No. 824,049. PATENTED JUNE 19, 1906.

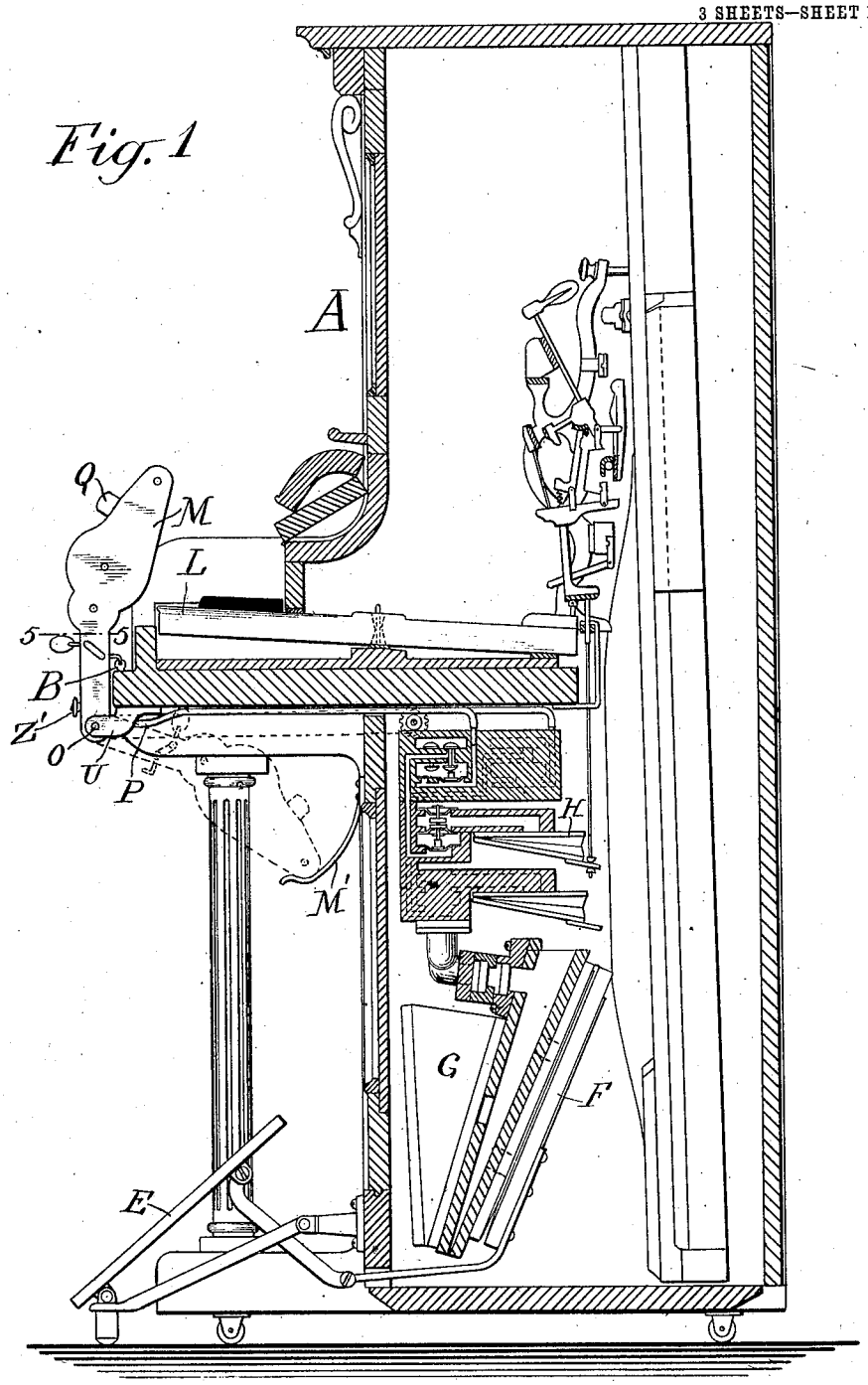
E. S. VOTEY.

MECHANICAL MUSICAL APPARATUS.

APPLICATION FILED JUNE 22, 1903.

3 SHEETS—SHEET 1.

Fig. 1



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3 SHEETS—SHEET 2.

