

No. 860,745.

PATENTED JULY 23, 1907.

C. S. HASKELL, DEC'D.

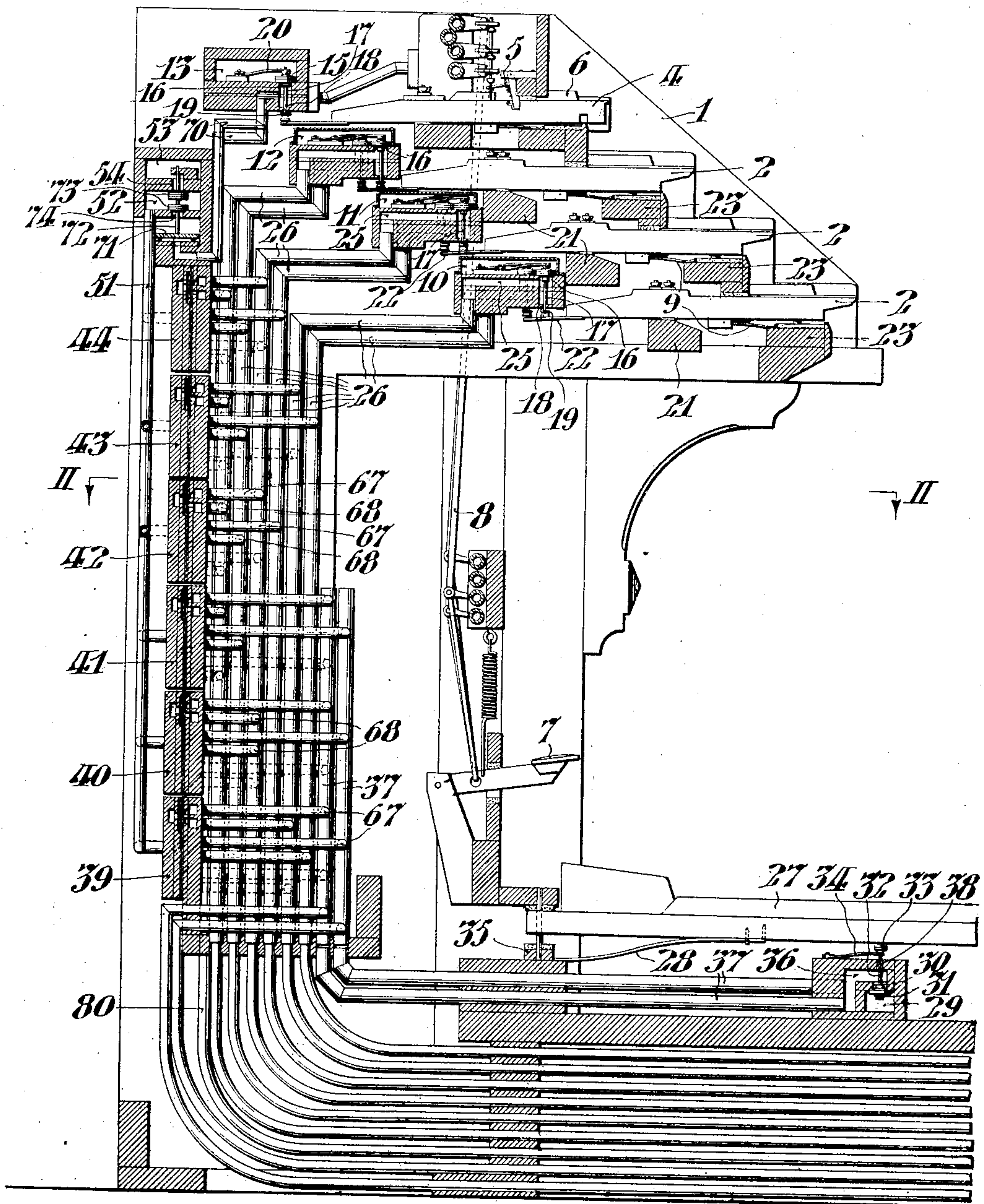
R. C. HASKELL, ADMINISTRATRIX.

ORGAN.

APPLICATION FILED OCT. 16, 1905.

