Jan. 21, 1958 W. E. JANSSEN ET AL 2,820,391

FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

Filed July 11, 1955 9 Sheets-Sheet 1

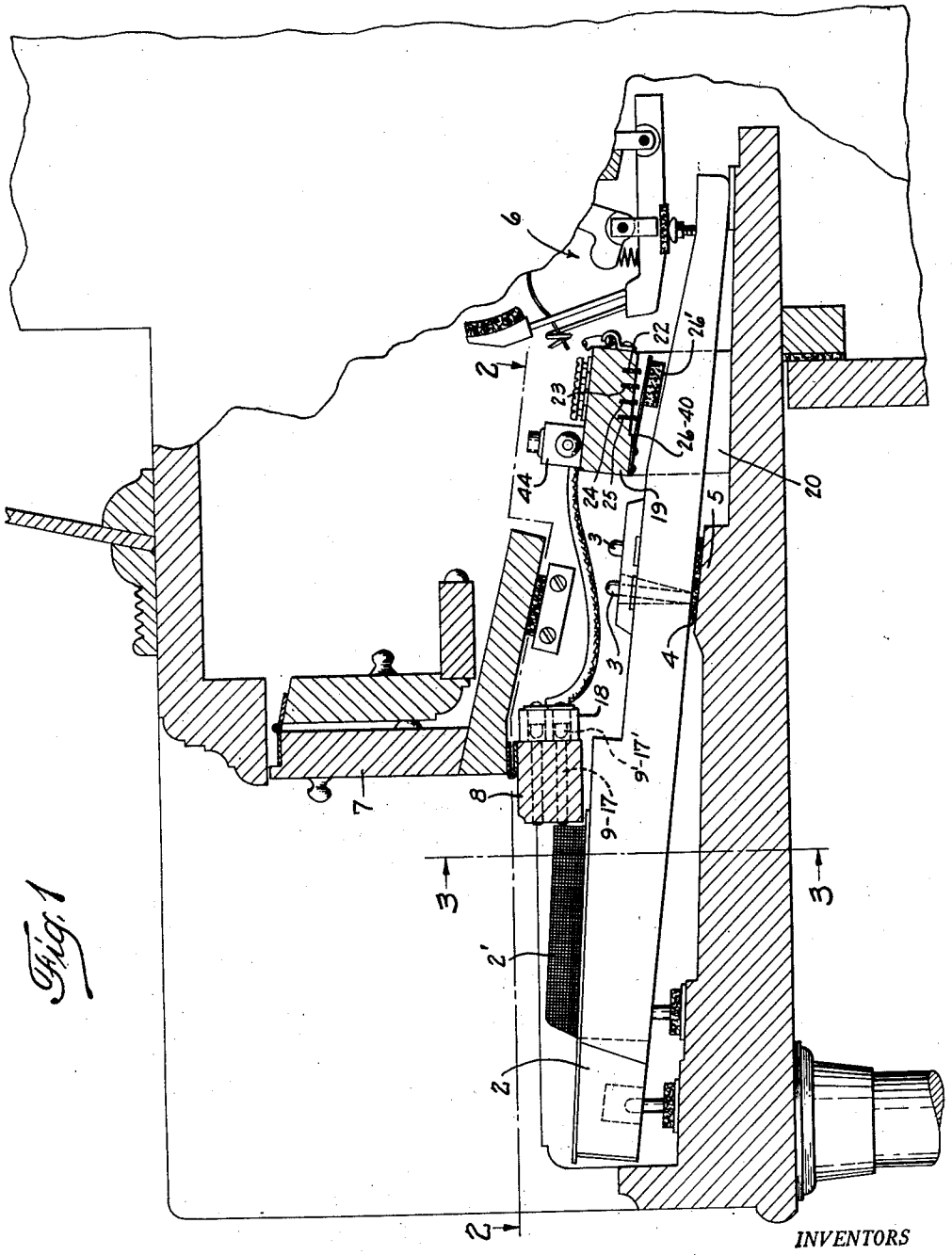


Fig. 1

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

Filed July 11, 1955 9 Sheets-Sheet 2

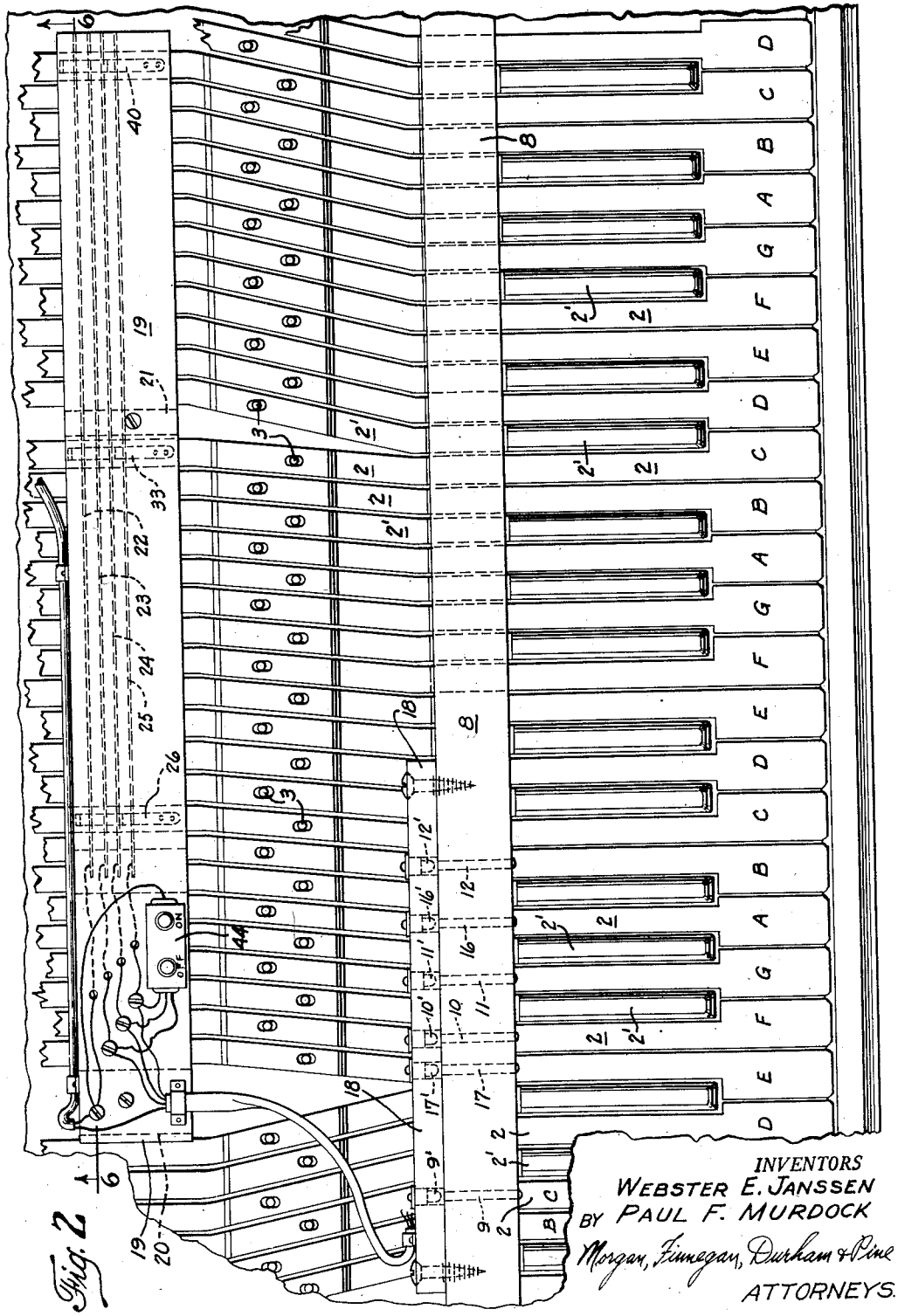


Fig. 2

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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Fig. 3

