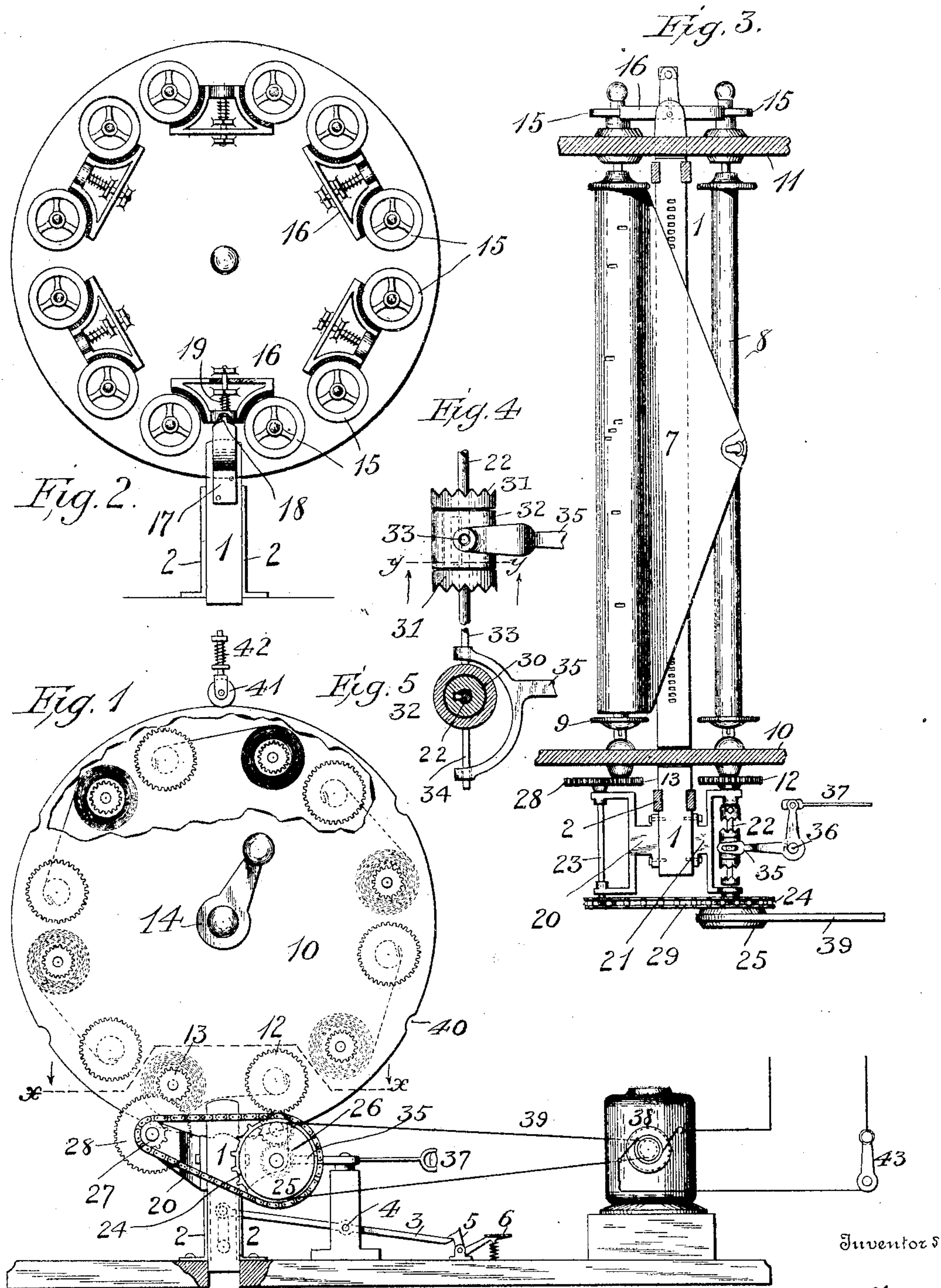


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H. W. & C. M. SHONNARD.
 MULTIPLE SHEET SELF PLAYING MUSICAL INSTRUMENT.
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MULTIPLE-SHEET SELF-PLAYING MUSICAL INSTRUMENT.

