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PATENTED MAY 29, 1906.

F. C. WHITE & G. W. HAYWOOD.

TRACKER MECHANISM FOR AUTOMATIC MUSIC PLAYING MECHANISMS.

APPLICATION FILED OCT. 4, 1905.

2 SHEETS—SHEET 1

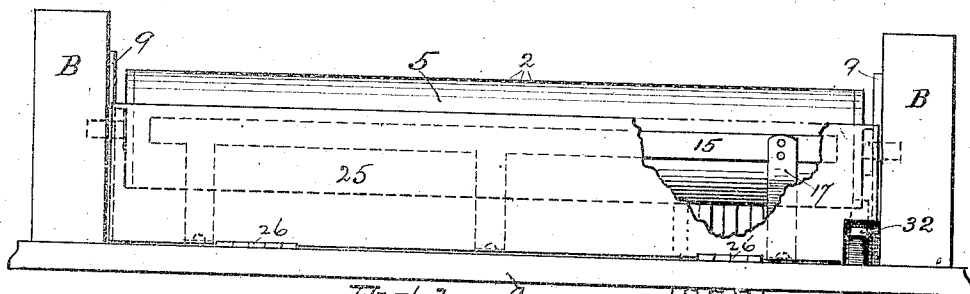


FIG. 1.

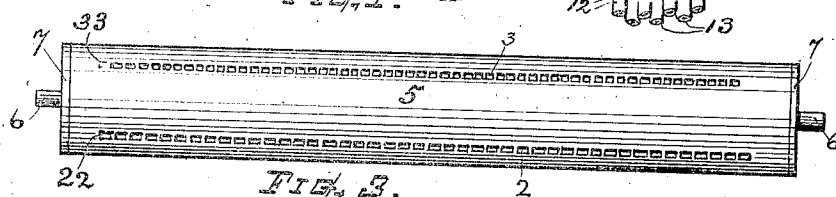


FIG. 3.

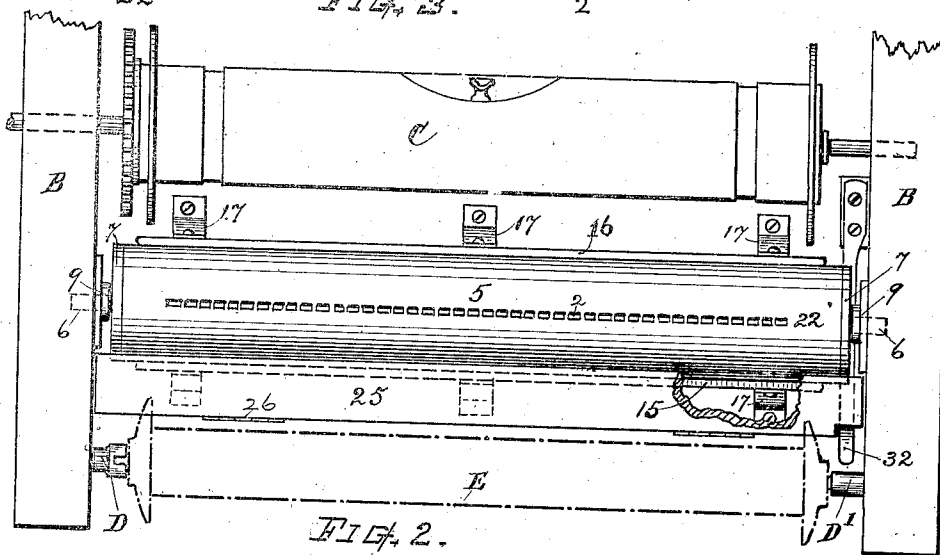


FIG. 2.

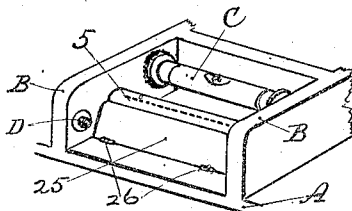


FIG. 4.

