June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

Filed April 8, 1940 10 Sheets-Sheet 1

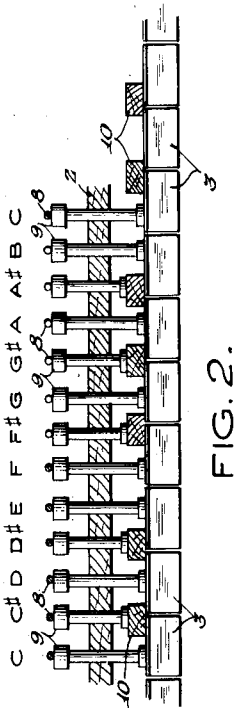



FIG. 2.

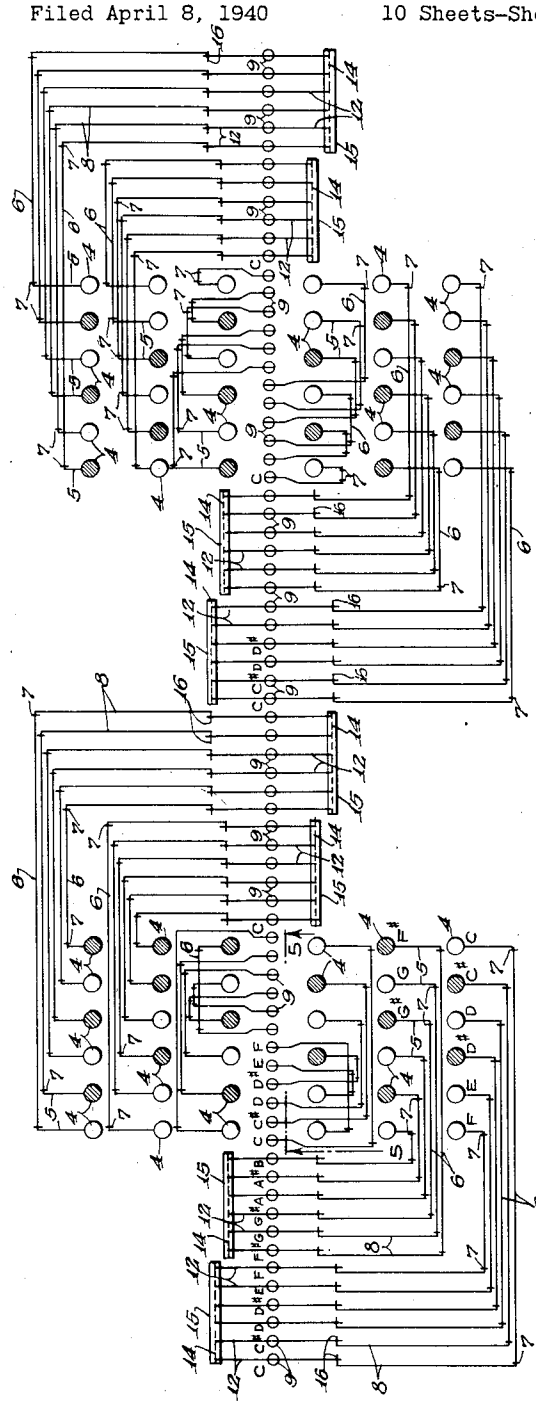


FIG. 1.

Saturnino Tofé Bonilla INVENTOR.

BY Morse Blum

ATTORNEYS

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KEYBOARD FOR MUSICAL INSTRUMENTS

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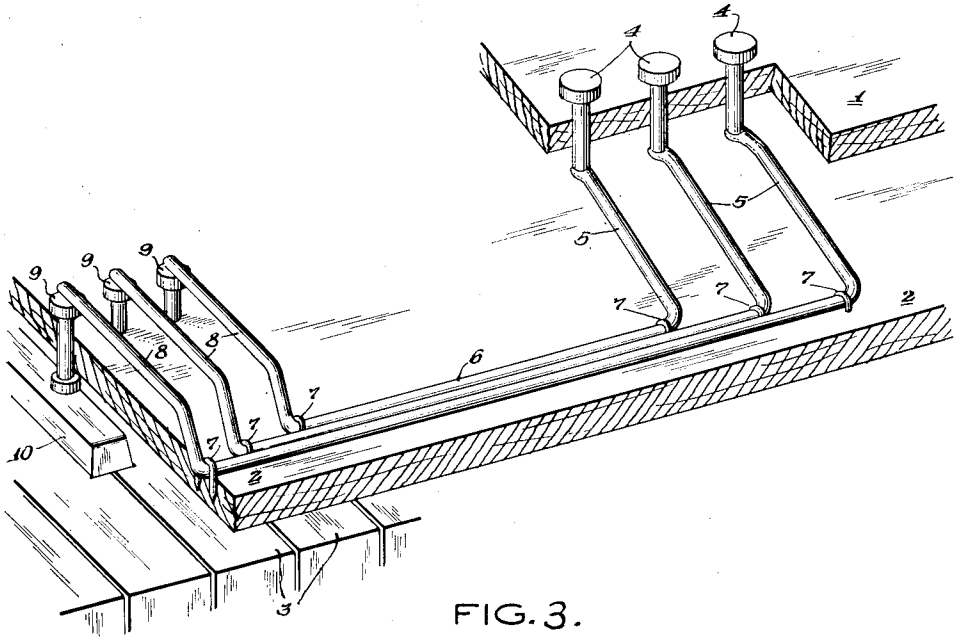


FIG. 3.

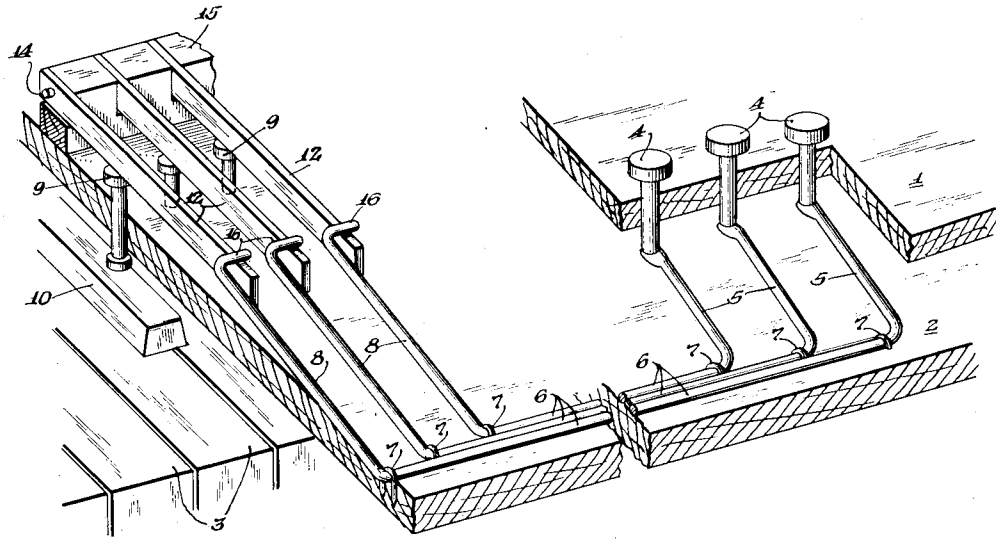


FIG. 4.

Saturnino Tofe Bonilla INVENTOR.

