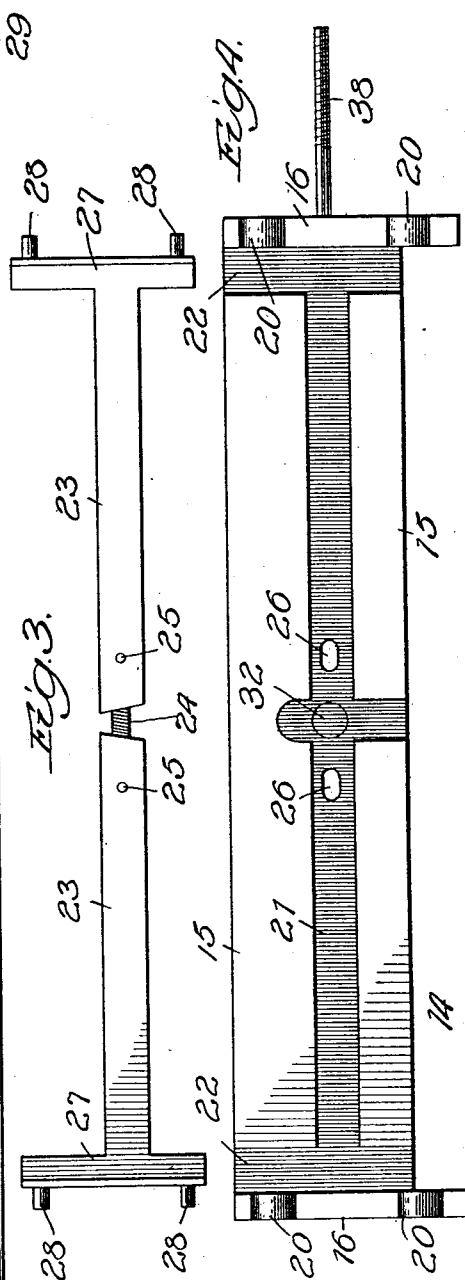
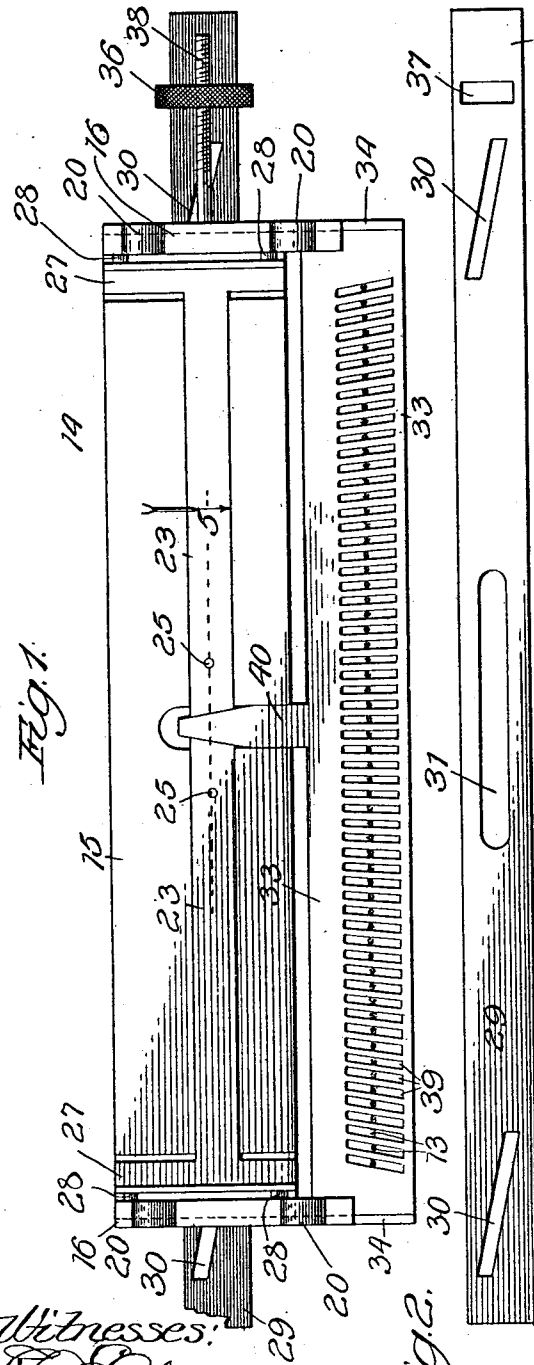


