

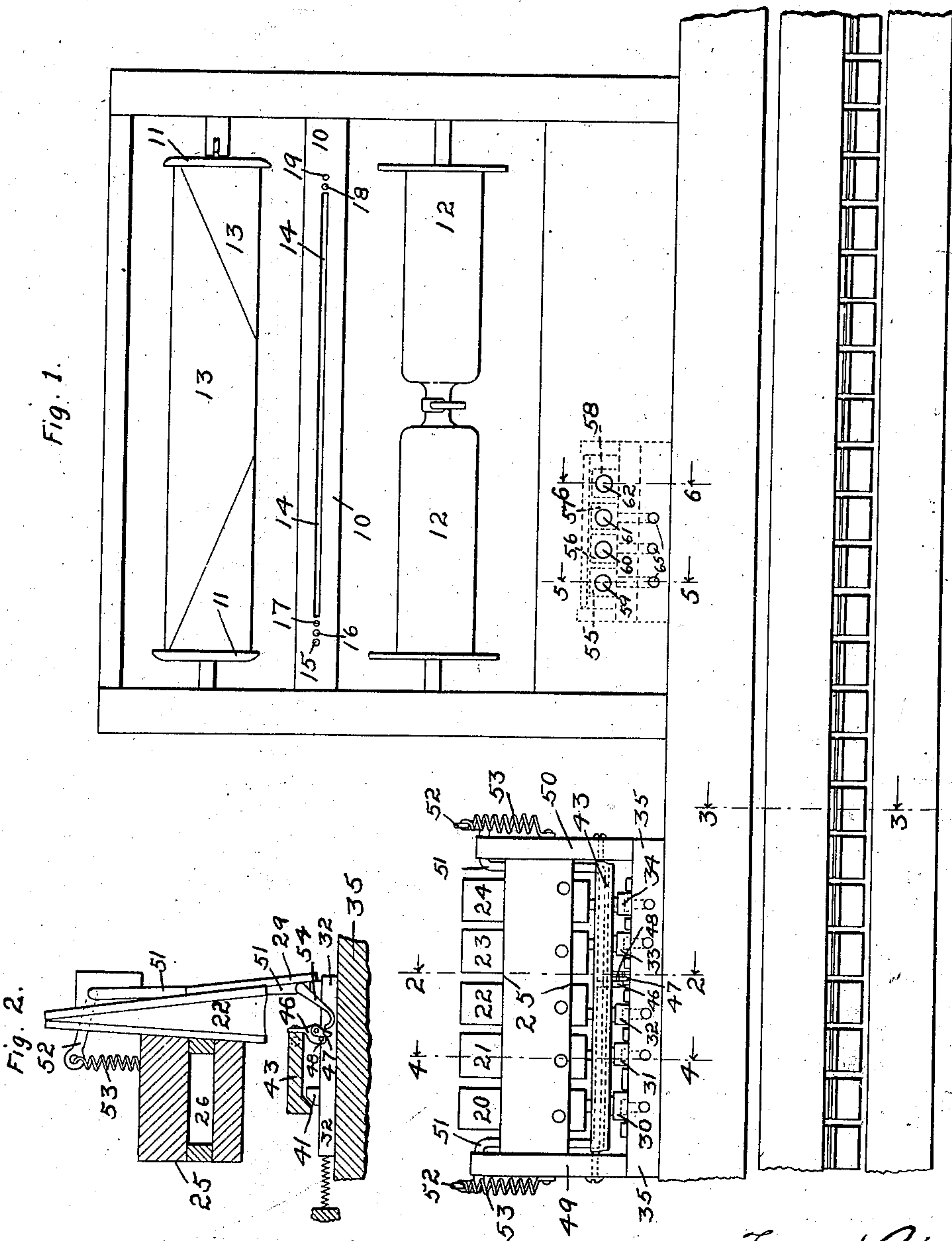
F. L. YOUNG.  
MECHANICAL MUSICAL INSTRUMENT.

APPLICATION FILED JUNE 16, 1906. RENEWED FEB. 7, 1910.

968,626.

Patented Aug. 30, 1910.

4 SHEETS—SHEET 1.



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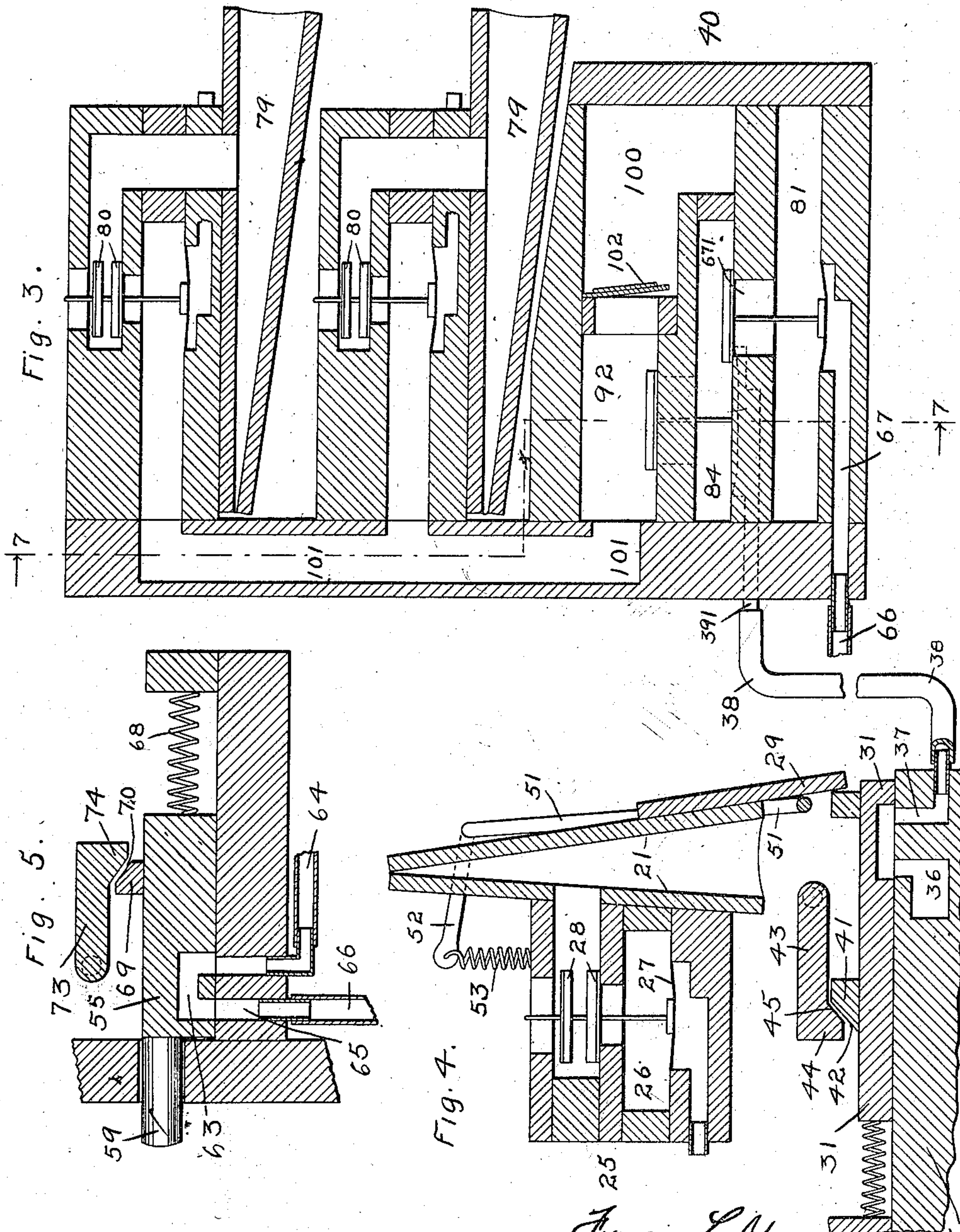
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4 SHEETS—SHEET 2.



