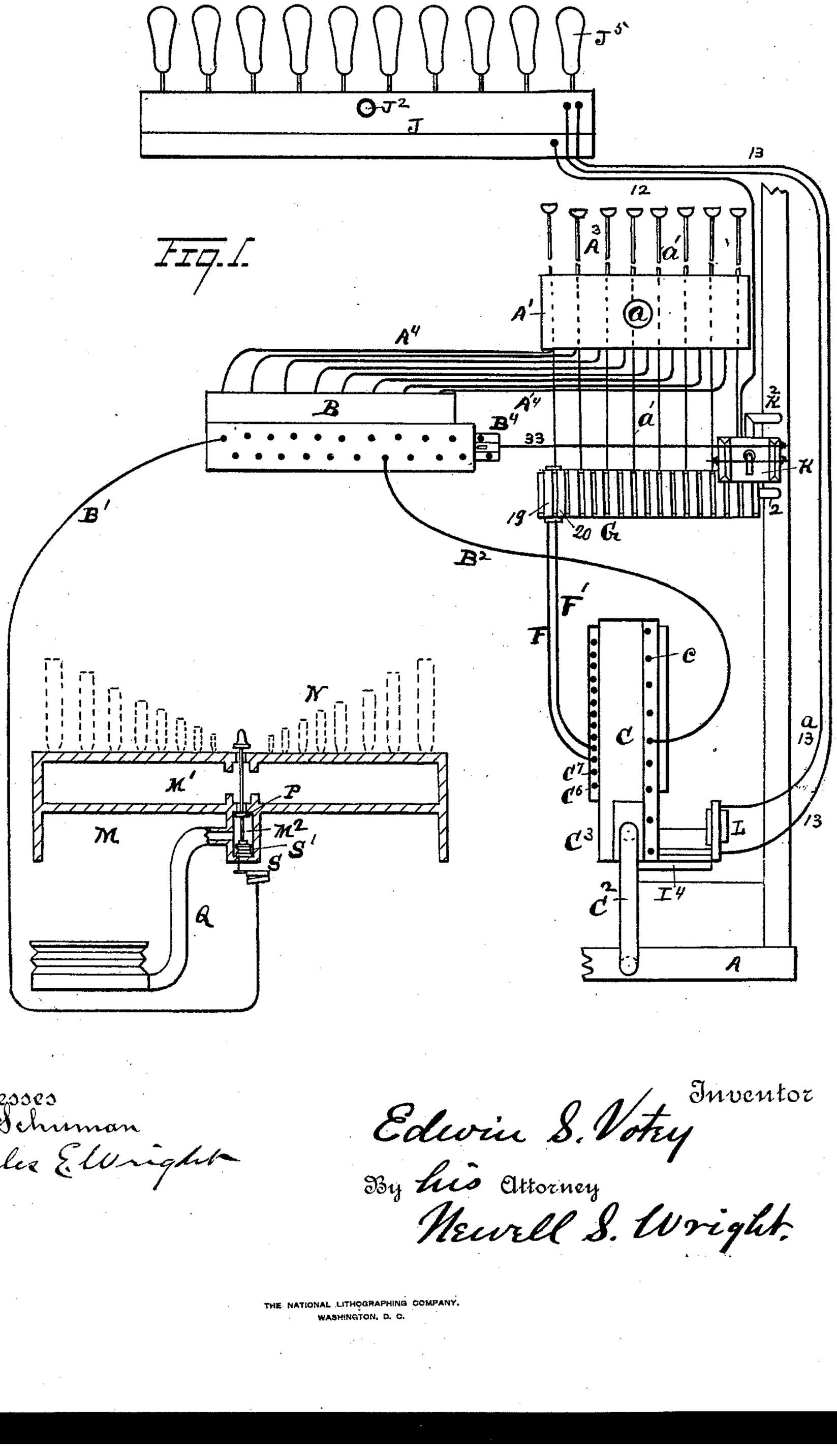
(No Model.) 10 Sheets—Sheet 1.

E. S. VOTEY.

ADJUSTABLE COMBINATION PEDAL ATTACHMENT FOR PIPE ORGANS.

No. 509,850. Patented Nov. 28, 1893.

Fig. 1.