*FIG. I*

3 SHEETS—SHEET 1.



**WITNESSES:**

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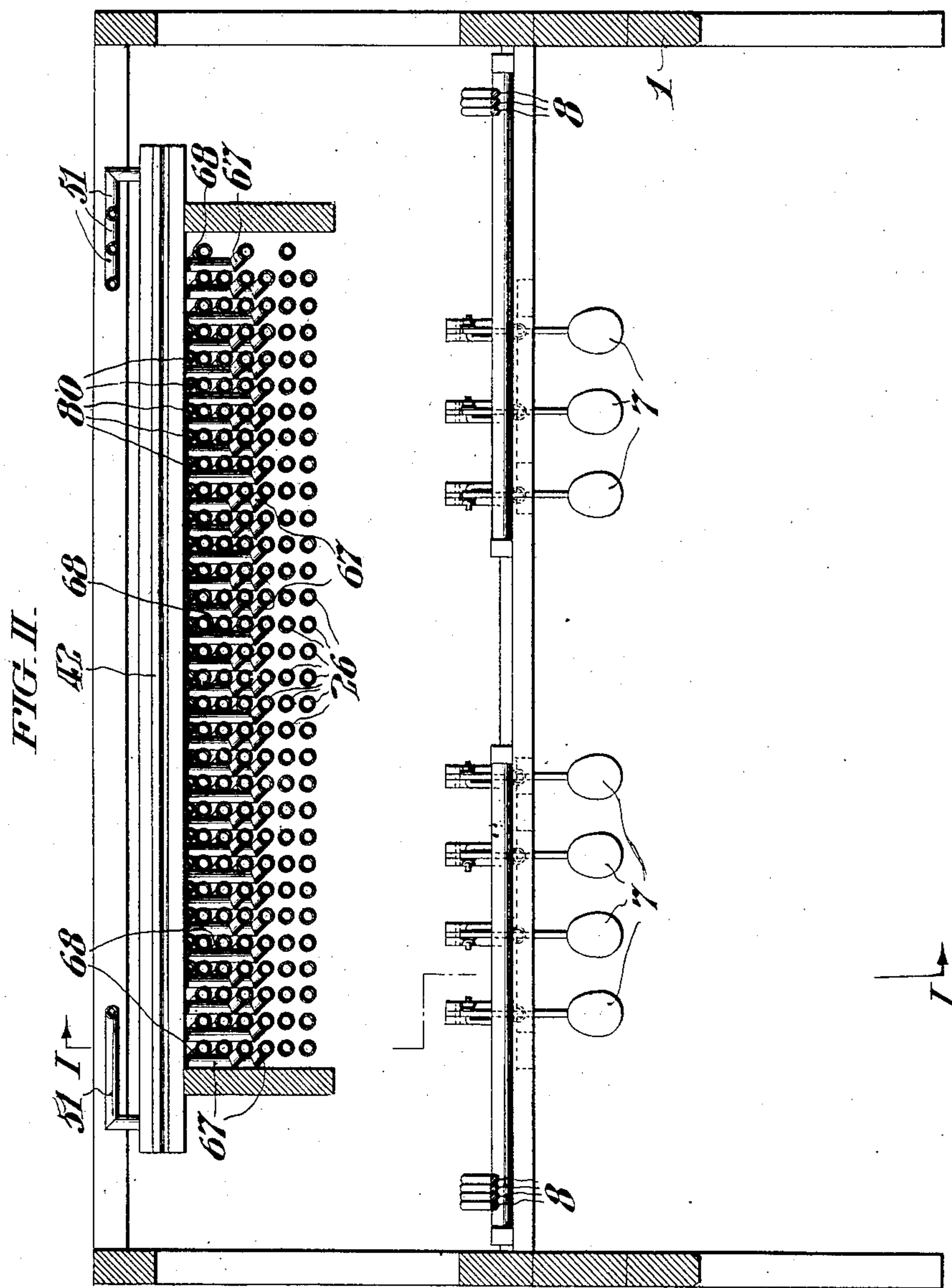
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3 SHEETS—SHEET 2.



WITNESSES:

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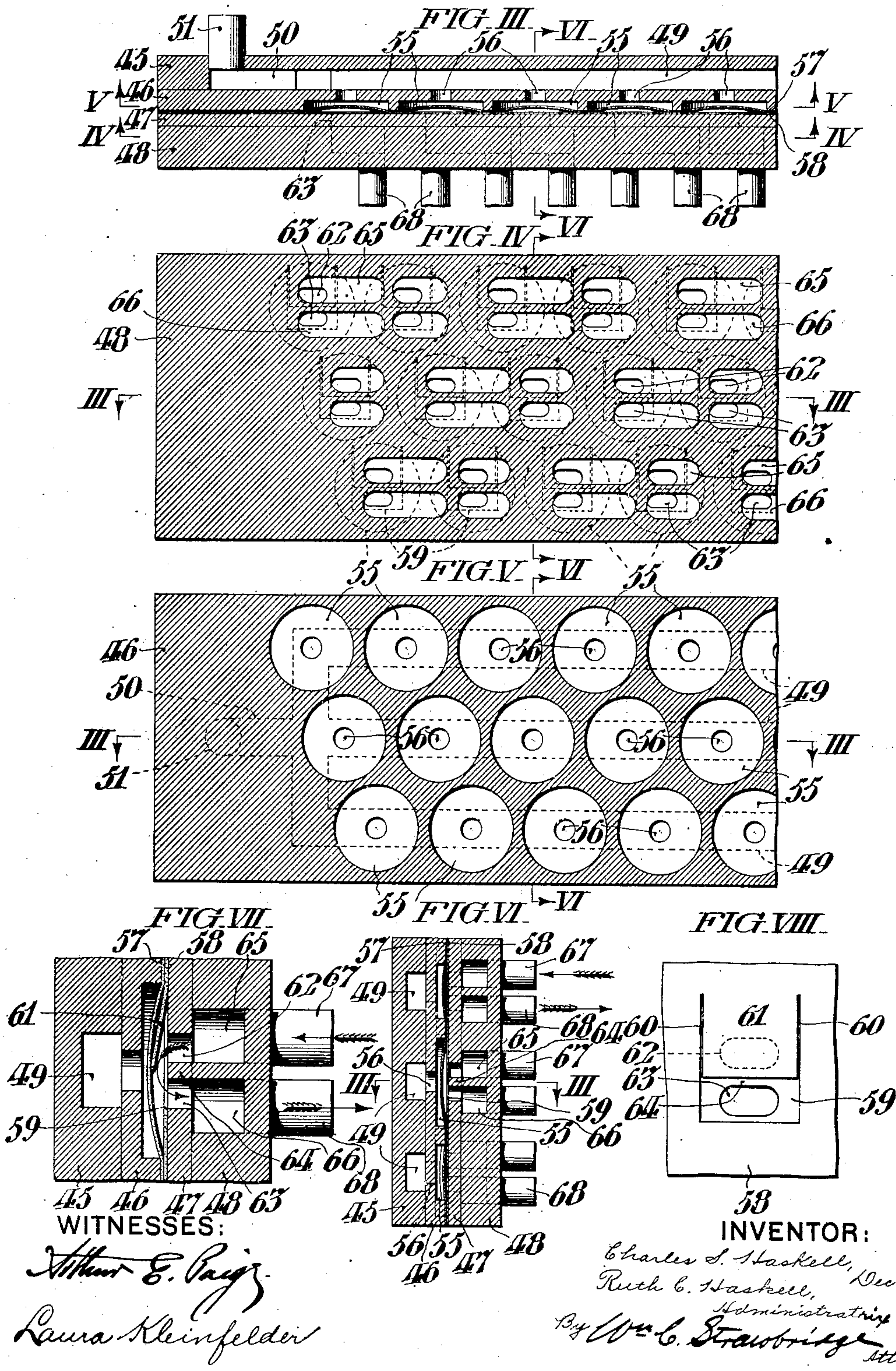
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C. S. HASKELL, DEC'D.  
R. C. HASKELL, ADMINISTRATRIX.  
ORGAN.