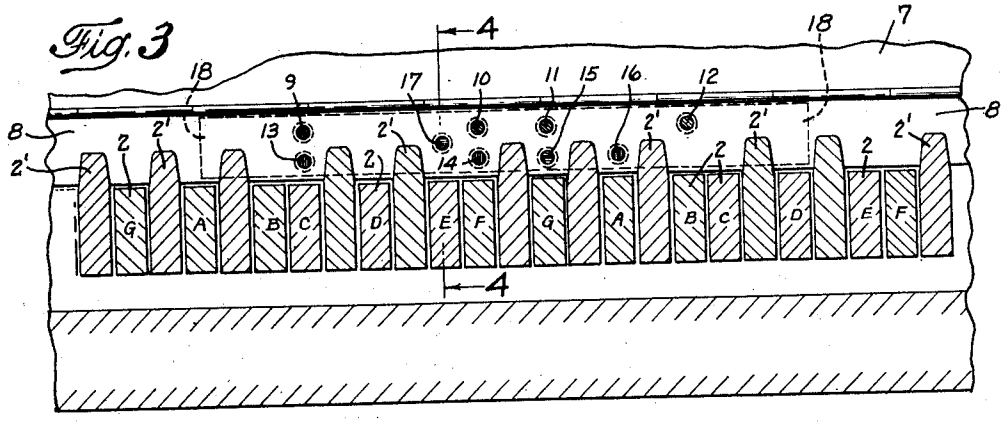


Fig. 4

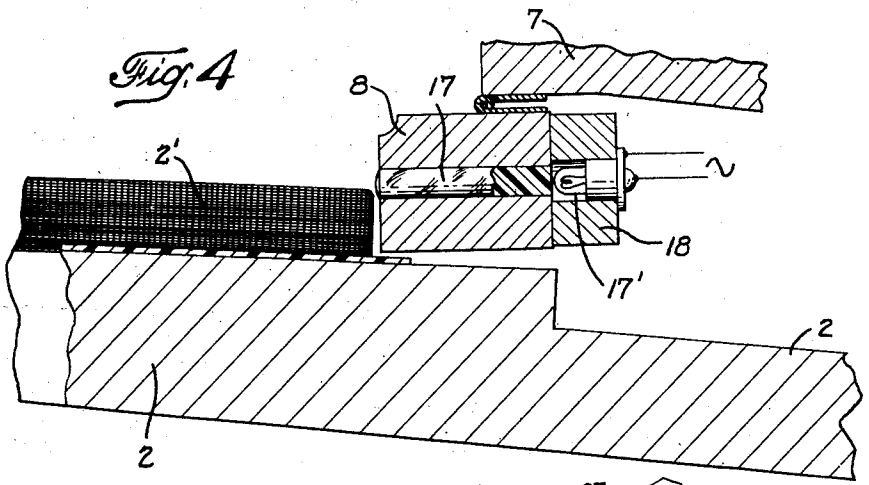
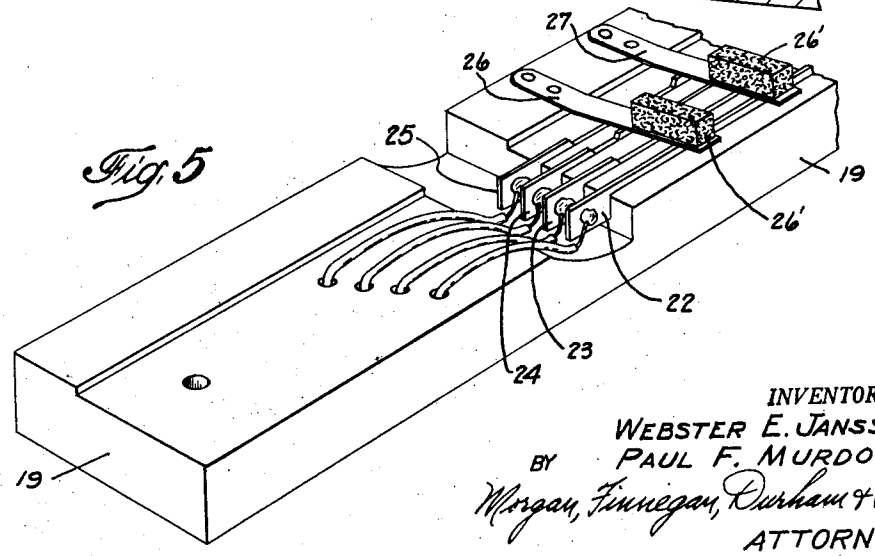


Fig. 5



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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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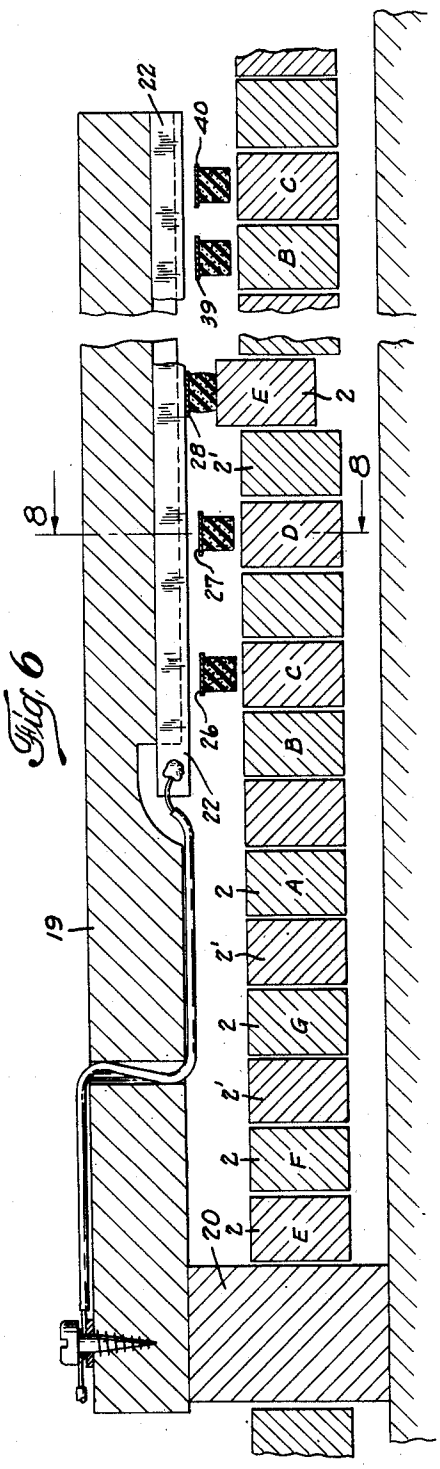


