

No. 731,423.

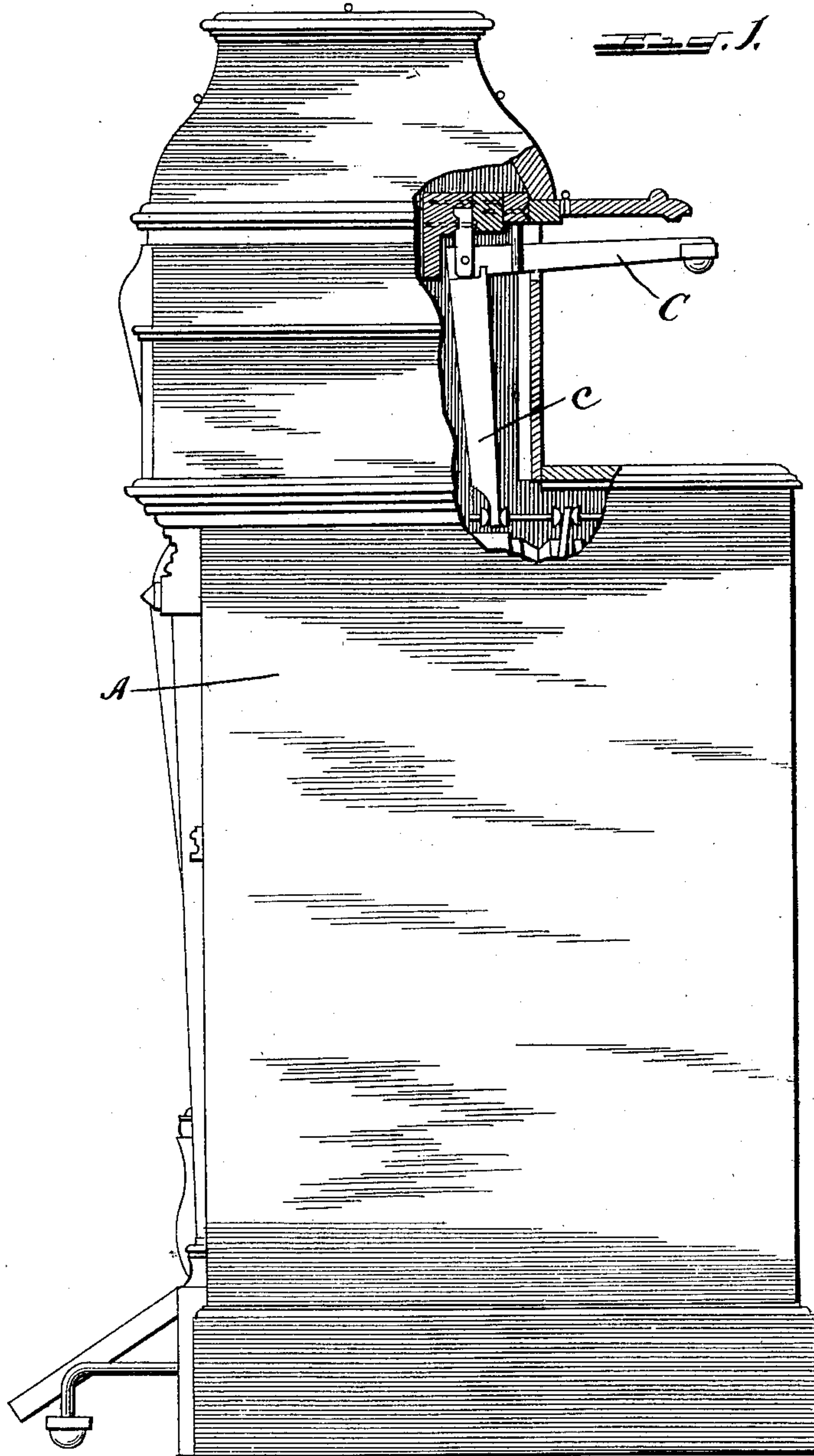
PATENTED JUNE 23, 1903.