APPLICATION FILED OCT. 18, 1906.

3 SHEETS—SHEET 3.





# UNITED STATES PATENT OFFICE.

RUTH C. HASKELL, OF PHILADELPHIA, PENNSYLVANIA, ADMINISTRATRIX OF CHARLES S. HASKELL, DECEASED.

## ORGAN.

No. 860,745.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed October 16, 1905. Serial No. 283,014.

*To all whom it may concern:*

Be it known that CHARLES S. HASKELL, deceased, late a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, did  
5 invent new and useful Improvements in Organs, of which the following is a specification.

This invention relates to improvements in organs, and it has for its object the provision of an improved pneumatic coupler, by means of which the several or-  
10 gans may be connected or coupled together so as to speak simultaneously.

It is also an object of my invention to produce an organ in which the couplers or coupler boards, supply tubes and other parts may be arranged in close or compact ar-  
15 rangement to each other, and thus economize very greatly in the matter of space, a very great desideratum in organ construction.

Other objects of my invention will appear in the course of the detailed description thereof, which follows.

20 For a clear understanding of my invention, reference is to be had to the accompanying drawings, in which

Figure I is a section from front to rear of an organ action embodying my invention, said section being taken on the line I—I of Figure II;

25 Figure II is a horizontal section taken on the line II—II of Figure I;

Figure III is a longitudinal section of one of the coupler boards on the lines III—III of Figures IV, V and VI, part of the said coupler board being broken  
30 away;

Figure IV is a section of a coupler board on the line IV—IV of Figure III;

Figure V is a section of a coupler board on the line V—V of Figure III;

35 Figure VI is a section on the lines VI—VI of Figures III, IV and V;

Figure VII is a sectional view of a fragmentary portion of the coupler board, showing certain features thereof enlarged; and

40 Figure VIII is a view of a fragmentary portion of a coupler, and illustrating the construction of certain valves.

In the drawings,—

1 designates a key box which is of usual or desired  
45 construction. 2 designates the organ keys, of which there are three rows, as shown in Figure I, which together constitute the key manuals, and it may be stated here that there are sixty-one keys in each row. The first, second and third rows of keys, counting from the  
50 bottom, are connected respectively to the choir, great and swell organs, not shown. It will be understood, however, by those skilled in the art, that in order that the organs may speak, it is necessary to place a stop or a

combination of stops "on", said stops being normally  
"off".

55

In the construction shown, the stop keys 4 are adapted to be depressed, and they are afterwards held in depressed position by catch mechanism 5 which is of known construction. The said catch mechanism is released to permit the return of the keys 4 to normal  
60 position by the depression of keys 6.

I have also provided foot pedals 7, by means of which the stop key, or any desired combinations of stop keys 4, may be operated by the performer, the said foot pedals being connected to the said stop keys by means  
65 of trackers 8, as clearly shown in Figure I of the drawings.

In order that the outer ends of the keys 2 and 4 may be held normally in an upward position, as indicated in Figure I, I have provided springs 9, one of which is located under each key and the outer end of which is  
70 separated from the said key and is in contact with a buffer or bar, which limits the downward movement of the outer ends of the keys. It will be understood that normally the said springs are under greater or less tension.

