W. C. STEPHENSON.

TRANSPOSING MECHANISM FOR PNEUMATIC PLAYERS.

APPLICATION FILED AUG. 25, 1913.

1,138,155.

Patented May 4, 1915.

2 SHEETS—SHEET 1.

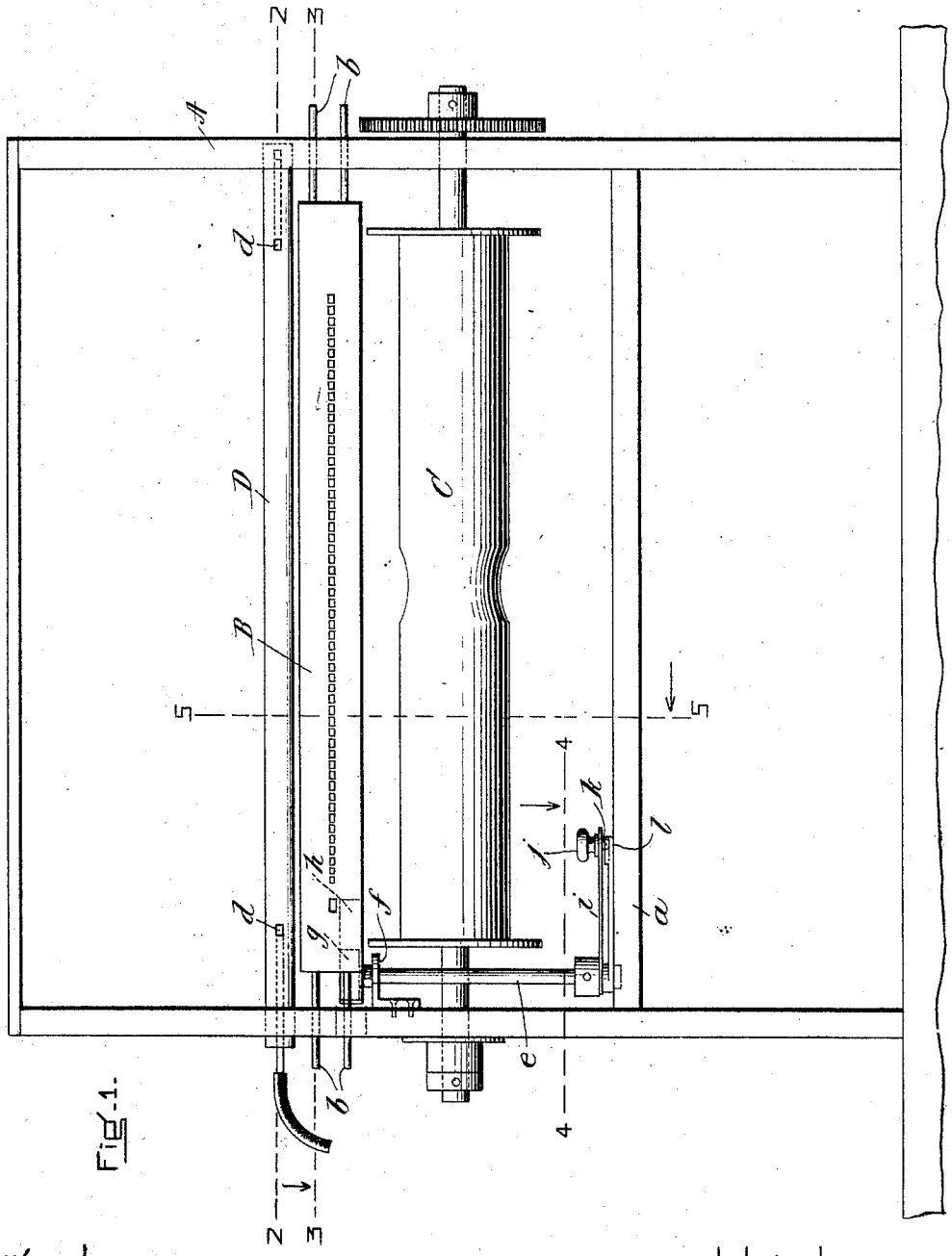

Fig. 1.