W. F. BAYER.
MECHANICAL PIANO OR ORGAN PLAYER.

APPLICATION FILED NOV. 22, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



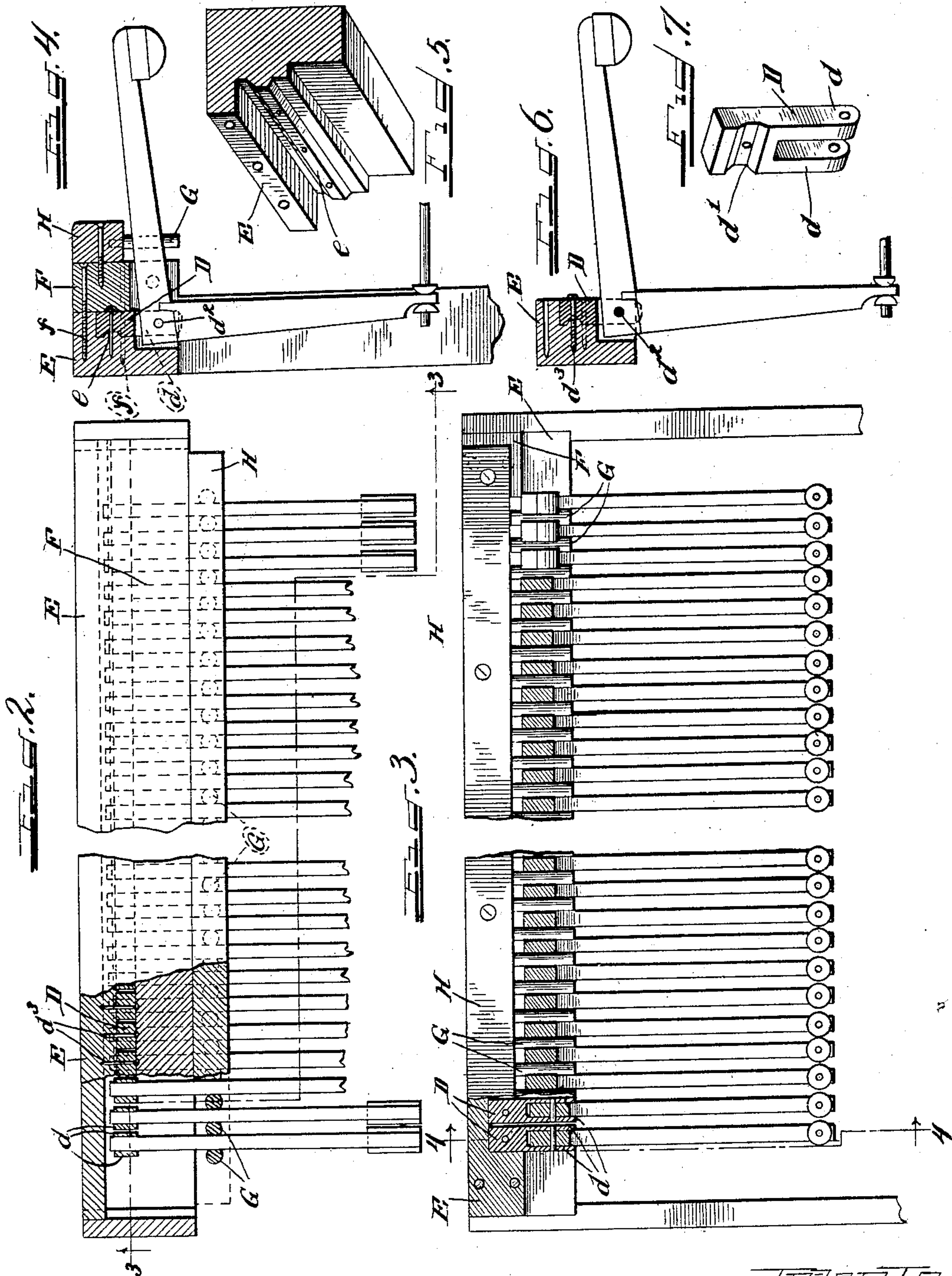
WITNESSES
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2 SHEETS—SHEET 2.



Witness
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UNITED STATES PATENT OFFICE.

WILLIAM FREDERICK BAYER, OF BUFFALO, NEW YORK, ASSIGNOR TO
BUFFALO MUSICAL INSTRUMENT COMPANY, OF BUFFALO, NEW
YORK, A CORPORATION OF NEW YORK.

MECHANICAL PIANO OR ORGAN PLAYER.

SPECIFICATION forming part of Letters Patent No. 731,423, dated June 23, 1903.

Application filed November 22, 1901. Serial No. 83,245. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FREDERICK BAYER, a citizen of the United States, residing at Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Mechanical Piano or Organ Players, of which the following is a specification.

My invention relates to mechanical piano or organ players. Instruments of this character are provided with a series of fingers, which are actuated mechanically and arranged in position to engage the keys of a piano or organ. My invention relates more particularly to these fingers and to the manner in which the same are mounted or supported in the player.

