J. O'CONNOR.

MUSIC SHEET GUIDING DEVICE.

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1,041,860.

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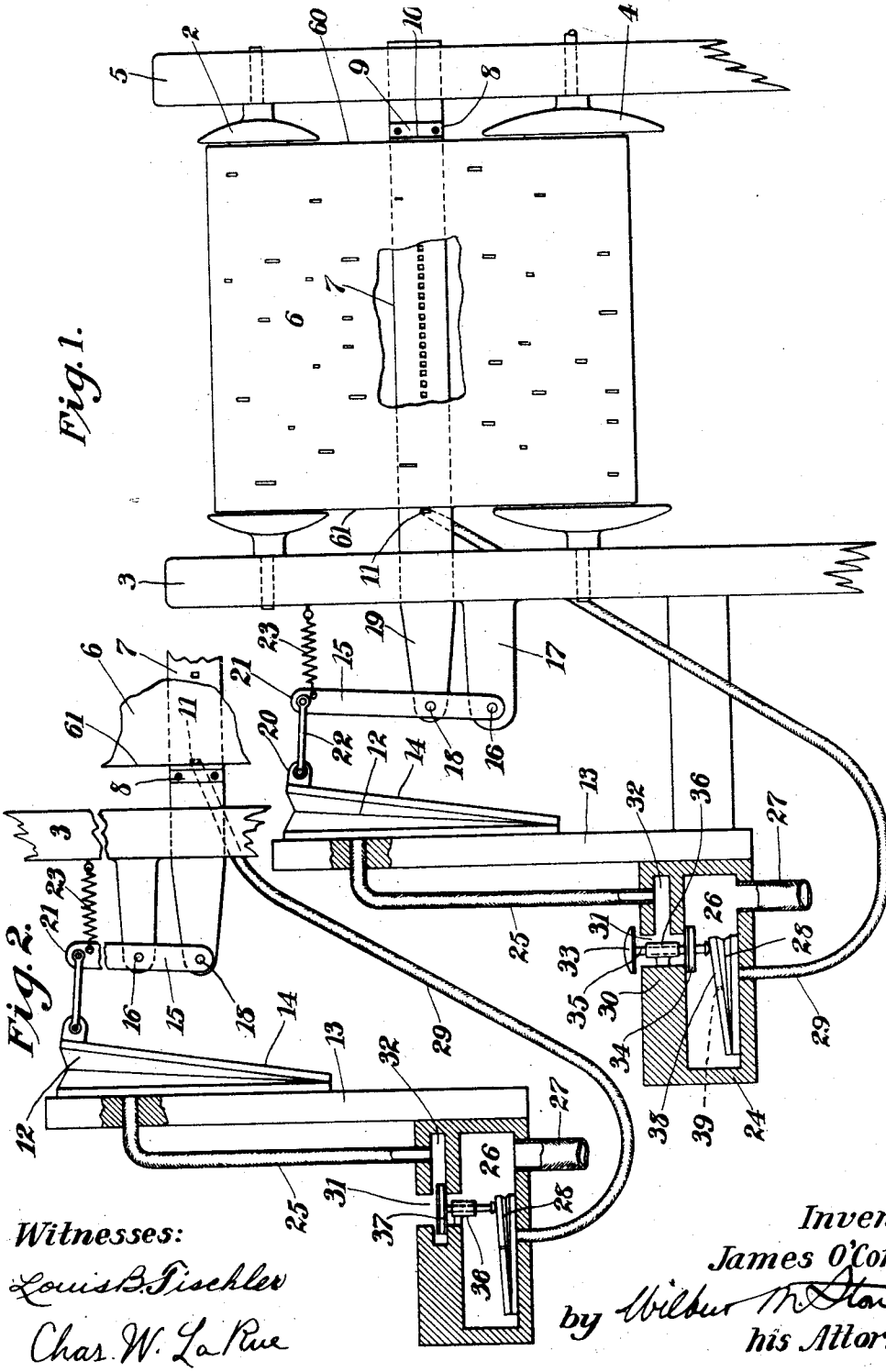

Fig. 1.

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

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MUSIC-SHEET-GUIDING DEVICE.

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Application filed September 8, 1911. Serial No. 648,286.

To all whom it may concern:

Be it known that I, JAMES O'CONNOR, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Music-Sheet-Guiding Devices, of which the following is a specification.