BY Mocks & Blum

ATTORNEYS

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KEYBOARD FOR MUSICAL INSTRUMENTS

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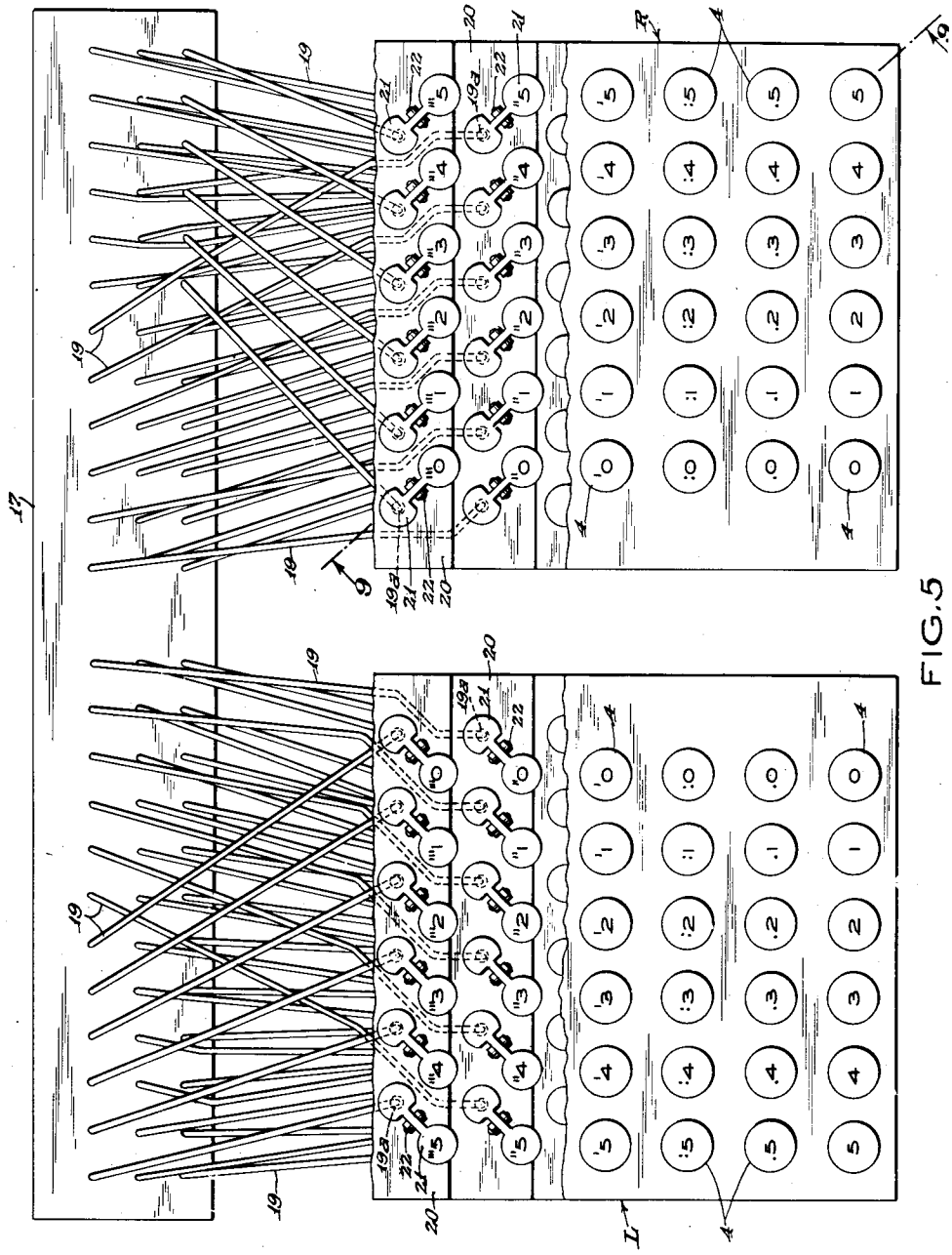


FIG. 5

Saturnino Tofe Bonilla INVENTOR.

BY Mock & Blum

ATTORNEYS

June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

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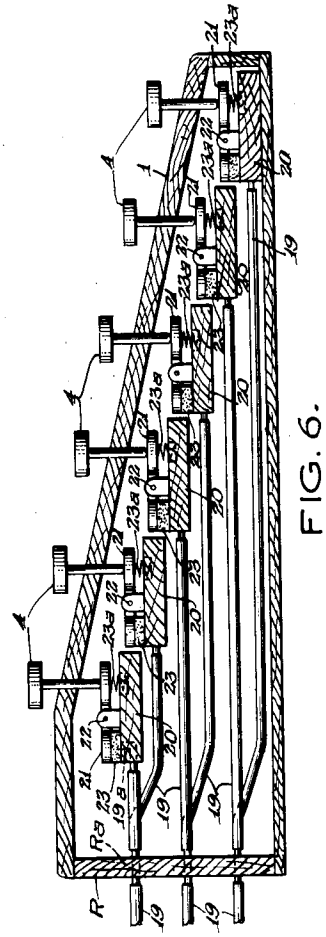


FIG. 6.

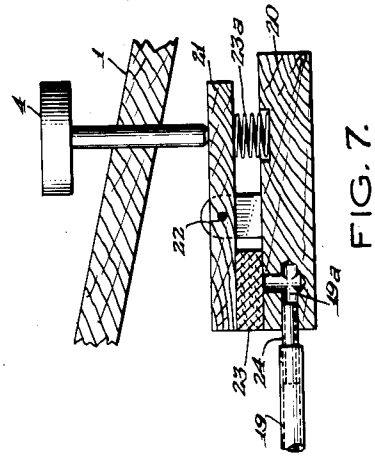


FIG. 7.

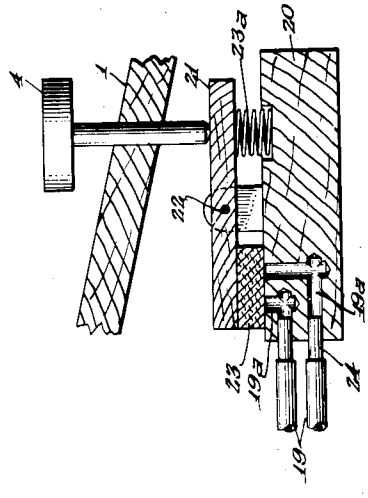


FIG. 9.

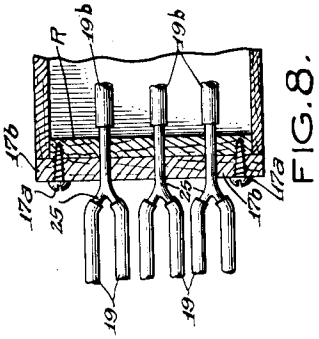


FIG. 8.

INVENTOR.

