A. G. GULBRANSEN.

TRACKER BOARD MECHANISM FOR PNEUMATICALLY OPERATED PIANOS.

APPLICATION FILED OCT. 17, 1908.

929,301. **Patented July 27, 1909.**

Fig. 1.

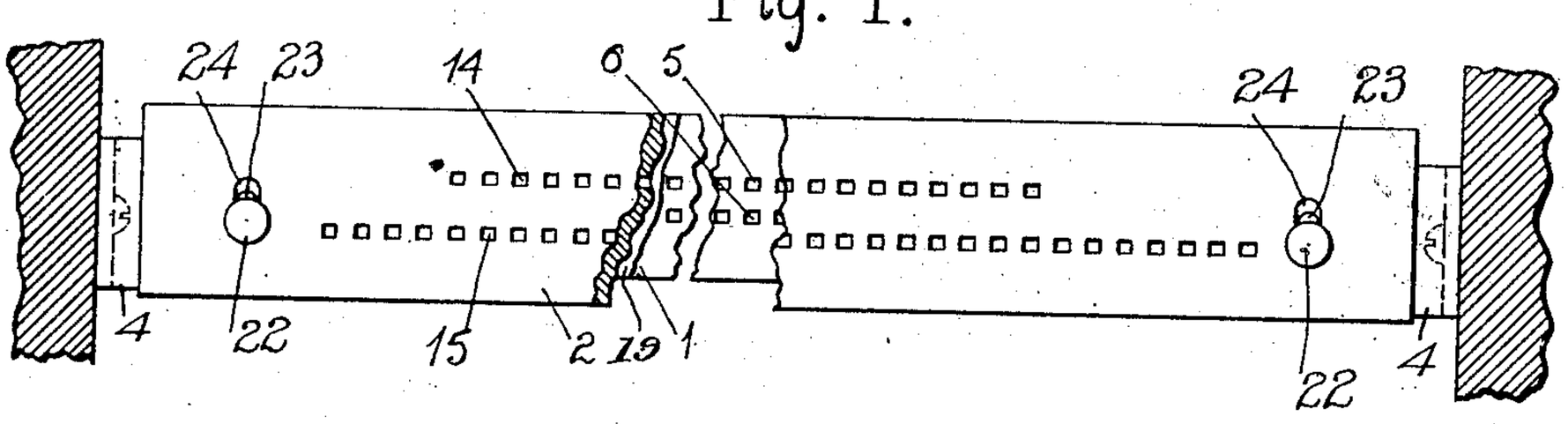
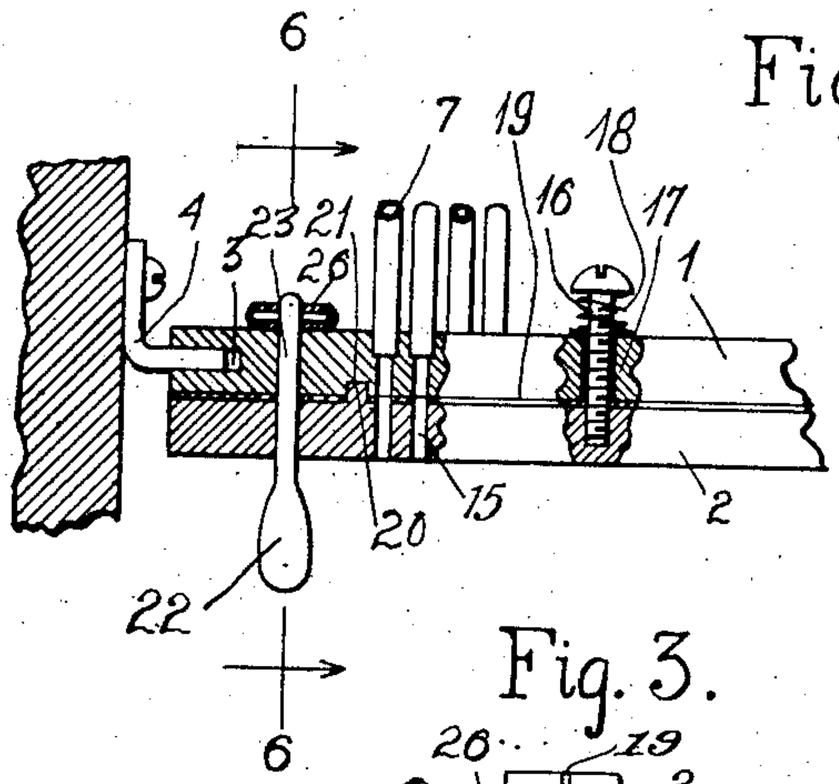