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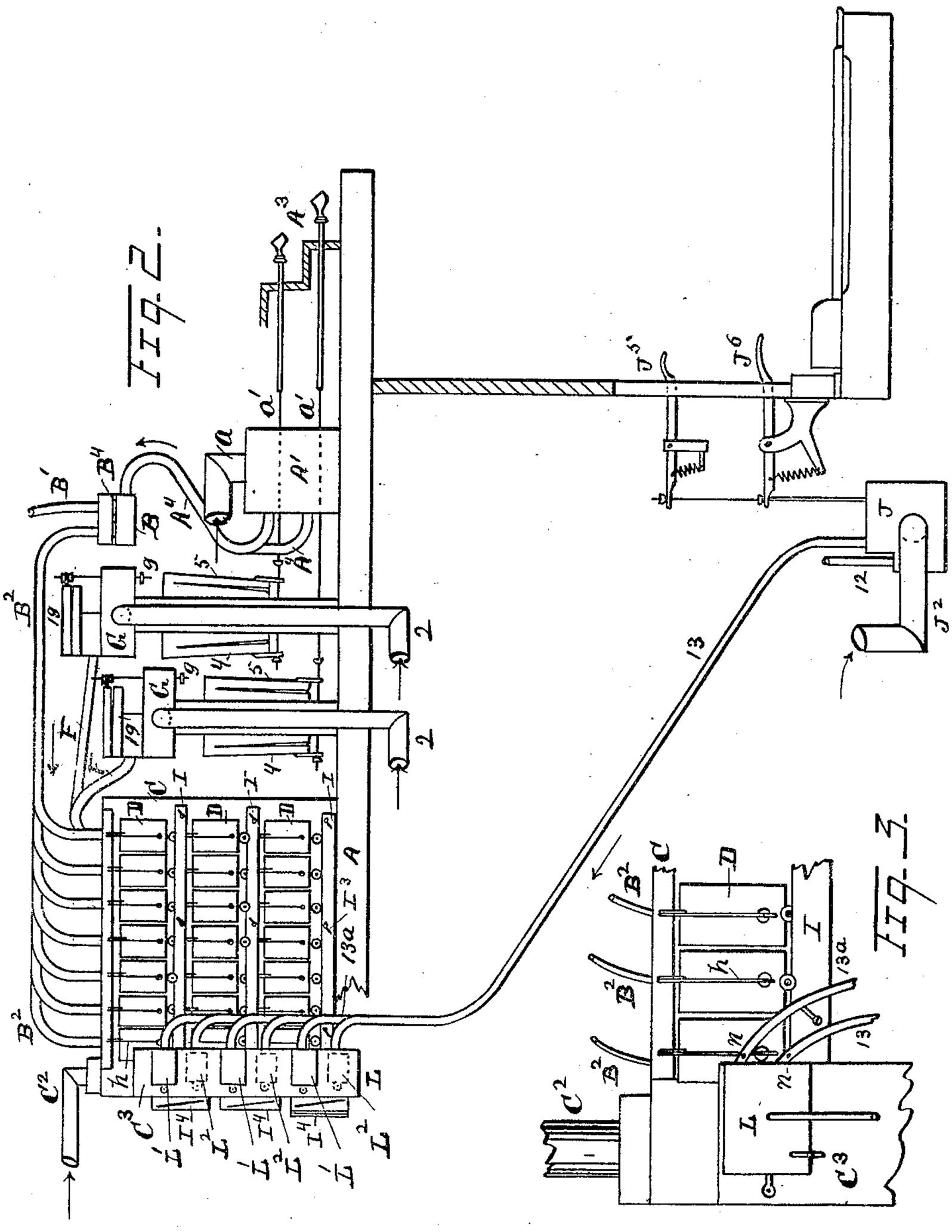