Fig. 6

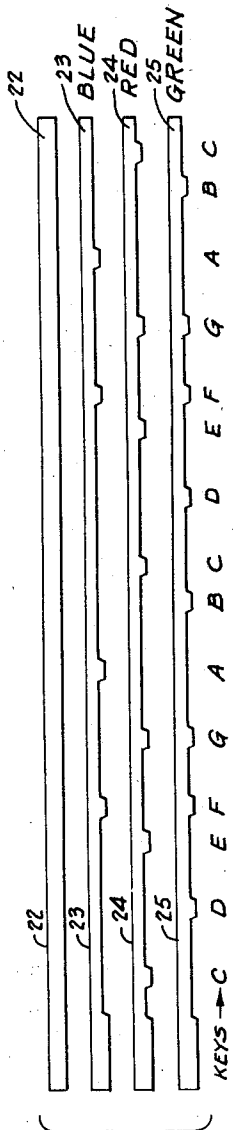


Fig. 7

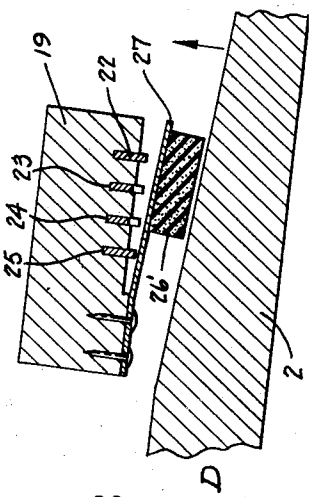


Fig. 8

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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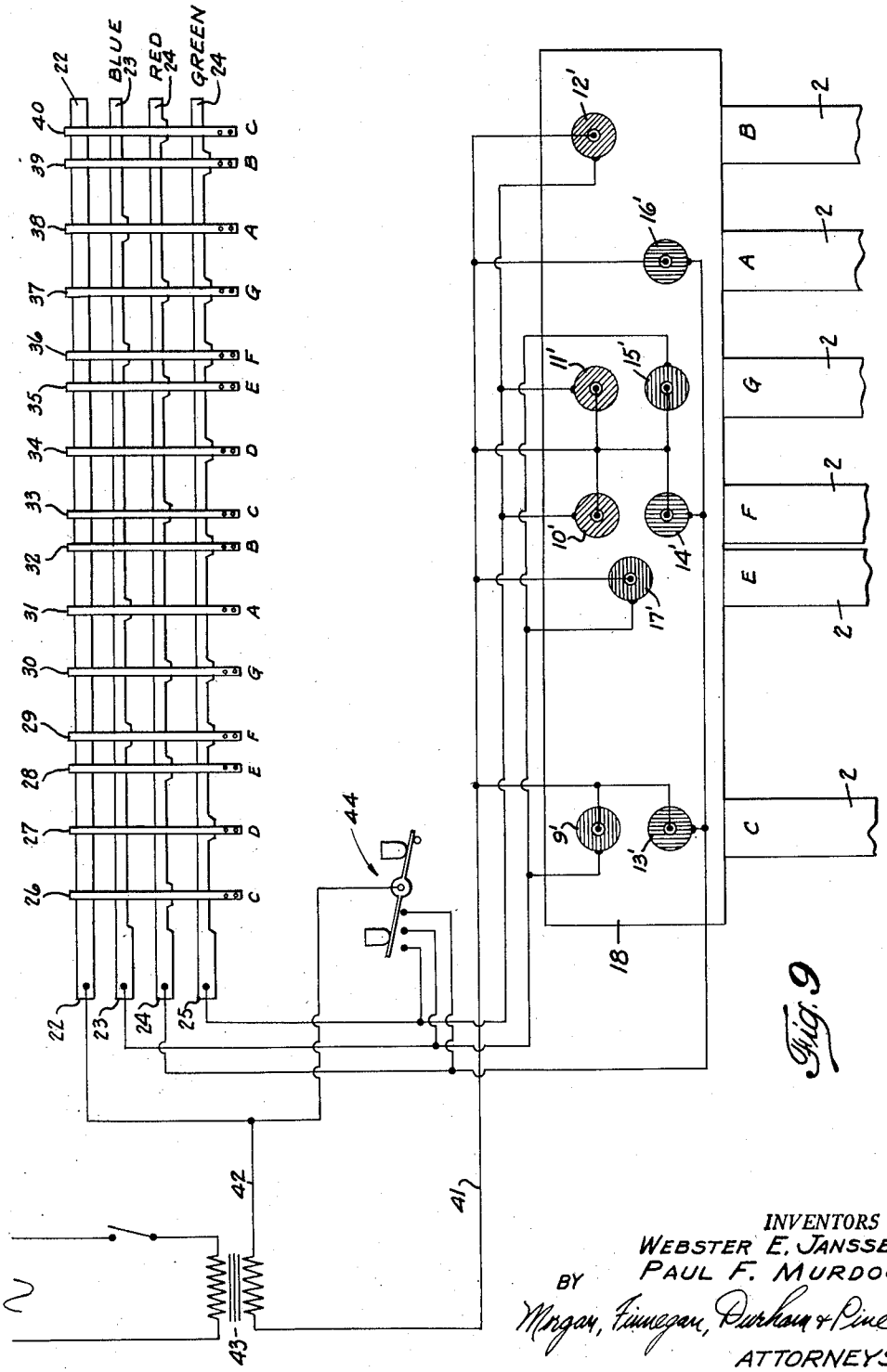


Fig. 9

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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Fig. 10

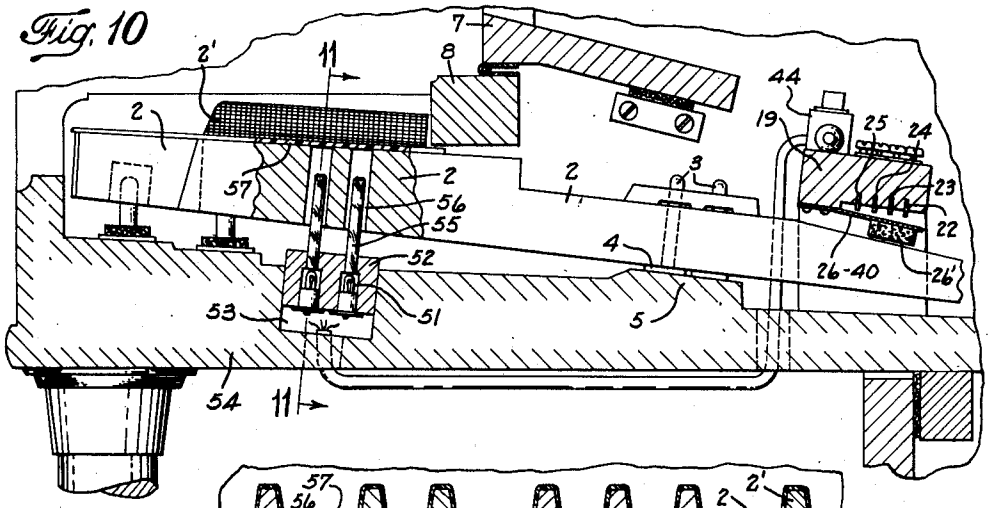
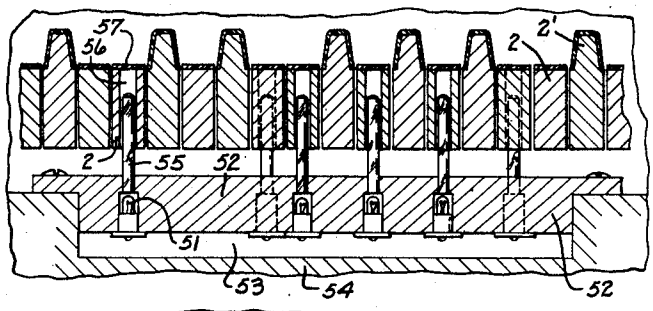