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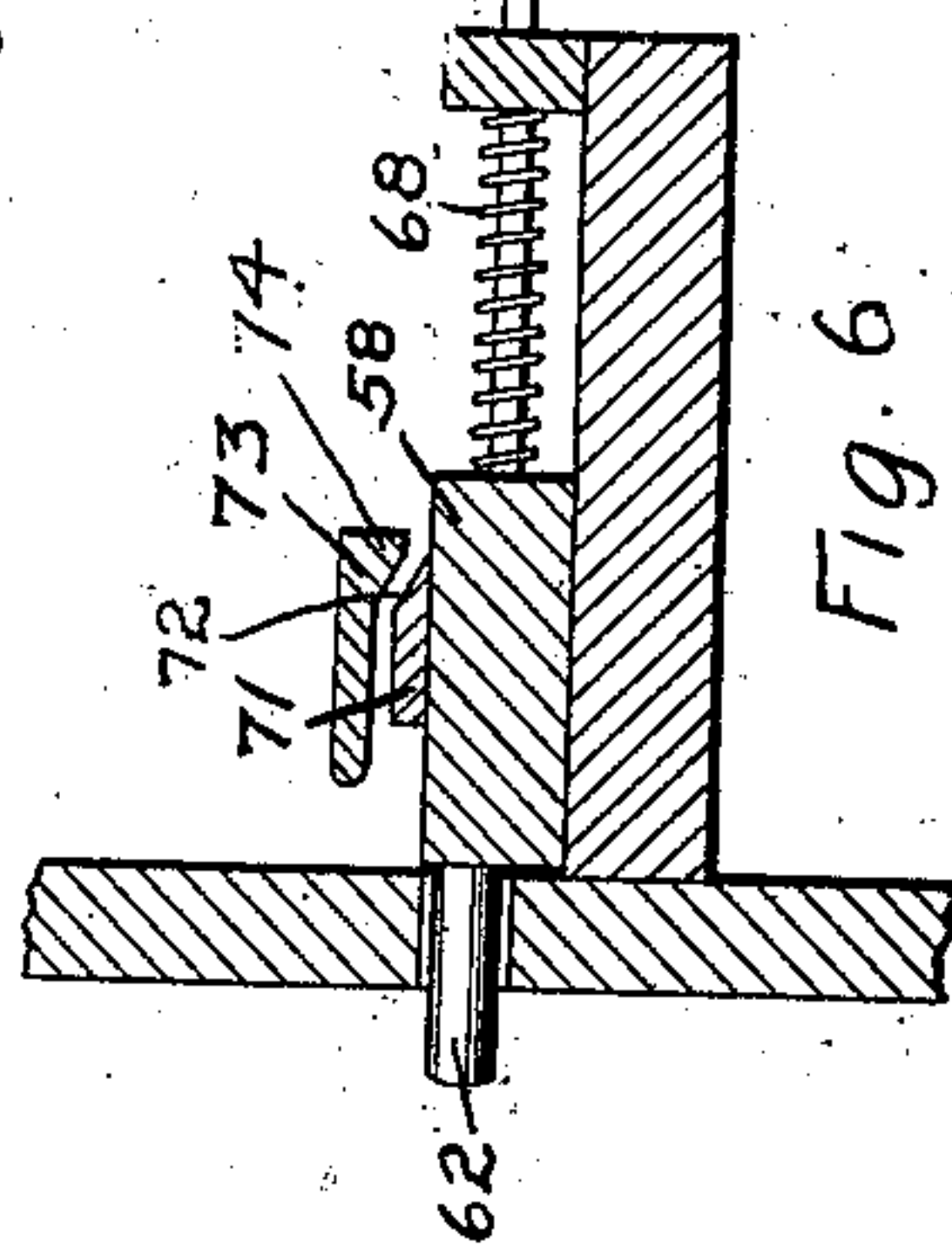
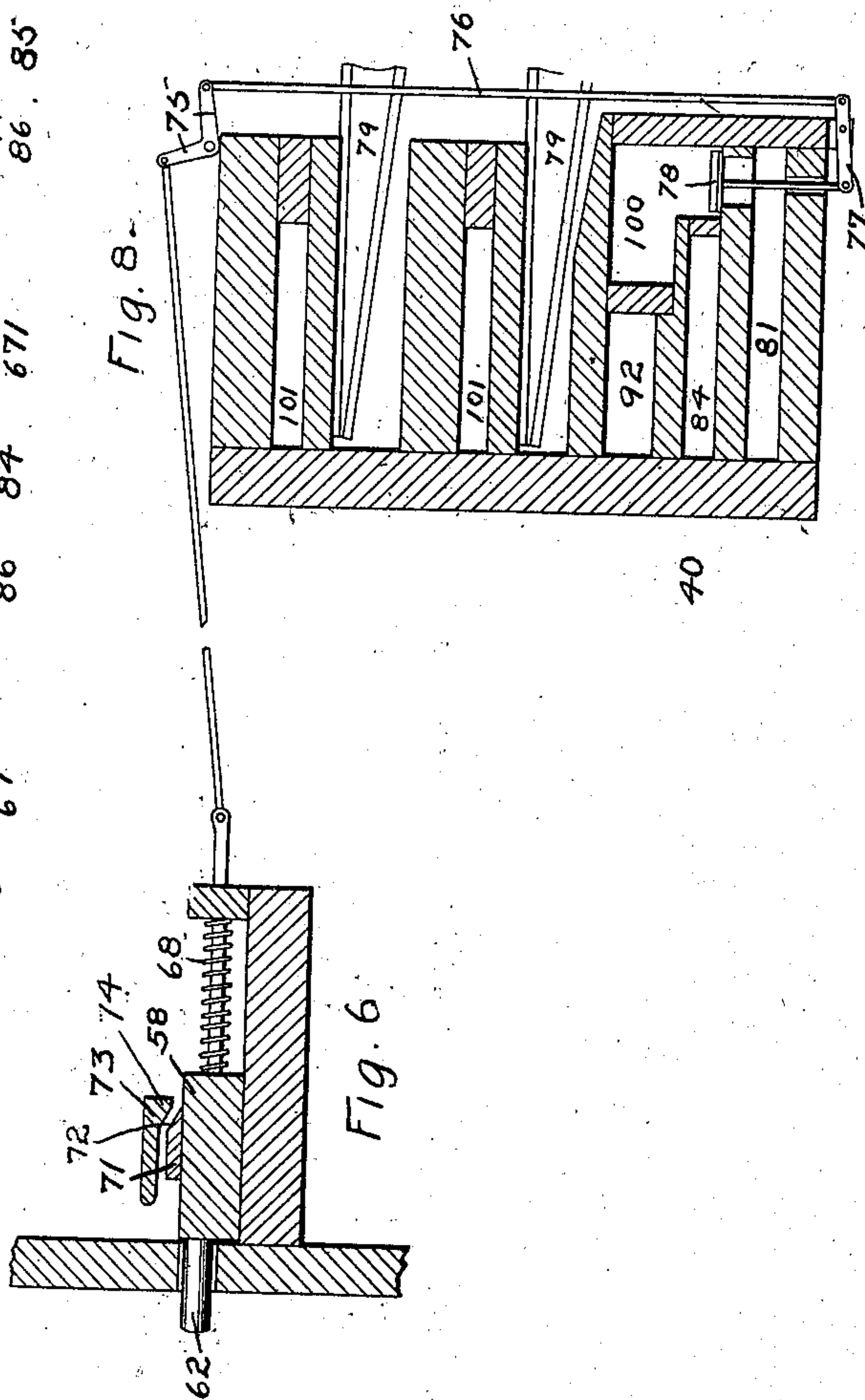
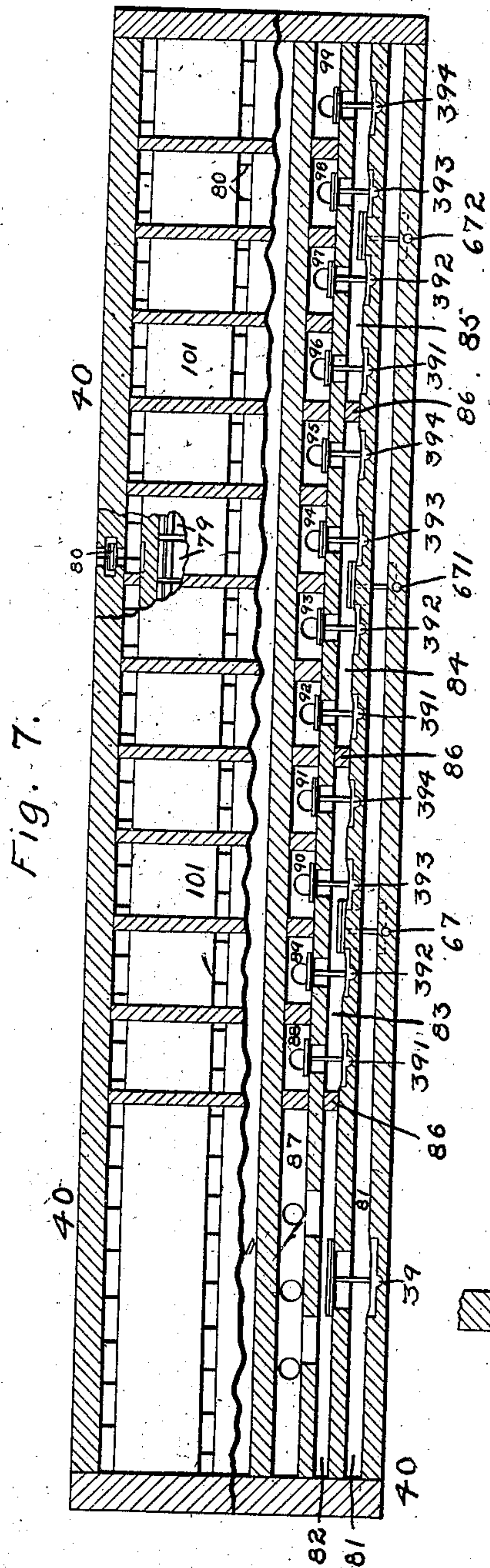