The inner ends of each row of keys extend inwardly  
75 to points underneath the wind box,—the inner ends of the choir organ keys extending underneath the wind box 10, the great organ keys extending underneath the wind box 11, the swell organ keys extending under-  
80 neath the wind box 12, and the stop keys extending underneath the wind box 13.

Valves 15 are located in each of the wind boxes, which valves are adapted to close the ports 16 and to be opened by means of stems 17 connected thereto. The lower  
85 ends of the said stems project through perforations 18 in line with the ports 16 and which perforations are very slightly greater in diameter than the diameters of the stems, whereby annular spaces are formed around the said stems for a purpose to be hereinafter stated.

The lower ends of the said stems terminate in, that is,  
90 are provided with valves 19, which are adapted to close the said perforations 18 when the stems 17 are raised to open the valves 15. The lower ends of the stems 17, that is, the valves 19 (which in fact constitute the lower ends of the stems) are respectively lo-  
95 cated short distances immediately above the inner ends of the respective keys. Each of the valves 15 is supported upon a spring 20 and is normally pressed down upon the bottom of the respective wind boxes 10, 11, 12 and 13, as clearly shown in Figure I of the  
100 drawings.

In order that the keys 2 and 4 may be self-adjusting, that is, in order that the keys may move up and down through short distances, due to the expansion and contraction of the supports 21 which are usually and pref-  
105 erably of wood, without rendering necessary a re-ad-



justment thereof, I have provided the inner ends of the said keys with springs 22, the extreme inner free ends of the springs being located, as previously stated, a short distance underneath the lower ends of the stems 17, that is, underneath the valves 19.

By reason of the fact that the inner ends of the said springs 22 are located a short distance underneath the lower ends of the said stems, the said keys may assume slightly different positions relatively to the said stems, due to the expansion and construction of various parts of the structure, without coming into contact with the said stems. Also there may be accidental depression of the keys without opening the valves 15.

23 designates buffers or bars located a short distance underneath the outer ends of the keys 2 and 4 to limit the movement of the outer ends.

The distance between the outer ends of any row of keys and its corresponding buffer 23 is such that when any key in any row is depressed, and the inner end of its spring reaches the limit of its movement, the outer end of the said key continues to move down, in consequence of which the said spring is slightly bent and placed under tension. In other words, there is a certain amount of lost motion, due to the fact that the distances, through which the inner end of the keys are permitted to move, are relatively less than the distances through which the outer ends of the keys are permitted to move when they are depressed. There is also lost motion due to the fact that the inner ends of the keys are located short distances below the lower ends of the stems 17.

As the valves 15 are held in position upon the bottom of the wind boxes 10 to 13, inclusive, by the springs 20, it is evident that the said springs must be weaker than the springs 22 at the inner ends of the respective keys 2 and 4, so that the tension of the said springs 20 may be overcome by the springs 22 in their upward movement so as to open the valves 15.

It is to be noted here that the springs 20 upon which the valves 15 are secured serve both the purpose of holding said valve in position upon the bottoms of their respective wind boxes to close the ports or openings 16 leading from the said wind box and as a guide to return the said valves into accurate position after they have been lifted from their respective seats.

Located in what may be termed the bottom of the wind boxes are a series of passageways 25, one of which is shown leading from each of the ports 16 communicating with each of the wind boxes 10, 11, 12 and 13.

The supply tubes or channels 26 are connected to the said wind boxes or chambers and communicate with the same through the said passageways 25 and the ports 16. The said supply pipes are also in communication with the perforations 18, to which reference has been previously made.

The purpose of the said tubes or channels 26 is to supply air under pressure, that is, wind, from the said wind boxes for the purpose of controlling or occasioning the speaking of the several organs, choir, great and swell. Also from these tubes air under pressure may be supplied to the respective couplers, which will be hereinafter described.

In addition to the keys 2, which are adapted to be operated by hand, I have also provided pedals 27, of which there are thirty, which are adapted to be oper-

ated by the foot of the performer. These pedals are pivoted in front of the key box, the point of pivoting the same not being shown. Their inner ends are adapted to be depressed through a short distance, as indicated in Figure I, such distance being usually about three-fourths of an inch. The pedals are held in their normal elevated position by means of springs 28.

29 designates a wind box located underneath the row of pedals 27, the said wind box being provided with a series of ports or openings, one of which 30 is shown in Figure I of the drawings. These ports or openings are adapted to be closed by valves, one of which 31 is shown in the said Figure I, connected to stems, one of which 32 is shown in Figure I. The upper ends of the said stems are provided with buttons or heads 33, which are located a short distance underneath the lower sides of the pedals 27, in order that the material of the said pedals and other parts of the structure associated with the said valve 31 may contract and expand without affecting in any way or manner whatsoever the position of the stems and the valves connected thereto. In other words, the relative positions of the stems and their valves with respect to the pedals 27 may be slightly changed without occasioning the opening of the valves 31.

The valves are held in position to close the ports 30 by means of springs, one of which 34, similar to the springs 20, is shown in Figure I, the said springs 34 being connected to the said stems underneath the buttons or heads 33.

The position of the wind box 29 and consequently of the valves 31 and the stems 32 connected thereto is so related to the pivotal point of the said pedals 27 that when the latter are moved down, so that their inner free ends are in contact with the buffer or stop bar 35, the said valve 31 will be moved to an extent just sufficient to permit free outlet of the air from within the said wind box.

