

F. J. HILL.
PIANO PLAYER.

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1,110,564.

Patented Sept. 15, 1914.

2 SHEETS-SHEET 1.

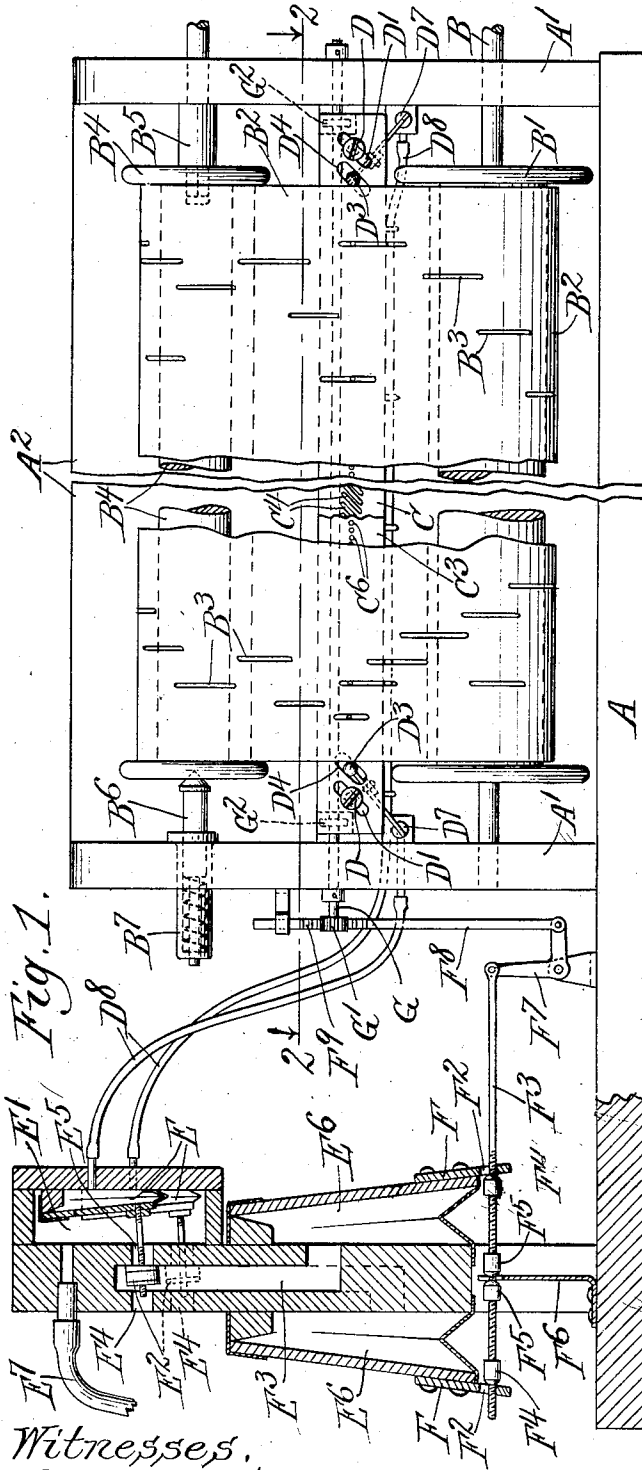


Fig. 1.

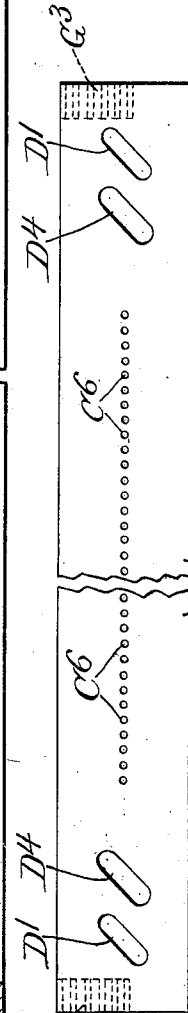


Fig. 5.