Fig. 2.



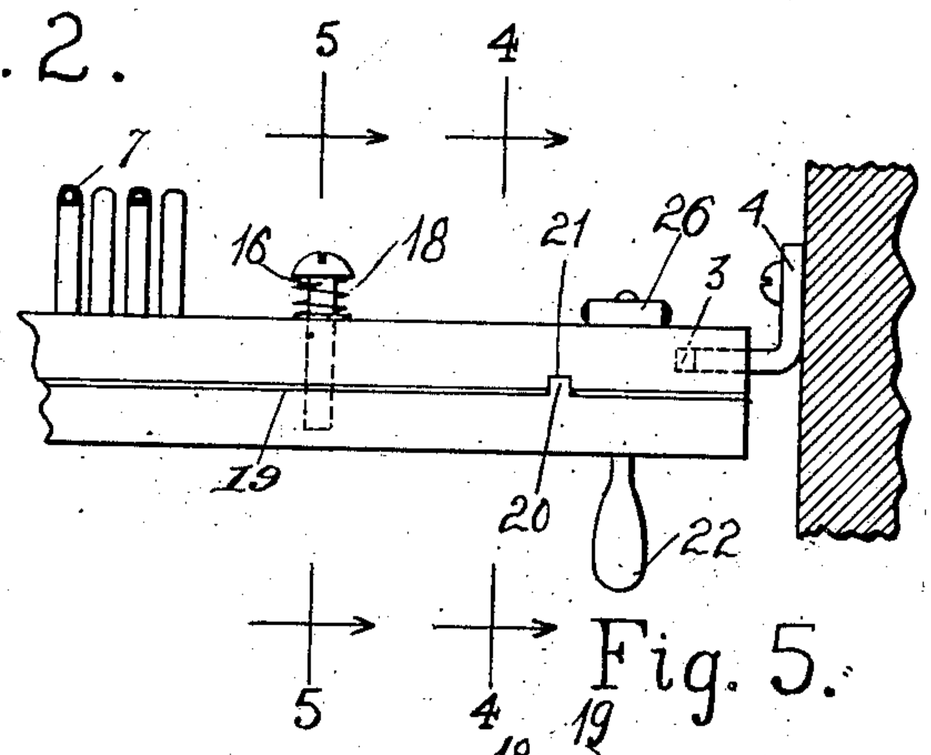


Fig. 3.

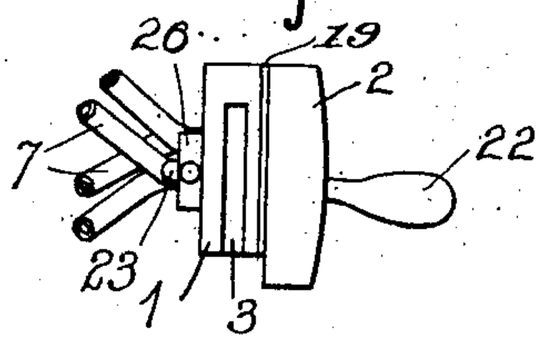


Fig. 5.