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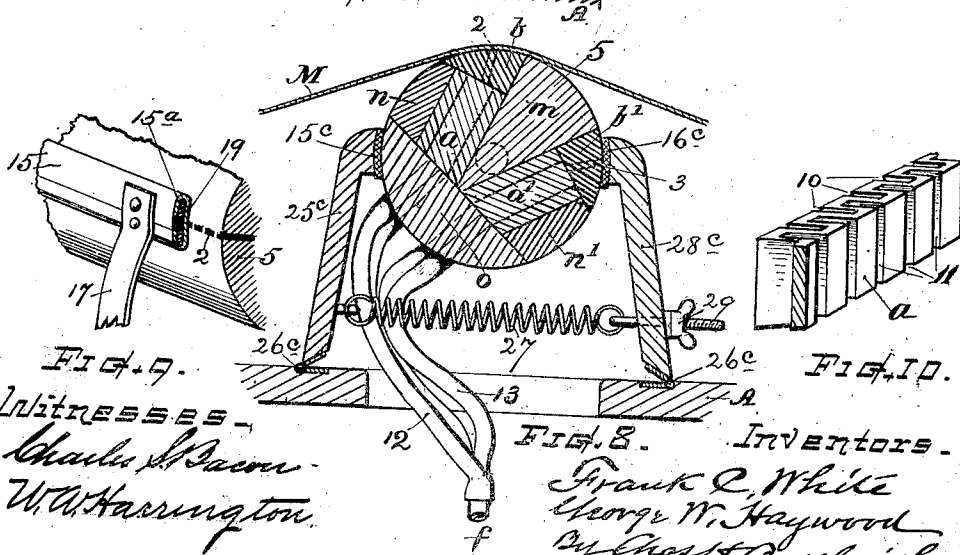
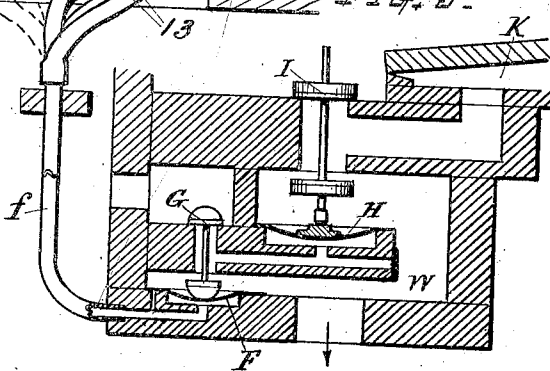
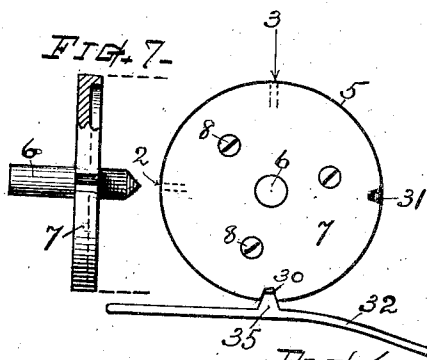
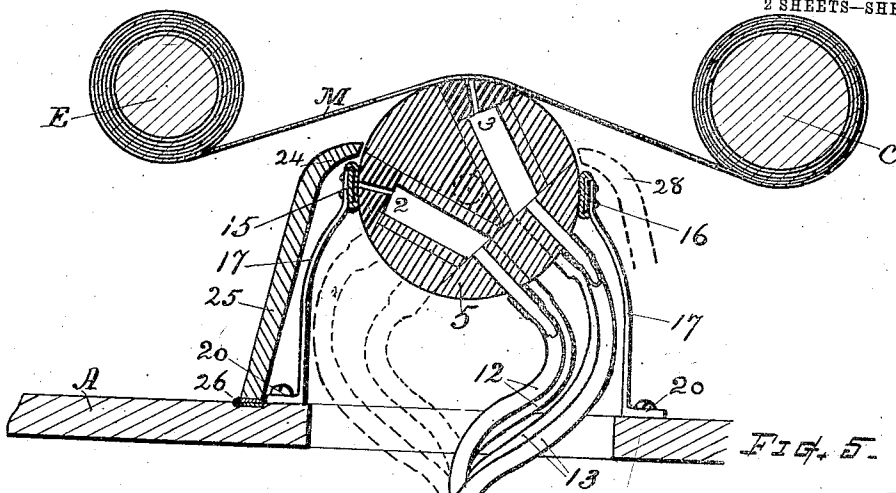
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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TRACKER MECHANISM FOR AUTOMATIC MUSIC-PLAYING MECHANISMS.