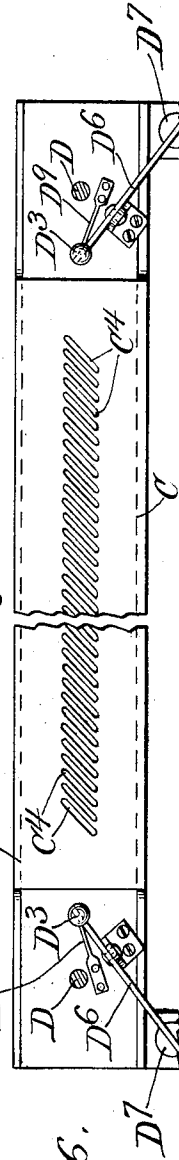


Fig. 6.

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2 SHEETS—SHEET 2.

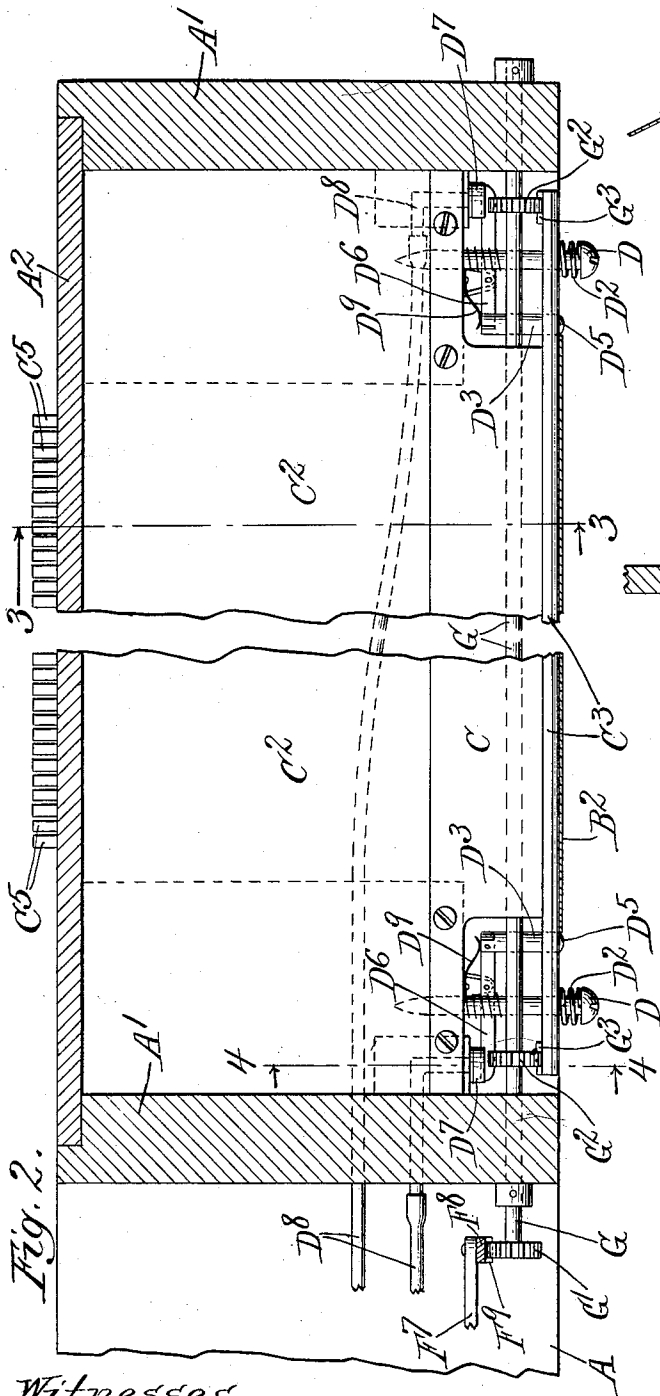


Fig. 2.