This invention relates to music sheet guiding devices such as are used in automatic musical instruments.

The object of the invention is to provide means for constantly maintaining correct registration between the perforations in a music or note-sheet and the corresponding apertures in the tracker-bar of an automatic musical instrument.

My improvements comprise pneumatic and mechanical elements combined as hereinafter described and claimed.

In the drawings accompanying this specification I have illustrated the preferred embodiment of my improvements and therein—

Figure 1 is a front elevation thereof and Fig. 2 is a fragmentary front elevation illustrating a modification of my improvements.

The principle of this invention, in whatever form it is embodied is as follows: Correct registration between the perforations in the note-sheet and the corresponding apertures in the tracker-bar, is constantly maintained by a bellows motor effective in one direction and note-sheet actuated means effective in the opposite direction to shift the tracker-bar in the direction of its length or the note-sheet in the direction of its width.

The usual music rolls 2 and 4 are rotatably mounted in frames 3 and 5 and may be actuated to feed note-sheet 6 across tracker-bar 7 by the outwardly extending shaft of roll 4. Said tracker-bar 7 is mounted for lengthwise movement in said frames 3 and 5 and may be provided with the usual music apertures. On one end of said tracker-bar 7 is fixed note-sheet guide 8 preferably comprising a clip of metal 9 fixed to tracker-bar 7 and having an upturned flange 10 for engagement with edge 60 of said note-sheet. Near the other end thereof said tracker-bar 7 is provided with guide opening 11 outside and closely adjoining the path of edge 61 of note-sheet 6, when edge 60 thereof is in its normal position of engagement or near engagement with guide 8. Said guide opening 11 is preferably narrow relative to the usual width of the music apertures in tracker-bar 7 and may be of relatively greater length crosswise the tracker-bar than said music apertures.

For moving tracker-bar 7 to withdraw guide opening 11 from under sheet 6 when said sheet has deviated from its normal path of travel far enough to cover said guide opening, I provide actuating pneumatic 12 conveniently mounted on wall 13 fixed relatively to frame 3. Movable wall 14 of pneumatic 12 may be directly connected to tracker-bar 7 but I preferably interpose stroke reducing means as lever 15 pivoted at 16 to some fixed support as ear 17 outstanding from frame 3. Said lever is pivotally connected at 18, relatively near its fixed pivot 16, to outreaching portion 19 of tracker-bar 7. Movable wall 14 of pneumatic 12 is provided with ear 20 which is connected with free end 21 of lever 15 by link 22. Pull spring 23 connects lever 15 with frame 3 and is effective to restore movable wall 14, of pneumatic 12, lever 15 and tracker-bar 7 to their normal positions of Fig. 1 after being pneumatically moved therefrom as hereinafter described. Said spring 23 is also efficient to assist the movement of tracker-bar 7 to the right when urged thereto by the engagement of edge 60 of note-sheet 6 with guide 8 whenever said note-sheet deviates to the right.

Actuating pneumatic 12 is operatively connected to pneumatic action 24 by pipe 25. Said action 24 comprises vacuum chamber 26 connected by pipe 27 to some means of exhaust not shown, and within said vacuum chamber 26 is primary pneumatic 28, connected by pipe 29 with guide opening 11 in tracker-bar 7. Wall 30 of action 24 is perforated by passage 31 connecting vacuum chamber 26 with the atmosphere. Passage 32 connects passage 31, midway its length with actuating pneumatic pipe 25.

Valves 33, 34 fixed to common stem 35 are efficient to alternately close opposite ends of

passage 31. Said valve stem 35 is guided in bracket 36 and projects beyond valve 34 for engagement with movable wall 38 of primary pneumatic 28. Primary pneumatic 28 is provided with the usual bleed hole 39.