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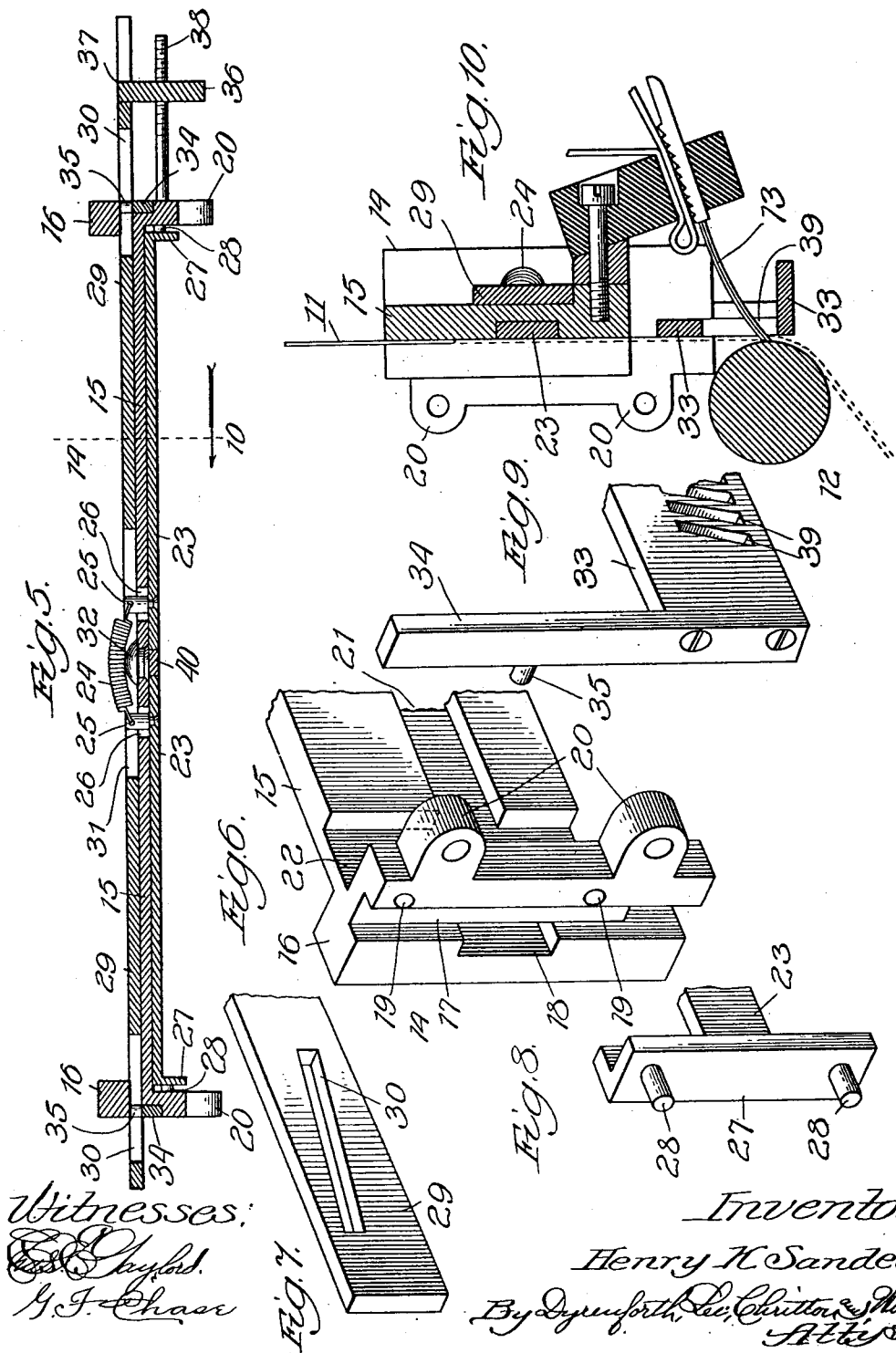
Patented Aug. 20, 1912.
2 SHEETS—SHEET 1.



