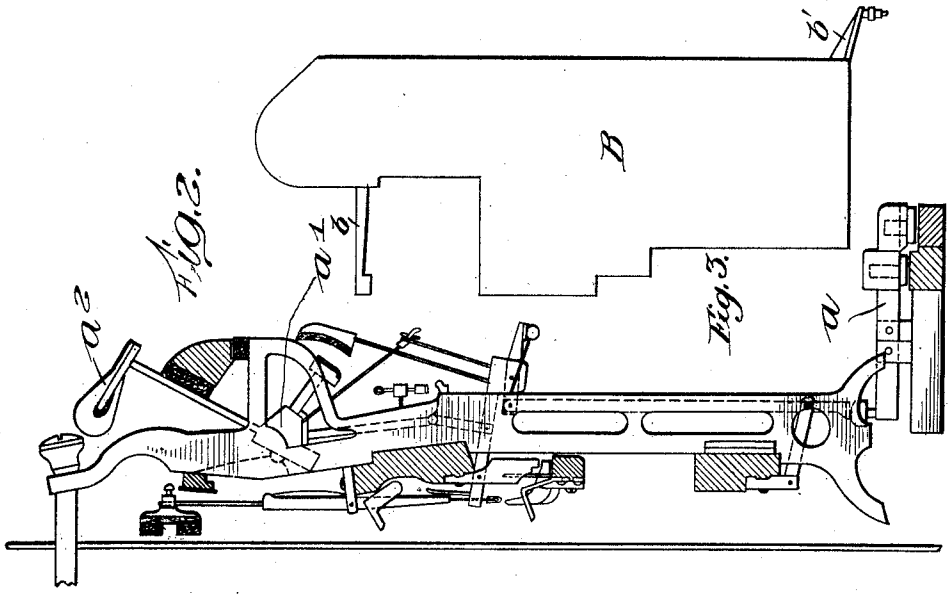
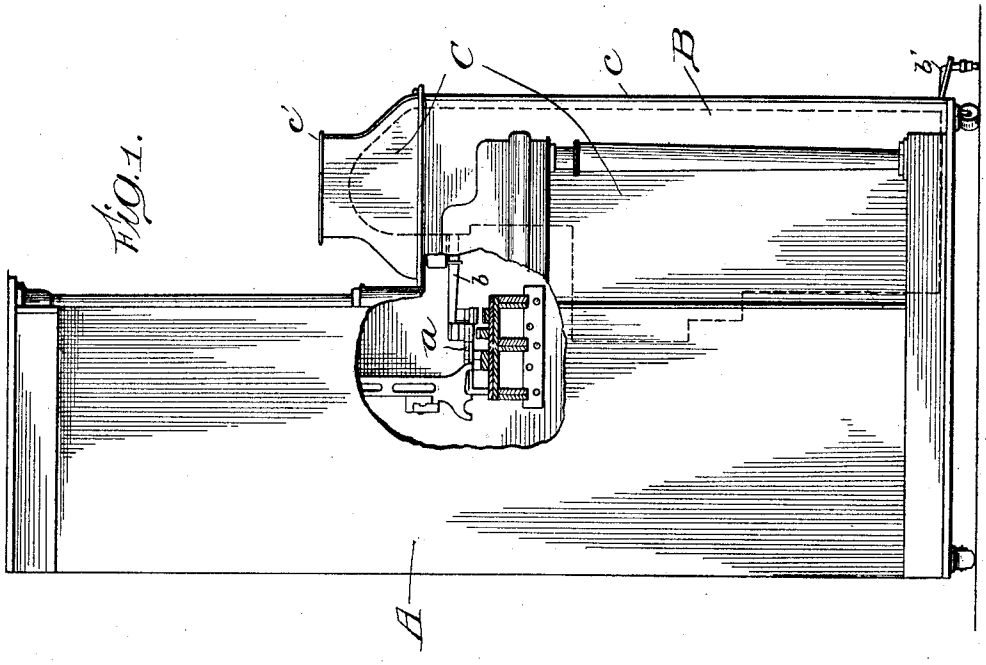
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PLAYER PIANO.

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899,018. Patented Sept. 22, 1908.





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PLAYER-PIANO.

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To all whom it may concern:

Be it known that I, GEORGE A. BAKER, JR., a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Player-Pianos, of which the following is a specification.

My invention relates to player-pianos that is to say, pianos of that character in which certain playing apparatus or mechanism is embodied within the structure thereof.

