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F. C. WHITMORE.

ATTACHMENT FOR PIANO PLAYERS.

APPLICATION FILED JUNE 30, 1902.

Fig. 1.

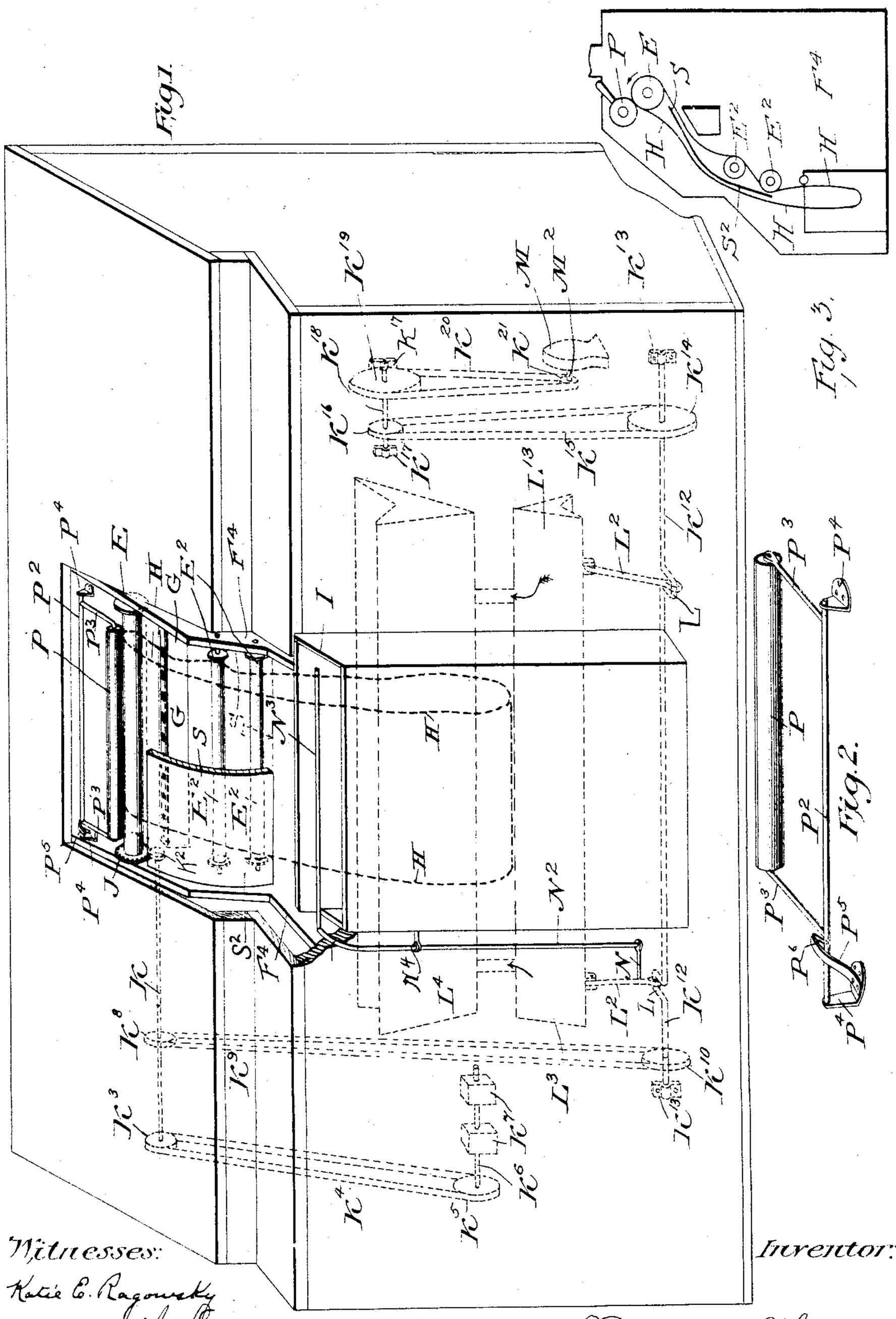

Fig. 3.

Fig. 2.

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ATTACHMENT FOR PIANO-PLAYERS.

SPECIFICATION forming part of Letters Patent No. 791,967, dated June 6, 1905.

Application filed June 30, 1902. Serial No. 113,714.