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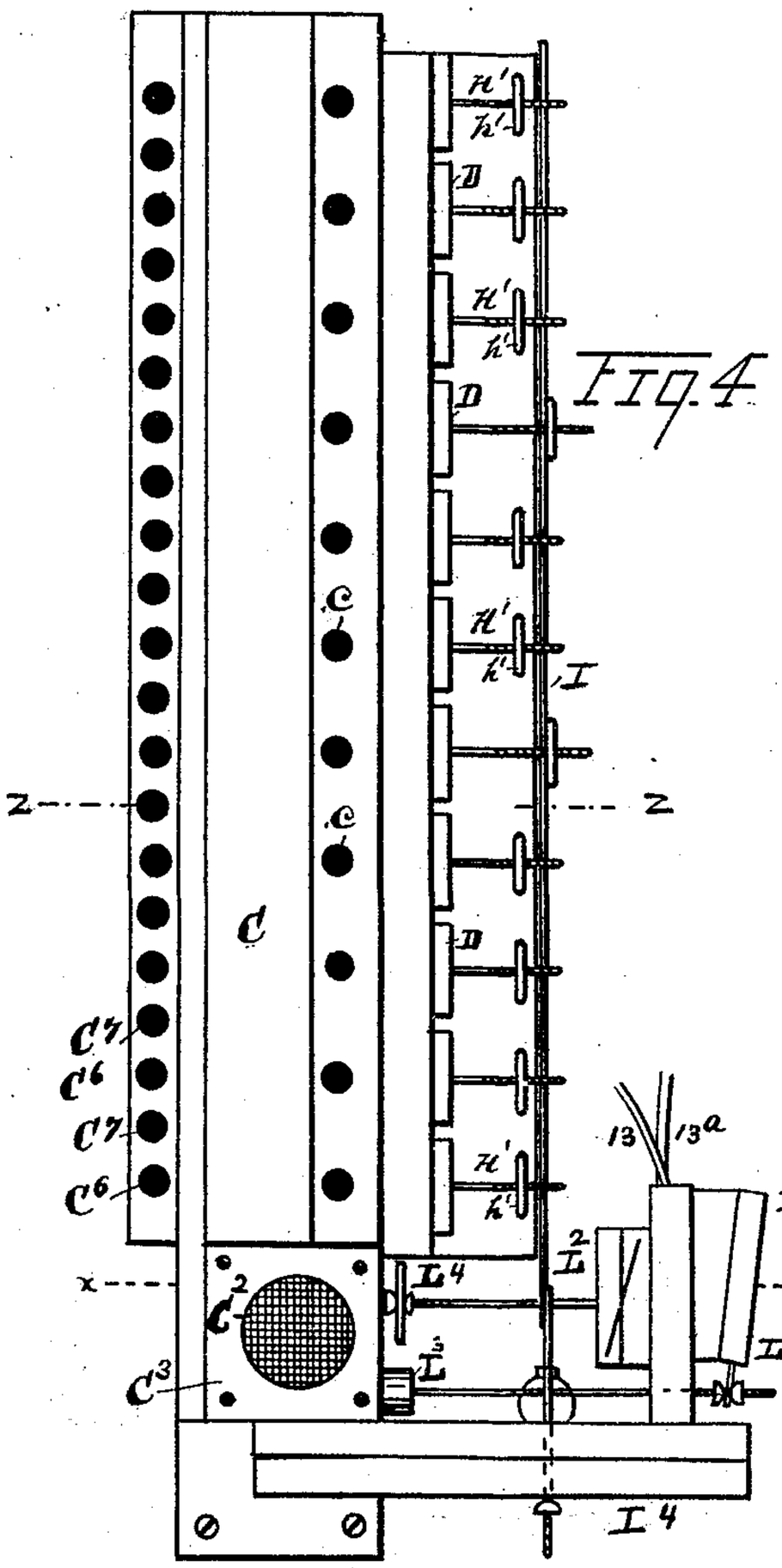