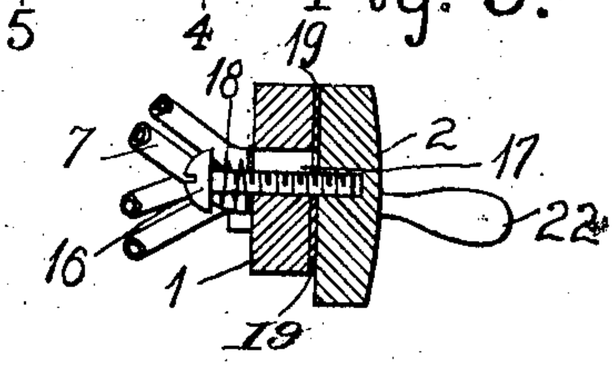


Fig. 4.

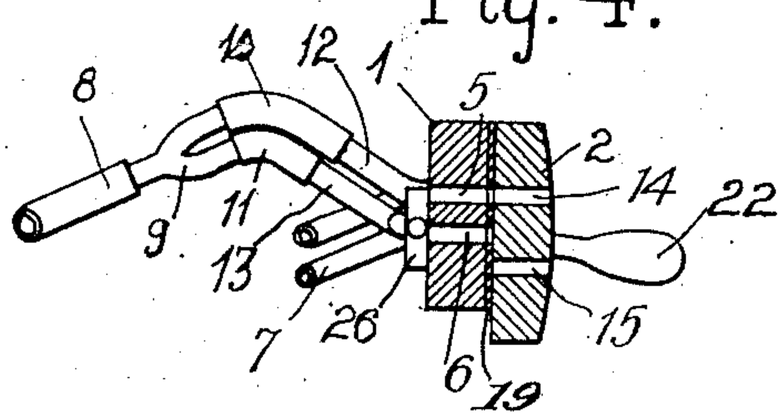
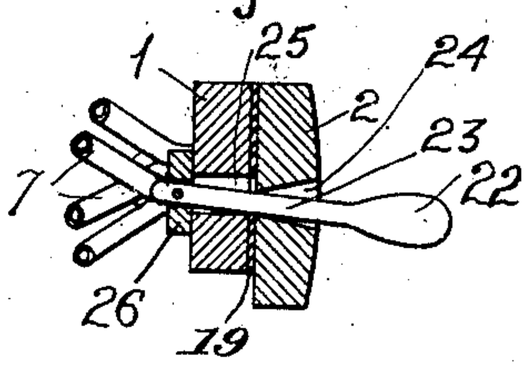


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TRACKER-BOARD MECHANISM FOR PNEUMATICALLY-OPERATED PIANOS.

No. 929,301. Specification of Letters Patent. Patented July 27, 1909.

Application filed October 17, 1908. Serial No. 458,171.

To all whom it may concern:

Be it known that I, AXEL G. GULBRANSEN, 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 Tracker-Board Mechanism for Pneumatically-Operated Pianos, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to tracker board mechanism for pneumatically operated pianos, its object being to provide improved construction whereby the tracker board can be adjusted to accommodate music sheets controlling different ranges of notes.

At the present time there are two classes of music rolls in use, one for controlling a sixty-five note range, and the other for controlling an eighty-eight note range. Both of these classes of music being on the market, it is desirable that a single tracker board be adapted so that with very slight and simple adjustment, the tracker board can accommodate either one of the classes.

In the accompanying drawings, which clearly illustrate my invention, Figure 1 is a plan view of the tracker board, Fig. 2 is a side view thereof with the parts broken away to more clearly illustrate the construction and operation, Fig. 3 is an end view, Fig. 4 is a sectional view taken on the plane 4—4 of Fig. 2, Fig. 5 is a sectional view taken on the plane 5—5 of Fig. 2, and Fig. 6 is a sectional view taken on the plane 6—6 of Fig. 2.