36 designates passageways, one of which is shown in Figure I, which passageways are in communication with the supply tubes or channels 37, which extend to the pedal organ and which supply wind or air under pressure to certain of the couplers or coupler boards, such coupler boards in the construction shown being the three lowermost ones of Figure I of the drawings.

It will be understood, however, that the position of any of these coupler boards shown in Figure I of the drawings may be changed, as desired, without changing in any respect whatsoever the principles or objects of my invention.

The stems 32, previously referred to, project through perforations 38, which are slightly larger than the stickers, so as to leave annular spaces surrounding the said stickers.

The construction of the couplers or coupler boards 39, 40, 41, 42, 43 and 44 is the same, and such construction is shown in Figures I and III—VIII, inclusive, but most clearly in the last six figures.

Referring to Figure III, it will be noticed that said coupler or coupler board consists of four members, 45, 46, 47 and 48. The member 45 is provided with the three passageways or grooves 49, which extend longitudinally thereof and which are shown in Figures III and VI, and in dotted lines in Figure V, and one of which is also shown in Figure VII. The said pas-



sageways or grooves in each of the said couplers or coupler boards communicate through a common passageway 50, shown in Figure III, and in dotted lines in Figure V, with one of a number of tubes 51, the said tubes being connected respectively to chambers 52, one of which is shown in Figure I, and which chambers normally are in open communication with a wind box or chamber 53 through ports or openings 54, one of which is shown in Figure I.

Upon one side of the member 46 of the coupler or coupler board, I have provided three rows or series of depressions or chambers 55, each of which is in communication with one of the passageways 49 in the member 45 through ports or openings 56. The tubes 51 being in communication normally with the wind box 53, it is apparent that the depressions 55 normally are filled with air under greater or less pressure, such air entering the said depressions through the ports 56 from the passageways or grooves 49, the air entering the said grooves or passageways through the common passageway or groove 50.

In view of the fact that the passageways or grooves 49 are connected together in the manner indicated in dotted lines in Figure V of the drawings, it is obvious that any body of air contained in the said passageways or grooves would act as a single body or volume of air, consequently it may be noted here that a single groove or passageway of sufficient width to overlie the middle row of depressions shown in Figure V and to overlie or overlap portions of the two outer rows of depressions may be substituted for the three passageways or grooves illustrated.

Located between the members 46 and 47 of the coupler or coupler board, I have provided two thin flexible strips 57 and 58 of suitable material, preferably leather. The strip 57 is glued or pasted upon the face of the member 46 of the coupler board over the depressions 55 and the strip 58, with the exception of the portions to which reference will be made hereinafter, is secured by pasting or gluing to the member 47 of the coupler or coupler board. The portions of the strip 57 which overlie the depressions or chambers 55 are adapted to be moved back and forth between the member 46 and the member 47, that is, the said portions are adapted to be moved laterally within the depressions or chambers 55. Normally, however, the portions of the strip 57 which overlie the said chambers are pressed firmly against the strip 58 which is practically against the side of the member 47, by reason of the presence of air under a greater or less pressure within the said depressions or chambers 55, the said air pressure being supplied through the tubes 51 from the wind box or chamber 53, as previously stated.

The strip of leather or other suitable material 58 which is located between the strip 57 and the member 47 has a portion thereof cut out, that is, it is slotted, as indicated at 59 in Figure IV, VI, VII and VIII, the cut out portion being indicated by dotted lines in the first named figure. The said strip 58 is also slit, as indicated most clearly at 60 in Figure VIII, so as to form the flap valves 61, which valves are located opposite the depressions or chambers 55 and which are separated from the said chambers by portions of the strip 57. The purpose of the valves 61 will hereinafter be fully set forth.

The member 47 is provided with ports or openings arranged in couples, one of which openings 62 of any couple is normally closed by one of the said flap valves 61, the other one of which openings 63 of any couple being in registry or in line with an opening or slot 59 through the strip 58, and therefore in communication with the adjacent side of the strip 57. The valves 61 are adapted to be bent by movement in one direction only, as is obvious upon inspection of Figures VI, VII and VIII.

When the portions of the strip 57 opposite the depressions or chambers 55 are pressed against the strip 58, which is practically against the side of the member 47, the ports or openings 63 may then be said to be closed; otherwise, the said ports 63 are at all times open.

The ports or openings 62 and 63 (constituting each couple) through the member 47 are separated, as indicated most clearly in Figures VI, VII and VIII, by a relatively thin wall 64. The outer free end of each flap valve closing the opening 62 of a couple rests upon one edge portion of the said wall, as clearly shown in the drawings.

The said ports or openings in the member 47 communicate with oblong depressions which are arranged in couples in the member 48 of the coupler or coupler board. One of these depressions 65 of each coupler is in communication with a port or opening 62 and the other one of the said depressions 66 of each couple is in communication with the port or opening 63.