Fig. 4

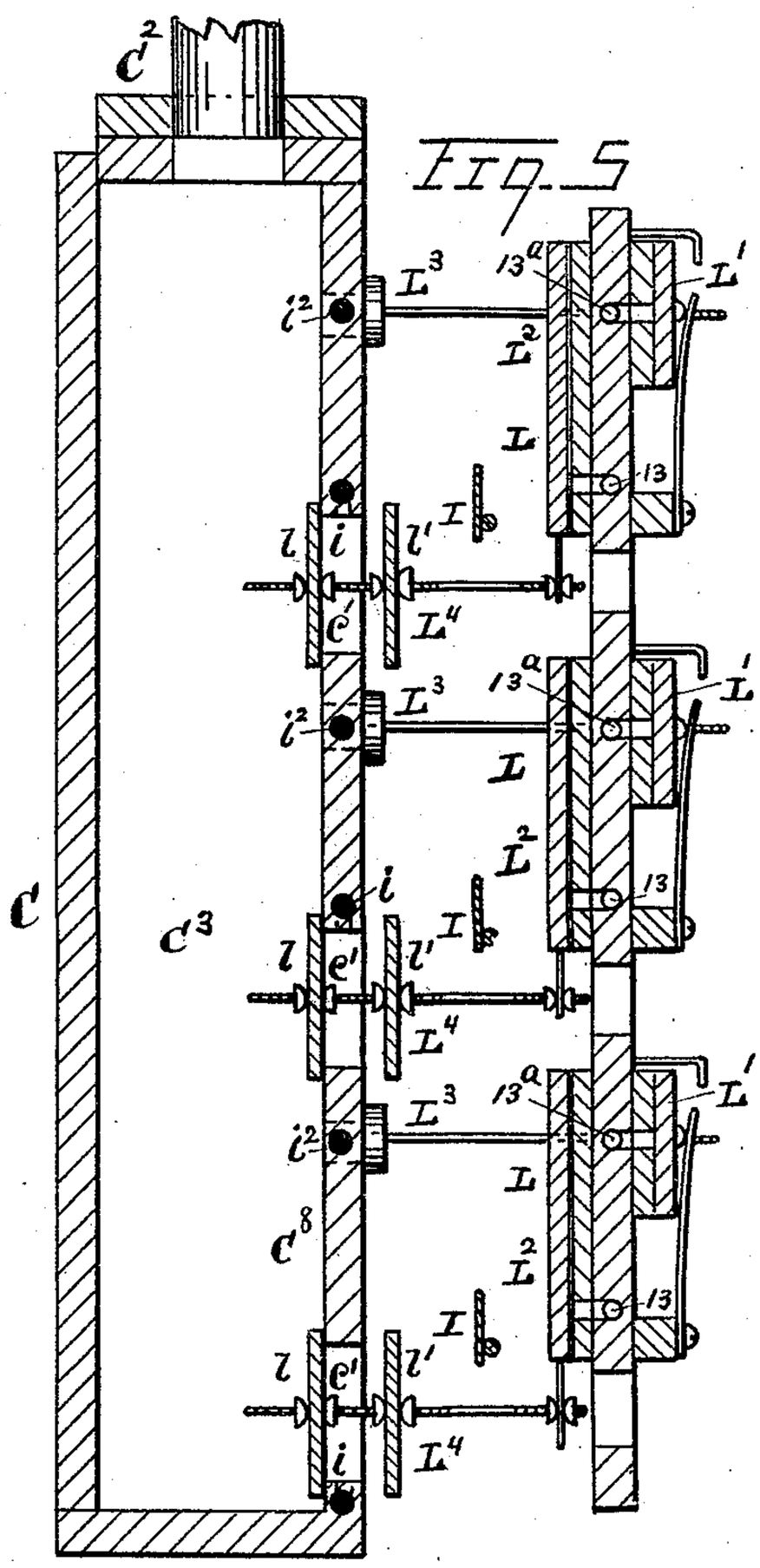

Fig. 5

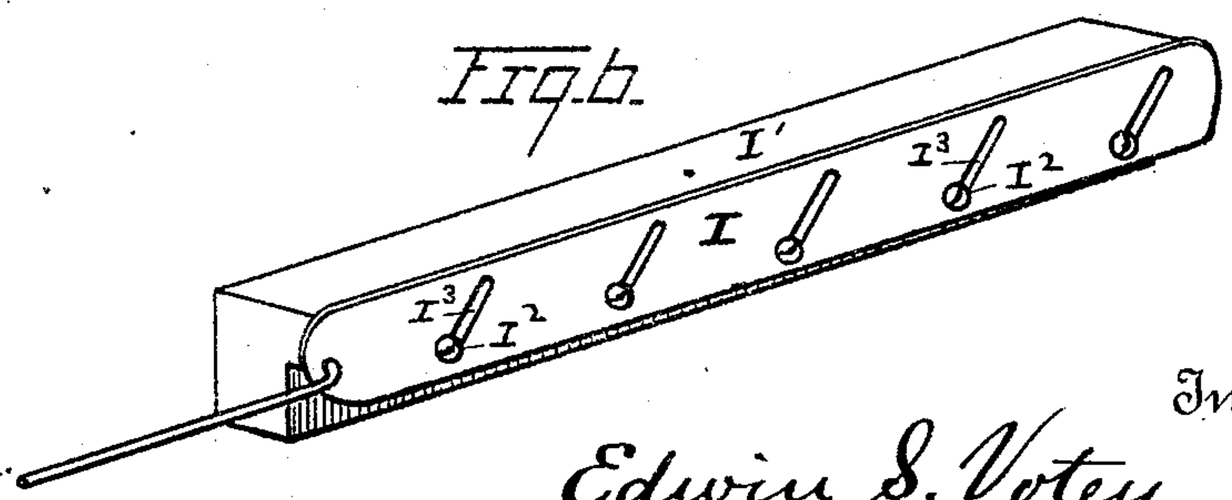

Fig. 6.