Saturnino Tofe Bonilla

BY Moore & Hum

ATTORNEYS

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KEYBOARD FOR MUSICAL INSTRUMENTS

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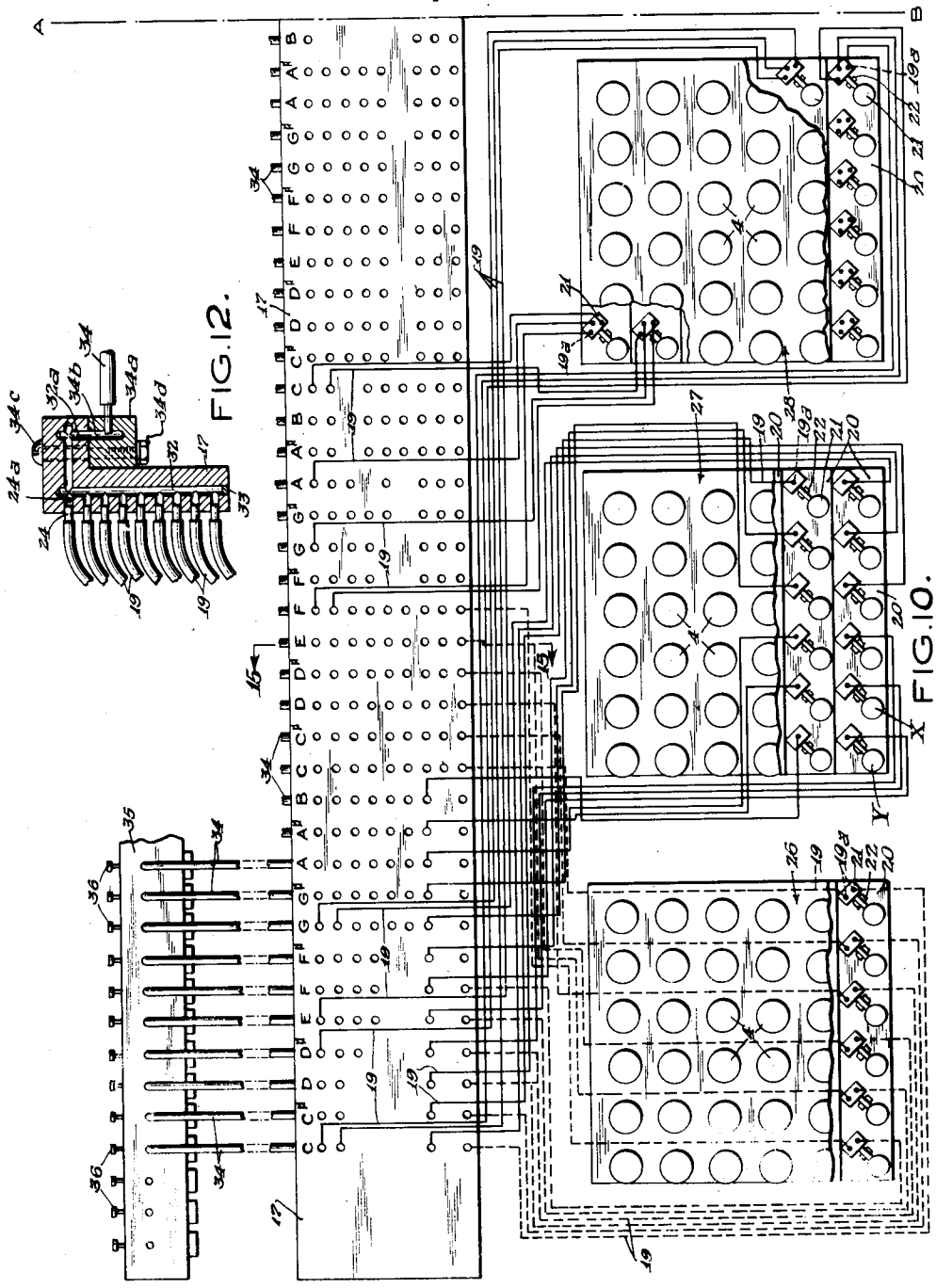


FIG. 10.



FIG. 12.

INVENTOR.
Saturnino Tofe Bonilla
BY
Mocks & Blum
ATTORNEYS

June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

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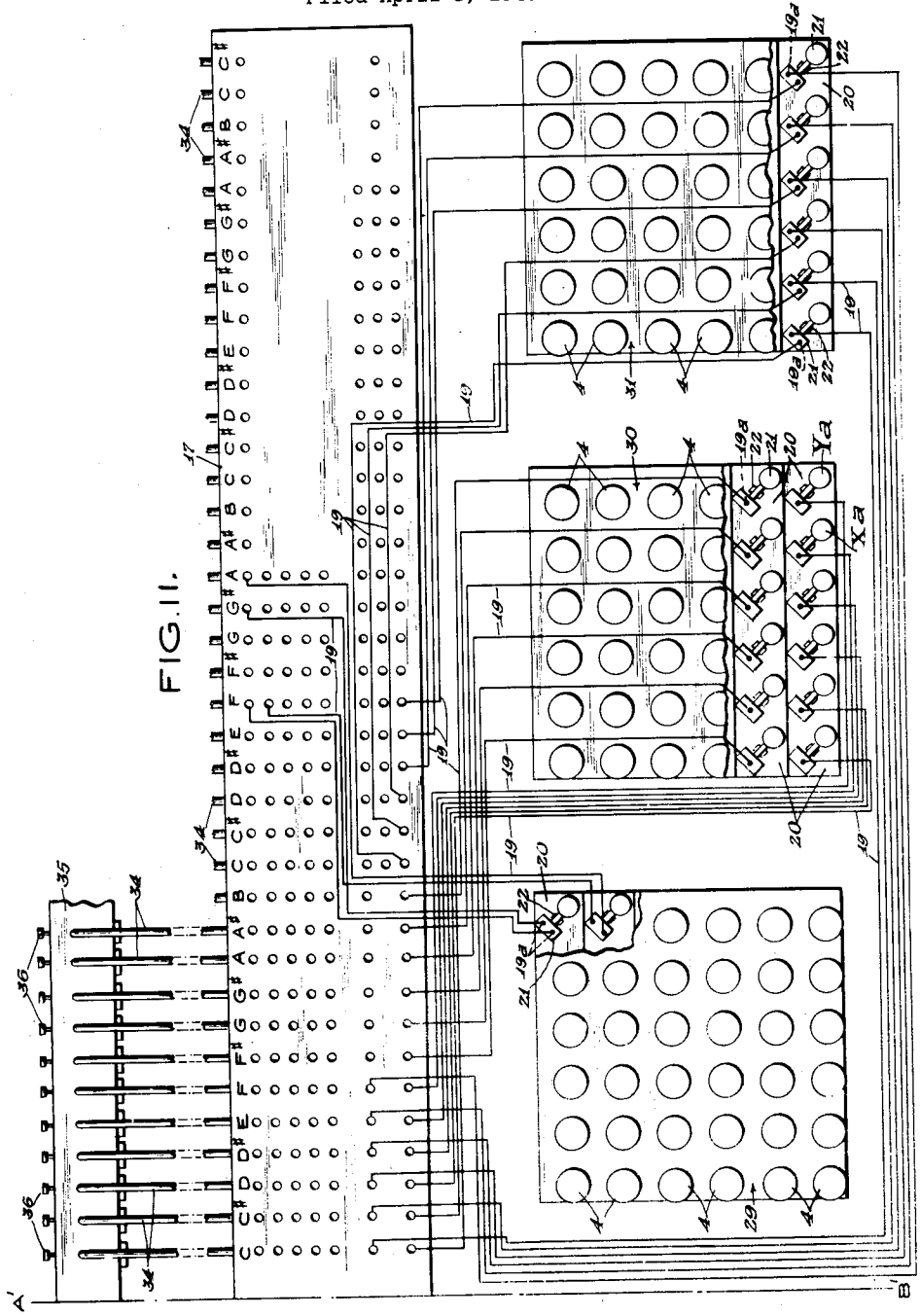


FIG. 11.

Saturnino Tofe Bonilla
INVENTOR.

