

W. C. P. COLLIGNON.  
 SHEET CONTROLLING MECHANISM.  
 APPLICATION FILED MAY 18, 1914.

1,172,433.

Patented Feb. 22, 1916.  
 2 SHEETS—SHEET 1.

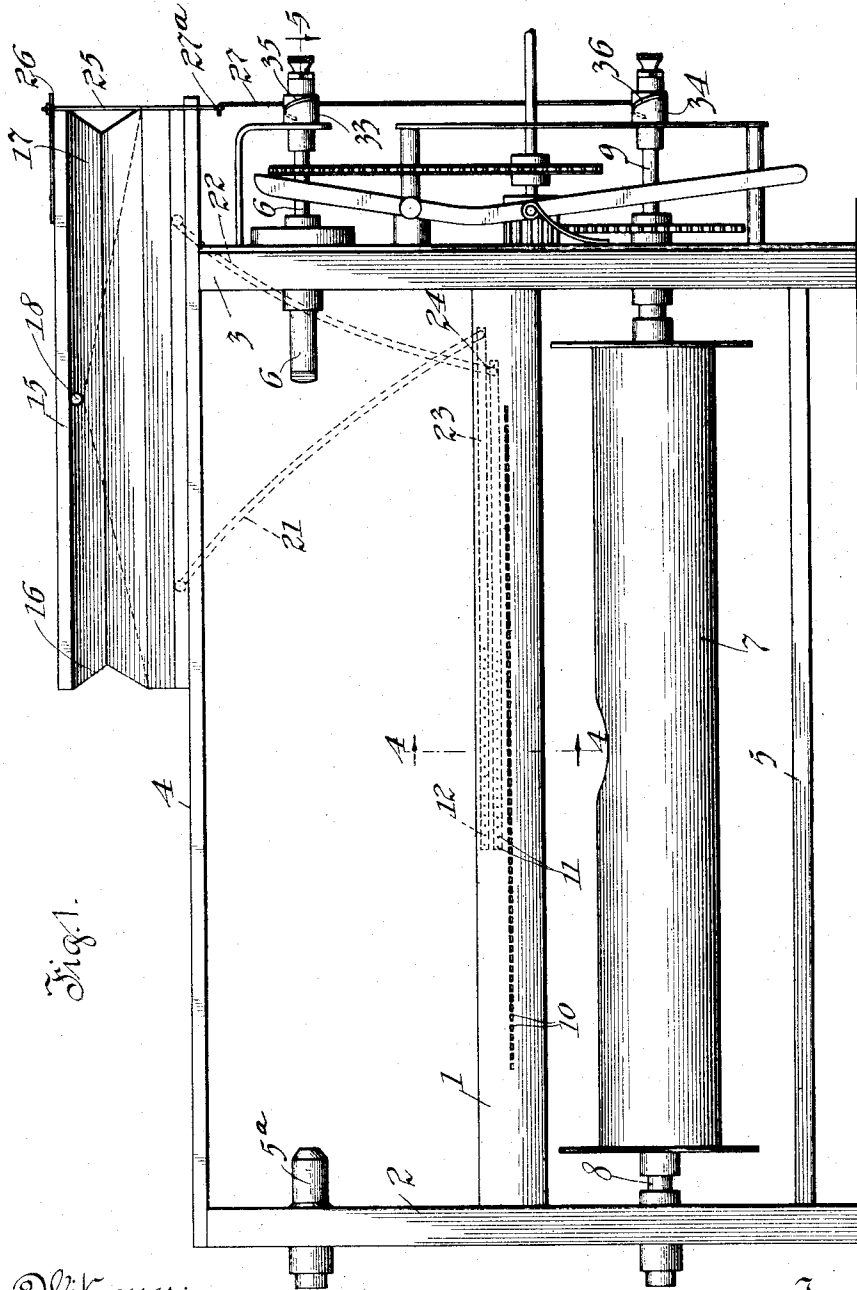


Fig. 1.

Witnesses:  
 Arthur W. Carlson  
 A. Lydia Jones.