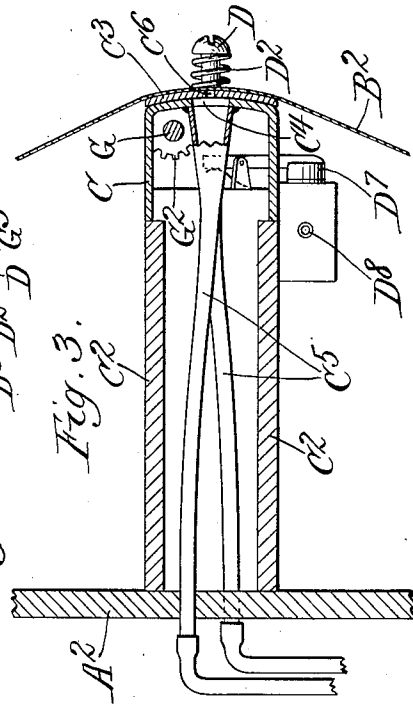


Fig. 3.

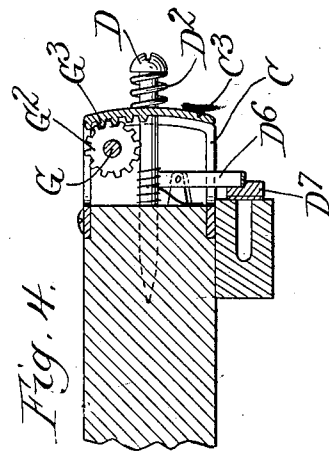


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PIANO-PLAYER.

1,110,564.

Specification of Letters Patent.

Patented Sept. 15, 1914.

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To all whom it may concern:

Be it known that I, FRED J. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Piano-Players, of which the following is a specification.

My invention relates to improvements in piano players, and has for one object to provide a new and improved means for holding the record in proper register with the tracker range.

It is illustrated diagrammatically in one form in the accompanying drawings, wherein—

Figure 1 is a side elevation in part section; Fig. 2, a section along the line 2—2 of Fig. 1; Fig. 3, a section along the line 3—3 of Fig. 2; Fig. 4, a section along the line 4—4 of Fig. 2; Fig. 5, a front elevation of the tracker plate; Fig. 6, a front elevation of the tracker range with the tracker plate removed.

Like parts are indicated by like letters throughout the several figures.

The shelf A carries the parallel uprights A¹ which are connected along one side by the panel A². The shaft B is rotatably mounted in the uprights A¹ and carries the roller B¹ upon which may be wound the record strip B² having the playing slots or perforations B³ therein, and which is wound at the other end upon the roller B⁴ removably journaled upon the shafts B⁵, B⁶, the shaft B⁶ being slidably mounted within the sleeve B⁷ and held against the end of the roller B⁴ by any suitable spring or other mechanism. The hollow tracker range C is located between the rollers B¹ and B⁴ and carried upon the casing C² which is mounted upon the panel A² and is provided with the tracker plate C³ slidably mounted thereon, upon which the record B² rides as it travels between the rollers. The hollow tracker range C contains the parallel-sided inclined openings or slots C⁴ communicating with the ducts C⁵ in the casing C² which lead to the primary pneumatics not shown. The tracker plate C³ is provided with the circular perforations C⁶ each in register with one of the slots C⁴. The tracker plate C³ is guided by the screws D in the inclined slots D¹ at either end and held against the tracker range by means of the springs D². The rods or buttons D³ which project upwardly

through the inclined slots D⁴ in either end of the tracker plate, are so located that the distance between their opposed sides is substantially equal to the width of the record B², are provided with the curved ends D⁵ extending slightly above the surface of the tracker plate and are pivotally mounted at either end upon the lever D⁶ which carries at its other end the valve D⁷ in opposition to the tube D⁸. The spring D⁹ in opposition to the lever D⁶, is adapted to hold the valve D⁷ in the closed position. The tubes D⁸ lead each to one of the primary pneumatics E located within the vacuum chamber E¹ and which carry the valves E² in the passages E³ in opposition to the ports E⁴, E⁵ to control the operation of the motor pneumatics E⁶. The tube E⁷ leads from the vacuum chamber E¹ to any suitable vacuum pump not shown. The motor pneumatics E⁶ are provided each with the downwardly extending lug F having the perforation F² through which passes the rod F³ carrying the adjustable stops F⁴ each in opposition to one of the lugs F and the adjustable stops F⁵ in opposition to the spring F⁶. The bell crank lever F⁷ which is pivotally mounted upon the shelf A, is in pivotal connection at one end with the rod F³ and at the other end with the rod F⁸ carrying the rack F⁹.