No. 822,033.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed October 4, 1905. Serial No. 281,249.

To all whom it may concern:

Be it known that we, FRANK C. WHITE and GEORGE W. HAYWOOD, citizens of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented a new and useful Tracker Mechanism for Automatic Music-Playing Instruments, of which the following is a specification, reference being made therein to the accompanying drawings.

The object of our present invention is to provide a construction for dual-scale trackers that shall be simple, economical, and practical for manufacture, efficient and desirable for use, and convenient for adjustment and care by the operator.

Our invention consists in a tracker mechanism embodying the peculiar features and novel construction of parts, and combination of parts illustrated in the drawings and explained in the following detailed description, the particular subject-matter claimed being definitely set forth in the summary.

In the drawings, Figure 1 represents a front elevation of certain parts of mechanism embodying our invention. Fig. 2 is a plan view of our improved tracker and the music take-up roll. Fig. 3 is a view of the tracker-bar separately and in position to show the dual series of mouth-orifices. Fig. 4 is a fragmentary perspective to show the relation of the tracker-bar and front guard-panel. Fig. 5 represents a transverse vertical section through the tracker mechanism, the music-sheet, and a set of action pneumatics controlled thereby. Fig. 6 is an end view of the tracker and a retaining device therefor. Fig. 7 is an edgewise view of a metal disk and bearing for the end of the tracker-body. Fig. 8 represents a transverse section of the tracker mechanism, showing the make-up of the tracker-body and a modification in the arrangement of the duct-stopping devices. Fig. 9 represents a fragmentary perspective view showing the detail of the shoe or pad for stopping the tracker-duct mouth-orifices, and Fig. 10 is a perspective view of a portion of one of the interior members of the tracker-body.

Our improved tracker mechanism is applicable for use in various styles of automatic

piano-players, automatic combination pianos, self-playing organs, and similar autopneumatic music-playing instruments in which a perforated music-sheet is employed for governing the action of pneumatically-operated mechanisms. Such instruments being in their general structure well known, the present description will be understood by simple reference to such parts thereof as have intimate relation to the invention shown in the accompanying drawings.

Referring to the drawings, the part marked A represents a portion of the frame or instrument-casing, B the spool-housing members, C the music take-up roll, D D' the bearings for the music spool or roll E, the position of which is indicated by dot-and-dash lines on Fig. 2, and M the perforated music-sheet, all of which may be of any well-known or suitable construction and as heretofore employed in autopneumatic music-playing instruments of various kinds, and any well-known means may be arranged for operating the take-up and rewinding mechanism, as will be readily understood by persons conversant with the art.

On Fig. 5, F indicates a primary pneumatic of any action, which may be governed through the tracker-conduit or flush-pipe f and operates the valve G of a second pneumatic H, that in turn works the valves I of a power or action-playing pneumatic K in well-known manner, all being operated by exhaust or vacuum pressure in the wind-chamber W. This set of pneumatics is not in itself a part of our present invention, but is herein shown for the purpose of a fuller illustration of our improved mechanism as employed in combination with a pneumatic action.

The reference-numeral 5 indicates our improved tracker, which consists of a cylindrical body having therethrough two series of ducts 2 and 3, the mouth-orifices of which are respectively disposed (see Figs. 2 and 5) in longitudinal rows 22 and 33 at some distance apart, preferably at quarterly positions on the periphery, more or less, and formed on different scales—as, for instance, one row 22 on a scale of six to the inch, the other row 33 on a scale of, say, eight to the

inch or to correspond with the scales on which modern perforated music is usually made.

