes comprise a horizontal member the lower portion of which is made dove-tail in cross-section throughout its length and adapted to be seated and slidable longitudinally in the dove-tail grooves of tracks B.

Bearings C are also provided with integral lugs *d* and *e* that, respectively, project forwardly and rearwardly therefrom. The forward lugs *d* each have links F pivotally connected thereto that extend to and have their forward ends pivotally secured to the rearwardly bent arms of a horizontal yoke I, which latter is secured at its center of length to the movable leaf of a bellows G, the stationary board of which is secured to a horizontal rail *g* connecting the two forward uprights *a*, *a*.

The drum E comprises two circular end-frames, the peripheries of which support a series of carriers. Each of these carriers has a supply-roller *h*, and a take-up roller H, for the perforated rolls of music *y*, and the webs of the latter are stretched between said rollers tangentially to the periphery thereof when the drum is revolved, substantially as shown in Fig. 1 of the drawings. This drum, the carriers and the rollers upon which the perforated rolls of music are mounted are all constructed, operated and actuated substantially in the manner described and shown in the Patent No. 1,141,549 to John P. Ioor of June 1, 1915, and the foregoing general description of the same is deemed sufficient.

When the air is exhausted from bellows G, and the drum is moved bodily forward the

relative positions of the rollers and the perforated music roll mounted thereon are such that the web of the most advanced perforated roll will come in contact with a horizontally disposed stationary tracker-board K, preferably located midway between said rollers; and when said roll of music has been played and the air is permitted to reënter the bellows, the latter will be expanded and the drum returned to its original position to move the last-mentioned web of perforated roll of music away from the tracker-board. The means shown for accomplishing this result consist of coiled contraction springs K', the forward end of each of which is secured to lug *e* projecting rearwardly from the bearings C, C, and the rear ends of which are secured to a suitable lug *j* mounted upon and secured to the horizontal bars *b*, *b*, nearer the rear uprights *a*, *a*.

If desired, the longitudinal movement of the shoes *c* in the tracks B may be limited by stops *w*, *w*. The position of these stops *w*, *w*, is determined by the extent of the movement it is necessary to give to the drum to insure the engagement of the perforated music with the tracker-board.

The tracker-board is constructed similar to the tracker-boards of player pianos now in extensive use except that I prefer to use non-flexible tubes *h* to connect the tracker ducts to the playing mechanism and also in order to prevent said tracker-board interfering with the action of the bellows G, it is, preferably made to correspond in length to the distance from one end frame to the other of the drum, and its ends are supported by suitable brackets J, J, that are secured to and project from the said horizontal bars *b*, *b*.

What I claim as new is:

1. In a player piano, a stationary horizontal tracker-board, a drum having means for supporting a plurality of music rolls and mounted at one side of the tracker-board, said drum being revoluble and also movable bodily horizontally toward or from the tracker-board, means for horizontally moving said drum in one direction, and spring means for automatically returning said drum.

2. In a player piano, a stationary horizontal tracker-board, a drum having means for supporting a plurality of music-rolls and mounted at one side of the tracker-board, said drum being revoluble and also movable bodily horizontally toward or from the tracker-board, a central shaft for said drum, a horizontal supporting bar upon which said tracker-board is mounted in a fixed position, bearing-blocks in which said drum-shaft is journaled slidably mounted upon the bar, and means for sliding said blocks on said bar.

3. In a player piano, a stationary horizontal tracker-board, a drum having means for supporting a plurality of music-rolls and mounted at one side of the tracker-board, said drum being revoluble and also movable bodily horizontally toward or from the tracker-board, a central shaft for said drum, a horizontal supporting bar upon which said tracker-board is mounted in a fixed position, bearing-blocks in which said drum-shaft is journaled slidably mounted upon the bar, means for sliding said blocks upon said bar and thereby moving said drum in a horizontal direction toward the tracker-board, and spring means for automatically sliding said blocks in the reverse direction and returning said drum.

4. In a player piano, a stationary horizontal tracker-board, a drum having means for supporting a plurality of music rolls and mounted at one side of the tracker-board, said drum being revoluble and also movable bodily horizontally toward or from the tracker-board, a central shaft for said drum, a horizontal supporting bar upon which said tracker-board is mounted in a fixed position, bearing-blocks in which said drum-shaft is journaled slidably mounted upon the bar, means for sliding said blocks upon said bar and thereby moving said drum in a horizontal direction toward the tracker-board, spring means for automatically sliding said blocks in the reverse direction and returning said drum, and a stop attached to the bar for limiting said return movement.

5. In a player piano, a suitable frame, horizontal supporting bars extending between parts of said frame, a bellows located at one end of said bars, a tracker-board mounted upon the bars in the vicinity of the bellows, a drum having means for supporting a plurality of music-rolls, said drum being revoluble, bearing-blocks in which said drum is journaled slidably mounted on the horizontal supporting bars, connections between the bearing-blocks and the bellows and adapted to move the drum toward the tracker-board when the bellows are collapsed, and means for returning said drum to its former position.

6. In a player piano, a suitable frame, horizontal supporting bars extending between parts of said frame, a bellows located at one end of said bars, a tracker-board mounted upon the bars in the vicinity of the bellows, a drum having means for supporting a plurality of music-rolls, said drum being revoluble, bearing-blocks in which said drum is journaled slidably mounted on the horizontal supporting bars, connections between the bearing-blocks and the bellows and adapted to move the drum toward the tracker-board when the bellows are collapsed, and automatic spring means for returning said drum to its former position.

7. In a player piano, a suitable frame,
horizontal supporting bars extending be-
tween parts of said frame, said bars being
provided with tracks, a bellows located at
5 one end of said bars, a tracker-board mount-
ed upon the bars in the vicinity of the bel-
lows, a drum having means for supporting a
plurality of music-rolls, said drum being
10 revoluble, bearing-blocks in which said drum
is journaled slidably mounted on the tracks
of the horizontal supporting bars, connec-

tions between the bearing-blocks and the bel-
lows and adapted to move the drum toward
the tracker-board when the bellows are col-
lapsed, and means for returning said drum 15
to its former position.

In witness whereof I have hereunto set my
hand this 12th day of July, 1913.

KARL O. CARLSON.

Witnesses:

J. A. BONNELL,

E. B. SHERMAN.

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