No. 798,221.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HAROLD W. SHONNARD, residing in East Orange, county of Essex, and State of New Jersey, and CLARENCE M. SHONNARD, residing in the city, county, and State of New York, citizens of the United States, have invented a certain new and useful Improvement in Multiple-Sheet Self-Playing Musical Instruments, of which the following is a specification.

This invention has particular relation to an improved apparatus for bringing any desired one of a number of music-sheets into operative relation to a self-playing musical instrument. The novel means described for this purpose may be controlled either by hand or automatically and is fit for use with any desired motive means.

A preferred form of this device is illustrated in the accompanying drawings, wherein—

Figure 1 is an end view of the sheet-magazine and the tracker-board of any form of pneumatic instrument. Fig. 2 is a like view at the opposite end of the same. Fig. 3 is a top view, partly in section, on the line *x x* in Fig. 1 of a single sheet-holder shown in position over the tracker-board. Fig. 4 is a top view of a preferred clutch employed in this device, and Fig. 5 is a sectional view thereof on the line *y y*.

At 1 is shown a perforated tracker-board, such as is employed on many forms of well-known pneumatic self-playing instruments. This tracker-board is arranged to slide up and down between guides 2, being lifted by one end of a lever 3, pivoted at 4 and locked in operative position by the catch 5, which is releasable by pressing the key 6. The music-sheets 7 are separately supported and moved by separate holders, each comprising the usual pair of parallel rollers 8 and 9. These holders are all carried together in mutually parallel relation between the two magazine-disks 10 and 11, in which the rollers 8 and 9 are journaled. The bearings of the rollers at each disk occupy the angles of a polygon, and thus these rollers may be said to be placed in prismatic arrangement between the disks.

Outside of the disk 10 each roller carries a gear-wheel. The larger gear 12 is preferably on the roller 8, while the smaller gear 13 is fast on the shaft of the roller 9. The disks 10

and 11 are supported in any desired manner to permit of their rotation by the handle 14 or otherwise. The ends of the roller-shafts outside of the disk 11 are provided with brake-wheels 15, and for each sheet and its rollers is provided a separate brake-shoe 16, having two concave bearing-surfaces fitting, respectively, the two brake-wheels 15. (See Figs. 2 and 3.)

As shown, at the lowermost brake-shoe in Fig. 2 when in playing position the shoe is lifted off of the wheels 15 by an appropriate bracket 17 on the end of the tracker-board, in which position a pin 18 on said bracket enters an appropriate cavity in the shoe 16 and prevents any turning of the disks 10 11 during operation of the device. The spring 19 tends constantly to apply the brake-shoe 16 and also to depress the tracker-board. Outside of the disk 10 the tracker-board carries brackets 20 and 21 on its opposite faces. In bracket 21 is journaled a short power-shaft 22, and in the bracket 20 is journaled a like shaft 23. The shaft 22 carries on its outer end the loose sprocket-wheel 24 and fast pulley 25, while on its inner end is sleeved the small loose gear-wheel 26, adapted to drive the gear 12 through an idler. On the outer end of the shaft 23 is fixed the small sprocket-wheel 27, and on its inner end is placed the larger gear-wheel 28, adapted to engage with the gear 13. The two sprocket-wheels are united by a sprocket-chain 29. Either the sprocket-wheel 24 or the gear-wheel 26 can be operatively connected to the driving-shaft 22 in a well-known manner by a sliding clutch keyed on the shaft and engaging with appropriate clutch members adapted to turn one or the other of these wheels. Certain peculiarities of this clutch adapting it to the specific use herein made of it are shown in Figs. 4 and 5. Here the sliding member of the clutch is shown to comprise a central core 30, keyed to the shaft 22, on the outer ends of which are enlarged toothed portions 31. Between the enlargements is the loose sleeve 32, carrying pins 33 34, respectively engaged by bearings on the two arms of the shifting-fork 35. These pins are made sufficiently long to prevent disengagement with the fork when the tracker-board with its gears and clutch are moved up and down by the lever 3. The shifting-fork 35 is on a bell-crank lever pivoted at 36, whose second arm is controlled by the handle 37 or otherwise,

