

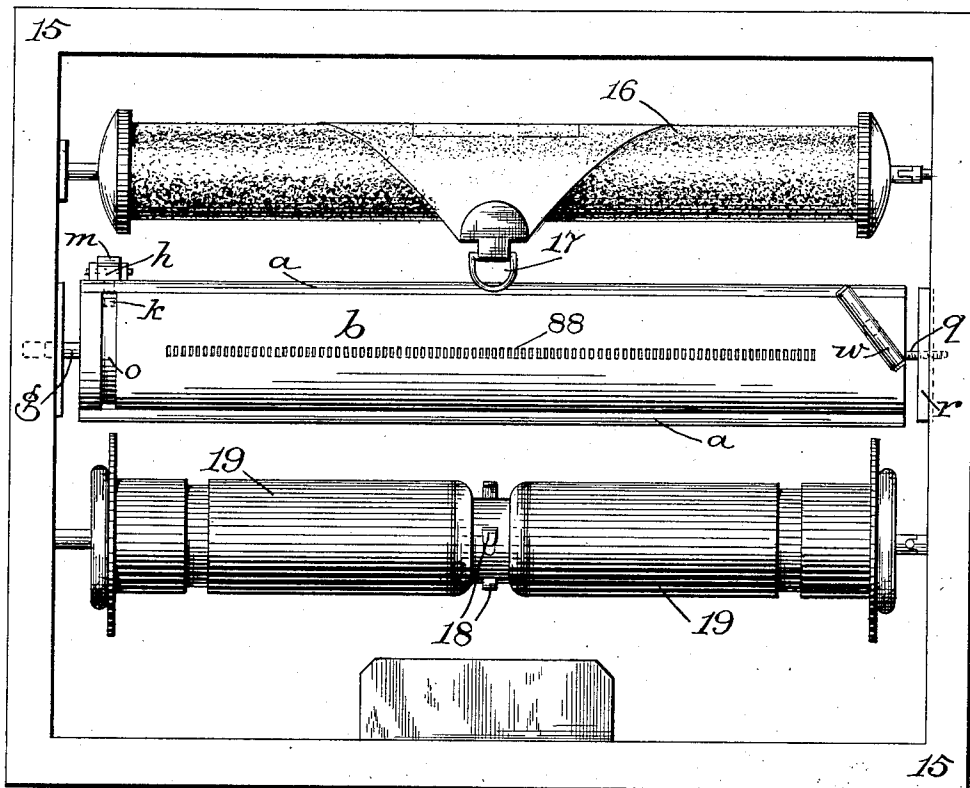


Fig. 1.

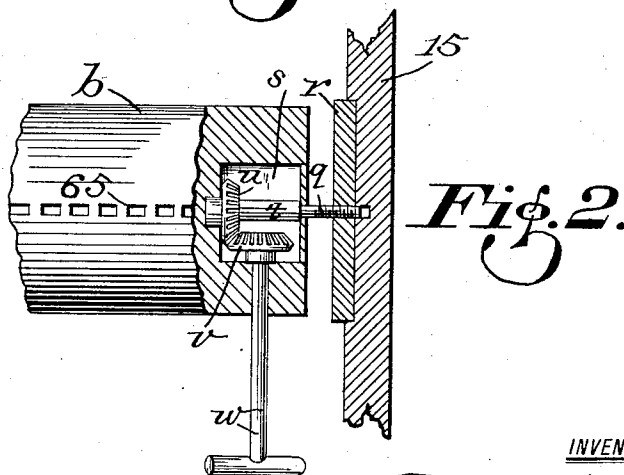


Fig. 2.

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Fig. 3.

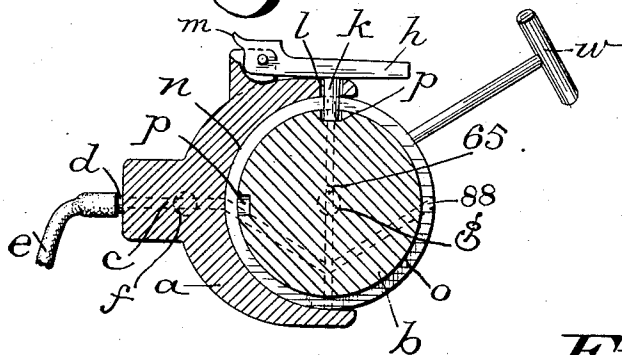


Fig. 4.