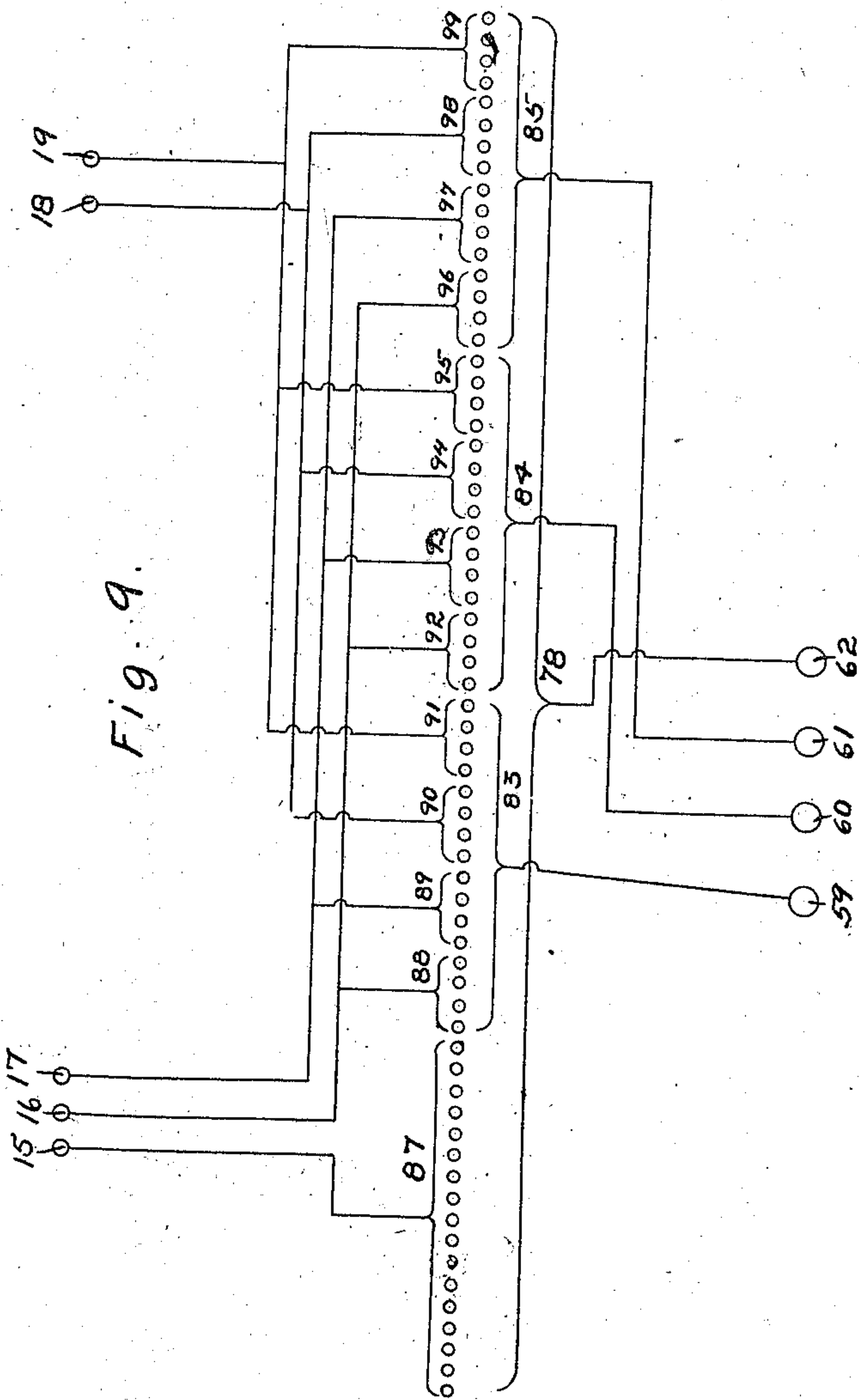
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4 SHEETS—SHEET 3.