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1,036,152.



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UNITED STATES PATENT OFFICE.

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TRACKER-BOARD.

1,036,152.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed March 2, 1912. Serial No. 681,223.

To all whom it may concern:

Be it known that I, HENRY K. SANDELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tracker-Boards, of which the following is a specification.

My invention relates to an improvement in the device used in self-playing musical instruments for traversing it by and registering with its apertures the electrical contact-strips on or perforations in a traveling music-sheet.

The traveling music-sheet, of paper, is susceptible to conditions to which it is exposed, tending to expand or shrink it in width and thereby impair the properly-accurate registrations of its perforations, or the electrical contact-strips provided on it, with the apertures of the tracker-board. The primary object of my invention is to provide a construction of tracker-board device whereby such impairment may be readily and accurately rectified.

In the accompanying drawings, Figure 1 shows my improved device by a view in front elevation, but with the apertures in exaggerated size to facilitate illustrating and explaining the invention; Fig. 2 is a similar view of a longitudinally-reciprocable bar forming a member of the structure; Fig. 3 is a similar view of a divided sheet-guiding bar spring-connected at its inner ends and forming another member of the structure; Fig. 4 is a similar view of a longitudinally recessed frame carrying the other members; Fig. 5 is a section on line 5, Fig. 1; Fig. 6 is an enlarged broken view in perspective of one of the two similar head-portions of the recessed bar shown in Fig. 4; Fig. 7 is a similar view of an end-portion of the reciprocable bar of Fig. 2; Fig. 8 is a similar view of the sheet-guiding bar of Fig. 3; Fig. 9 is a similar view showing the apertured bar, and Fig. 10 is an enlarged section on line 10, Fig. 5.

The music sheet 11 is shown in Fig. 10 as it works in the electrical self-playing violin of my Patent No. 807,871, dated December 19, 1905, by traveling across a suitable guide between a metal contact-roller 12 forming one terminal in an electric circuit, and contact-fingers or brushes 13, also forming terminals in said circuit; whereby each time a contact is made through a per-

foration in the sheet by a brush with the roller, an electromagnet is energized for playing the violin.

The guide for the music-sheet, in the present connection, is part of my improved tracker-board construction, described as follows: A frame 14 consists of a bar 15 terminating at each end in a head 16 having a rectangular recess 17 in its outer face, with an offset-portion 18 between its ends at one side of the recess, and bearing-holes 19, 19 at the opposite side thereof. Perforated ears 20, 20 project from the front side of each head 16 to afford means by which to suitably fasten the frame in place on any self-playing instrument with which it may be used. The bar 15 contains in its front side a longitudinal rectangular recess 21, and at the ends of the latter transverse recesses 22, 22. A divided bar 23 has its inner opposing ends, which are oppositely beveled to render the space between them wedge-shaped, as shown in Fig. 3, connected by a coiled spring 24 fastened at its ends to studs 25, 25 riveted to the bar-sections at opposite sides of said space and projecting through elongated openings 26 in the bar 15; and each section of this divided bar terminates at its outer end in a sheet-guiding head 27 of L-shape in cross-section, from the outer face of which, near its opposite ends, project studs 28 entering the holes 19 when the bar 23 occupies the recess 21, in which it fits and its sections are longitudinally movable, and the heads 27 occupy the relatively-wider recesses 22. A rectangular bar 29 is reciprocably confined at its end-portions, which contain correspondingly inclined slots 30, 30, in the offset-sections 18 of the recesses 17 to extend along the back of the frame-bar 15; and the bar 29 contains an approximately central longitudinal recess 31 to clear the studs 25, passing through it, and accommodate the spring 24. This spring is maintained in the rearwardly-bowed condition represented in Fig. 5 by a rounded button 32 riveted in the base of the bar-recess 21 to project against the spring and cause its tensile-force to tend to hug the bar 23 against the base of the recess 21.