This tracker is provided at its ends with concentric axles 6 or bearing centers, which are best formed in or upon a metal disk 7, that is rigidly attached to the tracker-body by screws 8 or in other efficient manner. By means of its axles 6 the tracker 5 is supported in bearings 9 on the side frames B in a manner to render the cylindrical body partially rotatable on its central axis for bringing either of the rows of tracker mouth-orifices into position for operating with the music-sheet M as it is drawn over the tracker-face from the spool E to the take-up roll C.

The tracker-body 5 is best built up of a number of sections or longitudinal members firmly glued together and having the forms preferable, as shown in cross-section in Fig. 8, which shows the cylindrical body composed of two interior channeled members *a a'*, two oppositely-arranged mouth members *b b'*, each having the rows of orifices 2 and 3 there-through, a central V-shaped member *m*, disposed between the opposite interior members, two outside members *n n'*, and a segment-shaped bottom member *o*, the whole united and together forming a complete externally cylindrical body. The interior members *a a'* are each transversely grooved in alternate order on their opposite sides, as shown at 10 and 11 in Fig. 10, to form the air-ducts. The bottom member *o* is bored through and provided with pipe-attaching means to correspond with the respective channels in the members *a a'*. While showing this peculiar method of building up the tracker-body, we do not confine our invention to this particular construction, inasmuch as a cylindrical tracker having a plurality of rows of ducts may be made in any efficient manner without departing from the nature of our invention.

At the lower part of the tracker-cylinder the ducts have connected therewith a series of flexible pipes 12 and 13, which are in turn united with the pipes or conduits *f*, that lead into the respective primary pneumatics F, as best shown in Fig. 5.

15 and 16 indicate stopping-shoes or pad-bars, that extend longitudinally along the opposite sides of the tracker-cylinder and are of suitable width for covering and closing the row of mouth-orifices. Said shoes are mounted on supports, as spring-standard 17, that yieldingly press them against the cylinder-surface.

The shoe may be formed of a metal strip or bar 15^a, curved to fit the face of the cylindrical tracker-body and having a covering of leather or other similar material 19, as indicated in Fig. 9. The spring-standards are attached to the bar at their upper ends and

have their lower ends suitably secured, as at 20, to the frame A or other equivalent support.

25 indicates a panel or facing-piece arranged across the space in front of the pipes 12 as a finish or shield to hide the pipes. The lower edge of said panel is best supported or hinged at 26 upon the frame or casing-board and extends upward with its upper edge 24 curved backward to stand adjacent to the surface of the tracker-cylinder 5 at a position below the line of the music-sheet. A similar guard may be arranged at the rear of the tracker when desired, as per dotted line 28, Fig. 5.

Combined with the tracker-cylinder we provide means for retaining it at adjusted position with either the front row of orifices 2 or the rear row of orifices 3 exposed at working position. As shown in Fig. 6, such means may consist of suitable lugs or notches 30 and 31, formed upon the head or end disk 7 of the tracker-body, and a spring or latch 32, provided with a detent 35 or means for engaging therewith at the desired positions of adjustment. When the spring 32 is depressed, the cylindrical tracker 5 can be partially rotated for changing from one scale to the other. In the operation when the rear row of orifices 3 is brought to working position the front row of orifices 2 is brought into line with and closed by the forward shoe 15. (See Fig. 5.) Then when the front orifices 2 are adjusted at working position the rear orifices 3 are brought in line with and closed by the rear shoe 16. (See Fig. 8.) Thus the tracker may be employed with music-sheets perforated in accordance with either scale.

In Fig. 8 we have illustrated the construction as made with the mouth-stopping shoes formed upon or affixed to the upper edge of the shield piece or panel. In this the opposite panels 25^c and 28^c are flexibly attached at 26^c to afford swinging action, and at their inwardly-rounded top edges are furnished with attached closure-pads or leather facings 15^c and 16^c to fit the tracker-surface, front and rear. The two opposite panels are connected to each other at convenient position by a contractile spring 27, which keeps their top edges normally pressed toward the cylinder-surface. Suitable means, as a screw and thumb-nut 29, may be employed for regulating the tension of the spring, if desired.