Generally stated, the object of my invention is the provision of an improved and highly efficient player-piano, of the aforestated general character, but of such novel construction as to create an entirely new type.

Special objects of my invention are the provision of an improved construction and arrangement whereby the playing apparatus or mechanism is insertible as a unit in the piano structure, and as readily removable therefrom, and whereby the fingers of the unitary player may be connected more directly with the piano action, thus obviating the necessity of a key-board having the usual piano keys; the provision of an improved construction and arrangement whereby all of the well known outside or portable piano-player may be embodied in a player-piano, thus preserving in the latter the same effects and advantages that are obtainable with a good piano and a first class outside player; the provision of an "inside player" by using an ordinary outside or portable player in combination with a special construction of piano, whereby the player fingers reach into the piano to operate the action thereof; and to provide certain details and features of improvement and combinations tending to increase the general efficiency and effectiveness of a player-piano of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a player-piano embodying the principles of my invention, certain portions of the piano casing being broken away in order to bring into view the direct connection between the player fingers and the piano action. Fig. 2 is an enlarged detail side elevation of one of the piano actions. Fig. 3 is a side elevation of the player mechanism removed from the piano.

By the term player-piano, it will be readily understood that I mean a structure in which are combined the instrumentalities of a piano and a piano-player. The piano-player is ordinarily a unit in itself and is a portable affair which can be pushed up to the key-board of an ordinary piano and then operated for the purpose of causing the fingers of the player to engage and operate the piano keys, so as to render a musical composition in accordance with the character of the perforations of the traveling sheet of perforated music within the player. The term player-piano, however, has, as explained, come to mean that type of piano within the structure of which is included the elements or instrumentalities essential for constituting a self playing piano. Some of these self playing pianos, or player-pianos, as they are called, are operated automatically by the mere insertion of a coin in the slot, while others are controlled by an operator in much the same manner that a piano-player is controlled or operated after it is pushed up to the key-board of a piano. It is also true that some so called self playing pianos have been put upon the market without key-boards. Prior to my invention, however, and so far as I am now aware, player-pianos or self playing pianos have been constructed with the pneumatic or otherwise actuated playing apparatus or mechanism so scattered or distributed through the interior of the piano as not to constitute a unitary player mechanism. Furthermore, the heretofore considered necessary scattering of the pneumatic and other devices of the player mechanism through the structure of the piano would preclude, so to speak, the obtaining of highly artistic or even fairly good musical effects. For this reason, therefore, and with my improved construction, a player-piano embodying the principles of my invention comprises a unitary player mechanism which is combined with the piano, the two elements thus being organized into one unitary structure. For example, as shown in Fig. 1 the piano A can be of any suitable known or approved construction, but is preferably without a key-board. The unitary player structure B is insertible into and removable as a unit from the front of the piano

structure, and when inserted its fingers *b* engage the short lower horizontal levers *a* of the piano action. When inserted, the player mechanism is operated by the usual foot treadles b^1. The piano action a^1 may, of course, be of any suitable known or approved construction, the essential requirements of the form shown being that a depression of the outer end of any lever *a* shall produce a forward stroke of its allotted hammer a^2, with the usual results and effects. Such being the case, it will be unnecessary to describe or explain the construction of the said piano action; but it is essential to state that the said piano action is provided with these lower horizontal levers *a* which are each pivoted substantially at a point midway between its ends, whereby the sudden downward stroke of any player finger *b* will depress the outer end of its allotted action lever *a*.

The construction is preferably such that the unitary player structure B can be inserted as a unit in the front of the piano casing, and for this purpose the said piano casing may be provided with suitable supporting or engaging means for receiving and holding the said player in its proper position. Of course, the said player B can be of any suitable known or approved construction, but as shown preferably has the usual and well known fingers *b*—that is to say, the fingers which are all in one level and ordinarily provided at the back of a player for engaging the keys of the piano. These are the fingers which correspond to a chromatic scale, each representing a note in such scale. With this arrangement, my improved player piano comprises a unitary player structure having fingers or other suitable members which are connected directly with the piano action, the usual key-board and piano keys being displaced, so to speak, by the fingers of the player. In this way the piano requires some special construction, and the player mechanism requires no special construction in order to adapt it to its new use and coöperation directly within the casing of the piano—that is to say, the piano casing and, possibly, the lower members of the piano action are the elements which require modification in order to obtain this novel and highly advantageous construction and combination involving a unitary player mechanism and a piano which are organized into a unitary structure, and in which the fingers or other similar devices of the player are brought into direct engagement or connection with the piano action. The relation between the piano and player is also quite different, and creates a radically new type of player piano.