BY Mocks & Blum

ATTORNEYS

June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

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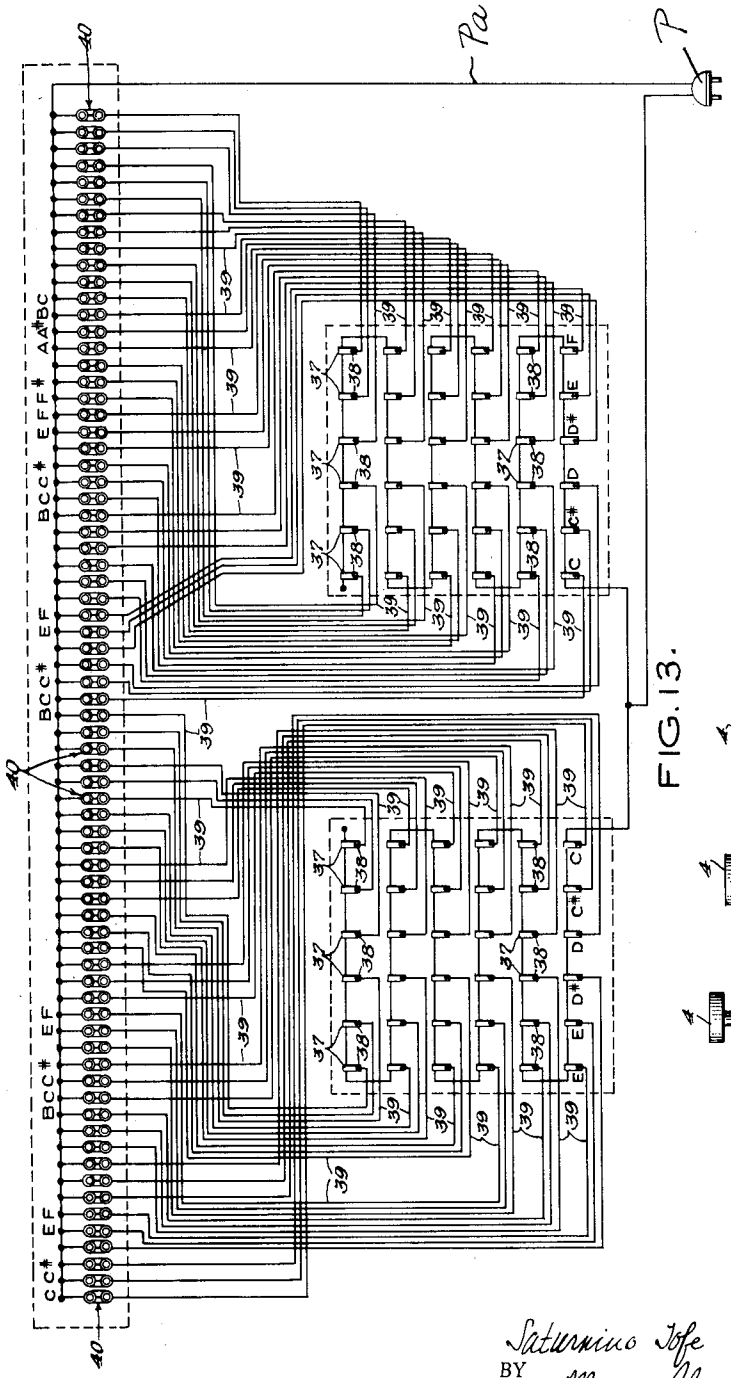



FIG. 13.

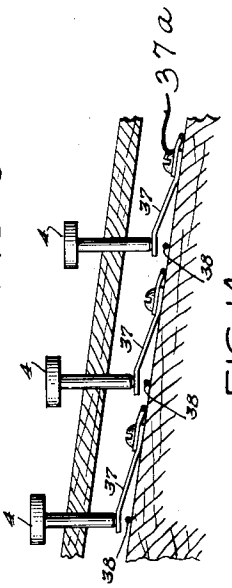



FIG. 14.

INVENTOR.
Saturnino Tofe Bonilla
BY Mocco & Blum
ATTORNEYS

June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

Filed April 8, 1940 10 Sheets-Sheet 8

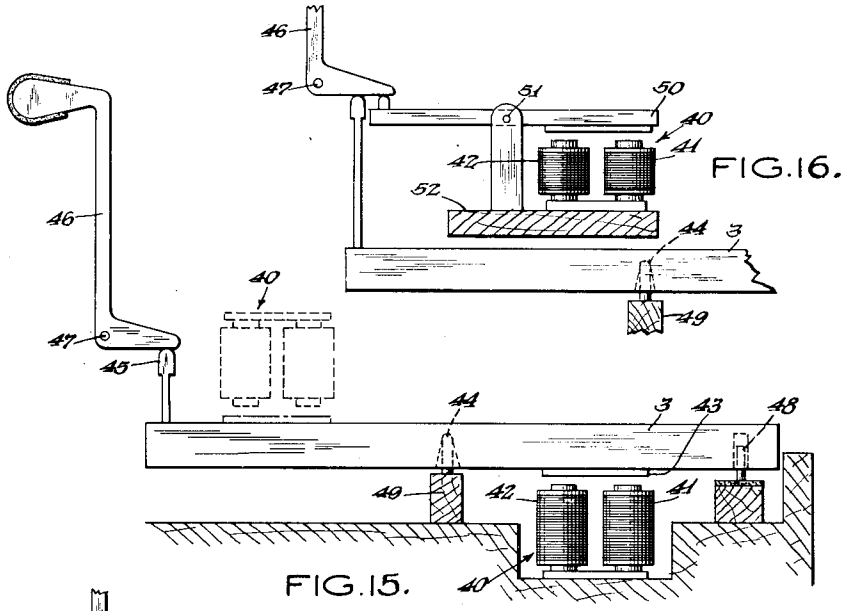



FIG.16.

FIG.15.

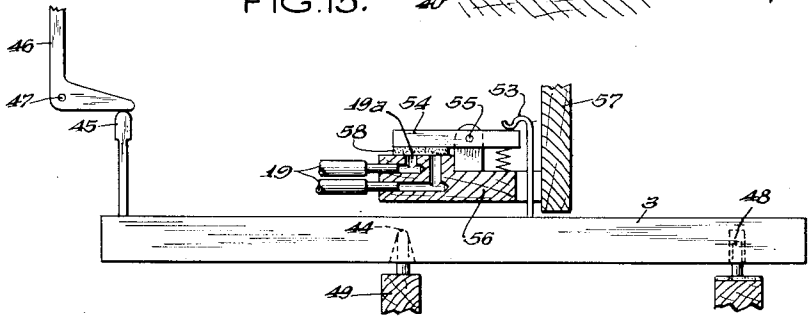



FIG.17.

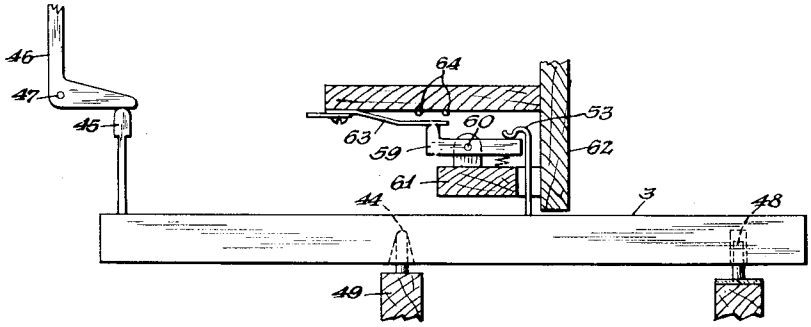



FIG.18.

INVENTOR.