To all whom it may concern:

Be it known that I, FREDERICK C. WHITMORE, a citizen of the United States, and a resident of the city of Jeffersonville, in the county of Clark and State of Indiana, have invented certain new and useful Improvements in Piano-Players and Attachments Thereto, of which the following is a specification.

My invention relates to that class of machines known as "piano-players," and in general typified by such as the "Angelus," "Pianola," and the "Peerless." In order to cause these machines to play a tune, there must be present a sheet or strip of paper perforated in accordance with the notes to be sounded.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In order that the invention I have made may be more fully understood, I will describe a machine in which I have embodied such invention.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1 represents a perspective elevation of certain piano-playing mechanism and of my invention combined therewith, the outer casing being omitted where necessary to show the working of the interior parts. Fig. 2 is a perspective view of the roller which presses the music-sheet upon the main or traction roller and of certain mechanism for elastically pressing the first-named roller toward the said main roller. Fig. 3 is an elevation of a portion of the frame and of the rollers, tracker, guide-sheet or separator, and endless sheet of music, the adjacent wall which supports these parts being removed.

I will now proceed to describe my invention in detail.

In Fig. 1 I have illustrated a main or principal roller E, which is duly supported at its ends by its journals rotating in suitable bearings, preferably located in the walls F^4 of the frame. G indicates the tracker or air-receiving box, through the passage-holes of which the air passes to the devices operating the hammers, according as the air is allowed to enter by the perforations in the roll (sheet) of music coming opposite their respective passages in the tracker. I usually provide one or more guide-rolls E^2 E^2 to direct the course of the perforated music-paper (sheet) H as it comes up out of the box I, provided for it to be in until delivered at the tracker G. Any suitable means may be employed for rotating the roller E. One description of such means consists as follows: A shaft K is duly journaled and carries a toothed wheel K^2, engaging a toothed wheel J, fixed concentrically to the roller E or to its journal. When the bellows-motor is to be used, the shaft K carries a pulley K^3, connected by band K^4. The latter engages a pulley K^5, operated, preferably, directly by the bellows-motors K^7 K^7, through the agency of the shaft K^6; but the presence of the motor M allows the motors K^7 K^7 to be dispensed with. In such event the shaft K carries a pulley K^8, engaging a band K^9, which latter engages a pulley K^{10} on shaft K^{12} and rotated thereby. This shaft K^{12} turns in journals K^{13} K^{13}. A pulley K^{14}, fixed concentrically to the shaft K^{12}, carries a band K^{15}, which also engages a pulley K^{16} on shaft K^{18}, turning in journal-bearings K^{17} K^{17}. On a shaft M^2 of the electrical motor M is pulley K^{21}. A band K^{20} connects this pulley with pulley K^{18}. When the motor M rotates, its rotary movement is communicated through the train of pulleys (or gearing) to the music-roller E. At the same time the motor can be made to operate the bellows L^3 and L^4 by means of cranks L L and rods L^2 L^2, connecting these cranks to the bellows. Connected to one of the rods L^2 or to a similar point is the rod N, connected to vertical rod N^2, working in a guide N^4 and carrying at its top a bent arm N^3. Thus the arm N^3 receives a vertically-reciprocating movement, and as the music paper sheet passes over this arm on its way to the roller E said sheet is lifted out of the box I every time the arm rises, thus reducing the strain on roller E.

A friction-roller P bears against the music-sheet on roller E, and thus enables the latter roller, by means of the said friction-roller, to more successfully draw this music-sheet upward and onward over the tracker G. This

roller P preferably swings on the arms or journal-supports P^3 P^3, and these in turn are fixed to a shaft P^2, pivoted at each end in a bearing P^4. It is desired to keep the roller P down upon the music-sheet H constantly with a gentle pressure and to prevent this roller P from at any time jumping up and away from the roller. To enable the roller to perform these functions, I employ a spring and preferably as follows: One end of a spring P^5 is fast to a stationary part, as a journal-bearing P^4. This spring P^5 at its free end bears against the free end of a stud or pin P^6, fixed to the rod P^2. Thus this stud P^6 operates as a lever, and under pressure of this spring pushes the free ends of the arms P^3 and the roller P down onto roller E or upon the music-sheet H thereon.