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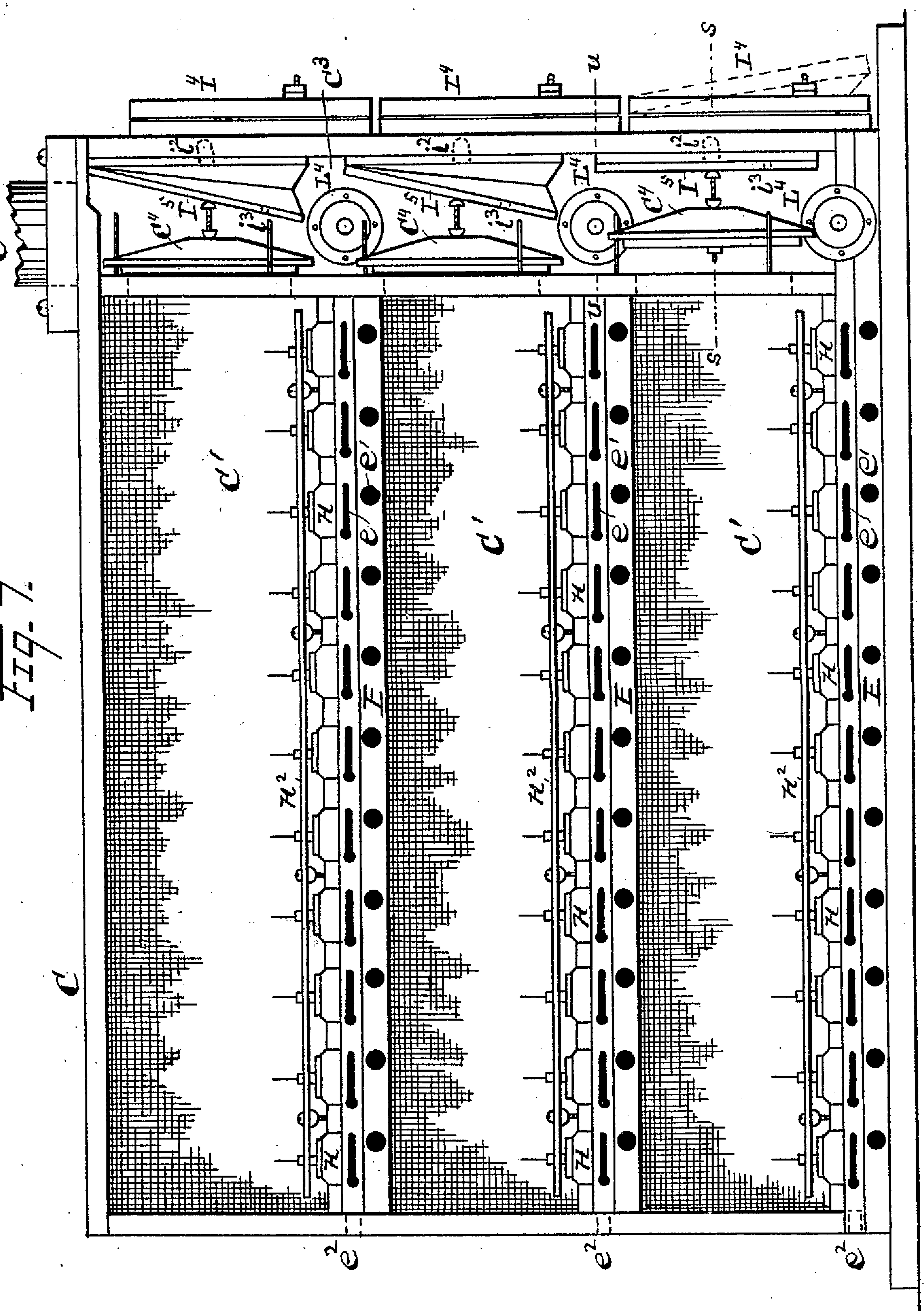
Fig. 7.