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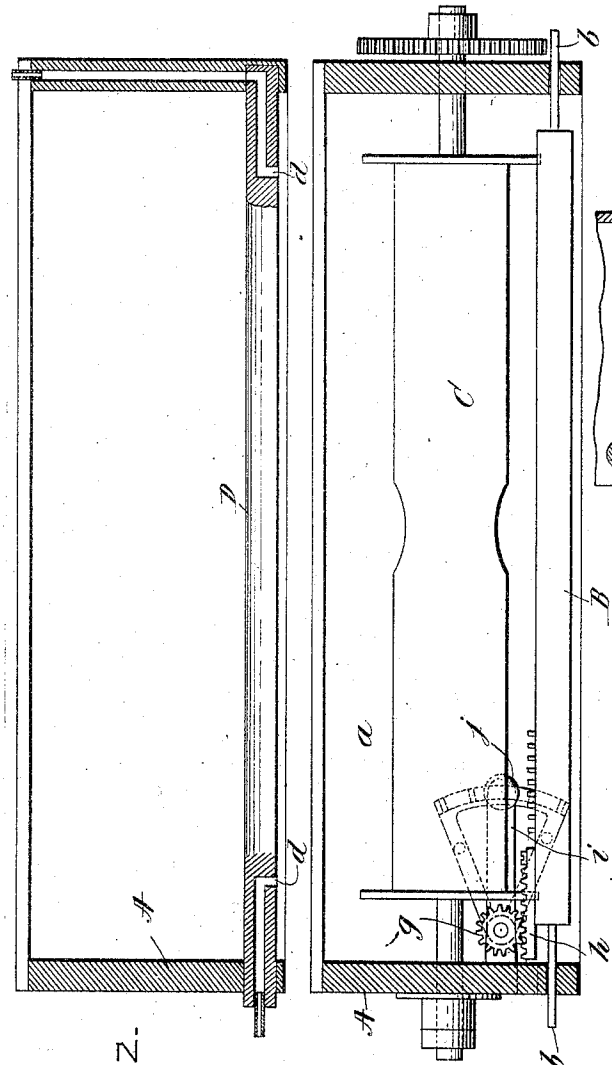

Fig. 2.

Fig. 3.

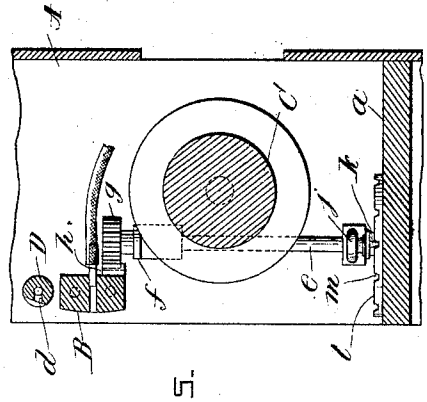

Fig. 5.

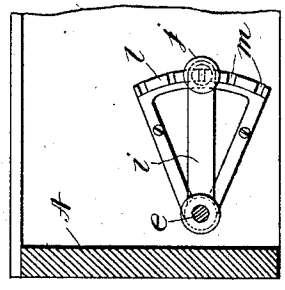

Fig. 4.

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UNITED STATES PATENT OFFICE.

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TRANSPOSING MECHANISM FOR PNEUMATIC PLAYERS.

1,138,155. Specification of Letters Patent. Patented May 4, 1915.

Application filed August 25, 1913. Serial No. 786,490.

To all whom it may concern:

Be it known that I, WILLIAM C. STEPHENSON, a citizen of the United States, and resident of Woburn, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Transposing Mechanism for Pneumatic Players, of which the following is a specification.

This invention relates to transposing mechanism for pneumatic players of the kind in which the tracker bar is shifted endwise with relation to the perforated music sheet, thereby varying the key in which the music will be played, upward or downward according to the direction and extent of the adjustment of the tracker bar.

The invention has to do principally with the operating mechanism for such transposing devices, and its chief object is to provide convenient operating mechanism for this purpose which will positively and automatically insure the accurate positioning of the tracker bar relatively to the perforated music sheet without requiring any attention on the part of the operator to its nice adjustment.

A further object of the invention is to provide a music sheet guide, independent of the tracker bar, for effecting the correct registration of the traveling music sheet with the air ports of the tracker bar, in all positions into which the latter may be shifted for the purpose of transposing the music.

In the accompanying drawings which illustrate one embodiment of the invention,—Figure 1 is a front elevation of a spool box, and certain parts of the spool box mechanism containing my invention; Figs. 2, 3, 4 and 5 are sectional views through lines 2—2, 3—3, 4—4 and 5—5 respectively in Fig. 1.

Referring to the drawings, A represents the casing or support for the operating parts of the music sheet; B represents the tracker bar; and C represents the winding roll or drawing roll by which the music sheet is drawn across the tracker bar from its spool (not shown) above the tracker bar. Instead of being stationary the tracker bar B is made adjustable endwise in the casing by means of supporting rods *b*, *b* extending from each end of the tracker bar and sliding in apertures or ways provided therefor in the casing. By shifting the tracker bar endwise with relation to the music roll and winding roll, as will be understood, the music will be transposed from one key to another.

