

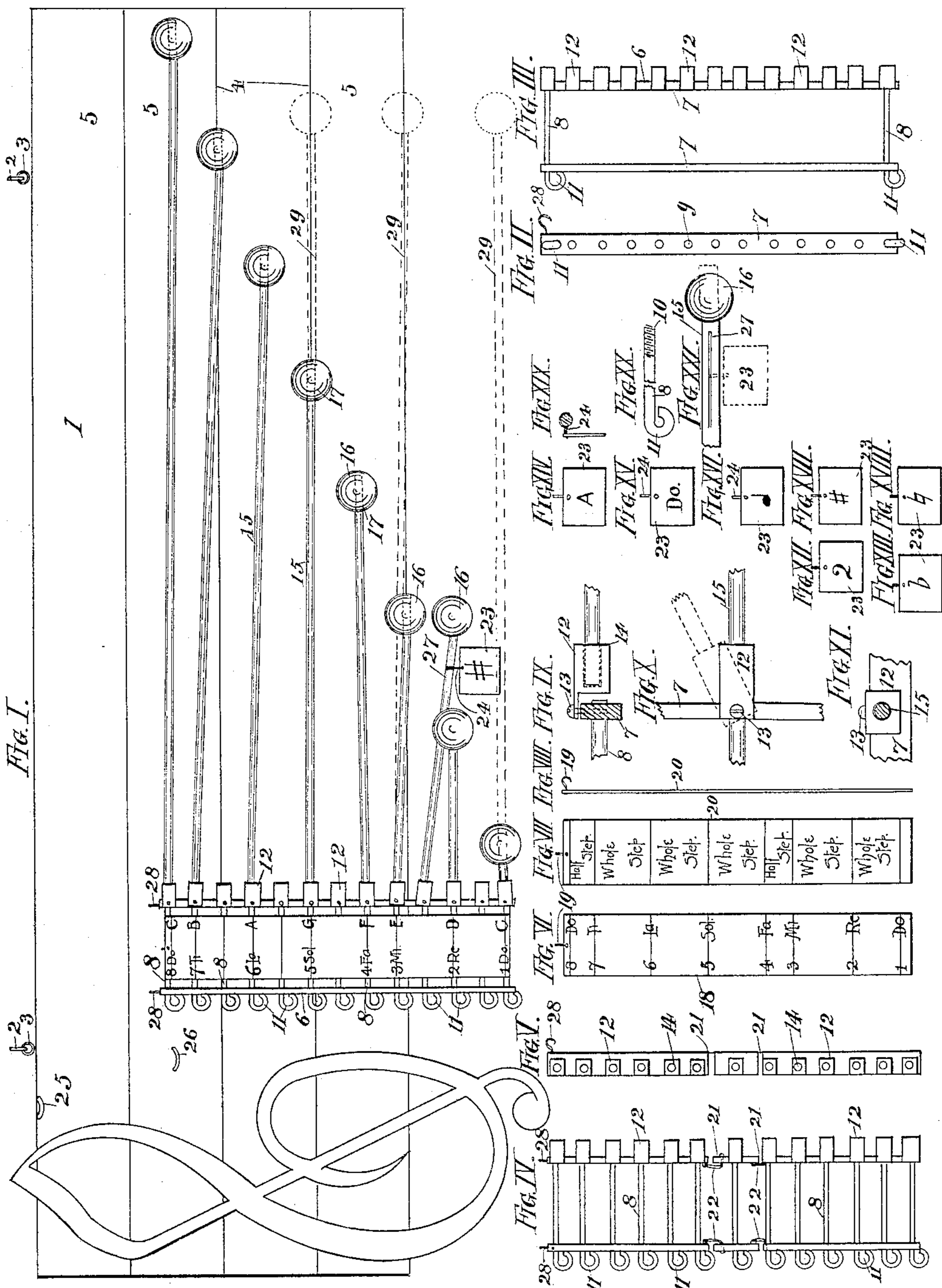
(No Model.)

E. L. R. MACK.

MOVABLE LADDER FOR MUSICAL INSTRUCTION.