Obviously some changes in the form of embodiment of this invention may be made by those skilled in the art without departure from the nature and scope thereof as expressed in the claims.

Therefore, without limiting our invention to the special details and arrangement herein shown or enumerating equivalents, we claim and desire to secure by Letters Patent—

1. A tracker consisting of a cylindrical body

rotatably supported on its central axis, and having a plurality of rows of ducts with orifices formed on different scales, in combination with flexible tracker-duct pipes attached to the respective ducts, and means for controlling the duct-orifices.

2. In an autopneumatic music-playing instrument, a tracker consisting of a cylindrical tracker bar or body having two separate rows of tracker-ducts with their mouth-orifices spaced on different scales, central axis-supports on which said cylindrical body is partially rotatable, a pair of opposite longitudinal mouth-stopping shoes fitting the cylindrical surface of said body, and yieldable members that support and press said shoes against the cylindrical surface.

3. In a pneumatic music-playing instrument a tracker-bar having a cylindrical surface, a supporting-axis concentric therewith, and a plurality of series of air-ducts with their mouth-orifices ranged in separated longitudinal rows on said cylindrical surface; in combination with stationary mouth-stopping devices oppositely fitting against said cylindrical surface and positioned at front and rear of said tracker in alinement with the respective rows of mouth-orifices when the latter are at non-operative position.

4. In a mechanical music-playing instrument, in combination with a perforated music-sheet and a system of primary and action-playing pneumatics, a cylindrical tracker-bar provided with a plurality of longitudinal rows of pneumatic ducts located at different radial positions, and having the orifices of the respective rows spaced on different scales; a series of flexible pipes connecting the other ends of said ducts from the cylindrical bar to the conduits of the primary pneumatic system, and means for stopping the tracker mouth-orifices when rotated from playing position.

5. The combination, with the cylindrical rotatable tracker, of a yieldable presser pad or shoe composed of a metal strip having a face covering of leather, matching against the surface of the cylinder, and yieldable supporting devices for pressing said shoe toward the tracker-surface.

6. The combination, with the rotatable cylindrical tracker-bar and its pneumatic connecting-pipes; of a guard-panel supported on the frame to shield said pipes, and having its upper edge turned inward and fitting adjacent to the surface of the tracker-cylinder.

7. A rotatable cylindrical tracker provided with metal end disks having axles or axis-bearings thereon.

8. In an autopneumatic music-playing instrument, a rotatable tracker comprising a cylindrical body provided with two rows of mouth-orifices and tracker-ducts, in combination with metal end supporting-disks having central axles or bearing devices, and provided at its periphery with stop notches or lugs, and means for engagement therewith, for the purpose set forth.

9. In combination with a perforated music note-sheet, a cylindrical tracker-bar comprising a body portion having a plurality of rows of tracker-ducts with their mouth-orifices formed on different scales, axially-arranged end bearings for centering and supporting said tracker-bar for partial rotative action, engaging notches or lugs, and a resilient catch device positioned to retain said cylinder with either row of orifices at a predetermined position for coacting with the note-sheet.

10. In a mechanical musical instrument, a cylindrical tracker-bar having its body composed of united section members, and comprising two internal channeled section members, a central V-shaped member, two mouth-section members having tracker-orifices therein, opposite side covering members, a bottom member provided with openings or pipe-connecting ducts therethrough, and end disks provided with axles or bearing centers, for the purpose set forth.

11. In an autopneumatic music-playing instrument, in combination, a rotatable cylindrical tracker having two longitudinal rows of ducts with mouth-orifices formed on different scales, and provided at its ends with axis-supports; the pneumatic pipes connected with the tracker-ducts, two hinged guard-shields for the pipe-inclosing space, having their upper edges oppositely disposed adjacent to the cylindrical surface, means for stopping each row of the tracker-orifices at its idle position, and suitable spring devices for yieldingly pressing said stopping means toward the cylindrical tracker.

Witness our hands this 2d day of October, 1905.

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GEO. W. HAYWOOD.

Witnesses:

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A. G. KUHLE.