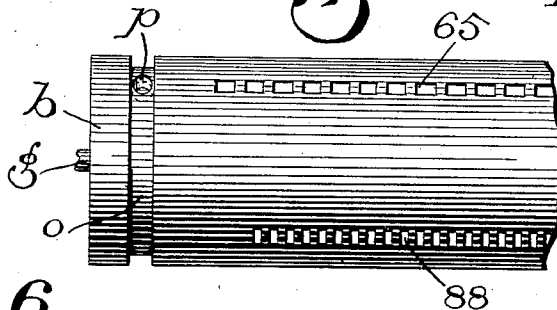


Fig. 7.

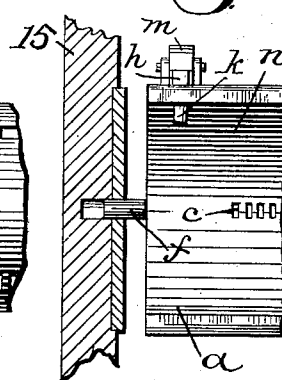
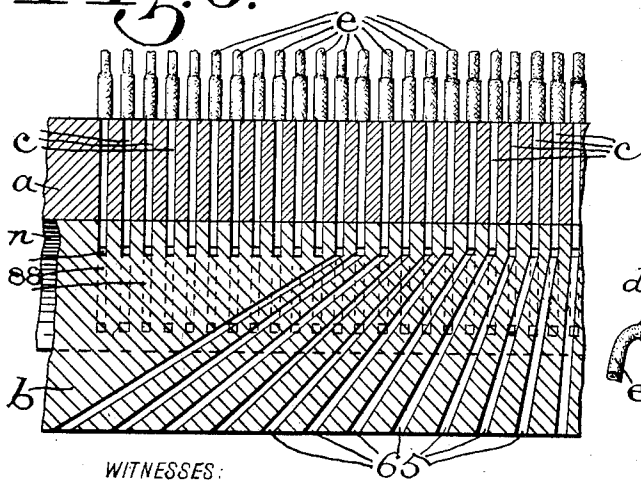


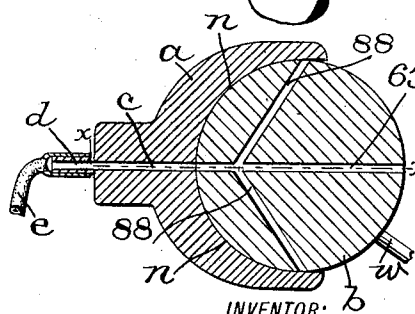
Fig. 6.



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Fig. 5.



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UNITED STATES PATENT OFFICE.

RODNEY W. MARTIN, OF DAYTON, OHIO.

ADJUSTABLE MULTITRACKER FOR MECHANICAL MUSICAL-INSTRUMENT PLAYERS.

1,019,813.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed January 8, 1910. Serial No. 536,972.

To all whom it may concern:

Be it known that I, RODNEY W. MARTIN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Adjustable Multitrackers for Mechanical Musical-Instrument Players, of which the following is a specification.

My present invention relates to an "adjustable multi-tracker for mechanical musical instrument players."

Some of the principal objects and advantages of this invention, consist in producing an improved tracker,—more especially intended and designed for mechanical players for pianos, and player-pianos;—whereby two or more rows of tracker-openings can be used, thus giving it the advantage of being able to accommodate any class of music; instead of being forced by the very objectionable method and form of construction heretofore employed, of having to continually change from one tracker-board to another, or else having to use a double tracker-board in which the rows of tracker openings are so close as to interfere or conflict with the proper operation of the device, and whereby the note-openings in the tracker-board will not accurately register or aline with the perforations in the music sheet of the mechanical player. Also to produce a tracker so constructed that only one row of tracker-openings is presented at a time to the operator, thus avoiding any confusion and annoyance to said operator. Also to produce a tracker so constructed that there will be no flat faced surface to bear against the thin perforated strip of music, thereby reducing the frictional contact on said perforated strip to a minimum amount. Also to produce a tracker in which a means is provided for retaining or holding stationary when desired, the cylinder or part having the note openings therein. Also to provide a means for shifting said tracker so that the note or tracker-openings will readily and accurately adjust or register in perfect alinement with the perforations in the music sheet,—thus facilitating the operation of the device, and giving a sweeter, clearer and more perfect tone to the music; further objects being to produce a tracker of more simple and less complicated construction; one composed of fewer parts; one more readily and accu-

ately operated; one more effective in its results generally; and one which can be manufactured at a minimum cost and is therefore less expensive.