Objects of my invention are to provide an arrangement whereby the fingers may be readily and conveniently removed, either separately or together, from the structure upon which they are mounted or supported, to provide a construction and arrangement tending to decrease the cost of manufacture, to provide a construction and arrangement tending to insure a proper operation or working of the fingers, and to provide certain details and features of improvement tending to increase the general efficiency and to render an instrument or device of this character more satisfactory and serviceable in use.

To the foregoing and other useful ends the fingers of the player are preferably pivotally supported by hangers, which are detachably mounted upon a bar or hanger-rail. Each hanger is preferably adapted to engage a bead or ridge on the back of the said rail. Preferably the hangers are clamped or held between the hanger-rail and a clamping-bar. With this arrangement any of the fingers can be removed from the back of the player-action by simply removing the clamping-bar and withdrawing the fastening devices employed for securing the hanger to the hanger-rail. It will also be seen that the hanger-rail and the fingers and hangers can all be readily removed together from the player-casing or body structure. The nature and advantages of my invention will, however, hereinafter more fully appear.

In the accompanying drawings, Figure 1 is a side elevation of a mechanical piano or organ player, a portion of the casing or body structure of the same being broken away for the purpose of showing the manner in which the fingers are mounted or supported from the hanger-rail. Fig. 2 is a plan of the fingers and the supporting bars or rails, the latter being broken away at the center for convenience of illustration and the rails or bars and also a number of the hangers at the left of the view being shown in horizontal section. Fig. 3 is a section on line 3 3 in Fig. 2. Fig. 4 is a cross-section on line 4 4 in Fig. 3. Fig. 5 is a perspective of a portion of the hanger-rail. Fig. 6 is a view similar to Fig. 4, but showing the condition of the structure before the clamping-bar is applied to the back of the hanger-rail. Fig. 7 is a perspective of one of the hangers.

Referring to Fig. 1, it will be readily understood that inasmuch as my invention relates only to the player-fingers and to the method or manner in which the same are mounted the balance of the instrument may be of any known or approved construction. In said figure, A indicates the casing or body structure of a mechanical player adapted to be employed as an attachment for playing either pianos or organs. It will be observed that the said casing or body structure is of such character as to support the series of fingers C in a suitably-elevated position. While in Fig. 1 of the drawings only one of these fingers is shown, it will be readily understood that a suitable number of these fingers is employed and that the same are arranged in a series across the back of the player. In use a mechanical player of this character is adjusted into position to enable the fingers C to engage the keys on the keyboard of the piano or organ. The devices for actuating these fingers can, of course, be of any suitable or known form. In the drawings the fingers are provided with downwardly-extending arms or portions c. The ends of these downwardly-extending portions of the fingers are preferably adapted to be engaged by the actuating devices.

Referring more particularly to Figs. 4 to 7,

inclusive, it will be seen that each finger is preferably in the form of a bell-crank, having a pivotal connection between its elbow and a hanger D. These hangers are preferably formed or constructed as shown in Fig. 7. As thus illustrated each hanger is provided with a couple of cheeks or ears d and also with a notch or recess d' . Each finger is adapted to be inserted between the said cheeks or ears of a hanger, and the finger and its allotted hanger are preferably pivotally connected by a pin d^2 . The hangers are all preferably secured to a hanger-rail E. This hanger-rail is preferably provided with a bead or ridge e , and the notches or recesses d' in the hangers are adapted to engage this bead or ridge on the back of the hanger-rail. In this way the hangers and fingers are all easily and accurately aligned upon the back of the hanger-rail. Any suitable fastening devices—such, for example, as the screws d^3 —can be employed for fastening the hangers to the hanger-rail. It will be observed, however, that the hangers are preferably clamped or held between the hanger-rail and a clamping-bar F. This clamping-bar is applied after the hangers have been fastened to the hanger-rail, and the screws or like fastening devices f are preferably inserted from the back through both the clamping-bar and the hanger-rail. With this arrangement the fingers are effectively pivoted and supported in such manner as to be capable of operating without working loose. Furthermore, any one of the fingers can be removed from the hanger-rail by first removing the clamping-bar F. This permits of ready repair or substitution in case of breakage or wear. It will also be seen that, if desired, the hanger-rail and the hangers and fingers can be removed intact—that is to say, the entire player-action can be readily removed from the back of the player. In this way the fingers are mounted in such manner as to be readily removable either separately or together.