In transposing mechanisms as heretofore constructed, and wherein an endwise shiftable tracker bar was used, no provision has been made so far as I am aware for positively and automatically arresting and holding the tracker bar in correct relation to the perforated music sheet when shifted to its several adjusted positions, but the proper adjustment of the bar has depended on the care and skill of the operator, and even if carefully and accurately adjusted there has been nothing to prevent it from accidentally moving out of adjustment. To overcome this defect I have devised operating means for the tracker bar which will automatically and accurately arrest and hold the tracker bar in any of its selected positions. Such operating mechanism, as herein shown, consists in the parts which I will now describe.

A vertically arranged rock shaft *e* is journaled at its proper end in a bracket *f* fastened to the inner wall of the casing, and at its lower end on the cross member *a* of the casing. Secured to the top of shaft *e* is a pinion *g* which meshes with a rack *h* on the rear side of the tracker bar B. At the lower end of shaft *e* is fastened a spring arm or lever *i*, provided at its end with an operating knob or handle *j*, by which the shaft *e* may be turned and the tracker bar B shifted endwise by said rack and pinion. On the under side of the arm *i* at its free end is a stud or detent *k*, and immediately underneath said stud and its path, is a segmental plate *l* secured to the cross member *a* of the casing, and provided with a series of notches or stops *m*, which coöperate with the stud *k* to arrest and hold the arm *i*, and consequently the tracker bar, in its several predetermined positions of adjustment. The arm *i* is resilient and normally tends to press the stud *k* downward upon the segment *l* and into the notches *m* as it is moved over the segment. The notches or stops *m* are so spaced that they will arrest and hold the tracker bar B in its several positions, so that the air ports in the tracker bar will be in correct alinement with the perforations of the music sheet. No careful adjustment by the operator is required to secure such correct alinement, but as the arm *i* is moved

over the segmental plate the stud *k* will snap into the selected notch *m*, and the tracker bar will thereby be automatically and with certainty brought to its correct relation with the music sheet, and there securely held against dislodgment until the operator again shifts the arm *i* to transpose the music to another key.

Music sheet guides for correcting any deviation of the traveling sheet from its true path with relation to the tracker bar, are usually carried by the tracker bar itself. This is not practicable where the tracker bar is movable endwise relatively to the music roll, and in order to retain the advantages of employing music sheet guides in conjunction with the movable tracker bar, I have devised a music sheet guide bar, independent of the adjustable tracker bar but in close proximity thereto, and in fixed relation to the music and winding rolls. Said guide bar, shown at D, is mounted in the casing A, immediately above the tracker bar B and has its working face over which the sheet travels in the path of the sheet passing from the music roll to the tracker bar. Near the ends of the guide bar D, are two pneumatic guide ports *d*, *d*, spaced apart between centers a distance such that the two ports will be normally open under all conditions of the music sheet of standard width. Connected with these guide ports *d*, *d*, by pneumatic ducts and tubes are pneumatically operated mechanisms for adjusting the lateral position of the music roll in response to any lateral deviation of the sheet passing over the guide and tracker bars, it being understood that the operation of such pneumatic adjusting mechanism is controlled by the admission of air through ports *d*, *d* which is governed by the margins of the traveling music sheet. Such adjusting mechanism forms no part of the present invention, and need not therefore be herein described. It may be of any usual or desired form, that shown in United States Patent No. 1,025,184 dated May 7, 1912, to which reference may be made, being the preferred form. As the music sheet passes over the guide bar D and tracker bar B, it will be caused to track correctly by the guide ports *d*, *d* and their associated mechanism, no matter into what position the tracker bar B may have been shifted for the purpose of transposing the music.

I claim:

In a transposing device for pneumatic players, the combination with a spool box and an endwise shiftable tracker bar mounted therein, of a rotatable shaft journaled in one side of the spool box, an operative connection between the shaft and said tracker bar, and combined operating and locking means for the shaft, said means comprising a spring arm fixed to the lower end of the shaft and by means of which the shaft is adapted to be rotated and a segment secured in the bottom of the spool box beneath the spring operating arm and having notches therein normally receiving the spring arm to hold the same in any one of several predetermined positions of adjustment.

Signed by me at Boston, Massachusetts, this 19th day of August, 1913.

WILLIAM C. STEPHENSON.

Witnesses:

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JOSEPHINE H. RYAN.