My invention consists essentially,—referring briefly and in general terms—to the various parts, elements or mechanical features of construction of my adjustable multitracker for mechanical musical instrument players,—of the body of the tracker; the cylinder of the tracker; means for holding said cylinder or retaining same in a stationary position; means for rotating said cylinder; means for adjusting or shifting said tracker; and the minor details of construction; also the very peculiar and novel construction, arrangement and combination of the several parts, as will be hereinafter more fully and elaborately described in detail and set forth in the subjoined claims, all in accordance with the statutes in such cases made and provided therefor.

Referring to the accompanying drawings—constituting a formal part of this specification,—and illustrating one form of construction for carrying out the objects and principles of my invention,—and wherein the same numerals and letters of reference, are utilized to indicate or point out the same parts wherever occurring throughout the several views. Figure 1 is a general view, showing in front elevation the well or compartment of a player-piano, having my multi-tracker in operative position;—thus illustrating the practical application of the invention. Fig. 2 is a vertical longitudinal sectional view, of a broken away portion of the tracker-cylinder, showing the means for shifting or adjusting the tracker, also for rotating said cylinder. Fig. 3 is a transverse sectional view through the tracker, showing the means for holding or retaining the cylinder in a stationary position. Fig. 4 is a side view of a broken away portion of the tracker-cylinder, in a position to show several rows of tracker or note openings. Fig. 5 is a transverse sectional view of the tracker, showing the location of the rows of note-openings. Fig. 6 is a longitudinal sectional view of a broken away portion of the tracker,—taken on line $x-x$ of Fig. 5,—showing the manner in which one row of note openings communicate with another row extending a greater length but having a less number of openings; and Fig. 7 is a side view of a broken away portion, of the

tracker-body also the well frame,—showing the spindle of said body journaled therein.

In describing my said invention specifically, and referring in detail to the various
 5 mechanical parts or features of construction, which in combination make up my adjustable multi-tracker for mechanical musical instrument players by means of the characters of reference as aforesaid;—and in
 10 Fig. 1 of the drawings for the purpose of more fully bringing out and setting forth the application of my invention, I have shown the usual frame 15 forming the space known as the well or compartment, in which
 15 is located and pivotally journaled the usual roller carrying roll 16 of perforated sheet or strip of music, provided with the ring or loop 17, which in practical operation engages in the well known manner one of the
 20 hooks 18 of the usual form of bobbin or roller 19—the latter also being located within said compartment and pivotally journaled in frame 15 in the customary manner. The roller carrying roll 16, also bobbin 19,
 25 are operated at the side of frame 15, by means of the usual suitable form of mechanism common to all player-pianos and not necessary to be here shown or referred to in detail, as this mechanism as well as the
 30 above referred to parts, constitute no form of my invention whatsoever and are only used for explanatory purposes.

Located in the well or compartment between roll 16 and bobbin 19 is located my
 35 multi-tracker, comprising the tracker-body or carriage *a*, and the tracker-cylinder *b*. Said body is provided with air-passages or note openings *c*, terminating in short nipples *d*, to each of which is connected one of the
 40 small flexible tubes or bleeds *e* leading up from the usual pneumatics or air-valves, employed for sucking the air in through the perforations of the perforated sheet or strip of music, down to actuate the mechanism
 45 for operating the piano-keys;—said mechanism being of the well known form so common in the construction of all player-pianos, and constitutes no part of this invention.