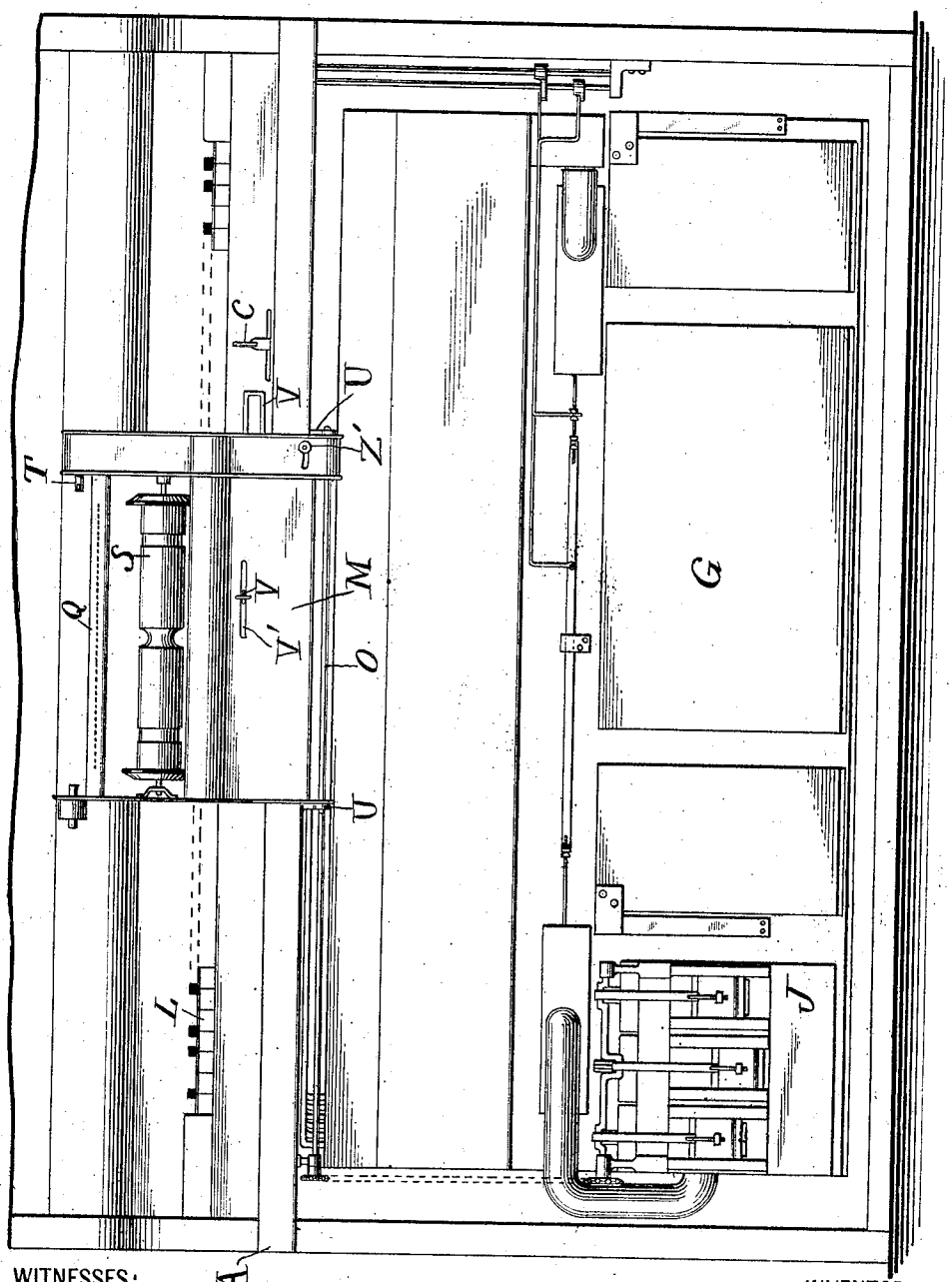

Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 5

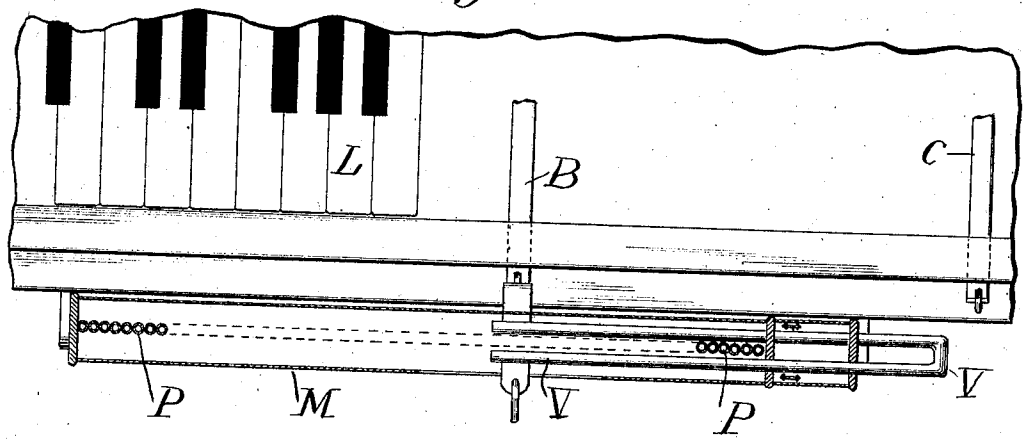

Fig. 3

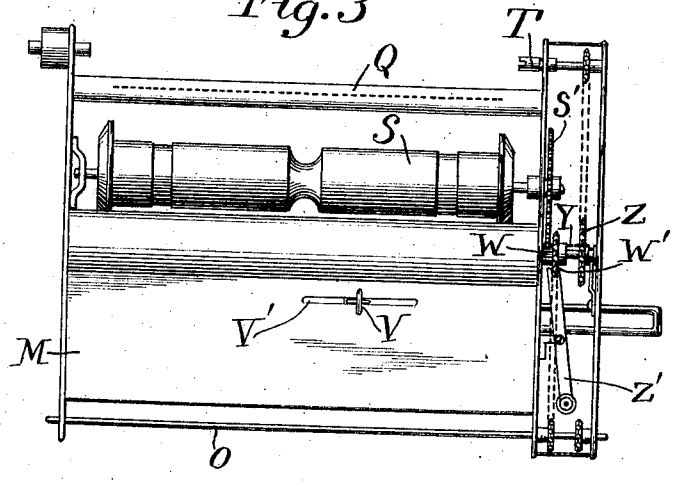

Fig. 4

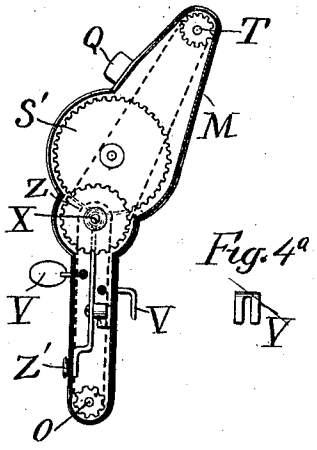

Fig. 4a

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UNITED STATES PATENT OFFICE.

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MECHANICAL MUSICAL APPARATUS.

No. 824,049. Specification of Letters Patent. Patented June 19, 1906.

Application filed June 22, 1903. Serial No. 162,505.

To all whom it may concern:

Be it known that I, EDWIN S. VOTEY, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, (post-office address Aeolian Hall, 362 Fifth avenue, New York city, New York,) have invented certain new and useful Improvements in Mechanical Musical Apparatus, of which the following is a specification.

The invention relates to keyboard instruments and to the combination therewith of means for playing the instrument with the aid of a perforated music roll or sheet.

The prime object of the invention is to provide a tracker-board and supports for the perforated sheet which are movable independently of the bellows and operating-pneumatics and which when in operative position shall be convenient for the person controlling the instrument, but which may be moved down out of the way of access to the keyboard when it is desired to play the instrument manually. The bellows, striking and other pneumatics are located within the casing of the instrument and are secured therein in any well-known or desired manner.

Certain other features of the invention will be understood from the following specification and claims.

In the accompanying drawings one embodiment of the invention in an upright piano is illustrated.