It is obvious and well understood that a player mechanism which is scattered or distributed through the interior of a piano does not and cannot give the highly artistic and classic musical effects obtainable by the use of a well constructed and highly developed outside piano-player; but by a special piano construction, and by the new combination and method of operation, I have employed an outside player in a player-piano, without disorganizing the player.

With my improved construction, the player apparatus or mechanism is all together and may be of any of the well known and highly developed forms of piano player now known to those skilled in the art; and in this way I obtain in a player-piano the advantages of the best kind of player mechanism, and I therefore obtain in a player-piano all of the fine musical effects and qualities which have ordinarily been considered only possible with the combination of a good piano and a highly developed outside player. Having accomplished all this, the key-board and usual piano keys are not wanted and are not missed, and the fingers which ordinarily engage keys are allowed to reach into the interior of the piano to operate the action thereof.

The usual key-board and keys are, as stated, displaced or crowded out by fingers *b* of the player, and by this term "displaced" I mean that the key-board and keys are omitted, and that the said player fingers and upper portion of the player occupy substantially or practically the space or position usually occupied by the said key-board and keys. In other words, by the term "displaced" I mean that the usual key-board and keys are omitted, and that the player fingers are connected more or less directly and interiorly with the lower portions of the piano action.

The entire action is in effect connected directly with the fingers of the unitary player mechanism, and by this I mean that the usual manual keys and key-board are displaced by the player mechanism, permitting the rearwardly extending player fingers to operate in the ordinary way, but not through the medium of manual keys, the latter being displaced and omitted from the structural unit formed by the piano and the player. It will thus be seen that the piano has a casing in the forward or front portion of which the player mechanism is disposed and embodied as a unit. Furthermore, it will be seen that the piano casing has a chamber in the lower front portion thereof and that the player mechanism disposed in this chamber constitutes th esole means for operating the piano action. The said mechanism has a row of devices which are connected by a horizontal row of intermediate devices with the lower ends of the piano action. In this way, as stated, the player mechanism is not only disposed and embodied as a unit within the chamber of the piano, but is also removable as a unit from the interior of the piano casing. In this way I am enabled to combine a piano with a player mechanism of the out-

side or portable type in such manner as to produce a new type of player piano.

It will be seen, of course, that the piano has a casing which is extended forward to receive and inclose the unitary player mechanism. In any event, however, the player and the piano form a structural unit, and the player mechanism is disposed as a unit in front of the piano. In other words, the casing of the piano and the casing for inclosing the player are connected to form a structural unit, in the manner illustrated.

It will be seen that the piano casing A has a forward extension C, which is made hollow and adapted to receive the unitary player mechanism B, in the manner illustrated. It is obvious that this forward extension C of the piano casing can have a removable front *c*, and also a removable top c^1, if necessary, so that the said player mechanism can be inserted within the chamber provided by this extension C, in the manner illustrated. In other words, any of the walls of the said extension C can be made removable so as to facilitate the insertion or removal of the said unitary player mechanism. Also, any suitable means, such as brackets or cleats or screws, can be employed for firmly holding the said player mechanism within the cavity or chamber provided by this forward extension of the piano casing. It will also be understood, of course, that the said player mechanism B is preferably, but not necessarily, inclosed by the piano casing extension C, in the manner shown. It will also be seen that the piano casing can have the ordinary or usual front wall below the place where the keyboard ordinarily occurs, which wall, if employed, will separate the player mechanism from the interior of the piano. I do not, however, limit myself to any particular construction of the casing, as it is obvious that various ways can be adopted for inclosing a unitary player mechanism within a front or forward extension of the piano casing, or within a cavity or recess in the lower front of the piano.

By my invention, it will also be seen, the keyboardless piano becomes a new article of manufacture, as these "piano backs," as they are now called, are adapted to be made by piano manufacturers and sold to either the users or the manufacturers of piano players. Each so-called "piano back" is provided with a row of interior finger-levers adapted to be engaged by the fingers of the player, and with a front chamber or cavity into which the piano player may be inserted. In this way each "piano back" is, as illustrated, adapted to receive and inclose, or at least to have combined therewith, a piano player of the outside or portable type. In any event, and regardless of whether the piano casing is used for inclosing the player, it will be seen that the fingers of the player reach within the piano to operate the action thereof.