Saturnino Tofe Bonilla

BY Mocks Russ

ATTORNEYS

June 3, 1941. S. TOFÉ BONILLA 2,243,834

KEYBOARD FOR MUSICAL INSTRUMENTS

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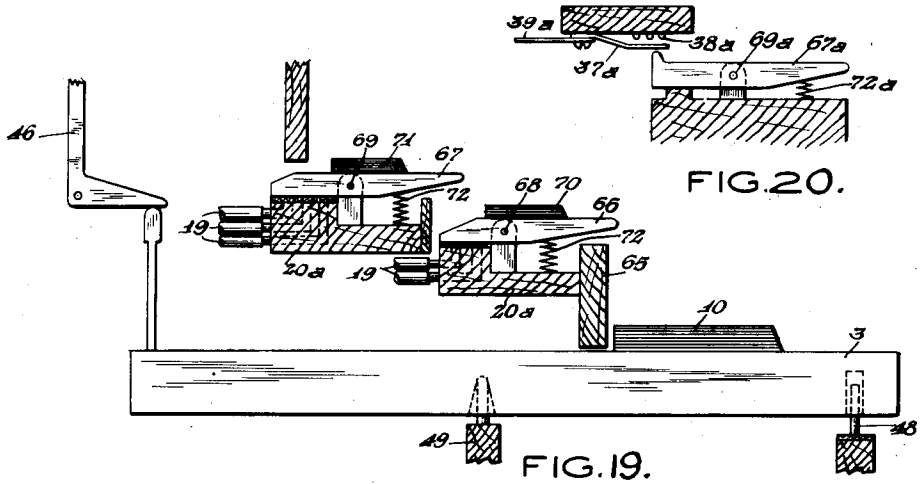



FIG.20.

FIG.19.

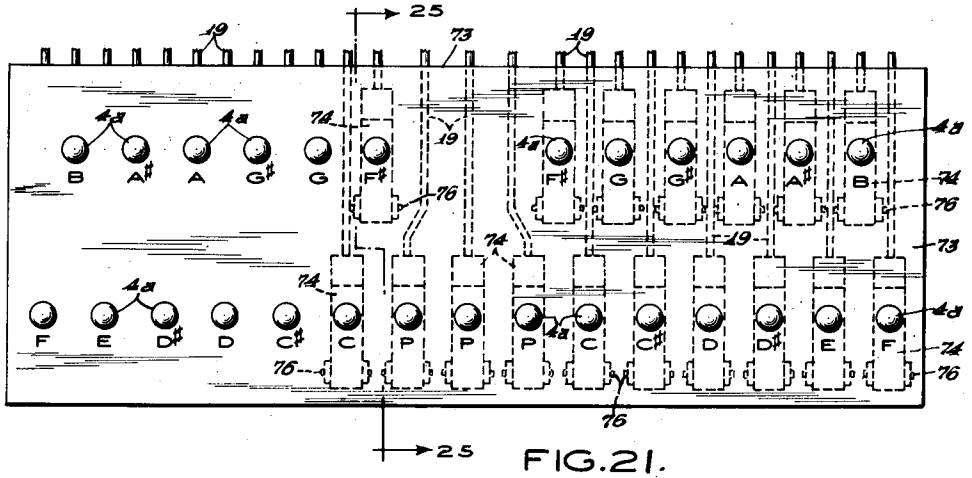



FIG.21.

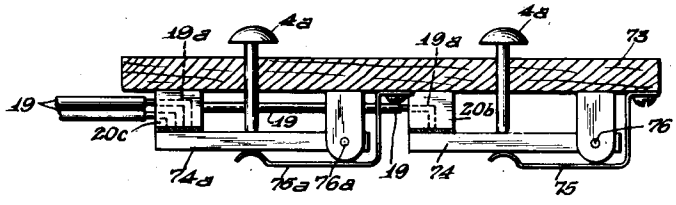



FIG.22.

INVENTOR.
Saturnino Tofe Bonilla
BY Mocks & Blum
ATTORNEYS

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KEYBOARD FOR MUSICAL INSTRUMENTS

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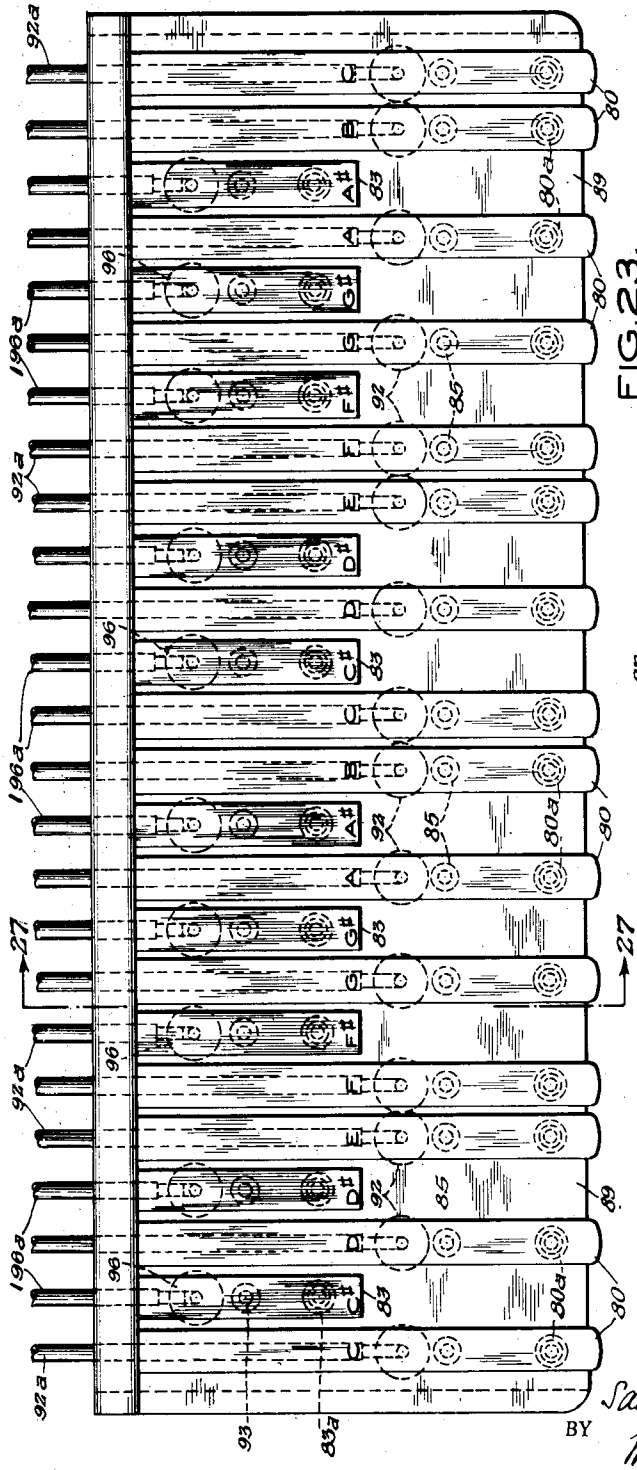


FIG. 23.

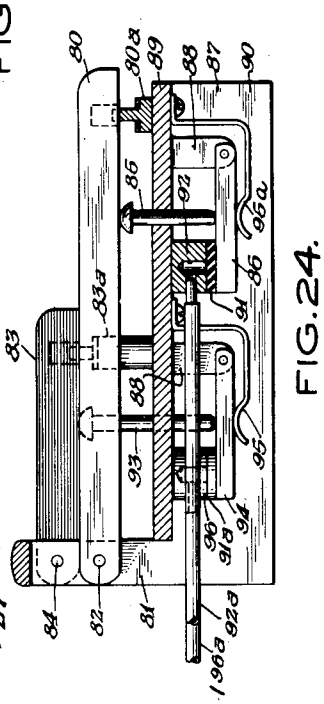


FIG. 24.