As already pointed out, the coupler or coupler board comprises in addition to the leather strips 57 and 58 the four members 45, 46, 47 and 48. The said four members are employed for convenience of construction, but it is to be understood that when the several members 45, 46, 47 and 48, are secured together, they constitute practically but two members, the members 45 and 46 constituting one of said members, and the members 47 and 48 constituting the other of said members. In other words, if desired, the two members 45 and 46 may consist of a single member and likewise the two members 47 and 48. It would be entirely practicable to employ but two boards or members and provide in each of them the various ports, depressions, etc., already described.

In order to connect the several organs together so that they may speak at once, that is, in order to connect certain of the supply tubes or channels 26 together in order that they may act or perform their function simultaneously, I have provided distributing tubes 67 and 68, which, as illustrated in Figures I, VI and VII of the drawings, are arranged in couples, and, as most clearly illustrated in Figure I of the drawings, the said distributing tubes are connected respectively with the supply tubes or channels 26 and 37 and to some one of the couplers or coupler boards 39 to 44, inclusive. It will also be noted that these distributing tubes are arranged substantially at right angles to the vertical portions of the supply tubes or channels 26 and 37.

One of the members 67 of each couple of distributing tubes is connected at one end to one of the supply tubes or channels 26 or 37 which extends to one of the organs and the other end of the said distributing tube 67 extends through a port or opening in the member 48 of a coupler or coupler board and communicates with a



depressions 65 therein, and the other member 68 of the said coupler of distributing tubes communicates at one end with a depression 66 and at its outer end is connected to another supply tube or channel 26 or 37 which extends to another organ.

Upon inspection of Figures III and VI of the drawings, it will be noted that the distributing tubes 67 and 68 are out of alinement with the ports or openings 62 and 63, and as a convenient means of placing the ends of the said tubes respectively in communication with the said ports or openings 62 and 63, the oblong depressions 65 and 66 are provided. Obviously, therefore, instead of employing or providing the said depressions 65 and 66, the tubes themselves may be extended to the ports or openings 62 and 63, or, if desired, the said ports 62 and 63 may consist of inclined perforations extending from the ends of the said distributing tubes which are connected to a coupler or coupler board.

The distributing tubes 67 and 68, as will be noted upon inspection of Figures I and II of the drawings, are arranged horizontally and at right angles to the vertical portions of the supply tubes or channels 26 and 37 and are located between rows of the said vertical portions of the said supply tubes, which rows extend from front to rear of the key box of the organ.

As previously stated, normally the air upon one side of the strip 57 is under pressure and holds the same against the second strip of leather provided with the flap valves 61 to prevent the leather from opening.

In order to vent or exhaust the air from the depressions or chambers 55 so as to permit the flap valves 61 to be opened under the influence or pressure of the air supply from the supply tubes or channels 26 and 37, it is necessary to operate any one or more of the stop keys. Upon the depression of a stop key, a valve 15 in the wind box 13 is opened, which permits the air to escape from the said wind box 13 through a port or opening 16 into one of the air tubes 70 which is in communication with a pneumatic 71, provided with a sticker 72, upon which is supported two valves 73, the lower one of which is adapted to open and close one of the ports 74 leading from one of the chambers 52 into the open air.

When the stops are in their normal "off" position, the lower one of the valves 73 in each chamber 52 is closed, the upper valve, which is adapted to close the port 54, is open, permitting air to escape from the wind box 53 through a chamber 52 into one of the tubes 51.

Upon depression of a stop key, a corresponding pneumatic 71 is operated, that is, it is expanded, so as to raise the valves 73 so that the lower one is opened and the upper one is closed. The opening of the lowermost valve 73 permits the escape of the air from one of the supply pipes 51 depending upon the particular stop which has been depressed, so that the pressure of air in the depressions or chambers 55 of a corresponding coupler or coupler board is removed.

It will be understood that there is a separate pneumatic for each chamber 52 and a separate chamber for each coupler or coupler board. It is also to be noted that the chambers 52 may be separated into two or more groups and that there may be a wind box 53 for each of the said groups or a single wind box may be provided extending above each of the groups of chambers 52.

As the groups of chambers 52 are constructed alike, it is deemed necessary to illustrate and describe but one of the said chambers 52 with its associated valves and pneumatics, the several parts being arranged substantially as shown in Figure I of the drawings.

When the air has been exhausted from the chambers 55 of the couplers or coupler boards in the manner previously described, thereby removing air pressure from one side of the strip 57, the flap valves 61 in the strip 58 are permitted to be opened in one direction, as indicated in Figure VII, and the passage of air under pressure through the ports or openings 62, which are normally closed by means of the said valves 61, exercises pressure upon the adjacent side of the said strip 57, whereby the portions of the said strip opposite the said depressions or chambers 55, that is to say, the portions of the strip located between the ports or openings 62 and 63 are made to assume positions within the said depressions or chambers indicated in Figures III, VI and VII, of the drawings.

As long as the air within the depressions or chambers 55 is under pressure, the flap valves 61 are held in closed position so that the air is prevented from passing through the port or opening 62, but when the air is removed from the depressions or chambers 55, the said valve 61 is permitted to be opened and the wind or air under pressure may pass through the port or opening 62 of any couple of ports around the edge of the separating wall 64 and through the port or opening 63 of such couple of openings, as indicated in Figure VII.

The wind enters the ports or openings 62 from the distributing tubes 67 and it passes through the port or opening 63 of a couple and thence into a distributing tube 68.