By combining an ordinary or outside player with a key-boardless piano, so that the player fingers reach into the interior of the piano, I am enabled to provide a player piano of small size—one which is quite low and narrow, and which takes up but little room on the floor. As the key-board is omitted, and no exterior means are provided for playing the piano, my invention comprises what may be termed a non-manually operable piano-action.

What I claim as my invention is,

1. A player-piano comprising a piano and a player, the piano having a casing from the front portion of which the player is removable by itself as a unit, said player provided with an interior and horizontal set of rearwardly projecting fingers, said fingers all disposed in one level, each finger adapted to strike downward from its normal position in the said level, and an interior row of members for communicating the downward movements of said fingers to the piano action, said members disposed below the depressible rear ends of said fingers.

2. A player-piano comprising a piano and a player, the piano having a casing in front of which said player is disposed as a unit, said player provided with an interior and horizontal set of rearwardly projecting fingers, said fingers all disposed in the same level, each finger adapted to strike downward from its normal position in the said level, and interior means for communicating the downward movements of said fingers to the piano-action, said means disposed below the depressible rear ends of said fingers.

3. A player-piano comprising a piano and a casing provided with a chamber in the front portion thereof, a keyboardless action for said piano, a player mechanism disposed in said chamber and provided with a set of rearwardly and downwardly acting fingers, and means by which the downward strokes of said fingers are communicated to said action.

4. A player-piano comprising a piano and a casing provided with a chamber in the lower front portion thereof, a keyboardless action for said piano, a unitary player mechanism disposed in said chamber and provided with actuating devices at the rear thereof, and means disposed in a horizontal row to connect the said devices with the lower part of said piano action.

5. A player-piano comprising a piano and a casing provided with a chamber in the front portion thereof, a keyboardless action in said piano, a unitary player mechanism disposed in said chamber and constituting the sole means for operating said action, and means at the rear of said mechanism for actuating said piano action.

6. A player-piano comprising a keyboardless piano having a casing in front, and a player disposed as a removable unit in said casing.

7. A player-piano comprising a keyboardless piano and a player disposed at the front of the piano, its upper portion occupying the space usually occupied by the displaced keyboard, said player being provided with a set of fingers which by reason of the displacement of the keyboard reach within the piano and are adapted to operate the action thereof

8. A player-piano comprising a piano and a player, the piano having a casing within the front portion of which the player is disposed as a unit, said player provided with a horizontal set of rearwardly projecting fingers, said fingers adapted to strike downwardly, and interior means for communicating the downward movements of the rear ends of said fingers to the piano-action.

9. A player-piano comprising a keyboardless piano and player, the piano having a casing provided with a forward extension forming a chamber within which the player mechanism is disposed as a unit.

10. A player-piano comprising a piano having a suitable action, a row of horizontal levers adapted to operate said action by the upward movements of their rear or inner ends, a casing for said piano, a unitary player mechanism disposed in the lower front portion of the said casing, and suitable connections between said mechanism and the outer or depressible end portions of said levers, whereby the player mechanism acts on the outer end portions of said levers to play the piano.

11. As an article of manufacture, a keyboardless piano provided with an interior horizontal row of levers for operating the piano action, said piano having a front chamber or cavity formed in the casing thereof, and below the said row of levers, said chamber or cavity being adapted to receive and inclose a piano player of the outside or portable type, whereby the fingers of the player may be brought into engagement with said levers.

12. As an article of manufacture, a keyboardless piano provided with a chamber or cavity adapted to receive a piano player of the outside type, and with interior means for connecting the usual fingers of such a player with the action of the piano.

13. A player-piano comprising a keyboardless piano and a player, the player disposed as a unit at the front of the piano, said player provided with a set of rearwardly extending and downwardly acting fingers projecting within the piano to operate the action thereof.

14. A keyboardless piano provided with a cavity or recess in the lower front thereof, and a player extending within said cavity or recess, said player provided with a set of rearwardly projecting and downwardly acting fingers extending within the piano to operate the action thereof.

15. The combination of a keyboardless piano and a player disposed at the front thereof and provided with a set of fingers reaching within the piano to operate the action thereof.

16. The combination of a keyboardless piano-action, and a player of the outside type, provided with a set of rearwardly projecting and downwardly acting fingers for operating said action.

17. The combination of a piano-action, a chamber inclosing said action, and a player of the outside type, provided with a set of rearwardly projecting and downwardly acting fingers reaching into said chamber to operate the said action.

Signed by me at Chicago, Cook county, Illinois, this 26th day of Jan. 1906.

GEO. A. BAKER, JR.

Witnesses:
S. LEWIS,
ALBERT JOHN SAUSER.