The tracker-board comprises a rectangular bar 33 having posts 34 rigidly secured to its ends and slidingly fitting in the head-recesses 17, each post having a rearwardly-projecting stud 35 entering an inclined or

cam slot 30 in the bar 29, whereby longitudinal movement of the latter in one direction or the other moves the posts 34 in the recesses 17 to shift the position of the bar 33 in the path of the traveling music-sheet, as and for the purpose hereinafter explained. Movement of the bar 29 is produced by a nut 36 projecting into a slot 37 near one end thereof and working on the thread of a rigid screw-stem 38 projecting from the outer face of the adjacent frame-head 16.

The gist of my invention lies in the series of oblique slot-like apertures 39 provided in the bar 33. These slots incline at progressively-increasing angles from the center of the series to the opposite ends thereof, the direction of inclination on one side of said center being opposite that on the other side. It is through these slots that the instrument is played by registration with them of the proper perforations in a music-sheet traversing them, the playing being produced pneumatically, electrically or otherwise. In the present representation, a brush is shown projecting through each aperture 39, so that when a music-sheet perforation registers with any brush, the latter will contact through it with the roller 12 to close the circuit and play the violin. In the event of the music-sheet shrinking or expanding in the direction transversely of its length, impairment of the predetermined registration of its perforations with the flexible brushes or the like in the slots 39 will, obviously, result. To correct this defect, slight movement of the bar 33 up or down along the path of the music-sheet, depending on whether the sheet has shrunk or expanded, is all that is necessary to bring the brushes closer together or spread them farther apart by the cam-action against them of the inclined slots 39. To accomplish this result the nut 36 is turned in the proper direction to slide the bar 29 and move its slots 30 across the studs 35, whereby they shift the tracker-bar 33. At the same time a tongue 40 on the tracker-bar, which has a wedge-shaped end (Fig. 1) working in the space between the bar-sections 23, is retracted slightly to permit the spring 24 to draw those sections closer together, or slightly advanced to spread them farther apart, the arrangement of the members of the device being such that in either instance the sheet-guiding heads 27 will be adjusted to conform to the changed width of the music-sheet.

As will be understood, the number of apertures 39 for the use of the tracker-board, to provide one brush or the like for each key or tone of the instrument to be played would exceed those shown in Fig. 1 and be much narrower and also shorter. The actual tracker-board, which is now in

practical use on an electric sheet-perforating machine, has one hundred and twenty-three of these apertures, with the central one in perpendicular line with a center struck at any elevated point, and with those numbering sixty-one at each side of that one radiated from that center to progressively increase their angles of inclination in the manner hereinbefore mentioned. As will also be understood, such increase in the angle of inclination is required to render uniform across the music-sheet the adjustment relative to its perforations, since the shrinkage of the perforations increases, with that of the sheet, progressively toward the longitudinal center thereof and their expansion similarly increases outwardly from that center.

I realize that considerable variation is possible in the details of construction thus specifically shown and described, and I do not intend by illustrating a single, specific, or preferred form to limit my invention thereto; my intention being in the following claims to claim protection upon all the novelty there may be in the device as broadly as the state of the art will permit.