To secure the accurate movement of the music-sheet H, I provide a bent plate S, which I place above the tracker. This plate S is bent downward at its front end S^2 to better receive the upper part of the sheet H. In the preferred mode of supporting this plate the side edges S^3 are supported by the side walls F^4 of the frame. This plate S operates to uphold and guide the upper portion or layer of the endless sheet of music. It prevents this upper portion of the sheet from falling onto the lower one, where the latter is moving over the tracker. It also keeps this outer portion of the endless sheet clear of and out of contact with the under or inner portion of such endless sheet and away from those rollers below the tracker, which guide the under portion of this endless sheet. Thus it will be seen that plate S serves as a separator and guide for the sheet H. As the roller E rotates the under part of the music-sheet H is moved upward and over the tracker, and the upper side is moved downward. Thus this sheet H is capable of automatically affording endless repetitions of the musical compositions it has.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. In a contrivance for working a piano-player automatically, a music-sheet a frame, a bar set in the frame, a roller attached by cross-pieces to said bar, a second roller contiguous to said bar, these rollers being adapted to permit the music-sheet to pass between them, a motor for actuating one of the rollers, two guide-rollers, a reciprocating horizontal bar moved by the motor, and adapted to lift the music-sheet out of a chest, substantially as and for the purposes specified.

2. In a contrivance for working a piano-player automatically, a music-sheet a frame, a bar supported by the frame, a roller connected to said bar a second roller, located relatively to the first for enabling the sheet of music to pass between them, a motor, guide-rollers, a reciprocating bar, actuated by the said motor, a chest to receive the lower end of an endless sheet of music, the reciprocating bar adapted to lift the music-sheet out of the chest, and a bent plate located over the guide-rollers, between the upper and the lower fold of said music-sheet, substantially as and for the purposes specified.

3. In a piano-player, the roller P having the arms P^3, the rod P^2 to which said arms are connected, a lug P^6 on said rod, a spring P^5 adapted to bear against said lug so as to yieldingly hold the roller P in position, a roller E contacting with the roller P, a tracker and a music-sheet adapted to pass over the tracker and between the rollers P and E, substantially as described.

4. In a piano-player, the roller P having the arms P^3, the rod P^2 to which said arms are connected, journal-bearings P^4 for said rod a lug P^6 on said rod, a spring P^5 mounted on one of the bearings and adapted to bear against said lug so as to yieldingly hold the roller P in position, a roller E contacting with the roller P, a tracker and a music-sheet adapted to pass over the tracker and between the rollers P and E, substantially as described.

5. In a piano-player the combination with the tracker, the sheet-propelling roller and guide roller or rollers, and the endless perforated sheet, of a separator located between that portion of the sheet which is passed against the tracker and the adjoining portion whereby the latter is prevented from being drawn against the portion passing against the tracker or caught by said rollers, substantially as described.

6. In a piano-player, the combination of the roller E, one or more supplemental rollers, a tracker and a guide for the music-sheet above the tracker, and a device for lifting the lower part of the music-sheet, substantially as and for the purposes specified.

7. In a piano-player, the combination of the roller E, one or more supplemental rollers, a tracker and a guide for the music-sheet above the tracker and a reciprocating rod for lifting the lower part of the music-sheet, substantially as and for the purposes specified.

8. In a piano-player, the combination of the tracker, the roller E, one or more supplemental rollers, the endless music-sheet, and a guide for the music-sheet situated above the tracker, said guide being of such a width as to entirely cover said tracker substantially as and for the purposes specified.

9. In a piano-player, an endless sheet of music, a tracker, a guide S as one of the devices to uphold and direct said sheet, this guide S being located above the tracker and between the upper and lower portions of the endless sheet of music, and there supporting the upper of these portions, and directing it so as to be clear of the rollers, receiving that part of the sheet coming off from the tracker, substantially as and for the purposes specified.

10. In a piano-player, an endless sheet of

music, a tracker and a guide or separator S located above the tracker and between the upper and lower portions of the endless sheet, said guide or separator having a downward-curved lower edge, substantially as described.

11. In an automatic piano-player, the combination of a tracker, an endless perforated note-sheet and a driving-roller therefor, of a roller normally pressing the sheet against its driving-roller, a spring-pressed pivoted frame in which said presser-roller is journaled, guide-rollers for the note-sheet, and a bent plate mounted above the tracker between the upper and lower portions of the note-sheet, substantially as and for the purposes specified.

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