Fig. 11



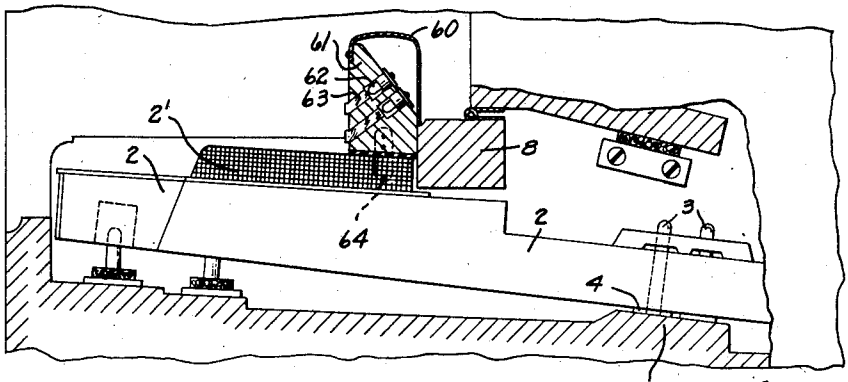


Fig. 12

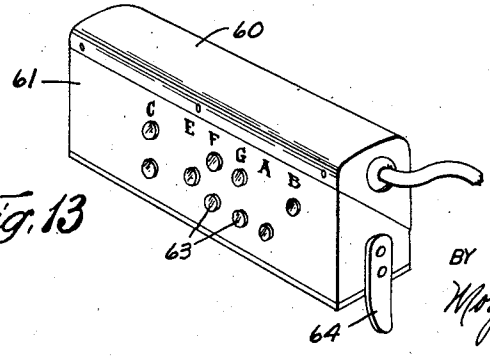


Fig. 13

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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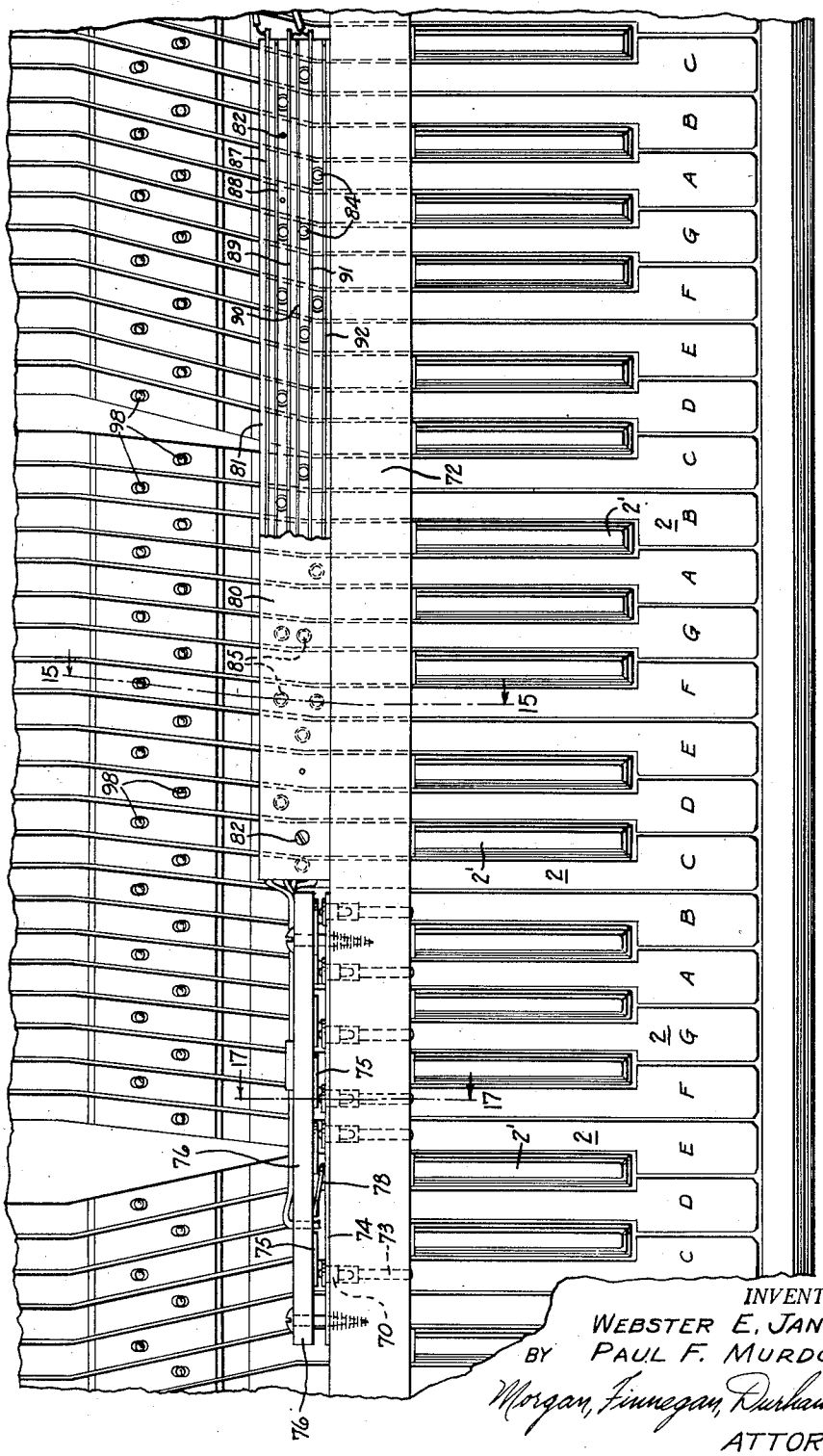


Fig. 14

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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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Fig. 15