The operation of my improved device is as follows: When the parts are situated as shown in Fig. 1 the note-sheet is traveling accurately across the tracker-bar and guide opening 11 is exposed. If, thereupon, for any reason, that portion of the note-sheet which is over the tracker-bar is deflected to the left sufficiently to cover guide opening 11, it is thereby shut off from primary penumatic 28 and the pressure of air on valve 34 drives said valve from its seat thereby opening the passage from vacuum chamber 26, through passage 31 and pipe 25 to actuating pneumatic 12 collapsing pneumatic 28 and closing valve 33 against the outer end of passage 31. The air is thus exhausted from actuating pneumatic 12 which thereupon collapses pulling lever 15 and tracker-bar 7 to the left whereby guide opening 11 is again uncovered. Air is thus admitted to primary pneumatic 28 which thereupon opens against valve stem 35 closing valve 34 and opening valve 33 which permits spring 23 to return actuating pneumatic 12 and tracker-bar 7 to their normal positions of Fig. 1. If however note-sheet 6 deviates to the right it will engage guide 8 moving it and tracker-bar 7 to which it is fixed, also to the right, assisted by spring 23.

In Fig. 2 I have illustrated guide 8 and guide opening 11 as situated adjacent to the same edge as 61, of sheet 6. In this arrangement however, aperture 11 is located just under the edge of said sheet 6 instead of just beyond said edge, when said sheet is traveling in its widthwise normal position. In this modification lever 15 is pivoted at 16 between its ends 18 and 21 and valves 33, 34 are replaced by a single valve 37 in channel 31. With this arrangement primary pneumatic 28 is normally collapsed and when guide opening 11 is uncovered, actuating pneumatic 12 is collapsed and tracker-bar 7 is moved to the right to restore guide opening 11 to below note-sheet 6 and to restore guide 8 to engagement with edge 61 of said sheet 6. If however note-sheet 6 deviates to the left it will engage guide 8, moving it and tracker-bar 7 to which it is fixed, also to the left assisted by spring 23.

While I prefer to arrange my improved device to move the tracker-bar relatively to the music rolls as illustrated, it will be obvious to those familiar with the art that my improvements are equally applicable to moving either or both the music rolls relatively to the tracker bar.

I claim:

1. A music sheet guiding device including in combination, a tracker-bar, a music roll, means for drawing a note-sheet across said tracker-bar, a guide opening appurtenant to said tracker-bar, an actuating pneumatic operatively connected with the tracker-bar and effective for shifting said tracker-bar in one direction and whose action is governed by means including said guide opening said guide opening being controlled by the note-sheet and a guide flange rigid with said tracker-bar for engagement with one edge of the note-sheet for shifting said tracker-bar in the other direction.

2. A music sheet guiding device including in combination, a tracker-bar mounted for movement in the direction of its length, means for moving a note-sheet thereacross, a guide opening appurtenant to said tracker-bar, an actuating pneumatic operatively connected with the tracker-bar and effective for shifting said tracker-bar in one direction and whose action is governed by means including said guide opening said guide opening being controlled by the note-sheet and a guide flange rigid with said tracker-bar for engagement with one edge of the note-sheet for shifting said tracker-bar in the other direction.

3. A music sheet guiding device including in combination, a tracker-bar mounted for movement in the direction of its length, means for moving a note-sheet thereacross, a guide opening appurtenant to said tracker-bar, an actuating pneumatic operatively connected with the tracker-bar and effective for shifting said tracker-bar in one direction and whose action is governed by means including said guide opening whenever said guide opening begins to be opened by a lateral tendency of the note-sheet and a guide flange rigid with said tracker-bar for engagement with one edge of the note-sheet for shifting said tracker-bar in the other direction.

4. A music sheet guiding device including in combination, a tracker-bar mounted for movement in the direction of its length, means for moving a note-sheet thereacross, a guide opening appurtenant to said tracker-bar and adjacent to one edge of the path of the note-sheet and normally closed by said note-sheet, an actuating pneumatic operatively connected with the tracker-bar and effective for shifting said tracker-bar in one direction and whose action is governed by means including said guide opening whenever the adjacent edge of the note-sheet begins to uncover said guide opening and a guide flange rigid with said tracker-bar for engagement with one edge of the note-sheet for shifting said tracker-bar in the other direction.

5. A music sheet guiding device including in combination, a tracker-bar mounted for movement in the direction of its length, a guide opening appurtenant to said tracker-

bar adjacent to one edge of the path of the note-sheet over said tracker-bar, means including the guide opening, for moving the tracker-bar, said means being controlled by the note-sheet, and a guide flange fixed to said tracker-bar for engagement with one edge of said note-sheet.

Signed at New York, N. Y., this 5th day of September, 1911, before two subscribing witnesses.

JAMES O'CONNOR.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."