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# UNITED STATES PATENT OFFICE.

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MECHANICAL MUSICAL INSTRUMENT.

968,626.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed June 16, 1906, Serial No. 322,014. Renewed February 7, 1910. Serial No. 542,646.

*To all whom it may concern:*

Be it known that I, FRANCIS L. YOUNG, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Mechanical Musical Instruments, of which the following is a specification.

My invention relates to mechanical musical instruments such as are controlled by a perforated music sheet for example pianolas, pianola pianos and aeolian organs.

Its object is to provide improved means for selectively accentuating certain notes and groups of notes as played.

A further object of the invention is to provide for the automatic selection of the notes to be accented, which automatic selection is controlled by manual means, so that it may be rendered operative for different ranges of notes or inoperative at the will of the operator.

Still further objects of invention will appear in the specification and be pointed out in the claims.

In the drawings, Figure 1 is a front elevation of so much of a mechanical musical instrument as is necessary to show my invention, the casing and other parts of the instrument being removed. Figs. 2, 3, 4, 5 and 6 are vertical sections through the planes 2-2, 3-3, 4-4, 5-5 and 6-6, respectively, of Fig. 1. Fig. 7 is a longitudinal vertical section through the plane 7-7, Fig. 3. Fig. 8 is a vertical section through the line 6-6 extended downwardly through the action casing. Fig. 9 is a diagrammatic view of the note-selecting connections.

In the drawings, 10 designates the tracker of the mechanical musical instrument, 11 the music roll, and 12 the winding roll, on which the music sheet 13 is wound during the operation of playing. The tracker 10 is provided with the usual ducts or apertures 14 adapted to cooperate with the note sounding perforations in the music sheet. In the present instance, it is also provided with five additional ducts, numbered 15, 16, 17, 18 and 19 respectively, located at the ends of the series of ducts 14 (see Fig. 1). These five special ducts are connected by flexible tubes, omitted from the drawings for clearness of illustration, for operating five pneumatic bellows, numbered respectively 20, 21,

22, 23 and 24, Figs. 1, 2 and 4. The connections of one of these tubes is clearly shown in Fig. 4 of the drawings, which represents the bellows 21. This bellows is attached to a board or casing 25, longitudinally of which runs a chamber 26, which is connected to a source of wind tension or suction, not shown. The flexible tube leading from the tracker duct 16 is connected to the under side of a diaphragm 27, to which is connected the usual double diaphragm valve 28 adapted to alternately open the bellows 21 to the suction chamber 26 or to atmosphere.