as desired. The electric motor 38 or any other desired motive device operates a belt 39 to run the pulley 25.

The mode of operation is as follows: The
5 tracker-board 1 and attached parts being lowered sufficiently to clear rollers 8 and 9, the chosen tune is brought into position by rotating the disks 10 and 11 by means of the handle 14. The correct position for each sheet is
10 made sensible to the hand by notches 40 in the disk 10, into which a small wheel 41 is pressed by a spring 42 as each notch passes under it. The proper sheet 7 being in position, the outer end of the lever 3 is pushed down under the
15 beak of the catch 5, thus raising the tracker-board to the position shown in Fig. 1. Here the brake-shoe 16 is raised and the pin 18 inserted, as above described, while the gear 26 is in mesh with its idler and the gear 13 is en-
20 gaged with 28. The handle 37 being pulled, the sliding clutch 31 brings the gear 26 into rigid rotary connection with the shaft 22. The switch 43 (or other means) then starts the motor and the roller 8 proceeds to wind upon
25 itself the perforated sheet 7, drawing said sheet over the tracker 1 and producing the music in a well-known manner. When the end of a tune is reached, the clutch 31 is reversed and the sprocket-wheels act through
30 the gear 28 to rewind the music-sheet onto roller 9. Then the motor is stopped or the key 6 is pressed, causing the tracker-board to drop, or both operations are effected. When the tracker-board drops, the brake 16 is ap-
35 plied, thus preventing loosening or accidental displacement of the music-sheet. The disks are then free to be brought into any desired position.

What we claim is—

40 1. In a self-playing musical instrument, a tracker-board movable as a whole, a plurality of perforated music-sheets separate supports for said sheets arranged permanently parallel to each other and a carrier for said supports
45 adapted to move the same past said tracker-board, each always parallel to itself and to said tracker-board, substantially as described.

2. In a self-playing musical instrument, a tracker-board movable as a whole, a rotary
50 magazine, a number of perforated music-sheets and pairs of rollers for said sheets having their axes of revolution situated in prismatic arrangement in said magazine, substantially as described.

55 3. In a self-playing musical instrument, a tracker-board movable as a whole, a pair of rotary disks, pairs of rollers between said disks and journaled in them and a separate music-sheet carried by each pair of rollers,
60 substantially as described.

4. In a self-playing musical instrument, a movable tracker-board, a magazine for music-sheets comprising a number of pairs of rollers in combination with bearing means for the op-

posite ends of said rollers, said bearing means 65 being movable while keeping each roller parallel in each of its positions to all its other positions, substantially as described.

5. In a self-playing musical instrument, a number of pairs of rollers and music-sheets 70 thereon; in combination with a tracker-board and means for moving said pairs of rollers always parallel to said tracker-board, substantially as described.

6. In a magazine for music-sheets, two par- 75 allel side pieces, pairs of rollers having bearings therein, brake-wheels on said rollers and automatically-applied brake-shoes carried on one of said sides and adapted to bear on said wheels, substantially as described. 80

7. In a magazine for music-sheets, two par- 85 allel side pieces, pairs of rollers journaled therein and a brake-wheel on each roller; in combination with a reciprocating brake-shoe on one of said sides having two curved bearing-surfaces adapted to rub on said two wheels and means for applying said shoe to said wheels, substantially as described.