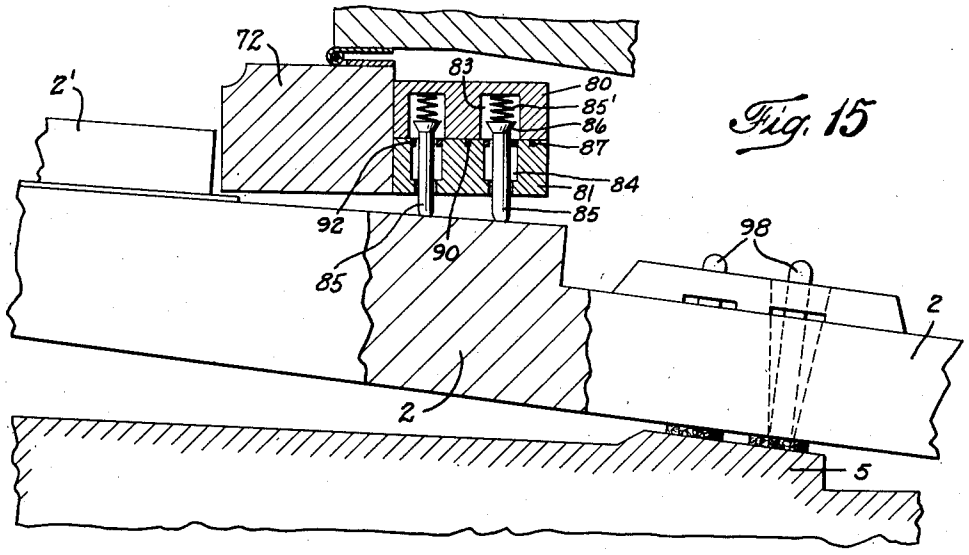


Fig. 17

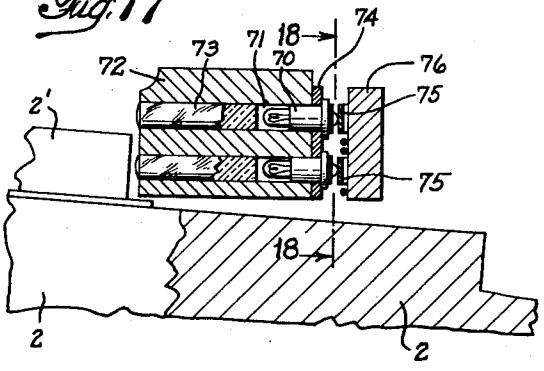


Fig. 16

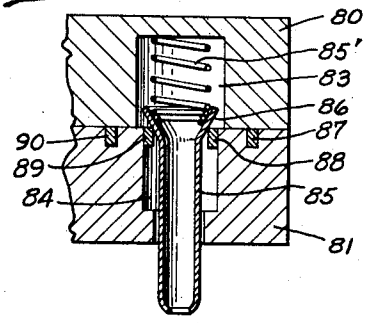


Fig. 18

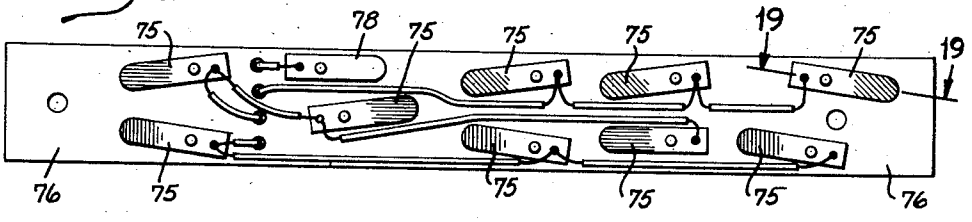
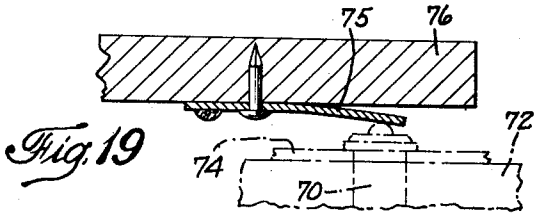


Fig. 19

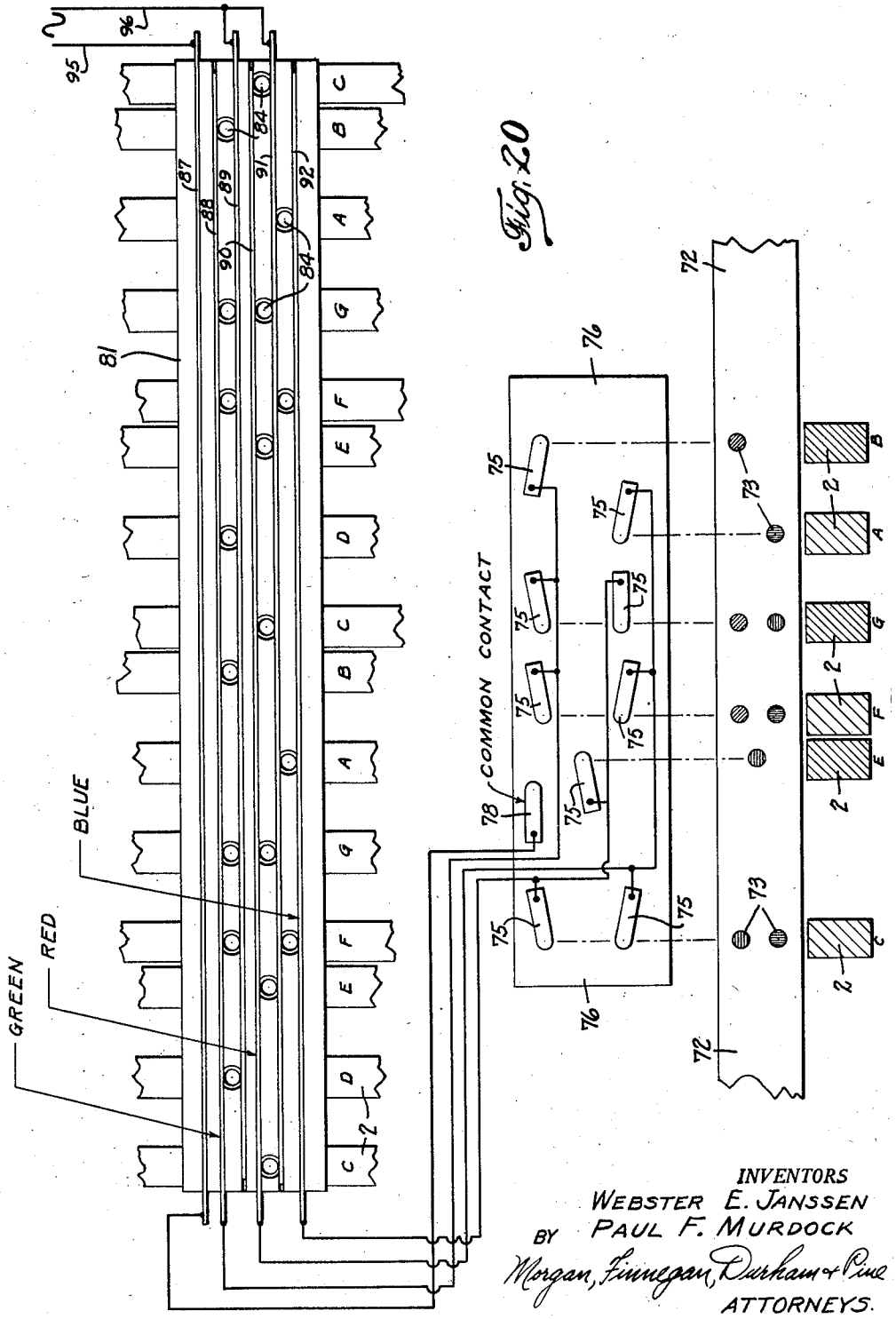


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FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

Filed July 11, 1955 9 Sheets-Sheet 9



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United States Patent Office 2,820,391 Patented Jan. 21, 1958

2,820,391

FINGERING INDICATOR FOR KEYBOARD MUSICAL INSTRUMENTS

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Application July 11, 1955, Serial No. 521,276

19 Claims. (Cl. 84—485)

The present invention provides an improved piano whereon piano playing is made easier to learn for the novice or student, and anyone is enabled to gain immediate enjoyment at the piano. The invention specifically provides a piano wherein visual indicating means show the keys and combinations of keys in a bass octave which are to be struck by the player to obtain a chord to be played with a melody key struck simultaneously therewith in a treble octave. While the invention is herein shown and described embodied as a piano, it will be apparent that it will as readily provide other improved keyboard instruments by applying the principles and constructions thereto which are herein shown and described.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the combinations and improvements pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate different embodiments of the invention, and, together with the description, serve to explain the principles of the invention.

In the drawings:

Fig. 1 is a fragmentary vertical section through central portion of one embodiment of my piano, with certain parts broken away.

Fig. 2 is a plan view taken along line 2—2 of Fig. 1, also with parts broken away.

Fig. 3 is a fragmentary vertical section along the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary section taken along line 4—4 of Fig. 3.

Fig. 5 is a fragmentary perspective view of the bus bar assembly as viewed from the bottom.

Fig. 6 is a fragmentary vertical section taken along line 6—6 of Fig. 2.

Fig. 7 is a side elevation of the various bus bars shown schematically in their relationship to each other.

Fig. 8 is a fragmentary vertical section taken along the line 8—8 of Fig. 6.

Fig. 9 is a circuit diagram of the embodiment shown in Figs. 1–8.

Fig. 10 is a view similar to Fig. 1, but showing the light indicator mechanisms in another position.

Fig. 11 is a fragmentary section along the line 11—11 of Fig. 10.

Fig. 12 is similar to Fig. 1, but wherein the light means is housed in a removable and portable housing.

Fig. 13 is a perspective view of the housing shown in Fig. 12.

Fig. 14 is a view similar to Fig. 2 of a modified embodiment of the piano of the invention wherein different switch mechanisms are utilized.

Fig. 15 is a fragmentary cross-sectional view taken along line 15—15 of Fig. 14.

Fig. 16 is a fragmentary, cross-sectional view on an enlarged scale of one of the switch elements as shown in Fig. 15, the element being shown in circuit making position.