Each of the bellows 20 to 24 inclusive has a finger 29, which fingers bear against D- valve boards 30, 31, 32, 33 and 34 respectively. These are mounted on a board 35, longitudinally of which runs a suction chamber 36. A port 37 for each of the valve boards is connected by a flexible tube 38 to a port or series of ports 39, 391, 392, 393 and 394 controlling diaphragm pneumatics and valves as shown in an action casing 40, to be hereafter described, (see Figs. 7 and 9). The tube from board 30 leads only to port 39; that from 31 leads to three ports 391, and similarly each of the others, 32, 33 and 34 leads respectively to three ports 392, three-ports 393 and three-ports 394. Each of the valve boards 30 to 34 inclusive is provided with a block 41, the face 42 of which is beveled, (see Fig. 4). Pivotaly mounted above the boards 30 to 34 is a bar 43 having a longitudinally extending lug 44, the face 45 of which is beveled. Secured to the board 43 in the present instance approximately midway of its length is a lug 46, on which is pivoted a dog 47 normally bearing against a stop 48. Pivoted on up-rights 49, 50 (Fig. 1), shown as attached to the ends of the board 35 is a U-shaped rod 51 having rearwardly extending arms 52 at its upper ends, which are drawn downward by tension springs 53. Secured to the lower middle portion of the bar 51 is a curved finger 54 adapted to engage with the dog 47 on the lug 46.

Mounted in the present instance immediately below the winding roll 12 is a series of four bars 55, 56, 57 and 58, each of which is provided at its forward end with a push button 59, 60, 61 and 62 respectively, which push buttons extend through the casing of



the instrument, as shown in Fig. 5, so as to be within convenient reach of the operator (see Figs. 1, 5 and 6). Each of the bars 55, 56 and 57 contains a D-valve 63 connecting a port 64 extending to a suction chamber, not shown, with a port 65. Each of the ports 65 is connected by a flexible tube 66 with a port 67, 671 or 672 in the casing 40. The bar 58, to which is attached the push button 62, is solid (see Fig. 6). Each of the bars 55 to 58 inclusive is pressed forward by a spring 68. On each of the bars 55, 56 and 57 is a block 69 having its rear face 70 inclined. The bar 58 carries a block 71 of greater length than the blocks 69 and having its rear face 72 similarly inclined. Pivotaly mounted above the blocks 55 to 58 is a bar 73 having a downwardly extending lug 74, the bottom face of which is forwardly inclined (see Figs. 5 and 6). Connected with the push button 62 by means of a bell-crank lever 75, rod 76 and lever 77 is a valve 78 in the casing 40, (see Fig. 8), the function of which valve will hereafter appear.

The casing 40 (see Figs. 3, 7 and 8) is the action case of the instrument containing the usual pneumatic action. For clearness of illustration, parts are omitted, the striking playing or operating pneumatics being indicated by the numeral 79, and the diaphragm valves by which air is admitted to them by the numeral 80.

The mechanical musical instrument to which my device is adapted is provided in a well known manner with two wind chambers or bellows adapted to produce different air tensions or pressures, commonly known as "high" and "low wind." In the present instance I have illustrated the device as operated by air tension or suction. The action casing 40 is shown as provided near its lower portion with a chamber 81, connected to the high tension bellows or chamber, not shown, and extending the full length of the casing. Immediately above this are four chambers 82, 83, 84 and 85, separated from each other by air-tight partitions 86. Above the chambers 82 to 85 are thirteen chambers marked 87 to 99 inclusive. At the rear of the row of chambers 82 to 85 and the row 87 to 99 is a chamber 100 running the entire length of the casing and connected by means, not shown, with the low tension wind chamber or bellows. A suitable passage 101 leads from each of the chambers 87 to 99 inclusive to supply suction to groups of the pneumatics 79 and their respective pneumatic diaphragms and valves 80. Each of the chambers 87 to 99 inclusive is connected by a passage closed by a flap valve 102 with the low tension chamber 100.

The operation of my device is as follows: When the music sheet 13 passes over the tracker 10 with imperforate portions thereof covering the five ducts 15 to 19 inclusive,

it is obvious that the note-actuating perforations in the sheet will act through proper connections, not shown, to raise certain of the actuating diaphragm valves 80 and thereby permit the corresponding striker pneumatics 79 to exhaust through the passages 101 and chambers 87 to 99 into the low tension chamber 100. The notes will thus be sounded with the normal force of the low tension or "low wind" of the instrument. Assuming, *e. g.*, that one of the perforations in the paper passes over the aperture 16 in the tracker board, air will be admitted beneath the diaphragm 27 Fig. 4 to raise the double valve 28, which cuts off the pneumatic 21 from atmosphere and connects it with the suction chamber 26. The pneumatic 21 will thus be collapsed and its finger 29 bearing against the D-valve board 31 will force the same against the action of its spring so as to disconnect the port 37 from the suction chamber 36 and to open the same to atmosphere. Air will then pass through the branched tube 38 to the three ports 391 and will act to raise the diaphragm valves in the chambers 88, 92 and 96 so as to connect the same with the chambers 83, 84 and 85 respectively. If we assume that one of these chambers, *e. g.*, the chamber 84, has previously been connected with the high tension chamber 81 by the raising of the valve 671, it is plain that the particular striking pneumatics 79 connected with the chamber 92 will be connected to the high tension chamber 81 and will sound their notes with increased force whenever their valves 80 operate to make them sound, that is, these notes will be accented. Obviously, the connecting of the chamber 92 with the high tension chamber 81 will act to close the flap valve 102 between the chamber 92 and the low tension chamber 100. But the valve 671 can only be raised to connect the chamber 92 with the high tension chamber 81 by pressure on the push button 60, which acts, as already described, to force back one of the bars 55 so as to cut off the passage 67 from the suction passage 64 and to connect the same to atmosphere. If on the other hand all three push buttons 59, 60 and 61 had previously been pushed back, it is obvious that the striking pneumatics connected with all three chambers 88, 92 and 96 would be subjected to the high tension suction of the chamber 81. In the same way a perforation in the music sheet 13 passing over the duct 17 in the tracker will act to open the chambers 89, 93 and 97 to the chambers 83, 84 and 85 so that the simultaneous or previous pushing in of one of the buttons 59, 60 or 61 will act to open the corresponding chamber 89, 93 or 97, as the case may be, to the high suction. This is of course equally the effect of a perforation in the note sheet passing over the duct 18, which will open



the chambers 90, 94 and 98 in a similar manner, while a perforation passing over the duct 19 will open the chambers 91, 95 and 99.