If it is desired, for instance, to couple the swell organ to the great organ, the proper stop is depressed to permit the air to escape from the depressions or chambers 55 in the member 46 of the coupler or coupler board 42. The air in the said depressions or chambers 55 is not exhausted or rarefied, but is simply placed in communication with the outside atmosphere. After this has been done, the depression of any one of the keys of the great organ, for instance, the C key shown in Figure I, opens the valve 15 in the wind box 11, which is controlled by the said key and permits the passage of the wind or air under pressure from the said wind box through the passage-way 25 into the corresponding supply tube or channel 26, the said tube being the C tube which extends to the great organ. A portion of the wind entering the said tube proceeds along the same to the great organ and occasions in any manner desired the speaking of the same; and another portion thereof passes out through one of the distributing tubes 67 and through one of the ports or passageways 62, causing the opening of the flap valve 61 and passing around the edge of the wall 64, enters the other passageway or port 63 and passes thence into the distributing tube 68, which is in communication with the C pipe which extends to the swell organ.

The wind or air in passing from a distributing tube 67 through the couplers or coupler boards to a distributing tube 68 travels in the direction indicated by the arrows in Figures VI and VII of the drawings.

All of the various organs, that is, the various tubes which extend to the respective organs, are coupled to-



gether exactly in the same manner as the tubes which extend to the swell organ are connected to the great organ and for this reason it is deemed unnecessary to devote further space to a description of the particular connection or method of coupling up the various tubes which extend to the respective organs.

Upon inspection of Figures VI and VII, it will be evident that the air or wind cannot travel in the reverse direction on account of the fact that the valves 61 are not permitted to move in any direction other than that indicated in Figure VII. In consequence of this construction, it will be understood that the air or wind cannot pass for instance from the tubes which extend to the swell organ through a coupler or coupler board to the tubes which extend to the great organ.

In order to connect or couple up the various organs, or rather the tubes which extend to the various organs, it is, of course, necessary to operate or place the proper stops in what is called the "on" position.

It is desirable that after communication between the wind boxes 10 to 13, inclusive, and 29 and the supply tubes or channels 26 and 37 has been closed, the air or wind within the said tubes or channels should return quickly to normal pressure, that is, the pressure of the outside atmosphere. It is to accomplish this that the annular spaces around the stems 17 and 32 within the perforations 18 and 38 are provided.

The quick return of the air within the supply tubes or channels to normal air pressure prevents the speaking of the organs after a key or any number of keys of the key manual has been released and permitted to return to its normal elevated position.

Normally, as is known, the communication between the various organs and their source or sources of air is interrupted by means of a slide or other suitable obstruction, hence it is necessary to open the communication between an organ and its source of air pressure in order that the organ may speak when the air under pressure or wind is admitted into the supply tubes or channels 26 and 37.

In the construction illustrated, such obstruction is removed by depressing the proper stop or combination of stops, so as to permit air to enter the pipes 80, one of which is shown in Figure I of the drawings.

In Figure I of the drawings, I have shown six couplers or coupler boards, but it is to be understood that an additional number of such coupler or coupler boards may be employed, as desired. I may, for instance, employ a coupler or coupler board for the purpose of coupling or connecting the choir organ to the great organ, in which case if both the swell and the choir organs were connected or coupled to the great organ, operation of the organ key would occasion the speaking of all three organs, namely, the choir, great and swell organs.

Certain portions of the supply tubes or channels 26 and 37, as clearly shown in Figures I and II of the drawings, are arranged in vertical position and also in rows, the said rows extending from front to rear and also from side to side of the key box.

The horizontal portions of the supply tubes or channels shown in Figure I extend to the respective organs, namely, the choir, great, swell and pedal organs.

When air is admitted from any one of the wind boxes to the supply tubes or channels 26 and 37, which are connected to the said wind boxes, a portion thereof

passes through the said supply pipes to the region of the organs and occasions the speaking thereof, and another portion thereof passes through a tube 67, through a coupler into a tube 68, as previously described.

By arranging or banking the vertical portions of the supply tubes or channels in the particular manner indicated, I am enabled to place them in every compact relation to each other and to the coupler boards and thus secure great economy in space, which is an object of very great importance in organ construction.

Having thus described my invention, I claim:—

1. An organ comprising in combination a series of air supply tubes or channels arranged in parallel vertical rows, and distributing tubes adapted to convey the air from one supply tube to another supply tube.

2. An organ comprising in combination a series of air or wind supply tubes or channels arranged vertically and in rows, and distributing tubes for conveying the air from one supply tube to another supply tube, the said distributing tubes being arranged between rows of supply tubes.

3. An organ comprising in combination a series of vertically arranged supply tubes, the said tubes being in parallel rows, and distributing tubes for conveying the air from one tube to another tube, the said distributing tubes being arranged transversely to the supply tubes and being located between rows of the said supply tubes.

4. An organ comprising in combination a bank of air supply tubes arranged in rows, a coupler located to one side of the said bank of supply tubes, distributing tubes arranged in pairs and extending transversely of the said supply tubes, one of the said distributing tubes of each pair extending from a selected supply tube to the coupler, and the other one of the tubes of said pair extending from the coupler and being connected to another selected supply tube, whereby air may pass from one supply tube to another.