INVENTOR.
Saturnino Tofe Bonilla

BY Mock & Blum

ATTORNEYS

Patented June 3, 1941 2,243,834

# UNITED STATES PATENT OFFICE

2,243,834

## KEYBOARD FOR MUSICAL INSTRUMENTS

Saturnino Tofé Bonilla, New York, N. Y.

Application April 8, 1940, Serial No. 328,437

3 Claims. (Cl. 84—423)

My invention relates to a new and improved keyboard for musical instruments.

One of the objects of the invention is to provide a keyboard which can be built into a musical instrument or which can be applied to the keyboard of an instrument.

Another object of my invention is to provide improvements on the type of keyboard which is set forth in U. S. Patent No. 1,883,115, issued to me on October 18th, 1932.

Another object of the invention is to provide a keyboard which is particularly useful for playing organs, harmoniums, pianos, and other wind and percussion instruments.

Another object of the invention is to provide a keyboard whereby the actuation of a single key can play a plurality of notes in the same instrument, or a plurality of notes in different instruments. This makes it possible simultaneously to play two or more organs or pianos or the like, or simultaneously to play two or more notes of the same organ or piano or the like.

Another object of the invention is to provide a keyboard having the notes arranged in sets or banks, so that it is possible to play octaves or single notes or chords with either hand.

Another object of my invention is to connect two or more pianos or other keyboard musical instruments by electrical connection or by pneumatic connection or other suitable connection, so that when the player actuates one of the regular keys in the keyboard of one instrument, he will simultaneously sound the same note in one or more additional instruments. Likewise the player, by depressing one of the regular keys in one instrument, can play an associated note in another instrument, so as to sound an octave or any suitable chord by playing two or more pianos or keyboard instruments simultaneously.

Another object of the invention is to provide a keyboard having any suitable number of rows of keys such as four rows or six rows or more. Each of said rows has six or more keys which follow each other in the chromatic scale. The six keys in each row can be provided with permanent or transferrable markings. I can also use more than six keys in each row, so as to transpose musical compositions from one key to another key.

Another object of the invention is to provide two similar keyboards, one for the right hand and one for the left hand, these keyboards being arranged so that the same musical notes are played by the same fingers of the left hand and of the right hand.

Another object of the invention is to provide a keyboard which can directly operate the musical instrument, or which can operate the same either electrically or pneumatically.

Other objects of my invention will be set forth in the following description and drawings which illustrate certain preferred embodiments, it being understood that the above statement of the objects of my invention is intended to generally explain the same without limiting it in any manner.

Fig. 1 illustrates a keyboard for wind instruments of the organ type. It is a diagrammatic top plan view.

Fig. 2 is a view along the line 5—5 of Fig. 1, showing how the new keyboard can be superposed upon the conventional keyboard of an organ or the like.

Figs. 3 and 4 are detailed perspective views of the novel keyboard of Fig. 2.

Fig. 5 is a diagrammatic view of the improved control for both hands, for a musical instrument which is pneumatically operated.

Fig. 6 is a sectional view on the line 9—9 of Fig. 5.

Fig. 7 is a detailed sectional view, partially in elevation, showing the mechanism for controlling one of the pipes or reeds of an organ.

Fig. 8 shows a modification whereby two organs or pianos or the like can be simultaneously played. Fig. 8 also shows how two notes of the same organ or piano can be simultaneously played.

Fig. 9 shows a preferred control for playing two pianos or two organs or the like, or for simultaneously playing more than one note of the same piano or organ or the like, such as an octave, etc.

Figs. 10 and 11 are parts of a single view showing six sets or banks of keys. Each set or bank has thirty-six keys. From right to left, said sets make it possible to play octaves with the left hand, single notes with the left hand, chords with the left hand, thirds with the right hand, single notes with the right hand, and octaves with the right hand.

Fig. 12 is a detail view along the line 15—15 of Fig. 10, showing how a single pipe of an organ is connected to a number of inlet pipes.

Fig. 13 shows a player organ or piano with electrical control, and provided with the improved keyboard.

Fig. 14 is a detail sectional view showing the operation of individual electrical switches by the individual keys.

Figs. 15 and 16 illustrate how the operation of the keys of the electrical piano energize suitable electro-magnets. Fig. 15 shows the improved device embodied in the action of the piano. Fig. 16 shows the improved device applied to the regular keyboard of the piano.

Figs. 17 and 18 show the electrical control permanently applied to a standard keyboard, whereas Fig. 16 shows a removable unit.

The special keyboard of Fig. 14 is used in Figs. 15 and 16. In Figs. 17 and 18 the regular keys of the piano are depressed.

Fig. 19 shows the regular keyboard of a piano, having special keys for playing octaves and thirds, by pneumatic control.

Fig. 20 shows the special keys of Fig. 19, operated by electrical control.

Fig. 21 shows a foot board control for playing combinations of notes or single notes. The combinations may be octaves.

Fig. 22 is a sectional view on the line 25—25 of Fig. 21.

Fig. 23 is a plan view of a foot keyboard for a piano.

Fig. 24 is a section on line 27—27 of Fig. 23.

The system of pitch values which I use is described in U. S. Patent No. 1,833,115.

Fig. 3 shows the top board 1 and the base board 2 of the improved attachment. The base board 2 is close to or it abuts the regular or conventional keys 3 of the organ or other wind instrument, piano, etc. The base board 2 is suitably connected to the frame of the musical instrument, such as an organ, piano, etc. Each key 4 is connected to a bent rod having legs 5, 6 and 8. Each bent rod passes through pivot loops 7 which are suitably and rigidly connected to the base board 2. Each leg 8 rests upon the top of a plunger 9. The plungers 9 are guided to move up and down in guide bores of the base board 2, as shown in Fig. 3. Therefore, when one of the keys 4 is depressed, one of the white keys 3 or one of the black keys 10 is also depressed by the respective plunger 9.

Fig. 1 shows diagrammatically how a keyboard which is made according to my invention, is utilized for operating keys of the musical instrument which are located to the left and to the right of said keyboard. Fig. 1 shows the legs 8 associated with supplemental levers 12 which are pivoted at 14 to brackets 15. This is shown in greater detail in Fig. 4, which shows that each leg 8 is provided with a lateral projection 16, which overlies the respective lever 12. The plungers 9 abut the undersides of the levers 12. When a plunger 9 is depressed, it operates either a respective white key 3 or a respective black key 10, exactly as in Fig. 3. The regular spring action of the piano or organ restores the keys 3 and 10 to their normal positions. The heads of the respective keys 4 can have imprinted or otherwise displayed thereon the numbers or symbols which correspond to the respective notes, according to the aforesaid system of notation. Fig. 1 shows the conventional musical symbols of the notes which correspond to the respective keys 4. However these conventional musical symbols are not printed on the keys. Instead, the corresponding symbols, according to the aforesaid system, are printed on these notes.

The keys 4 are arranged in a left-hand series of 36 keys, and also in a coresponding right-hand series. Each series has six rows, and each row has six keys 4. These rows are aligned with each other, and the rows are located in successively higher planes, as shown in Fig. 6.

In the embodiment of Fig. 1, a single note is sounded when one of the keys 4 is depressed.

Figs. 1–4 show an embodiment in which there is direct mechanical connection between each special key 4 and the key of the piano or organ, etc.

Fig. 5 shows a pneumatic action.

Fig. 5 shows one set of keys L to be played with the left hand, and another set of keys R to be played with the right hand. There are 36 keys in each set L and R. In this respect the special keyboards are the same as in the previous embodiment.