Fig. 17 is a fragmentary, cross-sectional view taken along line 17—17 of Fig. 14.

Fig. 18 is a cross-sectional view taken along line 18—18 of Fig. 17 wherein the contacts for the indicator lights are shown in elevation.

Fig. 19 is a fragmentary cross-sectional view taken along line 19—19 of Fig. 18.

Fig. 20 is a diagrammatic illustration of the circuit interconnecting the treble keys, switch members, and lights associated with certain bass keys, in the embodiment of the invention illustrated in Figs. 14 to 19 of the drawings.

The object of the present invention is to provide a piano wherein a novice or beginner may learn to play the piano after a very short period of time so as to gain almost immediate enjoyment from the playing thereof. More particularly, the object of my invention is to provide a piano having visual indicating means showing the keys and combination of keys in a bass octave which are to be struck by the player to obtain a chord to be played with a melody key struck simultaneously therewith in a treble octave. By providing such an arrangement, the novice is enabled to play simple tunes almost immediately and can rapidly progress.

As is well known to those skilled in the art, a chord is produced by simultaneously striking a combination of a plurality of keys to provide a melodious sound. Bass chords are associated with treble melody keys in the playing of music, and a novice often has difficulty correlating his striking of the keys in a bass octave when he strikes a key in a treble octave. By practicing on the piano of the present invention, a student acquires the proper feel with respect to the bass octaves, and is able to correlate the keys in the bass and treble octaves in producing proper harmonic sounds quicker than if he had used a conventional piano with no visual indicating means.

Broadly, my invention relates to a piano having visual indicating means in association with the keys of a bass octave for indicating the combination of keys of a bass octave to be struck when a melody key in a treble octave is struck. More particularly, the visual indicating means comprises a plurality of sets of lights of different color, with each set being of the same color, in association and in indicating relationship with at least one bass octave of a piano keyboard. These sets of lights are arranged in a predetermined manner so that the lights of at least one set are lit simultaneously to indicate the proper combination keys in a bass octave to be struck when a melody key in a treble octave is struck in order to attain the desired harmonic sound by the production of a completed bass chord in harmonic relation to the melody key.

In accordance with one modification of my invention, the plurality of sets of lights are in electrical connection with a switch mechanism in association with at least one treble octave, the electrical circuit arrangement being such that as a treble melody key is depressed, a set or sets of lights in the visual indicating means are lit to indicate the proper combination of keys to be struck in the bass octave for producing a harmonically-related completed chord.

In another modification, a circuit arrangement is provided whereby the lights in all of the sets are lit so that such a visual indicating means is provided which may be used in connection with an instructive music sheet

having correlated color indices. In such a construction, the lights are not in electrical connection with a switch mechanism in association with a treble octave so as to be selectively lit as in the first embodiment, but are simultaneously turned on or off by passing current or stopping the flow of current therethrough. Thus, in this second embodiment, it is principally useful when used in conjunction with an instructive sheet having proper color indices. Thus, for example, if the keys in the bass octave in association with a set of lights, say green lights, of my visual indicating means, produce a completed bass chord when struck at the same time as a particular melody key in the treble octave, the note on the music sheet designating this treble key will have a corresponding green color associated therewith to indicate that when this treble key is struck, the combination of keys in association with the green lights should be simultaneously struck.

In a still further modification, the features of the first two embodiments may be incorporated. In this construction, a switching mechanism of the same construction of the first embodiment is provided in electrical connection with the lights of the visual indicating means so that the lights may be selectively lit by the depression of a treble key. There is further provided, however, a shunt switch whereby the circuit of the switching mechanism may be by-passed so that all of the lights in the visual indicating means may be simultaneously turned on by the actuation of the shunt switch so that said visual indicating means may be used in conjunction with an instructive music sheet if so desired. Also, the provision of the shunt switch provides means for testing the lights to determine if any replacement is necessary.

In order to describe my invention more specifically, reference is made to Figs. 1–9 of the drawings. For the purpose of illustration, the visual indicating means shown therein is in association with the keys of the first bass octave below middle C, while the switching mechanism for selectively controlling the lights to be lit in the visual indicating means is in association with the first two treble octaves above middle C. This particular arrangement, to be used in conjunction with music written in the key of C, is for the purpose of illustration only, and it should be understood that my invention is in no way limited to the particular arrangement shown. Thus, modifications of the embodiment shown, so as to be useful in playing music written in keys other than C, are well within the scope of the present invention, as will be apparent to those skilled in the field.

As shown in Fig. 2, the white keys 2 have designated thereon the appropriate key designation in order to more clearly illustrate the present invention. It is not necessary that the keys be so marked in the piano of the invention, as the player has already or may easily learn the sequence of keys. However, for additional facility in the use of the present invention, it may be found desirable to actually mark some or all of the keys, particularly in the treble octaves, or alternatively a removable, longitudinally-extending chart showing the key designations may be provided to stand on or near the keys when the piano is in use, as an aid to the player. The white keys 2 and black keys 2′ are pivoted in the conventional manner by means of balance pins 3 and balance punchings 4 on balance rails 5. Also, the piano action 6 and fallboard 7 are conventional, as is the nameboard or keylock 8.

For the purpose of providing visual indicating means to indicate the proper combination of keys in the bass to be struck when a melody key in a treble octave is struck, there is provided a light assembly comprising a plurality of sets of lights 9′–17′, supported by light support 18 and positioned rearwardly of corresponding transparent plugs 9–17, such as "Lucite," for instance, supported in the nameboard 8. As is best shown in Fig. 3, the plugs 9–17 and corresponding lights 9′–17′ are associated in indicating relationship with the first bass octave below middle C of the keyboard.

The transparent plugs 9–17 are of a predetermined color in order to provide a plurality of sets of lights of different color. Of course, instead of using conventional white lights in conjunction with the colored transparent plugs, the light bulbs themselves may be colored if so desired. In the embodiment shown, plugs 9, 15 and 17 are of one color, such as blue, to provide one set of lights of the same color; plugs 13, 14 and 16 are red, and 10, 11 and 12 are green. These lights are connected in a circuit arrangement so that all of the lights in the same set are lit simultaneously.

In order to provide means for selectively lighting a set or sets of lights in the visual indicating means in association with the keys of the first bass octave below middle C when a key in the first two treble octaves above middle C is struck, there is provided a switch mechanism in association with the keys of said treble octaves.

In the switching mechanism shown, there is provided a plurality of individual switch members, each of said switch members being associated with a key of the first two treble octaves above middle C, each of said switch members being of such construction that it is actuated on the depression of its corresponding key in the treble octaves so as to close a circuit whereby a set or sets of lights is lit in the bass octave to effectuate the desired correlation. Thus, there is provided means whereby the lights in the visual indicating means are lit depending upon which particular melody key in the treble octave is struck so as to indicate the combination of keys in the bass octave to be struck in order to produce the proper harmonic sound.

The above-referred-to switching mechanism, in association with the treble keys and adapted to be actuated thereby, comprises a bus bar switch assembly comprising a bus bar support 19, bus bars 22, 23, 24 and 25 and individual switch members in the form of finger contacts 26–40. Bus bar support 19 is supported on the keybed by means of vertical blocks 20 and 21, the conventional spacing of the arrangement of the keyboard providing adequate space for the reception of said blocks, 20 and 21. Mounted in spaced longitudinal grooves in said support 19 are the bus bars 22–25. As is best shown in Figs. 6–9, the bus bars are connected in the electrical circuit, as will be explained hereinbelow in detail, power line bus bar 22 being solid while bus bars 23–25 are provided with recesses.