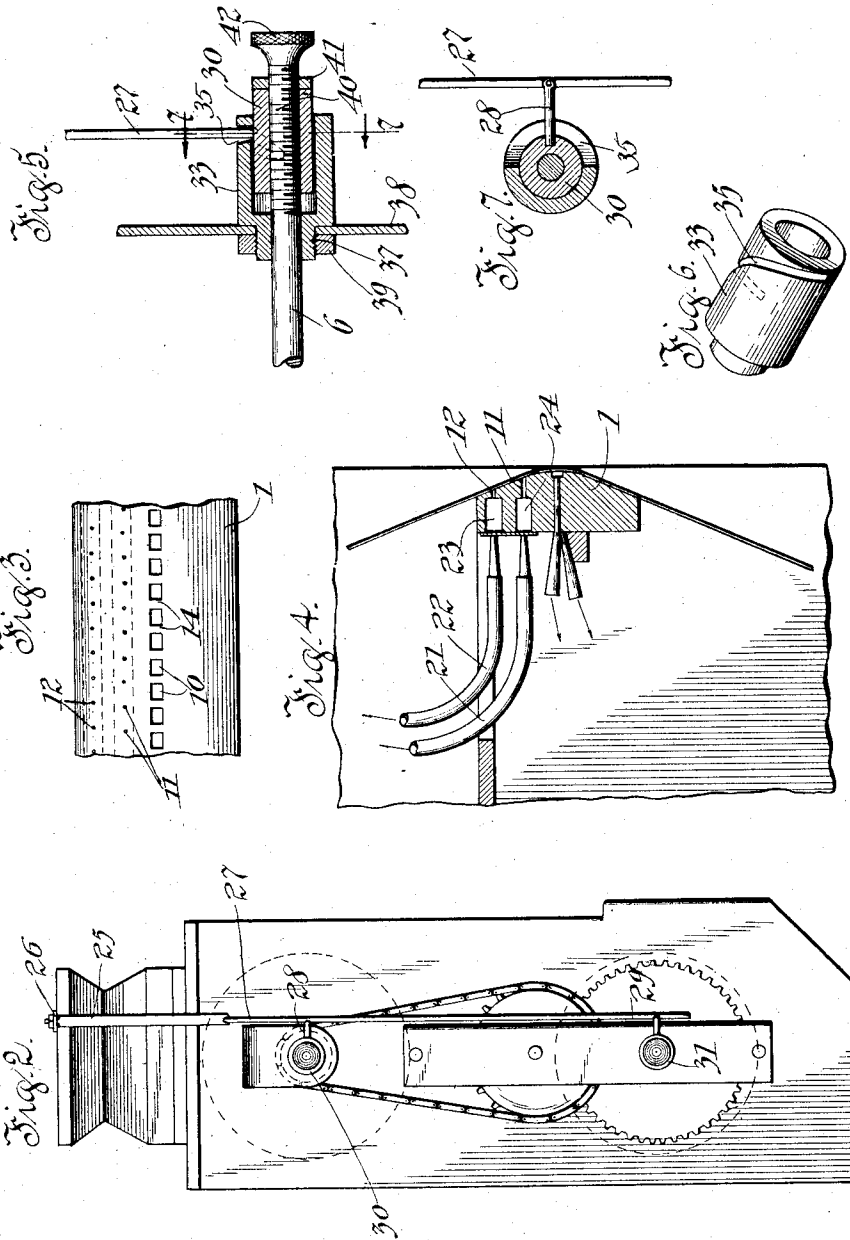
Inventor:  
 William C. P. Collignon  
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Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## SHEET-CONTROLLING MECHANISM.

1,172,433.

Specification of Letters Patent.

Patented Feb. 22, 1916.

Application filed May 18, 1914. Serial No. 839,211.

*To all whom it may concern:*

Be it known that I, WILLIAM C. P. COLLIGNON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheet-Controlling Mechanism, 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 instruments employing a traveling sheet, such for example as piano players and player pianos.

Prominent objects of the invention are to provide a simple and practical arrangement by which the traveling sheet may be automatically maintained in or restored to its normal or proper position; to secure this result with accuracy, reliability and precision; to prevent interference with these results by any torn or injured condition of the margin of the traveling sheet, or by expansion or contraction of the same, or otherwise; and to secure the foregoing and other desirable results in a simple and expeditious manner.

In carrying out my invention in the manner herein set forth I arrange to control the lateral position of the traveling sheet by means or instrumentalities operable at or from an intermediate portion of the sheet; that is to say a portion of the sheet between its sides, as opposed to securing control by the side or edge portions of the sheet. By thus employing an intermediate portion of the sheet which may, if desired, and preferably is a more or less central portion of the sheet, any irregularities at an edge or edges of the sheet can have no effect upon the operating mechanism, and furthermore expansion and contraction of the sheet have little or no effect, especially if the operating mechanism is located more or less centrally of the sheet.

As a preferred arrangement I provide a tracker with a series of supplemental apertures preferably at or near its longitudinal middle, which apertures will be normally covered by the portions of the music sheet between the perforations, but will be more or less uncovered by a deviation of the music sheet from its proper or normal position. Such an uncovering of the supplemental apertures or one or more of them, will permit or cause the operation of centering mechanism by which the music sheet will be

automatically returned or restored to its normal or proper position.

In the accompanying drawings Figure 1 is an elevation of a sheet controlling mechanism embodying my present invention; Fig. 2 is an end elevation of the same; Figs. 3, 4, 5, 6, and 7 are views of details of construction, Fig. 4 being a cross section on an enlarged scale taken on line 4—4 in Fig. 1, and Fig. 7 being a cross section on line 7—7 in Fig. 5.