Figure 1 is a vertical front-to-rear section of a piano, showing a folding tracker-board and music-roll support embodying the present invention. Fig. 2 is a front elevation of the lower portion of the same piano with the front part removed to expose certain portions of the playing mechanism and showing the position of the tracker-board and music-take-up roll when ready for use for playing. Fig. 3 is a front elevation, on a slightly-larger scale, of the tracker-board, take-up roll, and certain other connected parts which move down with the tracker-board, the casing at the right-hand end being broken away to show the interior mechanism. Fig. 4 is a view from the right-hand end of Fig. 3 with the end of the casing removed to show the interior mechanism. Fig. 4ª is a detail of the slide hereinafter referred to, and Fig. 5 is a horizontal cross-section through the tracker-board on the plane 5 5 of Fig. 1 and showing also the relationship of the piano-keys and two of the controlling-levers to the tracker-board.

As automatic and combination pianos are well known, there will be no need of describing the various parts except so far as they are directly related to the movable tracker-board and music-roll support. In such instruments it is common to have the expression-levers tempo levers, and such other levers as may be provided for controlling the mechanism for the mechanical playing extend to the front of the keyboard, so that the handles of these levers are exposed to convenient position in front of the keys. Such controlling-levers are shown in Figs. 1, 2, and 5 of the accompanying drawings at B and C. The present invention does not concern the arrangement of the pedals E or the bellows F or the equalizers G or the pneumatics H. Neither does it concern the details of the pneumatic motor J nor the controlling-valves for the tempo expression, rewind, &c. Several of these parts are, however, shown in the accompanying drawings.

The keys L of the keyboard are only partially shown, many of them being indicated by dotted lines in Fig. 2.

Under the present invention the connections that lead from the tracker-board, whether they are electrical, pneumatic, or other, as the case may be, are of flexible material and extend into the casing M near the axis or shaft O, to which the casing is pivoted, as shown in the drawings. These connections are the small pneumatic pipes P, which pass up within the casing M and communicate, as well understood in the art, with the holes in the tracker-board Q. Brackets U, secured to the case A of the instrument, support the shaft Θ, and consequently pivot the support or casing M to the case.

O is the rotary shaft that actuates the take-up roll S and in rewinding actuates the rewinding-stud T of the music-roll. The manner in which the shaft O is driven by the pneumatic motor J is not material to the invention, but is illustrated as being by means of a sprocket-chain connection.

The supports for the rolls are mounted in the end plates of the casing M in the same way as is usual in pianolas; but the manner

of this mounting is not material. The casing M is of such form that when in position for use it stands directly above and in front of the keys of the keyboard. No means of holding it against accidental displacement are shown, though in practice it is sometimes desirable to provide such means. When not in use, the casing is folded down in the position shown in dotted lines in Fig. 1, a spring-clip M′ being preferably provided for holding it, as shown. It will be noticed that the end of the lever B of Figs. 1 and 5 is behind the casing M, and for the operation of this lever a slide V is provided, the forward end of the slide being exposed through the slot V′ in the casing M, so that it may be manipulated, and the rear end of the slide being forked, as shown in Fig. 4ª, for engaging and embracing the end of the lever B, so that the movement of the slide V causes an equal movement of the end of the lever B. The slide V is made in the elongated-U form shown in order that it may not interfere with the tracker-board connections.

Within the right-hand end of the casing M are the connections for operating the take-up roll and the music-roll from the shaft O. Preferably the music-roll S is driven by a sprocket-chain and speed-reducing gearing, as shown in Figs. 3 and 4. The small gear W and the sprocket-wheel W′, which turns with it, are mounted to slide upon the shaft X, and a pin-clutch Y is provided for engagement with a sprocket-wheel Z, geared by a sprocket-chain to the rewinding-stud T. When the gear W is in the position shown in Fig. 3, it engages, as shown, the gear that turns the take-up roll S, and when it is moved to the right along its shaft X the small gear W leaves the large gear with which it was engaged and the clutch Y closes, so as to cause the turning of the sprocket-wheel Z for driving the rewinding stud or spindle T. This motion of the gear W and the clutch Y is controlled by forked lever Z′, the upper end of which may touch the sprocket-wheel or any other of the parts that rotate with the gear-wheel W on each side, so as to maintain them in position on the shaft X. The lower end of the lever Z′ projects through the front of the casing, as seen in Figs. 1, 2, and 4, so that it may be conveniently manipulated to connect the shaft O to drive either the take-up roll or the rewind.