5 The chamber 87 is, as shown, connected through a chamber 82 and its pneumatic valve shown above the port 39, with the chamber 81, so that whenever the tracker duct 15 is opened the pneumatic 20 and its  
10 valve 30 cause air to pass to port 39, thereby opening the valve above it and supplying high wind for the group of say 17 bass notes supplied from chamber 87. As the valve 39 connects the high tension chamber 81 with  
15 the chamber 87 through the chamber 82, the latter two chambers being connected by open passages (see Fig. 7), these lower seventeen notes will be open to high tension and will consequently be accented independently of  
20 the movement of any of the manual playing buttons 59 to 62.

As the push button 62 has the effect of opening the high tension chamber 81 directly into the low tension chamber 100, it is ob-  
25 vious that the pushing back of this button renders unnecessary any opening of the ducts 15 to 19 in the trackers, and of itself opens all the notes of the instrument to high tension and causes them to sound with in-  
30 creased force.

The particular grouping of the connections between the ducts in the tracker board and the push buttons above described is shown diagrammatically in Fig. 9 of the  
35 drawings. It is obvious that this grouping may be varied within wide limits, it being advantageous that the groups of note-sounding devices in which the air pressure connections are selectively varied by the means au-  
40 tomatically actuated by the note sheet should differ in number or position, or both from the groups connected with the push buttons. In this way any particular note, as a solo note, may be accented, it being unusual  
45 that notes immediately adjacent to the solo note should be struck therewith.

As a means for closing the valves controlling the admission of air to the chambers 87 to 99 inclusive, I have shown means illus-  
50 trated in Figs. 2 and 4 of the drawings. When the bellows 21 is collapsed by the registration of a perforation in the note sheet with the duct 16 it not only forces back the valve board 31, but also forces back the U-  
55 shaped bar 51 against the tension of the spring 53. This bar 51, as shown in Fig. 2, carries a curved finger 54 which first acts through the dog 47 and lug 46 to tilt the board 43 so that its lug 44 is raised above  
60 the plane of the lug 41 on the valve board 31. As soon as the finger 54 passes the dog 47 the board 43 is permitted to drop back to its horizontal position, in which its lug 44 will engage with the face of the lug 41  
65 and hold the board 31 against the thrust of

the spring shown in Fig. 4. When the bellows 21 distends to its normal position, as shown, the dog 47 swings on its pivot and permits the finger 54 to pass idly thereby. It is obvious that the next passage of a per-  
70 foration in the music sheet over any one of the ducts 15 to 19 inclusive will again lift the board 43 when the valve board 31 or any particular valve board that has been thrust back will be released and thrust forward by  
75 its spring to the closed position shown in Fig. 4. Somewhat similar means are shown in Figs. 5, 6 and 8 for closing the valves 63 in connection with the push buttons 59 to 62 inclusive. The first three of these, Nos. 59, 60 and 61, are connected with valve boards,  
80 which carry blocks 69 adapted to pass to the rear of and be engaged by the lug 74 on the bar 73, the bar being tilted on its pivot as each push button is pressed in-  
85 wardly. It is obvious that the pressing in of any push button will raise the bar and hence permit such bars as have previously been pressed back to be returned to their  
90 normal forward position by the action of their springs 68. The push button 62 shown in Figs. 6 and 1 of the drawings has instead of the block 69 a block 71 of considerable length, so that it acts to tilt the board 73 on  
95 its pivot and to hold it in its raised position, thereby releasing any or all of the other valve boards 55, 56 or 57 which may then have been pressed back.

For clearness, I have omitted many familiar details of construction such as the  
100 mounting for the various valves that control the pneumatic 79 and the chambers 81 to 100 and the guides for the various sliding or D-valves, because such details are well known in the art and the drawings are  
105 clearer without them. So also the various pneumatics and valves may be of widely different forms without affecting the principles of the invention. It will be seen that each of the buttons 59, 60 and 61 manually  
110 controls the accenting of one of the three groups of notes which have connection respectively with the chambers 83, 84, and 85, and that the special or accent ducts 16, 17, 18, or 19 of the tracker control the ad-  
115 mission of the high wind or accenting wind to one chamber 88 to 99 of the four having communication with the respective chambers 83, 84, 85, each of the ducts simulta-  
120 neously actuating the valves of three of the chambers 88 to 99 and controlling the communication of those three chambers with the chambers 83, 84, 85. Thus I provide two sets of means for accenting the  
125 notes, one set being manually controlled to determine a range or group of notes where the accent is to fall, and one set being automatic means for determining the subdivision of that group that is to be accented. These accenting means are additional, of  
30



course, to the normal wind connections described and to the valves 80 which cause the playing or silence of the individual notes.

5 It is obvious that many mechanical changes may be made in the embodiment of my device, as well as in the grouping and arrangement of the various connections, without departing from the spirit of my in-  
10 vention. It will also be understood that by the phrase "group of note sounding devices" or the like I intend to include any desired number of such note sounding de-  
15 vices (one or more) less than the entire number.

What I claim is:

1. Note playing mechanisms having means for playing the notes without accent, two sets of jointly operating means for accent-  
20 ing the notes, one of each set cooperating with one of the other set for a given note to give accent only when both such accenting means are at accenting positions.

2. Note playing mechanisms having means  
25 for playing the notes without accent, two sets of jointly operating means for accenting the notes, one of each set cooperating with one of the other set for a given note to give accent only when both such accent-  
30 ing means are at accenting positions, one said set of accenting means comprising separate accenting means for separate groups of notes, and the other of said sets  
35 also comprising separate accenting means for different groups of notes, but each group including parts of two or more of the first said groups, whereby the two sets operate selectively.

3. Note playing mechanisms having means  
40 for playing the notes without accent, two sets of jointly operating means for accenting the notes, one of each set cooperating with one of the other set for a given note to give accent only when both such accent-  
45 ing means are at accenting positions, one said set of accenting means comprising separate accenting means for separate groups of notes, and the other of said sets  
50 also comprising separate accenting means for different groups of notes, but each group including parts of two or more of the first said groups, whereby the two sets operate selectively; and means controlled by tracker  
55 ducts for automatically controlling one of said sets.

4. Note playing mechanisms having means  
for playing the notes without accent, two sets of jointly operating means for accent-  
60 ing the notes, one of each set cooperating with one of the other set for a given note to give accent only when both such accenting means are at accenting positions, one  
65 said set of accenting means comprising separate accenting means for separate groups of notes, and the other of said sets

also comprising separate accenting means for different groups of notes, but each group including parts of two or more of the first said groups, whereby the two sets operate selectively, automatic means for controlling  
70 one said set, and manual means for controlling the other set.