The tracker board comprises the rear member or plate 1 and the front member or plate 2, the front member over which the music travels being properly rounded. The rear plate 1 at its ends has pockets or grooves 3 which are open at the bottom but closed at their top, and these pockets receive guiding and supporting members 4, which may be in the form of angle pieces, as shown. These angle pieces are secured to rigid supports adjacent the tracker board, and engage with friction fit in the pockets 3, the pockets being of sufficient depth so that the rear plate 1 can be adjusted longitudinally, the purpose of this being to allow longitudinal adjustment of the tracker bar transversely of the music sheet so that the music openings will come into register with the tracker board openings, this being well understood by those skilled in the art. In this rear plate are two parallel rows 5 and 6 of openings, the row 5 having sixty-five openings, and the row 6 having eighty-eight openings. These openings all extend through the bar 1 at right angles to its faces, and each has associated therewith a coupling tube section 7 to which are attached rubber tubes for connecting the openings with the pneumatics of the pneumatic playing mechanism. Sixty-five pneumatics would be represented in each row, and a common connection from each pneumatic with its corresponding openings in the rows is, therefore, used. Referring to Fig. 4, the rubber tube 8 connects with the corresponding pneumatic and the Y coupling 9 connects with the tube sections 10 and 11, which engage the coupling tube sections 12 and 13 respectively, which communicate with corresponding openings of the rows 5 and 6. To afford a more accessible arrangement, the tubes in each row are bent alternately in opposite directions, as shown in Figs. 3 and 4. The twenty-three additional openings in row 6, of course, connect each through a separate tube with its corresponding pneumatic.

In order to bring either one of the rows into action, the adjustable front plate 2 is provided, this front plate also having two rows 14, 15, each having the same number and the same spacing of openings as the rows 5 and 6, so that the openings in row 5 can register with the openings in row 14, and the openings in row 6 can register with the openings in row 15 upon proper adjustment of the bar 22. As shown in Figs. 1 and 4, rows 5 and 6 are closer together than rows 14 and 15, and I adapt the bar 2 to be moved transversely with reference to the bar 1. The bar 2 is held to the bar 1 by screws 16, which pass through vertical slots 17 in the bar 1 and which thread into the bar 2, a spring 18 intervening between the head of each screw and the bar 1. Between the bars a layer 19 of leather or other sealing material is inserted. By means of the screws 16, the engagement of the bar 2 with the bar 1 can be adjusted to prevent leakage, the vertical slot 17 allowing transverse movement of the bar 2. To maintain the corresponding openings of the rows in vertical alinement, guide extensions 20 on the bar 2 engage in guide slots 21 guiding the bar 1. As a means for readily adjusting the bar to bring either the rows 14 or 15 into register with the rows 5 or 6, I provide an

adjusting lever 22 at each end of the bar. As best shown in Figs. 2 and 6, the shank 23 of each lever passes through an opening 24 in the bar 2 and an opening 25 in the bar 1, being pivoted at its end to a pivot block 26 secured to the bar 1 to adapt the lever for vertical reciprocation. The openings 25 are of sufficient vertical width to permit such vertical movement of the levers and the openings 24 at their inner ends closely fit the shanks 23 and flare vertically toward their outer ends so as not to hinder the vertical swing of the levers. With this arrangement when the levers are swung either upwardly or downwardly they engage the bar 2 at the rear ends of openings 24, and the bar is either raised or lowered. In the position shown in Figs. 1 and 4 the levers are in their lower position and the bar 2 is in its lower position with the upper row 14 in register with the row 5, and the row 6 being muted by the solid part of the bar 2. The tracker board, therefore, is in position to accommodate sixty-five note music. If the levers were now moved to their upper position, the bar 2 would be raised, and the openings in row 15 will come into register with the openings in row 6, while the openings 5 will be muted, the tracker bar being then in position to accommodate eighty-eight note music. Thus by merely raising or lowering the levers, adjustment is at once made for the accommodation of either range of music. Very little force is required to accomplish this adjustment owing to the leverage arrangement of the adjusting levers. The screws 16 can be adjusted to reduce the friction between the bars to a minimum. The friction, however, must be enough so that the bar 2 is maintained in any adjusted position and also so that there will be no leakage between the bars. By means of the support of the bar 1 on the guide members 4, as has been described, the entire bar structure can also be readily moved longitudinally to adjust the active openings with reference to the music openings.