The finger contacts 26–40, in association with the keys of the first two octaves above middle C, are mounted at the base of bus bar support 19. Each of said finger contacts is provided with a sponge member 26′, adapted to be moved upwardly on contact therewith of a top surface of its associated treble key on the striking of said key. The actuation of the sponge member causes its attached finger contact to move upwardly so as to contact the power bus bar 22 and at least one of the other bus bars 23–25, depending upon the particular treble key that is depressed. The circuit arrangement is such that when a finger contact is actuated by a treble key, a closed circuit is formed wherein a set or sets of lights in the visual indicating means are lit so as to indicate the proper combination of keys to be struck in the bass octave for producing a bass chord harmonically related to the struck key in the treble octave.

As mentioned hereinabove, the bus bar 22 is solid, with no recesses being provided, so that on the actuation of a finger contact this power line bus bar is contacted so that current passes from said bus bar to said finger contact and thence through at least one of the other bus bars 23–25 in order to complete the circuit. Recesses are provided in the bus bars 23–25 in a predetermined manner so as to control the current passing therethrough from a finger contact so as to either complete or fail to complete the circuit, depending upon the particular finger contact that

is actuated by a treble key. Thus, by providing recesses, in certain instances, a particular finger contact will not contact a particular bus bar **22–25** because of the recesses. In every instance, however, in addition to contacting power bus bar **22**, at least one of the bus bars **23–25** is contacted so as to complete a circuit causing at least one set of lights in the visual indicating means to be lit. Fig. 9 illustrates diagrammatically the particular bus bars that are contacted by each finger contact when its corresponding white key in the treble octave is depressed.

In order to describe more fully the circuit arrangement between the visual indicating means in association with the key of the bass octave and the switching mechanism in association with the keys of the treble octave, reference is now made to the circuit diagram shown in Fig. 9.

Power is supplied to the sides **41**, **42** of a line by means of transformer **43** connected to a source of power. Each of the bulbs or lights **9'–17'** is connected by conventional lead lines from a corresponding terminal to one side **41** of the line. The other terminal of each light is connected to one or another bus bars **23–25**, which are in turn adapted to be connected selectively by contact fingers **26–40** to bus bar **22** connected to the other side **42** of the line. Thus, for example, when the white key C in association with contact finger **26** is depressed, the finger contacts bus bar **22** and bus bar **24**, causing current to flow through side **42**, through bus bar **22** and contact finger **26**, into bus bar **24**, whence it passes to a terminal of lights **13'**, **14'** and **16'**, which illuminate red plugs **13**, **14** and **16**.

It is seen, therefore, that when key C in the treble octave is struck, C, F and A in the bass should be simultaneously struck in order to produce the proper bass chord. From the foregoing and following the circuit diagram shown in Fig. 9, it is seen that on the striking of each of the treble keys C, D, E, A and B, one set of lights in association with the keys of the bass octave are lit, while on the striking of keys F or G, two sets of lights are lit.

Still referring to Fig. 9 of the drawings, the operation of the piano for the benefit of the student or novice will be clearly apparent. When either key C or key E in either of the first two treble octaves is struck, the red set of lights comprising **13'**, **14'** and **16'** are lit, indicating that a chord of keys C, F and A should be played with the left hand in the bass octave. Similarly, when either key D or key B is struck in the treble octaves, the green set of lights comprising **10'**, **11'** and **12'** is lit, indicating the keys F, G and B in the bass octave should be played as a chord. When key A is depressed in a treble octave, the blue set of lights comprising **9'**, **17'** and **15'** is lit, indicating keys C, E and G in the first bass octave as a chord. And finally, when F is struck in the treble octave, both the green and blue sets of lights are lit, indicating a choice of chords for the left hand of the student, either F, G and B, or C, E and G; and when G is struck with the right hand, both the red and green sets of lights are lit, indicating the option of C, F and A, or F, G and B in the bass octave as optional chords for the left hand.

If desired, the treble key actuated switch mechanism may be by-passed by providing a shunt switch **44** which, when closed, serves to light all of the lights **9'–17'**, as well be apparent to those skilled in the art. As mentioned hereinbefore, the shunt switch provides a testing mechanism to see if all of the lights are operating properly and at the same time permits the visual indicating means to be used in conjunction with a music sheet having appropriate color indicia. It will also be clear that the piano could be made only with the indicating lights and without the switch mechanism for keys in a treble octave, if the advantages connected therewith are not desired.

Reference is now made to Figs. 10 and 11, illustrating an embodiment identical to that of Figs. 1–9, with the exception that the visual indicating assembly is supported below the keys on the keyboard support instead of on the nameboard. In this modification, the lights **51** are mounted in light support **52**, which in turn is mounted in a suitable recess **53** in keyboard support **54**. Above the lights **51** are transparent plugs **55**, having their lower ends supported in appropriate slots in support **52** with their upper ends extending into corresponding slots **56** in the white keys of the bass octave. The top **57** of the white keys is sufficiently transparent that the light passing through the plugs **55** can be seen on the top surface of the keys indicating the bass keys to be struck.

In the embodiment shown in Figs. 12 and 13, a removable and portable light housing assembly is employed in place of the stationary arrangement shown in the embodiment of Figs. 1–9. This assembly comprises a casing **60**, a support **61** for the lights **62** and plugs **63** enclosed in said casing, said support having slots inclined at an angle for the reception of said bulbs and plugs. The housing is supported on the rear of the keys. The casing **60** has mounted on each side thereof a finger **64** adapted to fit outside of a pair of spaced keys so as to position the casing on the keys at the backs thereof, and the lights will be arranged in indicating relationship with the keys in the bass octave as shown in Fig. 13.

Turning now to the embodiment of the invention shown in Figs. 14 to 20 inclusive, the association of light indicating means for keys in a bass octave of the piano with switch members for each key in the two treble octaves above middle C is the same as that already described for other embodiments of the invention. In this embodiment, the same three sets of lights, of the same colors, are associated with the same bass keys, and are actuated by the same treble keys, as in the embodiments already described, but alternative and preferred switch and circuit means are employed.

As shown in Fig. 17, the lights **70** are fitted into suitable apertures **71** in the nameboard **72** of the piano, and colored plugs **73**, preferably of Lucite, are arranged in the apertures in front of the predetermined keys in the first base octave below middle C, as schematically shown in Fig. 20. The lights **70** are seated for contact at their bases in apertures through a conductive plate **74**, which extends along the back of nameboard **72**. The central base contact of each light **70** is adapted to be engaged by an individual spring finger contact **75** (Fig. 18), which said contacts **75** are properly positioned on a carrier member **76** and suitably affixed thereto as illustrated in Fig. 19. The contact carrier **76** is positioned at the back of nameboard **72** and removably affixed thereto as by screws, and the carrier also has affixed thereto a common contact **78**, so labelled in Fig. 20, for circuit completing contact with the conductive plate **74** whereby, as will be readily appreciated, the lights **70** are all in electrical contact with plate **74** and contact **78**, and each is in individual contact with its respective contact **75** by its base center pole.

The switch means for association with the keys in the two treble octaves above middle C for lighting the lights **70** associated with the keys of the first base octave comprise upper and lower elongated carriers **80** and **81** (Fig. 15) removably secured together as by screws **82** (Fig. 14). Relieved places **83** (Fig. 16) in carrier **80** are correspondingly positioned with respect to relieved places **84** in carrier **81**, to receive cylindrically-formed contacts **85**, and carrier **81** is apertured through its lower surface to each relieved place **84** to receive the protruding end of a contact **85**. A coiled spring **85'** in each relieved place **83** engages and enters the flared or frusto-conical upper end **86** of each contact **85**, whereby the contacts are spring-pressed downwardly for contact of the flared end with a pair of bus bars, one at either side of relieved places **84**.