In Fig. 6, a part of these air-passages *c*
 50 are shown, and while it is obvious that there could be any number of said passages or openings in the row, according to the size of said passages and the length of the tracker, it is intended in practice to use the
 55 standard sized openings which consists of 88, the same number as are in the row in cylinder *b* as clearly shown in Fig. 1, and which they communicate with, as fully shown by dotted lines in Fig. 3, and will be specifically referred to hereinafter. Said tracker-body being suitably journaled at each end in the
 60 side portions of frame 15,—as fully and specifically shown in Fig. 7,—by means of a short support *f*,—similar to the short spindle *g* of cylinder *b*,—the opening in frame

15 in which they rest and have their bearing being much longer or deeper, thus allowing of a longitudinal adjustment of said cylinder and body so there will always be an exact adjustment of the note openings
 70 throughout the tracker with the perforations in the sheet or strip of music, as it passes from roll 16 and rewinds on bobbin 19—as heretofore referred to, and by thus causing these note openings to register in exact alinement, I not alone facilitate the
 75 operation of the player, but also produce a clearer, smoother and sweeter toned music. Tracker-body *a* is further provided with a hinged lever *h* having a short leg *k*, which rests normally in an opening *l* in said body adapted to receive it, and moves therein
 80 when said lever is operated; said lever being formed with a stop *m* which does not allow it to be raised to a height sufficient to remove leg *k* out of opening *l*. Said body is suitably formed with a concavity, or grooved face *n*, adapted to receive cylinder *b*—which by reason of being formed round or similar
 85 to a roller, instead of being a flat or approximately flat-faced tracker-board, has the advantage of reducing to a minimum all frictional contact coming on the perforated paper music sheet or strip, as it passes over
 90 said cylinder; also by reason of being round instead of flat, permits of only one row of note-openings in said cylinder appearing or being presented to the operator at one time, thereby avoiding any and all confusion or
 95 annoyance.

Cylinder *b* is provided with a groove *o* in which moves and travels leg *k* of hinged lever *h* of body *a*, when the cylinder is rotated or revolved, but when the cylinder is adjusted longitudinally, one of the depressions
 100 *p* located in groove *o*, will receive said leg, so that the entire tracker will move in adjusting, while stop *m* on said hinged lever will prevent said leg from ever being raised out of groove *o*, thus always connecting body
 105 *a* and cylinder *b*. The opposite end of said cylinder—from that supported by spindle *g*,—is supported by a screw-threaded spindle *q*, the screw-threads of which engage a screw-threaded socket in bearing-plate *r* of
 110 frame 15, and projects through the wall of chamber *s* of the cylinder, where it is held or retained by the shoulder formed by the section *t*, which terminates in the small beveled pinion *u* having its bearing in the cylinder—as illustrated in detail in Fig. 2,—the
 115 teeth of said pinion being in mesh with the teeth of another beveled pinion *v* provided with an operating handle *w*, which when turned will cause pinion *v* to operate pinion
 120 *u*, which will turn screw-threaded spindle *q* in its bearing in screw-threaded socket of plate *r*:—said screw-threads being of just sufficient size to give said cylinder a slight longitudinal movement in its bearing in
 125 130

frame 15, and by reason of leg *k*—of said body—resting in its seat or depression *p*, will cause body *a* to also move or shift longitudinally with cylinder *b*, thus moving the entire tracker until the note-openings in the row in the cylinder and extending through the tracker, and the perforations in the music sheet or strip will come in exact alinement and register accurately,—as heretofore clearly described.

It will now be obvious that by means of my construction of tracker, employing my cylinder,—instead of the tracker-board;—more than two rows of note or tracker-openings could be employed and arranged at various distances apart from that here shown, according to the circumference and length of said cylinder, if so desired; so as to accommodate any class of music or style of perforated sheets or strips of music, although I have here shown two rows of note openings in said cylinder, one being technically termed the “88 row” and the other the “65 row”,—on account of each row having that respective number of openings therein,—and which for convenience I have here so designated; said rows being arranged a quarter of the distance of the circumference of the cylinder apart. When it is desired to play a piece of music in which the 88 notes are to be used, the cylinder is rotated by means of raising lever *h* until leg *k* is out of its seat or recess *p*, and by grasping and firmly holding operating handle *w* thus locking the teeth of pinions *v* and *u*, said handle can be made to rotate said cylinder by reason of the turning of screw-threaded spindle *q* in its screw-threaded bearing in plate *r*,—said screw-threads being of the proper size and scale to permit of this,—when said leg will at the same time travel in groove *o*, until the 88 row of note openings are in the center of the cylinder as shown in Fig. 1, and in full view of the operator, when by moving or pressing the lever downward, said leg will enter and rest in the next recess or depression *p* intended for it,—thus holding the cylinder stationary,—and said air or note openings will now be in alinement with, and there will be an open communication established with air passages *c* and flexible tubes *e* of said tracker-body,—as fully shown by dotted lines in Fig. 3,—and of course with the perforations of the sheet or strip of music from roll 16, as heretofore clearly referred to;—the 65 note-openings being closed by said tracker-body. In like manner, when it is desired to play a piece of music in which another row of note openings are to be used,—such as the 65 row—all that is necessary is to rotate said cylinder by operating the parts, the same as for the 88 row as just described, until the 65 row of note openings is before the operator, as shown in Figs. 5 and 6, when there