No. 594,804.

Patented Nov. 30, 1897.



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UNITED STATES PATENT OFFICE.

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MOVABLE LADDER FOR MUSICAL INSTRUCTION.

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To all whom it may concern:

Be it known that I, ELLA L. REEVE MACK, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Movable Ladders for Musical Instruction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved device which I term a "movable ladder," in combination with other devices for giving musical instruction, intended more especially for teaching young children, but which is not confined to any age; and my invention consists in certain features of novelty hereinafter described and claimed.

Figure I represents a plan view of a blackboard suitably suspended and having the staff-lines drawn thereon, in combination with my improved ladder suspended on the blackboard and having a panel showing a musical scale with arms connected with the ladder, on which are represented notes which may be adjustably moved to any point on the staff desired. Fig. II represents a side elevation of my improved ladder, showing most of the rounds removed. Fig. III represents a front elevation of the ladder, showing all the rounds removed except the top and bottom ones. Fig. IV represents a front elevation of the ladder, showing rounds in position and also showing a modification whereby the ladder may be divided at will. Fig. V represents an edge view of the modified form of ladder. Fig. VI represents a panel on which a musical scale is indicated. Fig. VII represents a panel in which the spaces of the scale are indicated. Fig. VIII represents an edge view of one of the panels. Fig. IX represents a side elevation of one of the adjustable sockets which receive the scale-arms. Fig. X is a top view of adjustable socket. Fig. XI is an end view of an adjustable socket, showing ladder in detail. Figs. XII to XVIII represent a series of tablets on which are indicated numerals, flats, letters, syllables, notes, sharps, and naturals which are used in connection with my improved ladder. Fig.

XIX is an edge view of one of the tablets, showing it suspended on the ladder. Fig. XX represents a broken view of one of the rounds of the ladder. Fig. XXI represents a detail view showing means for attaching the tablets to the scale-arms.

Referring to the drawings, 1 represents a blackboard suitably supported by hooks 2, which may be secured to the wall, 3 representing rings on the blackboard adapted to engage said hooks.

4 represents lines drawn on the blackboard, having intervening spaces 5, said lines and spaces representing a musical staff.

6 represents my improved ladder, consisting of two side pieces 7, connected by means of a series of rounds 8, the top and bottom rounds being permanently secured to the ladder, as shown in Fig. III, the intermediate rounds being removable. The side pieces 7 are provided with a series of orifices 9, into which the rounds 8 may be inserted, the rounds 8 being threaded on their inner ends, as shown at 10, in order that they may be screwed into the inner side piece when placed in position, the outer ends of the rounds being formed in loops 11, by which means they may be hung on a convenient pin or other support when not in position in the ladder.

12 represents a series of brackets or socket-pieces pivoted to the edge of the inner side piece of the ladder by means of the screws 13, the brackets being permitted to swing on the side pieces. Said brackets are provided with sockets 14, in which may be secured a series of arms 15, said arms being easily removed from their sockets or changed to other sockets, as may be desired.

16 represents a series of buttons removably secured to the outer ends of the pivoted arms 15, said buttons having orifices 17, into which the outer ends of the arms extend. The buttons 16 are intended to represent notes, and as the arms 15 are movable either up or down the buttons may be moved to any point desired on the staff, or, if desired, the buttons on the arms may be removed entirely and the notes drawn upon the staff, said staff being either drawn upon the blackboard or a card-board, or other suitable surface, or may be printed, if so desired.

The brackets 12 correspond with the rounds of the ladder, which when in its full condition represent half-steps or semitones in the octave, but which may when certain of the rounds are removed represent whole steps or full tones in the octave.

18 represents a panel on which may be inscribed the letters, syllables, or numerals used in indicating the various scales. For instance, the panel placed on the ladder, as shown in Fig. I, represents the major diatonic scale in C. Of course there may be any number of these panels representing different scales, but one is sufficient to show the application in connection with my improved ladder. The top of the panel is provided with a hook 19, by which means it may be hooked over the top round of the ladder either by the teacher or the child during the musical instruction.