Fig. 5 shows the symbols which correspond to my said system of musical notation, printed or otherwise represented upon the heads of the notes 4. The keyboards of the sets L and R are shown partially broken away, in order to illustrate the parts underneath the keys. Fig. 5 shows the perforated board 17. In the apparatus, said board is located in a vertical plane, and it is shown diagrammatically in the horizontal position in Fig. 5, merely for convenience. This board 17 forms the wall of an air chest or the like which is maintained under suction, so that a partial vacuum is maintained in said air chest. Flexible rubber pipes 19 lead from the perforations in said board 17. These pipes 19 have their inlets located in valve casings 20, which are also shown in Fig. 6.

When a key 4 is depressed, it operates a respective valve-flap 21 which is pivotally mounted at 22 to lugs which project from the respective valve-casing 20. Each valve-flap 21 has a valve 23 connected thereto. When a valve-flap 21 is thus turned clockwise, referring to Fig. 6, its valve 23 opens the port 19a of the respective valve housing 20, so as to exert suction in the chamber of said valve housing 20. The conventional pneumatic player action which is thus operated is not shown. Return springs 23a normally hold the valve-flaps 21 in the position shown in Fig. 6, in which valves 23 close the ports 19a. The embodiment of Fig. 5 is also used for the playing of single notes by the individual keys 4. Each valve 23 is a disc made of cork or other resilient material which is suitably connected by adhesive or the like to the respective valve-flap 21. Each valve-housing 20 is provided with longitudinal and with transverse bores. This can be done by suitable drilling. Each pipe 19 is connected by a metal coupling pipe 24 to a port 19a of the respective valve-casing 20.

Fig. 9 shows the control of a plurality of suction pipes 19 by means of a single valve 23, so that by depressing one of the keys 4, two notes are simultaneously sounded. The notes may comprise an octave or other interval. Likewise the construction of Fig. 9 makes it possible to play two notes on two different pianos or organs or the like. Therefore the construction of Fig. 9 can be used for playing the same note in two pianos or organs or the like, thus producing a greater volume of sound. Fig. 8 shows a plurality of flexible pipes 19 connected to a multiple rigid metal coupling 25, to which another pipe 19b can be connected. These pipes 19b are connected to valve-casings 20. Therefore by depressing a single key 4, an octave can be played in one or two instruments, or the same notes of two instruments can be played, as previously stated. Each set of keys 4 is located in a casing C which

is shown in Fig. 6. The valve casings **20** are located in rows of six in said casing, each row being at a higher level than the preceding row. The valve casings **20** in each row are at the same level.

Figs. 10 and 11 show a keyboard for playing single notes with the left hand or with the right hand, and for playing chords or octaves with the right hand or with the left hand.

The keyboard **26** is used for playing octaves with the left hand. The keyboard **27** is used for playing single notes with the left hand. The keyboard **28** is used for playing chords with the left hand. The specific chords which are played by the keyboard which is illustrated in Fig. 10, are thirds. The keyboard **29** is used for playing thirds or other chords with the right hand. The keyboard **30** is used for playing single notes with the right hand. The keyboard **31** is used for playing octaves with the right hand.

The representations of these keyboards are partially broken away in Figs. 10 and 11. Each keyboard has **36** keys and the construction is the same as that of Fig. 6, for example. The keyboards of Fig. 10 and Fig. 11 operate by pneumatic means, similar to those shown in Figs. 5–9. The pipes **19** are indicated partially in full lines and partially in broken lines in Fig. 10. Said pipes are indicated wholly in full lines in Fig. 11.

In connection with the keyboard **26**, Fig. 10 shows valve casings **20** to each of which two inlet pipes are connected, as in Fig. 9. Therefore, by depressing a key **4** of the keyboard **26**, an octave is sounded either in the same piano or by playing the corresponding notes in two different pianos. The valve devices of the keyboard **27** are identical with those of Fig. 7. In the keyboard **28**, each valve-casing **20** is provided with three inlet pipes, instead of the two inlet pipes of Fig. 9. Otherwise the construction is exactly the same. The valves associated with the keyboard **29** are identical with those of keyboard **28**. Similarly keyboards **30** and **27** and their valves are identical, and keyboards **31** and **26** and their valves are identical.

Fig. 12 shows the suction board **17** in which a series of ports are drilled. The outer end of each port or bore **32** is closed by a plug **33**. One of the walls of board **17** is provided with transverse bores or ports **24***a*. Each bore **32** is provided with one or more ports **24***a*. Each pipe **19** is connected to one of said ports **24** by means of a metal coupling **24**. Each port **32** has a branch **32***a*. A block **34** is adjustably clamped to the L-shaped board **17** by means of bolts **34***c* and **34***d*. The block **34***a* has a series of ports **34***b*. A pipe **34** is connected to each port **34***b*. Each port **34***b* registers with a branch port **32***a*. By shifting block **34***a* relative to board **17**, in a direction perpendicular to the plane of the paper in Fig. 12, the relation between the respective ports **34***b* and the branch ports **32***a* can be varied.

Each rubber pipe **34** is connected to a chest **35**, which is maintained under air pressure.

Said air chest **35** has a series of cylinders, in which pistons **36** are respectively mounted. Each cylinder has a conventional valve which is controlled and operated by the suction in the respective pipe **34**.

When a pipe **34** is subjected to suction through one or more of the associated pipes **19**, the respective plunger **36** is raised so as to operate a member of the action of the musical instrument, thus playing the selected note. By shifting the block **34***a* relative to the board **17**, it is possible to change from one key to another.

Fig. 8 shows the couplings **25** of the pairs of pipes **19**, located in bores of a board **17***b*, which is connected to the rear wall R of the casing by means of screws **17***b*. These couplings **25** pass through the bores **25** of said rear wall R.

The remaining figures show an electrical control. Fig. 14 shows a key **4** abutting a resilient switch blade **37** which is held yieldingly by its resilience in the circuit-opening position shown in Fig. 14. Each switch blade **37** has a contact **38**. The keys are arranged as in the previous embodiment.

Fig. 13 shows electro-magnets **40**. As shown in Figs. 15 and 16, each electro-magnet is of a conventional type, and it has a core on which coils **41** and **42** are located. The adjacent ends of coils **41** and **42** are connected. One end of each coil **41** is connected to wire P*a*, which is connected to one blade of plug P. The other end of each coil **41** is connected to a contact **38**. The other terminal of plug P is connected by branch wire to the binding screws **37***a* of blades **37**.

Fig. 15 shows that the underside of each key **3** is provided with the usual metal armature **43**. The key **3** is pivoted at **44** in the usual manner. When the electro-magnet **40** which is shown in Fig. 15 is energized, the key **3** is turned clockwise, so that its head **45** operates the conventional hammer or striker **46** of a piano, which is pivoted at **47**. Fig. 15 shows a conventional guide **48** for guiding the turning movement of the key **3**.

Fig. 15 shows the pivot **44** mounted on a base **49**. The armature **43** can be located at the top of a key **3**, in which case the position of the electro-magnet **40** would be correspondingly reversed, as shown in broken lines in Fig. 15.

Fig. 16 shows the electro-magnet **40** associated with an armature **50** which is pivotally mounted at **51** to a lug of the base member **52**. When the electro-magnet **40** is energized, the lever **50** is turned clockwise, thus actuating the hammer or striker **46**. Therefore, in the embodiments of Figs. 15 and 16, the piano can be played by hand or by electro-magnetic means. In the embodiment of Fig. 16 the electrical action directly actuates the hammers **46**. Fig. 17 shows a modified action. The key **3** is provided with a hook **53**. When the key **3** is depressed, the hook **53** turns a lever **54**, which is pivoted at **55** to a lug of a base member **56**. The base member **56** is connected to the upstanding board **57**. The lever **53** has a valve **58** of the type previously described. A pair of suction pipes **19** are connected to the valve chest **56**. Hence by depressing a single key **3**, it is possible to play octaves in the same piano and also to play an octave by sounding one note of one piano or organ and by sounding a companion note on another piano.