The shaft G which is pivotally mounted at either end in the uprights A¹, carries at one end the pinion G¹ in engagement with the rack F⁹ and the pinions G² in engagement with the racks G³ having teeth substantially longer than the width of the teeth of the pinion, and located upon the under side and near either end of the tracker plate C³.

It will be evident that while I have shown in my drawings an operative device still many changes might be made in size, shape and arrangements of the parts without departing materially from the spirit of my invention.

The use and operation of my invention are as follows: When the player is operated and the record strip passes across the tracker range, any transverse motion of the strip will bring it over the buttons or pegs projecting above the surface of the tracker plate and the pressure of the air upon the strips will cause it to depress these buttons, thus operating through the usual train of primary and motor pneumatics a shaft located

within the tracker range. The rotation of this shaft operates by means of pinions engaging racks on the tracker plate to move the tracker plate along the tracker range in a direction parallel with the motion of the strip. The fixed guide screws engaging the inclined slots in the tracker plate, however, compel the plate to move in a direction parallel with the inclined slots, that is, in a direction at an angle to the direction of the record. The result of this is that the tracker plate follows the record so that at all times the holes within the tracker plate are in proper register with the slots or perforations in the record, but since the slots in the tracker plate are parallel with the inclined slots in the tracker range, the holes in the tracker plate will be at all times in register with the proper slots in the tracker range, and thus the displacement of the tracker plate will not affect in any way the operation of the instrument. The spring in connection with the rod which is operated by the motor pneumatics tends normally to hold them in the central position and thus retains the tracker plate in its central position on the tracker range.

I claim:—

1. A player piano having a tracker plate at all times in contact with the note sheet and means for bodily displacing it in a path inclined to its longitudinal axis.

2. A player piano having a tracker plate and automatic means for diagonally moving it, said tracker plate being at all times in contact with the note sheet.

3. A player piano having a tracker range and a tracker plate and means for moving it in a path inclined to its longitudinal axis thereon, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

4. A player piano having a tracker range, a tracker plate thereon, and means for automatically, diagonally moving it, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

5. A player piano having a fixed tracker range and a tracker plate and means for sliding it diagonally thereon, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

6. A player piano having a fixed tracker range, a tracker plate slidably mounted thereon and means for bodily displacing said tracker plate only in a path inclined to the direction of movement of a record traveling thereacross, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

7. A player piano having a fixed tracker

range, a tracker plate slidably mounted thereon, and means operating in a direction parallel with the movement of a record in winding from the music roll to the take-up roll during playing and intermittently operative in response to the position of the record in its longitudinal movements with relation to the tracker range when deflected from its normal or tracking position for moving the tracker plate in a path inclined to the line of movement of a record traveling thereacross, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

8. A player piano having a fixed tracker range, a tracker plate slidably mounted thereon, and means operating in a direction parallel with the movement of a record in winding from the music roll to the take-up roll during playing and operative in response to the downward pressure of the record when deflected from its normal or tracking position for moving the tracker plate in a path inclined to the line of movement of a record traveling thereacross, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

9. A player piano having a fixed tracker range, a tracker plate slidably mounted thereon, and means operating in a direction parallel with the movement of a record in winding from the music roll to the take-up roll during playing, and operative in response to the downward pressure of the record when deflected from its normal or tracking position for moving the tracker plate in a path inclined to the line of movement of the record, said means operative intermittently in response to the position of a record traveling thereacross, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

10. The combination with a player piano having a tracker range and tracker plate located on the working face thereof, of means for moving the tracker plate obliquely thereon in response to the change in position of a record in its longitudinal movements with relation to the tracker range when deflected from its normal or tracking position and means for retaining the tracker plate at all times in register with the tracker range, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

11. In a player piano a range, slots therein at an angle with the direction of motion of a record and a perforate tracker plate interposed between said range and a record traveling thereacross, means for keeping the perforations in said tracker plate always in register with the slots in the tracker range,

said tracker plate being at all times in contact with the note sheet.