will now be an open communication from the perforations in the strip or sheet of music through the 65 air or note openings of the cylinder and air-passages *c* and the nipples and flexible tubes of the body of the tracker—from thence down to the pneumatics—the 88 openings of course being closed by said body as fully shown. Whenever the mouth of the note openings in a certain row in said cylinder are larger, and therefore this row extends a greater length on the cylinder although less in number than another row having the greater number of openings, as in the instance of the 65 row, I arrange these 65 openings so as to radiate from the ends until said 65 note openings meet and communicate with the exact number of air-passages *c* in the tracker body, and also taper them in size so that the abutting ends will be the same size as said air passages or note openings in said tracker-body, as fully and clearly shown in Fig. 6.

My entire tracker is intended to be constructed out of some very hard light weight material, of a nature especially adapted for the purpose, preferably a hard, light metal, as this material gives a much clearer, ringing and more distinct tone to the music than when the tracker is constructed out of wood or part wood and part metal.

Having now described my improved tracker—I claim:—

1. An adjustable multi-tracker for mechanical musical instrument players provided with a tracker-body formed with a deep concavity and having a movable stop, and air-passages therein; a cylinder adapted to rest and rotate in the concavity of said tracker-body, and provided with means for engaging the stop of said body, and having two rows of note-openings therein, one row extending a greater distance and having a less number of openings than the other, but both rows having their openings so constructed and arranged as to communicate in turn with the air-passages of said tracker-body when the cylinder is operated, and suitably geared mechanism at the end of the cylinder for shifting and rotating the same, substantially as described.

2. In an adjustable multi-tracker for pneumatically actuated music playing instruments, the combination of the carriage of said tracker having a concavity leaving sides extending sufficient distance over a tracker-cylinder resting and adapted to rotate therein, to cover the note openings of one row when those of another row are in operation, and having air-passages therein; the tracker-cylinder resting rotatably in the concavity of said carriage and having several rows of note openings therein, one row having the ends of the note openings extending radially and of a different size at the mouth from the note openings of an-

other row, each row of openings in the cylinder is so constructed and arranged as to communicate in turn with the air-passages of the tracker-body, and suitable mechanism at one end of said cylinder for rotating the same and for moving said tracker longitudinally; all substantially in the manner and for the purposes described.

3. In an adjustable multi-tracker for mechanical musical instrument players, the combination of a tracker-carriage having a concaved face and provided with a plurality of air-passages, a lever having a short leg and hinged to said carriage; a tracker-cylinder the convexed face of which is adapted to rest in the concaved face of said carriage, and formed with several rows of note openings differing in size, the row having the larger openings having a number of said note openings so radiating that when said row is brought on a line with the air-passages of the carriage, all of said note openings will register and form an open communication with the same number of air passages in said tracker-carriage, a groove and recess in the body adapted to receive

said short leg of the hinged lever of said carriage; means for adjusting said tracker and for rotating said cylinder; all substantially as described.

4. The combination in a multi-tracker for player-pianos and mechanical players for pianos, of the body formed with a concavity and having air-passages therein, and provided with a lever; a tracker-cylinder located in the concavity of said body and having rows of note-openings so arranged and constructed as to communicate in turn with the air passages of the tracker-body, means on said cylinder for engaging the lever of said body; a smooth spindle at one end of the cylinder, a screw-threaded spindle at opposite end of said cylinder; and means whereby said cylinder and body can be shifted and said cylinder can be rotated as desired; all substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

RODNEY W. MARTIN.

Witnesses:

C. P. WATSON,
A. B. SHOUP.

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