I have shown my invention applied to the tracker board arrangement of a mechanical musical instrument such as a player piano or piano player, but it will be understood of course that the invention has other applications and uses. In this construction, 1 represents a tracker board, 2 and 3 represent side or vertical pieces of a tracker board frame, and 4 and 5 top and bottom pieces, respectively, of the same. Spindles 5<sup>a</sup> and 6 are for a music roll and 7 is a take-up roll mounted upon spindles 8 and 9. The tracker board is shown provided with a row of apertures 10 which may be the usual or customary row of apertures, and it is also shown provided with two other rows of apertures 11—11 and 12—12. The rows of apertures 11 and 12 do not extend the entire length of the tracker board, but preferably extend along only a central or middle portion thereof. The apertures 11 and 12 are located in the space directly in the rear of the bridges 14—14 between the ports or apertures 10—10, as best shown in Fig. 3. The apertures 11 are at one side of said bridge spaces, and the apertures 12 at the other side of the same. Thus it will be seen that a music sheet traveling over the tracker board will not when in its normal or proper position open any of the apertures 11 or 12, because the perforations in the music sheet will register exactly with the ports 10—10, and therefore will lie between the corresponding pairs or sets of apertures 11 and 12. When, however, the music sheet becomes laterally displaced in one direction or the other, either one or the other of one or more ports 11 and 12 are uncovered; when the movement is to the left, referring to Fig. 3, one or more of the ports 12 will be uncovered, whereas when the movement is to the right one or more of the ports 11 will be uncovered. The ports 11 and 12 are connected with suitable mechanism by which

when one or more of the ports 11 or 12 is or are uncovered, there will be a restoring or returning lateral movement on the part of the traveling sheet to automatically restore it to its normal or proper position. Any suitable mechanism for this purpose may be employed. I show herein one desirable form of apparatus, although it will be understood the invention is not limited thereto. The form of mechanism shown comprises a pneumatic 15 comprising two collapsible parts or members 16 and 17, arranged to swing or move about a central pivot 18. These pneumatics 16 and 17 are suitably connected for actuation with tracker tubes 21 and 22, extended respectively to ducts 23 and 24 formed in the tracker 1, and extending respectively to the apertures 12 and 11.

A rod 25 is connected to a clip 26 on the swinging top of the pneumatic 15 and this rod 25 extends down to and is connected with a second rod 27, which extends down alongside of the spindles 6 and 9. The rod 27 is pivotally connected with laterally extending rods or fingers 28 and 29 which are secured as by soldering to sleeves 30 and 31 on the spindles 6 and 9, respectively. The sleeves 30 and 31 are loose upon the spindles 6 and 9, so that they may have free movement relatively to the same, and are surrounded by other sleeves 33 and 34 which are provided with spiral grooves 35 and 36, respectively, in which the rods or fingers 28 and 29 are located and arranged to work. The sleeves 33 and 34 are held rigidly in position as for example by the construction shown in Fig. 5, in which the sleeve 33 is provided with a reduced portion 37 adapted to pass through a bracket 38 and provided with a set nut 39. Thus a vertical movement of the rod 27 will cause the rods or fingers 28 and 29 to move either up or down in said spiral grooves and thereby cause a longitudinal shifting movement of the sleeves 30 and 31, and a corresponding shifting movement on the part of the music and take-up rolls, and the music sheet. Manual adjustment of the spindles 6 and 9 is secured by threading the end portions of the same, as shown at 40 in Fig. 5, and providing the same with knurled heads, as 42, and lock nuts 41.

Thus in operation the traveling sheet may first be adjusted to its normal or proper position, so that its perforations register properly with the ports 10—10 in the tracker and this adjustment will be manual. Then in case of any lateral shifting of the music sheet to one side or the other, the sheet will be automatically returned to its normal or

proper position by the uncovering of one or more of the apertures 11 or 12, and the operation of the bellows or pneumatic device 15 with the consequent up or down movement of the rod 27, the latter being pivotally connected with the rod 25 at 27<sup>a</sup>. The restoring or centering movement of the traveling sheet is but very slight and hence a small up or down movement of rod 17 will cause the proper actuation of the traveling sheet in one way or the other as required. The arrangement is very sensitive and very accurate in its action. Fraying or tearing of the edges of the sheet will have no effect whatever upon the operation of the arrangement, nor will expansion or contraction.

It will be understood that changes and modifications may be made without departing from the spirit of the invention.

What I claim as my invention is:

1. The combination of a tracker having the usual row of apertures and also having two rows of supplemental apertures, and means for producing a relative movement between the tracker and music sheet in a direction lengthwise of the tracker, said means being operable through said supplemental apertures, and said mechanism comprising a double bellows and a cam and groove arrangement connected with the music spool spindles and actuated by said bellows.

2. The combination of a tracker having two sets of apertures, whereof the apertures in the two sets are out of alinement crosswise of the tracker, a double bellows, pneumatic connections between said apertures and said bellows, one set of apertures being connected with one part of the bellows and the other set to the other part, and mechanism for producing a relative movement between the tracker and the music sheet connected with and operated by said bellows, said mechanism comprising spirally grooved members on the music roll spindles and a vertically adjustable rod connected with said bellows and provided with fingers arranged to work in said grooves.

3. The combination of the bellows having a swinging leaf, of music roll spindles provided with spirally grooved sleeve members, and an adjustable rod connected with said bellows and provided with fingers extending to and operating in said grooves.

In witness whereof, I hereunto subscribe my name this 25th day of April, A. D. 1914.

WILLIAM C. P. COLLIGNON.

Witnesses:

A. LYDA JONES,  
H. A. JONES.