Fig. 18 shows the key **3** having the aforesaid hook **53**. This actuates a lever **59**, which is pivoted at **60** to a lug of the base member **61**, which is connected to the upstanding board **62**. The lever **59** actuates the resilient switch blade **63**, which simultaneously touches a pair of contacts **64**, when the key **3** is depressed. The depression of a single key can therefore play octaves or chords in one organ or piano, or by sounding the notes of different pianos or organs. Fig. **19** shows a modified pneumatic control which can be placed on top of the regular keyboard of the organ or piano. The upstanding board or member **65** is connected to the frame of the instrument in any suitable manner, as in the other embodiments.

Fig. 19 shows lever 66 and 67, respectively pivoted at 68 and 69 to lugs of the members 20*a*, which are suitably connected to the frame of the instrument. The levers 66 and 67 are arranged in respective series, each said series corresponding to the white keys 3. Each said series of said levers or keys 66 and 67 has black keys or levers 70 and 71, which correspond in each series to the black keys of the piano. Springs 72 hold the white and black keys of each set 66 and 67, normally in the horizontal position shown in Fig. 22. Each of the levers 66, 67, 70, 71 has a valve which controls a plurality of inlet pipes 19. Therefore, in addition to playing the piano in the regular way, octaves can be played in the same piano or in two different pianos by the keys 66 and 70, and thirds can be played in the same piano or in different pianos by the keys 67 and 71.

Figs. 21 and 22 show the improvements applied to the footboard of an organ or the like. The keys 4*a* are depressed by the feet of the operator. These keys are slidably guided in a base board 73. Each of one series of the keys 4*a* operates a respective lever 74, which is held yieldingly in the normal position shown in Fig. 22, by a spring 75. Each lever 74 is pivoted at 76 to a respective lug of the base board 73. Each lever 74 controls a single suction pipe 19. Each lever 74*a* controls a pair of suction pipes 19. The levers 74*a* are respectively actuated by a second series of the keys 4. The keys 4*a* are also marked with the musical symbols of my improved system. The pneumatic control shown in Fig. 22 may be replaced by an electrical control. The levers 74*a* can thus play octaves in the same organ or in two different organs. The levers 74*a* are pivoted at 76*a*, and they are yieldingly held in the position shown in Fig. 22 by springs 75*a*.

The invention applies to any key-operated musical instrument, and particularly to instruments which have keys which correspond to the notes of a chromatic scale.

Fig. 1 illustrates a keyboard instrument which can be played by the regular keys 3 and 10, or by the supplemental keys 4. Said keys 4 have extensions which are located and adapted to operate members of the action of the musical instrument, which are spaced laterally from said keys 4.

Referring to Figs. 10 and 11, the connections of the keys are arranged so that the corresponding keys 4 in the associated left-hand and right-hand keyboards correspond to each other and to exactly the same musical notes. For example when the key X in keyboard 27 is operated, this will sound exactly the same note as when the key X*a* in keyboard 30 is actuated. Likewise when the key Y of keyboard 27 is actuated, this will sound exactly the same note as the key Y*a* in keyboard 30. Therefore the keys in each row of each left-hand keyboard correspond to the keys of the same row in the corresponding right-hand keyboard. In order to go from a lower note to a higher note the hands are moved in opposite directions from the common line A—B or A'—B'. For example, the notes which correspond to the keys X and Y are next to each other in a chromatic scale, and the note of the key Y immediately follows and is higher than the key X. In the same way the note corresponding to the key Y*a* follows and it is immediately next to the note of the key X*a*, in the same chromatic scale. This makes it extremely convenient to operate these keyboards.

Referring to Figs. 23 and 24, the white keys 80 are pivotally connected to the extension 81 of base 89 at 82. The black keys 83 are higher than the white keys 80 and they are pivotally connected to the extension 81 of base 90 at 84. The pins 85 abut the keys 80. Said pins 85 also abut levers 86 which are pivotally connected at 87 to lugs 88 which are rigidly connected to the board 89 of the base 90. Springs 86*a* yieldingly hold the levers 86 in the position shown in Fig. 24. Each lever 86 has a resilient valve member 91 which closes the port of a valve casing 92.

The black keys 83 respectively abut pins 93, whose lower ends abut levers 94, which are pivotally connected to lugs 95 of the board 89. The levers 94 are provided with valves 91*a*, which correspond to the valves 91. Each valve-member 91 controls the port of a valve-casing 96. The valve-casings 92 are provided with respective suction pipes 92*a* and the valve-casings 96 are provided with respective suction pipes 196*a*. The pins 93 and 85 are slidably mounted in respective vertical boards of the bore 89. Each white key 80 is provided with a guide 80*a*, for guiding the turning movement of said key, and each black key is provided with a corresponding guide 83*a*. These guides are connected to the board 89. The keys or levers 86 and 83 are operated by the feet of the player, so that it is possible to play the bass notes of a piano or organ or other key-operated musical instrument.

I claim:

1. A musical instrument comprising a frame and an action which includes a plurality of members and a series of individually movable exposed main keys connected respectively to said members and respectively operating said members, said main keys being located in a longitudinal series, a baseboard overlying said keys and connected to said frame, levers pivotally connected to said baseboard, movable supplemental keys located above said levers, said supplemental keys being respectively connected to said levers and respectively operating said levers, plungers slidably mounted in said baseboard, each plunger overlying a respective main key and operating said respective main key when said plunger is depressed, each lever being associated with a respective plunger to operate said plunger, each lever extending longitudinally from the respective supplemental key and operating a plunger which is longitudinally spaced from the respective supplemental key.

2. A musical instrument comprising a frame and an action which includes a plurality of members and a series of individually movable exposed and parallel main keys connected respectively to said members and respectively operating said members, said main keys being located in a longitudinal series, a baseboard overlying said keys and connected to said frame, levers pivotally connected to said baseboard, movable supplemental keys located above said levers, said supplemental keys being respectively connected to said levers and respectively operating said levers, plungers slidably mounted in said baseboard, each plunger overlying a respective main key and operating said respective main key when said plunger is depressed, each lever being associated with a respective plunger to operate said plunger, each lever extending longitudinally from the respective supplemental key and operating a plunger which is longitudinally spaced from the respective supplemental key, some of said supplemental keys being arranged in a left-hand series, the other supplemental keys being arranged in a

right-hand series, each said series having a plurality of successive rows which are located successively behind the front row, each row being higher than the preceding row.

3. A musical instrument comprising a frame and an action which includes a plurality of members and a series of individually movable exposed and parallel main keys connected respectively to said members and respectively operating said members to sound individual notes, said main keys being located in a longitudinal series, a baseboard overlying said keys and connected to said frame, plungers slidably mounted in said baseboard and overlying respective main keys so that a main key is depressed when the respective plunger is depressed, a main lever overlying each plunger and pivotally connected to said baseboard, each main lever extending in front of the respective plunger, each main lever having a supplemental lever associated therewith, each supplemental lever having a first leg which is substantially parallel to said main keys and a second leg which is transverse to said main keys, and a third leg which is substantially parallel to said main keys, means pivotally connecting the respective second legs to the baseboard, each third leg being connected to a respective supplemental key, each first leg having an end-portion which overlies the respective main lever, whereby each supplemental key operates a longitudinally spaced main key, said supplemental keys being arranged in succeeding rows, each said row being located behind the preceding row.

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