12. In a player piano a mouth piece, slots therein at an angle with the direction of motion of a record and a perforate tracker plate interposed between said mouth piece and a record, means for moving said tracker plate in a direction parallel with said slots, means for keeping the perforations in said tracker plate always in register with the slots in the tracker range, said tracker plate being at all times in contact with the note sheet.

13. The combination with a piano player, of a record, a tracker range and a tracker plate and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said plate, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

14. The combination with a piano player of a tracker range and a tracker plate slidable thereon, and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said plate, said means including buttons over which the record may ride, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

15. The combination with a piano player of a record, a tracker range and a tracker plate slidable thereon, and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said plate, said means including buttons on either side of the record over which it may ride, said tracker plate being at all times in contact with the note sheet, said range and plate being provided with registering note ducts.

16. The combination with a piano player of means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining the record in proper register with said range, said means including a movable tracker plate slidable thereon, said tracker plate being at all times in contact with the note sheet.

17. The combination with a piano player of a tracker range and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said range, said means containing a movable tracker plate, said tracker plate being at all times in contact with the note sheet.

18. The combination with a piano player of a slotted tracker range, said slots being inclined to the path of the record, and means

responsive to the downward pressure of a record when deflected from its normal or tracking position and including a movable perforated tracker plate, for holding the perforations therein in register with said slots for retaining the record in proper register with the range, said tracker plate being at all times in contact with the note sheet.

19. The combination with a piano player of slotted tracker range, said slots being inclined to the path of a record, and means responsive to the downward pressure of a record when deflected from its normal or tracking position, and including a movable perforated tracker plate, for holding the perforations therein in register with said slots for retaining the record in proper register with the range, said tracker plate movable in a direction parallel with the slots, said tracker plate being at all times in contact with the note sheet.

20. The combination with a piano player of slotted tracker range, said slots being inclined to the path, and, means responsive to the downward pressure of the record when deflected from its normal or tracking position and including a movable perforated tracker plate, for holding the perforations therein in register with said slots for retaining the record in proper register with the range, and means operating in a direction parallel with the path of the record in winding from the music roll to the take-up roll during playing for moving the tracker plate in a direction parallel with the slots, said tracker plate being at all times in contact with the note sheet.

21. The combination with a piano player of tracker range and means responsive to the downward pressure of a record when deflected from its normal or tracking position and comprising a movable tracker plate, for moving the plate, and upwardly projecting buttons over which the record rides when deflected from its normal path between the music and the take-up roll to control said moving means, and means for retaining the record in proper register with the range, said tracker plate being at all times in contact with the note sheet.

22. The combination with a piano player of tracker range and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said range, said means comprising a movable tracker plate upon said tracker range, and upwardly projecting buttons over which the record rides when deflected from its normal path between the music and the take-up roll, and means responsive to said buttons for operating said plate, said tracker plate being at all times in contact with the note sheet.

23. The combination with a piano player of tracker range and means responsive to the

downward pressure of a record when deflected from its normal or tracking position for retaining it in proper register with said range, said means including a movable
5 tracker plate, and means for moving said plate in a direction parallel with the movement of the record, said tracker plate being at all times in contact with the note sheet.

24. The combination with a piano player
10 of a tracker range and means responsive to the downward pressure of a record when deflected from its normal or tracking position for retaining the record in proper register with the range, said means comprising
15 a movable tracker plate at all times in contact with the note sheet and means operating in a direction parallel with the movement of the record for giving the plate a diagonal motion.

20 25. A piano player having a movable tracker plate and means for automatically simultaneously moving said plate transversely and longitudinally, said tracker

plate being at all times in contact with the note sheet. 25

26. A piano player having a movable tracker plate, guides therefor and means for moving said plate transversely against said guides to give it a longitudinal movement, said tracker plate being at all times in contact with the note sheet. 30

27. In a player piano a tracker range, slots therein at an angle with the direction of motion of a record and a perforate tracker plate interposed between said range 35 and the record, said tracker plate movable only in a path inclined to the direction of movement of the record, said tracker plate being at all times in contact with the note sheet the range and the plate being provided with registering note ducts. 40

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Witnesses:

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