5. In organ construction, in combination, a series of vertically arranged supply tubes arranged in rows, a coupler, and distributing tubes located between rows of supply tubes and extending transversely thereof, the said distributing tubes being adapted to convey the air from one supply tube through a coupler to another supply tube.

6. In organ construction, in combination, a key box, a series of vertically arranged supply tubes or channels in said key box, the said tubes being arranged in rows in two directions, said rows extending from side to side of the key box in one direction and from front to rear in the other direction, a coupler and distributing tubes arranged in pairs, one of the tubes of each pair being adapted to convey the air from one supply tube or channel to a coupler, and the other one of which is adapted to convey the air from the said coupler to a second supply tube or channel, and the said distributing tubes being located between rows of the said supply tubes which extend from front to rear of the said key box.

7. A coupler for organs comprising a plurality of members, one of which members is provided with a series of depressions or chambers which are adapted to receive air under pressure, another one of the said members adjacent to the first-named member provided with a series of ports or openings arranged in couples opposite the said depressions or chambers, strips of flexible material located between the said members, the strip next to the first named member being integral throughout its entire extent, and the strip adjacent to or in contact with the second named member being provided with valves which extend across one of the said ports or openings of each couple to open and close the same and being also provided with slots in line with the other one of the said ports or openings of each couple whereby the latter is at all times in communication with the adjacent side of the other of the said strips.

8. In organ construction, in combination, a plurality of organs, a series of supply tubes which extend to one organ, a series of supply tubes which extend to another organ, a coupler comprising a plurality of members, one of which is provided with a series of ports or openings arranged in couples, a strip of flexible material located



between the said members, the said strip of material being provided with a series of slots or openings which respectively are in line with one of the said ports or openings of each couple, and being also provided with a series of flap valves which respectively overlie the other one of the ports or openings of each of the said couples, distributing tubes arranged in couples, one tube of each couple being connected to a tube in the first named series of supply tubes, and being also in communication with the port or opening of a couple which is normally closed by one of said valves, which valve is adapted to be opened by air under pressure from the said distributing tubes, but which is not adapted to be opened by pressure from the opposite direction, and the other tube of said couple being connected to a tube of the second named series of supply tubes, and being also in communication with the open port of the said couple, whereby air is permitted to pass from the first named series of supply tubes to the second named series of supply tubes, but is prevented from passing in the reverse direction.

9. In organ construction, in combination, a plurality of organs, a series of supply tubes which extend to one organ, a series of supply tubes which extend to another organ, a coupler comprising a plurality of members, one of which members is provided with a series of depressions or chambers which are adapted to receive air under pressure, and the other one of which members is provided with a series of ports or openings arranged in couples opposite the said depressions or chambers, strips of flexible material located between the said members, one of which strips overlies the said depressions or chambers and is imperforate at such points, and another one of which strips is provided with valves which overlie one of the ports of each couple of ports, the said valves being adapted to open in one direction only, and said strip being also provided with a slot in line with the other one of the ports of each couple, distributing tubes arranged in couples, one of which is connected to a supply tube in one of the said series, and is in communication with the port or opening of a couple which is adapted to be closed by one of said valves, and the other tube of said couple being in communication with the other port of such couple, and being also connected to a supply tube in the other series of tubes, substantially as and for the purpose set forth.

11. In organ construction, the combination of a series of air supply tubes or channels arranged in parallel rows, a coupler, a pipe adapted to convey air from a supply tube or channel to the coupler, and a second pipe adapted to convey air from the coupler to another supply tube or channel.

In testimony that I claim the foregoing as the invention of Charles S. Haskell, I have hereunto signed my name this sixth day of October A. D. 1905.

RUTH C. HASKELL,  
*Administratrix of the estate of Charles S. Haskell, deceased.*

In the presence of—  
 JOS. L. FITZPATRICK,  
 ROBERT MOORE.

being also connected to a supply tube in the other series of tubes, substantially as and for the purpose set forth.

10. In organ construction, in combination, a plurality of organs, a series of supply tubes which extend to one organ, a series of supply tubes which extend to another organ, a coupler comprising a plurality of members, one of which members is provided with a series of depressions or chambers which are adapted to receive air under pressure, and the other one of which members is provided with a series of ports or openings arranged in couples opposite the said depressions or chambers, means for permitting the air to escape from the said depressions or chambers, strips of flexible material located between the said members, one of which strips overlies the said depressions or chambers and is imperforate at such points, and another one of which strips is provided with valves which overlie one of the ports of each couple of ports, the said valves being adapted to open in one direction only, and said strip being also provided with a slot in line with the other one of the ports of each couple, distributing tubes arranged in couples, one of which is connected to a supply tube in one of the said series, and is in communication with the port or opening of a couple which is adapted to be closed by one of said valves, and the other tube of said couple being in communication with the other port of such couple, and being also connected to a supply tube in the other series of tubes, substantially as and for the purpose set forth.

11. In organ construction, the combination of a series of air supply tubes or channels arranged in parallel rows, a coupler, a pipe adapted to convey air from a supply tube or channel to the coupler, and a second pipe adapted to convey air from the coupler to another supply tube or channel.

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