As best shown in Fig. 20, the said bus bars extend longitudinally along the lower carrier element **81**, are

spaced from each other, and are six in number, being designated 87, 88, 89, 90, 91 and 92 in the drawings. One bus bar 87 is connected to one line 95 of the electrical power source, and serves merely to interconnect said line 95 and the common contact 73 on carrier 76 which is in contact with conductor 74 and hence with all of the lights.

The other side 96 of electrical power connects to bus bars 89 and 91 which are adapted, one or the other of them, to be engageable with every spring-pressed cylindrical contact 85. Electrical connection may thus be made between either bus bar 89 and 91, through each contact 85, with one of the bus bars 88, 90 or 92, which said bars are selectively connected to the individual finger contacts 75 for each light 70.

The switch assembly comprising the carriers 80 and 81 is arranged behind nameboard 72 and extends along the first two treble octaves (Fig. 14), so that each spring-pressed contact 85 is engageable by a predetermined key. As shown in Fig. 15, the contacts 85 are thus positioned between the balance pins 98 where the keys are pivoted and the forward part of the key where it is struck by the player, so that normally the contacts 85, engaging the upper surface of a key, are held out of engagement with the adjacent bus bars, but depression of the key allows the relatively weak coiled spring 85' to positively move the contact downwardly and into contact with the bus bars.

Reference to Fig. 20 will show that the embodiment just described comprises the same three sets of lights arranged in indicating relationship for the same chords in the bass octave as was described for the embodiments earlier discussed herein, and said sets of lights are actuated by the same treble keys. As shown, the treble keys of C, D, E, A and B are each aligned with a spring-pressed contact 85 which is adapted to establish contact with one of the bus bars 88, 90 or 92, to light the green, red, or blue set of lights respectively, and thus indicate a chord to be played with the left hand. The keys F and G in each of the two treble octaves are each engageable with two contacts 85, whereby two sets of the lights are simultaneously energized, giving the student an option of two chords to be played, as has been hereinbefore described.

The invention in its broader aspects is not limited to the specific combinations and improvements described, but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. An instructive piano comprising a piano having a keyboard, visual indicating means in association and in indicating relationship with the keys of at least one bass octave of said keyboard, a switching mechanism in association with at least one treble octave of said keyboard, said switching mechanism being in electrical connection with said visual indicating means, whereby said visual indicating means indicates the proper combination of keys to be struck in the base octave for producing a completed bass chord when a melody key in the treble octave is struck.

2. An instructive piano comprising a piano having a keyboard, visual indicating means comprising a plurality of sets of lights of different color, each set being of the same color, in association and indicating relationship with the keys of at least one bass octave of said keyboard and a switching mechanism, in electrical connection with said sets of lights, in association with the keys of at least one treble octave of said keyboard, said switching mechanism providing means for selectively lighting at least one set of lights of said visual indicating means for indicating the proper combination of keys in a bass octave to be struck for the production of a completed bass chord on the striking of a melody key in a treble octave.

3. An instructive piano comprising, in combination, a keyboard, a plurality of sets of lights each set comprising a plurality of lights, each light being associated in key indicating relationship with a key of the keyboard, switch means associated with a plurality of other keys of the keyboard than said keys with which said lights are associated in key indicating relationship, circuit means interconnecting said switch means and said lights with an electric power source wherein at least one set of said lights is connected through said switch means to the electric power source upon the depression of any one of said other keys, and other switch and circuit means for connecting said lights with an electric power source independently of said first switch means.

4. An instructive piano comprising, in combination, a keyboard, a plurality of sets of lights each set comprising a plurality of lights, each light being associated in key indicating relationship with a key of the keyboard, switch means associated with a plurality of other keys of the keyboard than said keys with which said lights are associated in key indicating relationship, and circuit means interconnecting said switch means and said lights with an electric power source wherein at least one set of said lights is connected through said switch means to the electric power source upon the depression of any one of said other keys.

5. An instructive piano comprising, in combination, a keyboard, a plurality of sets of lights each set comprising a plurality of lights of the same color, each set of lights being of a different color from any other set, each light being associated in key indicating relationship with a key in a bass octave of the keyboard, switch means associated with each of the keys in a treble octave of the keyboard, and circuit means interconnecting an electric power source, said switch means and said lights, wherein at least one set of said lights is connected through a switch to the electric power source upon the depression of each said key in a treble octave.

6. An instructive piano as set forth in claim 4 wherein said switch and circuit means comprise a bus bar assembly including a power line bus bar and at least one other bus bar, and a plurality of switch elements each adapted to contact the power line bus bar and at least one other bus bar on the depression of a respective one of said other keys.

7. An instructive piano as set forth in claim 4 wherein said switch and circuit means comprise a bus bar assembly including a power line bus bar and at least one other bus bar, and a plurality of switch finger contacts each adapted to contact the power line bus bar and at least one other bus bar on the depression of a respective one of said other keys.

8. An instructive piano as set forth in claim 4 wherein said switch and circuit means comprise a bus bar assembly including a power line bus bar and at least one other bus bar, and a plurality of spring-pressed switch contacts each adapted to contact by its spring pressure the power line bus bar and at least one other bus bar on the depression of a respective one of said other keys.

9. An instructive piano as set forth in claim 4 wherein said switch and circuit means comprise a bus bar assembly including a power line bus bar and a plurality of other bus bars, said other bars being selectively relieved at places along their lengths, and a plurality of switch elements each adapted to contact the power line bus bar and at least one other bus bar at an unrelieved place along the length thereof on the depression of a respective one of said other keys.

10. An instructive piano as set forth in claim 4 wherein said switch and circuit means comprise a bus bar assembly including a plurality of power line bus bars and a plurality of other bus bars, and a plurality of spring-pressed switch contacts each adapted to contact by its spring pressure a power line bus bar and at least one

other bus bar on the depression of a respective one of said other keys.

11. An instructive piano as set forth in claim 4 wherein said switch and circuit means are such that depression of at least one of said other keys will light at least two sets of said lights.

12. An instructive piano as set forth in claim 4 wherein said lights are positioned in the casing of the piano associated with their respective keys at the ends of the keys.

13. An instructive piano as set forth in claim 4 wherein said lights are positioned to indicate their respective keys by the passage of light through a part of the key.

14. An instructive piano as set forth in claim 4 wherein said lights are positioned in a casing separable from the piano and adapted to rest on the piano keys.

15. An instructive piano as set forth in claim 4 wherein the keys of the piano keyboard are pivotally mounted and said switch means comprises switch contacts positioned beyond the pivot from the place where the key is struck by the player, each contact adapted to be closed by upward movement of a respective key.

16. An instructive piano as set forth in claim 4 wherein the keys of the piano keyboard are pivotally mounted and said switch means comprises switch contacts positioned on the side of the pivot at which the key is struck, each contact adapted to be closed by downward movement of the respective key.

17. A musical instrument comprising means including a plurality of keys for producing a plurality of musical tones forming octaves of a musical scale, visual indicating

means associated with at least certain octaves of said tone producing means and means operable by the actuation of keys associated with at least one other octave for operating said visual indicating means to indicate at least certain keys of said certain octaves that will produce a harmonic chord.

18. A musical instrument according to claim 17 wherein said visual indicating means comprises a plurality of sets of lights of different color, the lights of each set being of the same color and indicating the tones to be sounded simultaneously for the production of a harmonic chord.

19. The combination with a piano of means for facilitating the playing thereof comprising visual indicating means associated with and in indicating relationship to the keys of at least one bass octave of the piano keyboard and means responsive to the actuation of a melody key in another octave to operate said visual indicating means to indicate tones to be sounded when striking said melody key.

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