What I claim as new and desire to secure by Letters Patent is—

1. In a tracker-board device, the combination of a bar extending across the path for a traveling music-sheet and bodily-movable lengthwise thereof, brushes to register with the sheet-perforations for playing therethrough a musical instrument, and means on said bar for adjusting, by adjusting the bar, the registration of the brushes with said perforations under variation in the width of the music-sheet by shrinkage or expansion.

2. In a tracker-board device, a tracker-bar extending across the path for a traveling music-sheet and adjustable lengthwise thereof, said bar having a longitudinal series of apertures inclining at progressively-increasing angles toward the ends of the series from the center thereof and in relatively opposite directions at opposite sides of said center.

3. In a tracker-board device, the combination of an adjustable guide for a traveling music-sheet at opposite sides of the path therefor, a bar extending across said path and adjustable lengthwise thereof, said bar having a longitudinal series of apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, and means for adjusting said guide and bar relative to variations in the width of the music-sheet.

4. In a tracker-board device, the combination of an adjustable guide for a traveling music-sheet extending at the opposite

sides of the path therefor, a bar extending across said path and adjustable lengthwise thereof, said bar having a longitudinal series of slot-like apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, and means for simultaneously and correspondingly adjusting said guide and bar relative to variations in the widths of the music-sheet perforations by transverse shrinkage or expansion of said sheet.

5. In a tracker-board device, the combination of a frame, a guide for a traveling music-sheet, having side-members adjustable toward and from one another relative to the path of said sheet, a bar extending across said path and adjustable lengthwise thereof, said bar having a longitudinal series of apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, and means for adjusting said side-members and bar relative to variations in the width, by shrinkage or expansion, of the music-sheet.

6. In a tracker-board device, the combination of a frame having a longitudinal recess, a guide for a traveling music-sheet comprising a bar formed of sections movably confined in said recess and spring-connected end-to-end, with oppositely beveled inner ends forming a wedge-shaped space between them, and sheet-guiding heads on their outer ends movably confined in the frame, a bar extending across the music-sheet path and adjustable lengthwise thereof, and having a longitudinal series of apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, a wedging tongue projecting from the apertured bar into said space, and means for moving the guiding-heads to simultaneously adjust them and said apertured bar relative to the music-sheet, for the purpose set forth.

7. In a tracker-board device, the combination of a frame, an adjustable guide on

the frame for the edges of a traveling music-sheet, a bar longitudinally movable on the frame and provided with inclined slots in its end-portions, a bar adjustably supported on the frame and having end-posts provided with studs entering said slots, said last-named bar extending across the music-sheet path and having a longitudinal series of apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, and means for moving said slotted bar to adjust said apertured bar relative to variations in the width of the music-sheet.

8. In a tracker-board device, the combination of a frame comprising a bar having a longitudinal recess in its face, end-heads forming recesses at the ends of said longitudinal recess crossing the latter, and having recesses in their outer faces containing offset-sections between their ends, a music-sheet guide formed of a pair of bar-sections movably confined in said longitudinal recess and having guiding-heads on their outer ends movably confined in said crossing recesses, the inner ends of said bar sections being oppositely beveled, to form a wedge-like space, and spring-connected, a slide-bar having inclined slots in its end-portions, supported thereat in said offset-sections to extend along the inner face of said frame-bar and having a nut-confining slot near one end, a tracker-bar having end-posts in said frame-head recesses and provided with studs confined in said inclined slots to support the tracker-bar to extend along said frame-bar, said tracker-bar having a series of apertures extending from the center of the series toward its ends inclined in relatively-opposite directions at opposite sides of said center and at progressively-increasing angles, a wedging tongue projecting from the tracker-bar into said space, a threaded stem extending from the frame, and a nut on said stem projecting into said nut-confining slot, for the purpose set forth.

HENRY K. SANDELL.

In presence of—

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R. SCHAEFER.