20 represents a panel on which the space is divided up into whole and half steps, which correspond with the musical scale.

In my modified form the ladder is divided, as shown at 21, and temporarily connected by means of hooks 22. The object of dividing the ladder will be more fully explained hereinafter.

23 represents a series of tablets to be used in connection with the musical instruction, said tablets having on their faces the various characters used in music—such as sharps, flats, figures, &c.—said tablets being provided with hooks 24, by which they may be suspended either on the rounds of the ladder, on the movable arms 15, or to staples 25 26 on the blackboard.

27 represents a staple on one of the movable arms 15, on which the tablets 23 may be suspended when desired, or the hooks may be placed over said arms, if desired.

28 represents hook on the upper end of the ladder, by which means it may be suspended to the blackboard or other device.

In operation, in teaching the student or child music I first take the ladder, as shown in Fig. III, and suspend it upon the blackboard. I then place one of the panels—such as, for instance, that shown in Fig. I—on the ladder and instruct the child to indicate the different parts of the scale by placing the rounds on the ladder, and so on, using the different panels throughout the series according to the judgment of the teacher or the proficiency of the child. Then, if desired, the child may be taught the connection between the notes on the staff and the scale by placing the arms 15 in the brackets 12, placing said arms and adjusting them according to the instruction of the teacher.

The ladder may be constructed of any size, in order to fit any size of music-staff, or may be used independent, if desired, of the blackboard and staff, the main object being to represent to the eye of the pupil the intervals in musical scales, chords, or composition, the child being taught that the steps and half-

steps in the ladder become tones and semitones when produced in music.

The staples 25 26 on the board are to be used when it is desired to indicate the different signatures of the scales by attaching the sharp and flat tablets in their respective places—for instance, in the key of G it would be necessary in order to form the signature to place a sharp on F or on the staple 25. In the key of D another sharp would be added by hooking it onto the staple 26.

The ladder is made movable in order to show that upon whatever degree of the staff the foot of the ladder is placed that degree becomes the starting-place for a new scale.

To make the starting-point for the new scales systematic or according to musical rule, it is practical to divide the ladder at the fourth and fifth steps of the preceding scale, (see Fig. IV,) the fifth step becoming the first step for the next scale in the sharps, the fourth step becoming the octave of the key for the next scale in the flats.

29 are a series of arms which indicate chords or harmony and which may be placed in certain of the brackets when the arms 15 have been removed therefrom.

The divided ladder is also essential in showing the repetition of the scale above or below the octave. For instance, if tones below the original scale are to be represented place the first or upper round of the divided ladder over the foot-round of the whole ladder. If tones above the original scale are to be represented, place the foot-round of the divided ladder over the upper round of the whole ladder.

I claim as my invention—

1. A movable ladder for musical instruction comprising means whereby it may be suspended on a blackboard, two independent side pieces, top and bottom rounds whereby the side pieces are connected, a series of removable intermediate rounds, a removable panel having means whereby it may be suspended on the rounds, and a series of arms removably secured to one of the side pieces, substantially as set forth.

2. In a ladder for musical instruction, the combination of the ladder proper having rounds representing intervals and a series of arms removably secured to one of the sides of the ladder, substantially as set forth.

3. In a ladder for musical instruction the combination of the ladder proper having rounds representing intervals and a series of brackets pivoted to the ladder and having sockets for the reception of a series of arms, substantially as set forth.

4. In a ladder for musical instruction the combination of a ladder proper having removable rounds, pivoted brackets connected with the ladder; said brackets having sockets for the reception of a series of arms and removable buttons indicating notes, which may be connected with the outer ends of the arms, substantially as set forth.

5. In a ladder for musical instruction the

combination of a ladder proper, brackets on the ladder, arms secured to the brackets and staples on the arms to which tablets may be attached, substantially as set forth.

5 6. In a ladder for musical instruction the combination of a ladder proper, formed in sections, having rounds to indicate musical in-

tervals and a hook or its equivalent for securing the sections together, substantially as set forth.

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