In a mechanical player of this character it is desirable that the fingers be mounted and arranged in such manner as to operate without any lateral or side movement. By referring to Figs. 2 and 3 it will be seen that the fingers are arranged side by side and very closely together. With this arrangement it is important that there be practically no lateral movement on the part of the fingers, as such movement would be likely to cause the fingers to strike or rub against each other. With a view, therefore, to insuring against any lateral movement on the part of the fingers the latter are preferably separated and maintained in their proper positions by spacing-pins G. These pins, it will be observed, project downwardly from the pin-bar H. This pin-bar can be conveniently secured to the back of the clamping-bar F. As a simple and effective method of insuring the proper action the said pins are preferably made larger than is required for the

spaces between the fingers, and these pins are then trimmed or reduced after they have been secured to the pin-bar. In this way the pins are first applied and then reduced so as to fit the spaces between the fingers, so as to practically provide guideways, which guide the fingers and prevent the latter from shifting or moving laterally.

What I claim as my invention is—

1. In a mechanical piano or organ player, the combination of a hanger-rail provided with a bead or ridge, a plurality of hangers provided with notches or recesses adapted to engage said bead or ridge, suitable fastening devices for securing said hangers in place upon said hanger-rail, and fingers pivoted upon said hangers.

2. In a mechanical piano or organ player, the combination of a hanger-rail, a clamping-bar, hangers clamped or held between said clamping-bar and said rail, and fingers pivoted upon said hangers.

3. In a mechanical piano or organ player, the combination of a hanger-rail, a clamping-bar arranged back of said hanger-rail, hangers applied to the back of said hanger-rail and clamped or held between the latter and the said clamping-bar, and fingers pivoted upon said hangers.

4. In a mechanical piano or organ player, the combination of a hanger-rail, a clamping-bar, hangers clamped between said bar and said rail, fingers pivoted upon said hangers, a pin-bar secured to said clamping-bar, and spacing-pins mounted upon said pin-bar and projecting downwardly between said fingers.

5. In a mechanical piano or organ player, the combination of a horizontally-disposed hanger-rail, a plurality of hangers depending from the back of said rail and removably secured thereto, a bar secured to the back of said rail and covering the upper portions of said hangers, fingers pivotally secured to the lower ends of said hangers, and suitably-controlled means for actuating said fingers.

6. A piano or organ player comprising a hanger-rail removably mounted at the back of the player, a plurality of removable and independent hangers depending from said rail, and a plurality of bell-crank-shaped fingers having their elbow portions pivotally secured to the lower ends of said hangers, the said fingers being thereby readily removable either separately or together from the back of the player, and suitably-controlled operating means connected with the lower end portions of said fingers.

7. In a piano or organ player, and in combination with the essential elements thereof, a pair of parallel members arranged at the back of the player, a plurality of removable and independent hangers held between said members, and bell-crank-shaped fingers having their elbows pivotally secured to the lower ends of said hangers.

8. In a piano or organ player, and in combination with the essential elements thereof,

a hanger-bar arranged at the back of the player, a plurality of removable and independent hangers depending from and secured to the back of said bar, bell-crank-shaped fingers having their elbow portions pivoted to the lower ends of said hangers, the said fingers and hangers thereby being readily and separately removable from the back of the player, a bar covering the upper portion of said hanger, and suitable operating means connected with the lower ends of said fingers.

9. In a piano or organ player, the combination of a horizontal hanger-rail arranged at the back of the player, said rail having its back provided with a longitudinally-extending recess, a plurality of hangers removably secured in said recess, a plurality of fingers having their elbow portions pivotally secured to the lower ends of said hangers, a bar arranged to cover the upper ends of said hangers, and a plurality of spacing-pins suitably mounted and extending downwardly between the said fingers.

10. In a piano or organ player, the combination of a hanger-rail having a longitudinally-extending recess, a plurality of hang-

ers secured in said recess, a bar covering the said recess and upper end portions of said hangers, and a plurality of bell-crank-shaped fingers having their elbow portions pivotally secured to the lower end portions of said hangers.

11. In a piano or organ player, and in combination with the essential elements thereof, a supporting structure arranged in the back of the player, a plurality of removable and independent hangers depending from said structure, bell-crank-shaped fingers having their elbow portions pivotally secured to the lower ends of said hangers, the said fingers and hangers thereby being readily and separately removable from the back of the player, a bar covering the upper ends of said hangers, and suitable operating means connected with the lower ends of said fingers.

Signed by me at Buffalo, Erie county, New York, this 13th day of November, 1901.

WILLIAM FREDERICK BAYER.

Witnesses:

CHAS. GFROERER,
L. J. BUNDY.