5. A mechanical musical instrument hav-  
ing playing or operating pneumatics for the  
several notes, and connections for normally  
75 actuating them, and having accenting means comprising a high wind chamber, a plurality of chambers communicating therewith and each having a valve, a pneumatic and an ac-  
80 tuating duct therefor, controlling such communication, a plurality of valve-controlled passages from each of the last said chambers to a group of one or more of the operating  
85 pneumatics, a controlling valve, pneumatic, and actuating duct for controlling each of the last said passages, means for actuating the first said valves and pneumatics through the first said ducts, and means for actuating the last said valves, pneumatics and ducts.

6. A mechanical musical instrument hav-  
90 ing playing or operating pneumatics for the several notes, and connections for normally actuating them, and having accenting means comprising a high wind chamber, a  
95 plurality of chambers communicating therewith and each having a valve, a pneumatic and an actuating duct therefor, controlling such communication, a plurality of valve-  
100 controlled passages from each of the last said chambers to a group of one or more of the operating pneumatics, a controlling valve, pneumatic, and actuating duct for controlling each of the last said passages,  
105 means for actuating the first said valves and pneumatics through the first said ducts, and automatic means for actuating the last said valves, pneumatics and ducts.

7. A mechanical musical instrument hav-  
ing playing or operating pneumatics for the  
several notes, and connections for normally  
110 actuating them, and having accenting means comprising a high wind chamber, a plural-  
ity of chambers communicating therewith and each having a valve, a pneumatic and an  
115 actuating duct therefor, controlling such communication, a plurality of valve-con-  
trolled passages from each of the last said chambers to a group of one or more of the  
operating pneumatics, a controlling valve,  
120 pneumatic, and actuating duct for controlling each of the last said passages, means for actuating the first said valves and pneu-  
matics through the first said ducts, and au-  
125 tomatic means for actuating the last said valves, pneumatics and ducts in groups or sets, including in each group valves con-  
trolling the passages from different cham-  
bers of said plurality of chambers.

8. A mechanical musical instrument hav-  
ing a pneumatic tracker board and playing  
130



mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, including a plurality of independent manually controlled mechanisms for permitting or preventing accenting in appropriate groups or ranges of notes and a plurality of automatic mechanisms for accenting appropriate subdivisions of said groups or ranges.

9. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, including a plurality of independent manually controlled mechanisms for permitting or preventing accenting in appropriate groups or ranges of notes and a plurality of automatic mechanisms for accenting appropriate subdivisions of said groups or ranges, and independently controlled means for accenting all the notes.

10. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, including a plurality of independent manually controlled mechanisms for permitting or preventing accenting in appropriate groups or ranges of notes and a plurality of automatic mechanisms for accenting appropriate subdivisions of said groups or ranges, means for holding one or more of the said mechanisms in their accenting positions, and for releasing the holding means by the operation of another of said mechanisms.

11. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, including a plurality of independent manually controlled mechanisms for permitting or preventing accenting in appropriate groups or ranges of notes and a plurality of automatic mechanisms for accenting appropriate subdivisions of said groups or ranges, means for holding one or more of the said manually controlled mechanisms in their accenting positions, and for restoring them to non-accenting position when another of said mechanisms is operated.

12. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, including a plurality of independent manually controlled mechanisms for permitting or preventing accenting in appropriate groups or ranges of notes and a plurality of automatic mechanisms for accenting appropriate subdivisions of said groups or ranges, means for holding one or more of the said

manually controlled mechanisms in their accenting positions, including manually controlled mechanism for releasing the last said means.

13. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, the manually controlled means operating on larger groups of note mechanisms and the automatically controlled means operating on smaller groups in the said larger groups, some of the smaller groups of different said larger groups being connected to act together.

14. A mechanical musical instrument having a pneumatic tracker board and playing mechanism controlled therefrom, and means for accenting notes controlled in part manually and in part automatically by joint action, means for holding the said means in accenting positions, and for releasing them therefrom.

15. Mechanical musical apparatus having pneumatically operated mechanism for playing the several notes by means of a perforated music sheet, high wind connections for accenting notes, a plurality of controlling means for opening or closing the said high wind connections for different groups of notes, and a plurality of automatic controlling means controlled by the music sheet for opening or closing the high wind connections for subdivisions of said groups, whereby the accent is controlled jointly by the two said controlling means.

16. Mechanical musical apparatus having pneumatically operated mechanism for playing the several notes by means of a perforated music sheet, high wind connections for accenting notes, a plurality of controlling means for opening or closing the said high wind connections for different groups of notes, and a plurality of automatic controlling means controlled by the music sheet for opening or closing the high wind connections for subdivisions of said groups, the automatic means being connected to act together on subdivisions of different groups, whereby the first said controlling means determines the group to be accented and the automatic controlling means selects the particular subdivision thereof to be accented.

17. Mechanical musical apparatus having pneumatically operated mechanism for playing the several notes by means of a perforated music sheet, high wind connections for accenting notes, a plurality of controlling means for opening or closing the said high wind connections for different groups of notes, and a plurality of automatic controlling means controlled by the music sheet for opening or closing the high wind connections for subdivisions of said groups,



means for holding the first said controlling means in accenting position and for releasing them and means including springs for restoring them when released.

5 18. Mechanical musical apparatus having pneumatically operated mechanism for playing the several notes by means of a perforated music sheet, high wind connections for accenting notes, a plurality of controlling means for opening or closing the said high wind connections for different groups of notes, and a plurality of automatic controlling means controlled by the music sheet for opening or closing the high wind connections for subdivisions of said groups, means for holding one or more of the first said controlling means in accenting position, and for releasing them when another is moved to accenting position including  
10 15 20 springs for restoring them when released.

19. Mechanical musical apparatus having pneumatically operated mechanism for playing the several notes by means of a perforated music sheet, high wind connections for  
25 accenting notes, a plurality of controlling means for opening or closing the said high wind connections for different groups of notes, and a plurality of automatic controlling means controlled by the music sheet for opening or closing the high wind connections for subdivisions of said groups, means for holding each of the said automatic controlling means in accenting position, and means for automatically restoring  
30 35 it to unaccenting position when another of said automatic controlling means is moved to accenting position.