8. In a self-playing musical instrument, a pair of rollers, a brake therefor, a reciprocating tracker-board and means moving with 90 said tracker-board for affecting the operation of said brake.

9. In a self-playing musical instrument, a pair of rollers, a brake therefor and a movable 95 tracker-board adapted to push said brake out of operative position when itself moved into position for operation, substantially as described.

10. In a self-playing musical instrument, a 100 movable magazine for music-sheets, provided at intervals with engaging means; in combination with a reciprocating tracker-board and means carried thereby for cooperating with said engaging means on the magazine to lock 105 the same during operation, substantially as described.

11. A movable magazine for music-sheets, rollers thereon, and brake-shoes for said rollers having locking cavities; in combination 110 with a reciprocating controlling means for a self-playing musical instrument carrying means adapted to simultaneously lift said brake-shoes and engage with said cavities.

12. Two rotatable disks, rollers journaled 115 between them, driving-gears on said rollers outside of one disk and brake-wheels on said rollers outside of the other disk; in combination with brake-shoes carried outside of said second disk and springs tending to force said 120 shoes against said wheels, substantially as described.

13. In a self-playing musical instrument, a tracker-board movable as a whole, a plurality 125 of music-sheets and means for carrying said sheets adapted to rotate about an axis parallel to said tracker-board, substantially as described.

14. In combination with a plurality of perforated music - sheets, operating - supports therefor and a carrier for moving said sheets and supports each as a whole; a tracker-board movable into and out of contact with said music-sheets successively, substantially as described.

15. In a self-playing musical instrument, and in combination with a perforated music-sheet and means for operative movement thereof, which means is arranged for movement as a whole always parallel to itself; a reciprocating tracker - board movable as a whole substantially at right angles to the path of movement of said sheet and its support at their operative position, substantially as described.

16. In combination with a plurality of perforated music - sheets, operating - supports therefor and a carrier for moving said sheets and supports each as a whole; a tracker-board movable as a whole and a locking device for said carrier operated by movement of said tracker - board, substantially as described.

17. In a self-playing musical instrument, a perforated music-sheet, a tracker - board, guides wherein said board is arranged to slide, a pivoted lever for moving said board in said guides and holding it in operative contact with said sheet and a catch to secure said lever and maintain operative position of the tracker-board, substantially as described.

18. In a self-playing musical instrument, a perforated music-sheet, feed-rollers therefor and means for moving said rollers into and out of operative position; in combination with a tracker-board capable of movement to and from said rollers and driving means for said rollers so connected to said tracker-board as to move into position for operation of the rollers when the tracker-board is moved toward said rollers and out of said operative po-

sition when the tracker-board is moved away from said rollers, substantially as described. 45

19. A perforated music-sheet, feed-rollers therefor and gears for driving said rollers; in combination with a reciprocating tracker-board and driving-gears attached thereto adapted to move into and out of engagement with said roller-gears, substantially as described. 50

20. A perforated music-sheet, rollers therefor capable of movement as a whole, separate gears on each roller, a reciprocating tracker-board adapted to move in between said rollers against said sheet and separate driving-gears attached to opposite sides of said tracker-board and engaging on one position of said board with said gears on said rollers, substantially as described. 55 60

21. In a self-playing musical instrument, a tracker-board, a number of music-sheets, a pair of rollers for each, a holder for said rollers adapted to move the same past said tracker-board and means for imparting a sufficient relatively reciprocating movement of said tracker-board to said holder to cause the top of the tracker-board to assume at will a position within the space between a pair of rollers or outside of said space, substantially as described. 65 70

22. In a self-playing musical instrument, a tracker-board, a plurality of perforated music-sheets, separate supports for said sheets arranged permanently parallel to each other and to said tracker-board, and a carrier for said supports adapted to move the same past said tracker-board always parallel to itself and to said tracker-board, substantially as described. 75 80

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