When the piano or other instrument is to be played manually by means of the keys, the casing M is turned forward and downward and then back under the keyboard, as shown in dotted lines in Fig. 1, and a spring clip or holder M′ engages and holds it in such position out of the way and nearly out of sight.

By the term "action-casing" as used in the claims I include the part or parts which support or inclose the various pneumatics and which provide ducts or passages connecting these pneumatics.

Manifestly the invention is independent of the particular form and design of the parts shown and may be embodied in other musical instruments than upright pianos.

Therefore I claim the following:

1. The combination of actuating mechanism of a musical instrument and the bellows and action-casing thereof, a tracker, operating connections leading from the tracker to said mechanism, and a movable support on which the tracker is mounted independently of the bellows and action-casing and which permits its movement to and from playing position above the keys to and from non-operative position below the keys, for substantially the purposes set forth.

2. The combination of pneumatic actuating mechanism of a musical instrument and the bellows and action-casing thereof, a tracker, pneumatic connections leading from the tracker to said mechanism, a take-up roll, operating connections leading from the said roll, a motor for actuating said connections and a movable support which carries the said tracker and take-up roll, and which is mounted independently of the bellows and action-casing to permit its movement between a playing position and a non-operative position, for substantially the purposes set forth.

3. The combination of pneumatic actuating mechanism of a musical instrument and the bellows and action-casing thereof, a tracker, pneumatic connections leading from the tracker to said mechanism, for the respective notes, music and take-up rolls, and a movable support on which the tracker, music and take-up rolls are mounted independently of the bellows and action-casing to permit movement from playing position to non-operative position, substantially as set forth.

4. In combination with a keyboard musical instrument having a casing, a tracker-board upon the said instrument and mounted to move in a plane transverse of its longitudinal axis and pneumatically-actuated mechanism connected therewith and controlled thereby for playing said instrument and secured within said casing, for substantially the purposes set forth.

5. In combination with a keyboard musical instrument, a tracker-board pivotally mounted upon a fixed portion of said instrument, and pneumatically-actuated mechanism connected therewith and controlled thereby and mounted in said casing for playing the said instrument, for substantially the purposes set forth.

6. In combination with a keyboard musical instrument having a casing, a tracker-board pivotally mounted upon a fixed portion of said instrument, and pneumatically-actuated mechanism connected therewith

and controlled thereby and mounted in said casing for playing said instrument, the connections for mechanically actuating the music-sheet being arranged upon the said pivotal mounting, for substantially the purposes set forth.

7. In combination with a keyboard musical instrument having a casing, pneumatically-actuated mechanical means mounted in said casing for playing the instrument, and a tracker-board pivotally mounted on a fixed portion of instrument independently of said playing means, for substantially the purposes set forth.

8. In combination with a keyboard musical instrument having a casing and pneumatically-actuated mechanical means mounted in said casing for playing the instrument, a movable roll for actuating the controlling sheet or member, and a support upon which said roll is mounted independently of said pneumatically-actuated playing means, said support being adjustably secured to the casing of the instrument and movable to and from its operative position, for substantially the purposes set forth.

9. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a tracker, pneumatic connections leading from the tracker to said mechanism for the respective notes, a music-roll and a movable support pivoted on a fixed portion of said instrument on which the tracker and music-roll are mounted independently of said pneumatic actuating mechanism to permit movement from playing position to non-operative position, substantially as set forth.

10. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a tracker, pneumatic connections leading from the tracker to said mechanism for the respective notes, a take-up roll and a movable support pivoted on a fixed portion of said instrument on which the tracker and take-up rolls are mounted independently of said pneumatic actuating mechanism to permit movement from playing position to non-operative position, substantially as set forth.

11. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a suitable tracker, pneumatic connections comprising flexible tubes leading from the tracker to said mechanism for the respective notes, a music-roll, and a movable support pivoted on a fixed portion of said instrument on which the music-roll is mounted independently of said pneumatic actuating mechanism to permit its movement from playing position to non-operative position, substantially as set forth.

12. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a suitable tracker, pneumatic connections comprising flexible tubes leading from the tracker to said mechanism for the respective notes, a take-up roll, and a movable support pivoted on a fixed portion of said instrument on which the take-up roll is mounted independently of said pneumatic actuating mechanism to permit its movement from playing position to non-operative position, substantially as set forth.

13. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a tracker, operating connections comprising flexible tubes leading from the tracker to said mechanism for the respective notes, and a swinging support pivoted on a fixed portion of said instrument on which the tracker is mounted independently of said pneumatic actuating mechanism to permit its movement from playing position to non-operative position, substantially as set forth.

14. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a tracker, pneumatic connections leading from the tracker to said mechanism for the respective notes, a movable support pivoted on a fixed portion of said instrument on which the tracker is mounted independently of said pneumatic actuating mechanism to permit its movement from playing position to non-operative position, music and take-up rolls, driving mechanism for the music and take-up rolls, and means for controlling the driving mechanism for reversal in the playing position of the tracker, substantially as set forth.

15. The combination in a musical instrument of a casing, pneumatic actuating mechanism for said instrument mounted in said casing, a tracker, pneumatic connections leading from the tracker to said mechanism for the respective notes, a movable support pivoted on a fixed portion of said instrument on which the tracker is mounted independently of said pneumatic actuating mechanism to permit its movement from playing position to non-operative position, music and take-up rolls, driving mechanism for the music and take-up rolls, said driving mechanism comprising shafts for the music and take-up rolls, sprocket mechanism for turning said shafts, and a reversing-lever for effectuating the rotation of either of said shafts from said sprocket mechanism, substantially as set forth.

16. The combination of the keyboard of a musical instrument, actuating mechanism and bellows and operating-pneumatics thereof, a tracker, operating connections leading from the tracker to said mechanism, for the

respective notes, and a swinging support on which the tracker is mounted to permit its movement relative to the bellows and operating-pneumatics of the said actuating mechanism and upwardly in front of the keyboard or downwardly below the same, substantially as set forth.

17. The combination of the keyboard of a musical instrument, actuating mechanism and bellows and operating-pneumatics thereof, a tracker, operating connections leading from the tracker to said mechanism, for the respective notes, music and take-up rolls for moving a music-sheet across said tracker, and a swinging support on which the tracker is mounted to permit its movement relative to the bellows and operating-pneumatics of the said actuating mechanism and upwardly in front of the keyboard, or downwardly below the same, substantially as set forth.

18. The combination of a keyboard of a musical instrument, actuating mechanism and the bellows and wind-chest thereof, a tracker, operating connections leading from the tracker to said mechanism for the respective notes, a movable support pivoted to a fixed portion of the instrument below said keyboard and music and take-up rolls mounted on said support, for moving a music-sheet across the tracker, said support being adapted to be moved up in front of the keyboard, or down below the same independently of and without disturbing the bellows and wind-chest of the said actuating mechanism, substantially as set forth.

19. The combination with a suitable means of support, and an action-case and bellows secured to said support, of an automatic playing attachment hinged to the support in position to be swung up over the keyboard of a piano into playing position and down and backwardly underneath the key-bed independently of said action-case and bellows.

20. The combination with supporting means fixed to a piano beneath its key-bed, of bellows, wind-chest, action-case and key-operating apparatus secured to said supporting means and an automatic playing attachment hinged to said support in position to be swung up over the keyboard of the piano into playing position and down underneath the key-bed out of playing position independently of said action-case and bellows.

21. In combination, in apparatus for playing keyboard musical instruments, a casing and a keyboard for the instrument, a pneumatic action-case mounted in said casing, a tracker-board pivotally mounted on a fixed portion of the instrument below the keyboard independently of said action-case and provided with flexible connections extending therefrom to said action-case to permit the swinging movement of the tracker-board relative thereto.

22. In a mechanically-operated keyboard instrument, a bellows and action-casing for the operating mechanism secured to the body of the instrument, and a moving portion including a tracker and sheet-moving mechanism mounted on the instrument independently of said bellows and action-casing for movement into and out of operative position.

23. In a mechanically-operated keyboard instrument, a bellows and action-casing for the operating mechanism secured to the body of the instrument, and a moving portion including a tracker and sheet-moving mechanism mounted on the instrument independently of said bellows and action-casing for movement into operative position above the keys of the instrument and out of such operative position.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWIN S. VOTEY.

Witnesses:
GEORGE B. KELLY,
E. C. THOMPSON.