20. In combination with playing mechanism, accenting pneumatic mechanism for selectively accenting any of a series of notes, and provided with means including two sets of valves for excluding or admitting the accenting wind through two of said valves one of each set successively for any one note,  
40 45 manually controlled means for operating one of such valves and automatic tracker-controlled means for operating the other of said valves, the manually controlled means being connected to control groups of said valves and thereby determine a group or range of notes to be accented and the automatically controlled means being connected to operate subdivisions of said groups, thereby selecting the particular notes of the particular group to be accented.  
50 55

21. In a mechanical musical apparatus, playing devices including pneumatically operated devices for playing the respective notes, accenting wind connections therefor having a plurality of means including valves for shutting off the accenting wind from groups of the playing devices, and a plurality of means including valves for shutting off the accenting wind from subdivisions of said groups, means for operating  
60 65

the first said valves, and automatic means for operating the second said valves.

22. In a mechanical musical apparatus having pneumatically operated devices for playing the respective notes, accenting wind connections therefor having a plurality of means including valves for shutting off the accenting wind from groups of the playing devices, and a plurality of means including valves for shutting off the accenting wind from subdivisions of said groups, means for operating the first said valves, and a plurality of automatic means for operating the second said valves in independent groups, each group including valves belonging to different groups first named.  
70 75 80

23. Mechanical musical apparatus having note accenting means jointly controlled in part manually and in part automatically, the manual control means including a plurality of stops and devices for controlling the accenting connections for relatively large groups of notes, and the automatic control controlling subdivisions of said group.  
85

24. Mechanical musical apparatus having note accenting means jointly controlled in part manually and in part automatically, the manual control means including a plurality of stops and devices for controlling the accenting connections for relatively large groups of notes, and the automatic control controlling subdivisions of said groups, each said subdivision of one group being connected to and co-acting with a subdivision of another group, whereby the manual and automatic means act selectively on the subdivision to be accented.  
90 95 100

25. In accenting devices for mechanical musical instruments, the combination of the playing pneumatics and valves, and low wind connections therefor, a high wind or accenting chamber common to many of said pneumatics, a plurality of separate chambers each interposed between the first said chamber and groups of the playing pneumatics, a plurality of separate chambers or passages interposed between each of the second chambers and smaller groups of the playing pneumatics, and valves for controlling communication between the first said and second said chambers and between the second said and third said chambers.  
105 110 115

26. In accenting devices for mechanical musical instruments, the combination of the playing pneumatics and valves, and low wind connections therefor, a high wind or accenting chamber common to many of said pneumatics, a plurality of separate chambers each interposed between the first said chamber and groups of the playing pneumatics, a plurality of separate chambers or passages interposed between each of the second chambers and smaller groups of the playing pneumatics, and valves for controlling communication between the first said and second  
120 125 130



said chambers, and automatically controlled valves between the second said chambers and the third said chambers.

27. In accenting devices for mechanical musical instruments, the combination of the playing pneumatics and valves, and low wind connections therefor, a high wind or accenting chamber common to many of said pneumatics, a plurality of separate chambers each interposed between the first said chamber and groups of the playing pneumatics, a plurality of separate chambers or passages interposed between each of the second chambers and smaller groups of the playing pneumatics, and valves for controlling communication between the first said and second said chambers, and between the second said and third said chambers, and a separate valve and connections for admitting high wind to all the third said chambers.

28. In accenting devices for mechanical musical instruments, the combination of the playing pneumatics and valves, and low wind connections therefor, a high wind or accenting chamber common to many of said pneumatics, a plurality of separate chambers each interposed between the first said chamber and groups of the playing pneumatics, a plurality of separate chambers or passages interposed between each of the second chambers and smaller groups of the playing pneumatics, and valves for controlling communication between the first said and second said chambers, and between the second said and third said chambers, manual means for controlling the first said valves and automatic means for controlling the second set of valves.

29. In accenting devices for mechanical musical instruments, the combination of the playing pneumatics and valves, and low wind connections therefor, a high wind or accenting chamber common to many of said pneumatics, a plurality of separate chambers each interposed between the first said chamber and groups of the playing pneumatics, a plurality of separate chambers or passages interposed between each of the second chambers and smaller groups of the playing pneumatics, and valves for controlling communication between the first said and second said chambers, and between the second said and third said chambers, manual means for controlling the first said valves and automatic means for controlling the second set of valves in groups each including valves between different second said chambers and the third said chambers, whereby the chambers and valves operate jointly and selectively.

30. Mechanical musical apparatus having

note sounding or playing pneumatics provided each with a valve for controlling action and inaction and with a high connection for giving accent, and two valves for controlling its high wind connection conjointly, means for controlling one of said valves manually, and means for controlling the other of said valves automatically, such manual valves being each connected to a group of note playing pneumatics the automatic valves being connected co-acting in groups including those pneumatics controlled by different manual valves, whereby a selective action of valves is effected.

31. In combination in mechanical musical apparatus, a tracker having special accents, a plurality of pneumatics connected with and controlled by said ducts, valves actuated by said pneumatics, pneumatics wind passages controlled by the said valves and a set of valves actuated severally by last said pneumatics in one direction, springs actuating them in the other direction, means for holding the valves against action of the springs, and for releasing valve by the operation of another, means controlled by the said set of valves for controlling different portions of mechanical musical apparatus.

32. In mechanical musical apparatus, combination of a plurality of valves having pneumatics for moving them, a device for holding one or more of the valves in one of their positions, and for releasing the valve that are so held when another valve is moved by its pneumatic.

33. In mechanical musical apparatus, combination of a plurality of manually actuated controlling valves having springs restoring them to a given position, means for retaining them when actuated against the spring pressure and for releasing valve when another is actuated, and connections from the said valves for controlling the accenting of groups of notes.

34. In mechanical musical apparatus, combination of a plurality of manually actuated controlling valves having springs restoring them to a given position, means for retaining them when actuated against the spring pressure and for releasing valve when another is actuated, and pneumatic controlling mechanisms connected with and controlled by the respective valves.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANCIS L. YOUNG

Witnesses:

W. C. MANSFIELD,  
E. C. THOMPSON.