Having thus described my invention I desire to secure the following claims by Letters Patent:

1. A tracker board comprising a rectangular rear bar having rows of openings adapted for connection with pneumatic mechanisms to be controlled, a front bar having rows of openings adapted for association with music sheets, said front bar being held to the rear bar and adapted for transverse movement thereon to bring any row of openings in said bar into register with a similar row of openings in the rear bar, and adjusting levers passing through said bars and pivoted to one of said bars and having engagement with the other bar at intermediate points, swinging of said levers causing transverse movement of the front bar over the rear bar to bring similar rows into register.

2. In trackerboard mechanism for pneumatically operated instruments, the combination of an inner bar having a flat outer surface and openings terminating in said surface and adapted for connection with pneumatic playing devices to be controlled, an outer bar having a rear flat surface for engaging the flat surface of the inner bar, there being openings through said front bar which register at their rear ends with the openings in the rear bar and which at their front ends are adapted for association with openings in music sheets traveling over said trackerboard, and lever mechanism pivoted to the inner bar and having engagement with the outer bar, swinging of said lever mechanism causing said outer bar to slide transversely over the inner bar to bring the openings in said bars into register.

3. In trackerboard mechanism for pneumatically operated instruments, the combination of a rear bar having a flat front surface and openings terminating in said surface and adapted for connection with pneumatic mechanism to be controlled, a rectangular front bar guided on said rear bar and having a flat surface engaging the flat surface of the rear bar, there being openings through said front bar adapted to register with the openings in the rear bar and adapted to coöperate with music sheet openings, levers pivoted to the rear bar and extending forwardly through openings in the front bar, swinging of said levers causing transverse movement of the front bar over the rear bar to carry the openings into or out of register.

4. In trackerboard mechanism for pneumatically operated instruments, the combination of a rear bar having a flat front surface and openings terminating in said surface and adapted for connection with pneumatic mechanism to be controlled, a rectangular front bar guided on said rear bar and having a flat surface engaging the flat surface of the rear bar, there being openings through said front bar adapted to register with openings in the rear bar and adapted to coöperate with music sheet openings, there being sets of registering vertical slots through said bars, levers pivoted to the rear bar and extending through said registering slots and adapted for engagement with the front bars at the rear edge of the slots therethrough whereby swinging of said levers will cause transverse movement of the front bar over the rear bar.

5. In trackerboard mechanism for pneumatically operated instruments, the combination of a rear bar having openings adapted for connection with pneumatic mechanism to be controlled, a front bar engaging the rear bar and having openings for registering

with the rear bar openings, transverse guiding members for guiding said front bar on the rear bar, screw-controlled spring mechanism for holding said front bar against the rear bar and for allowing transverse movement of said front bar, and levers pivoted to the rear bar and having engagement with the front bar, swinging of said levers causing transverse movement of the front bar over the rear bar to bring openings in said bar into register with openings in the rear bar.

6. In trackerboard mechanism for pneumatically operated instruments, the combination of a rear bar having openings adapted for connection with pneumatic mechanism to be controlled, a front bar having openings for registering with the rear bar openings and for coöperating with a music sheet, screws passing through slots in the rear bar and secured in the front bar, springs coöperating with said screws to hold the front bar yieldingly against the rear bar, levers pivoted to the rear bar and adapted for engagement with the front bar to cause transverse movement of said front bar over the rear bar.

7. In trackerboard mechanism for pneumatically operated instruments, the combination of a rear bar, a front bar engaging the rear bar, said rear bar having vertical slots, screws passing through said slots and threading into the front bar, springs between the heads of said screws and the rear bar and cooperating with said screws to hold the front bar yieldingly against the rear bar and to allow transverse reciprocation of said front bar over the rear bar, and levers pivoted to the rear bar and extending through the front bar, swinging of said levers causing transverse movement of the front bar over the rear bar.

In witness whereof, I hereunto subscribe my name this 15th day of October, A. D. 1908.

AXEL G. GULBRANSEN.

Witnesses:

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FRANK J. THELEN.