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ADJUSTABLE COMBINATION PEDAL ATTACHMENT FOR PIPE ORGANS.

No. 509,850. Patented Nov. 28, 1893.

Fig. 8.

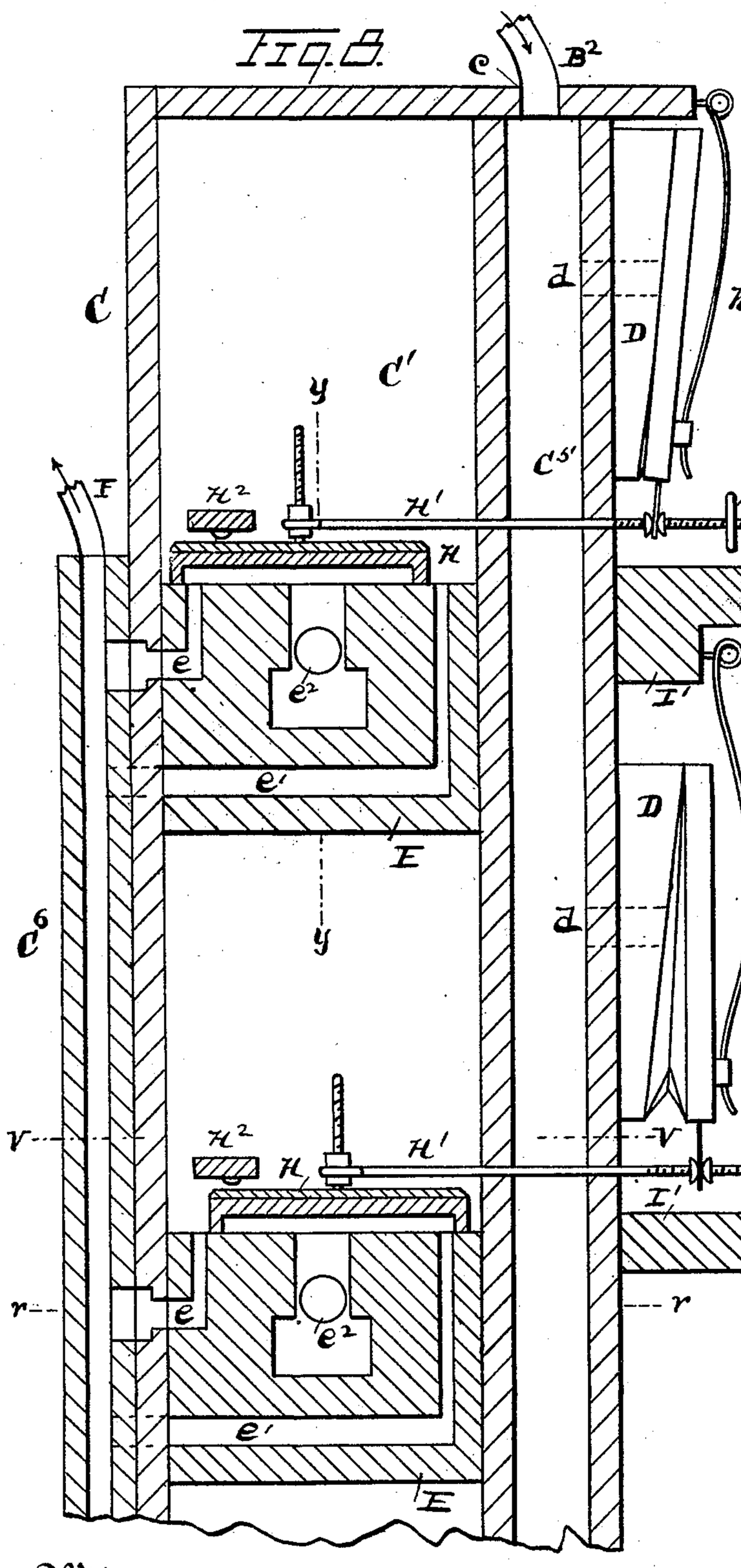

Fig. 9.

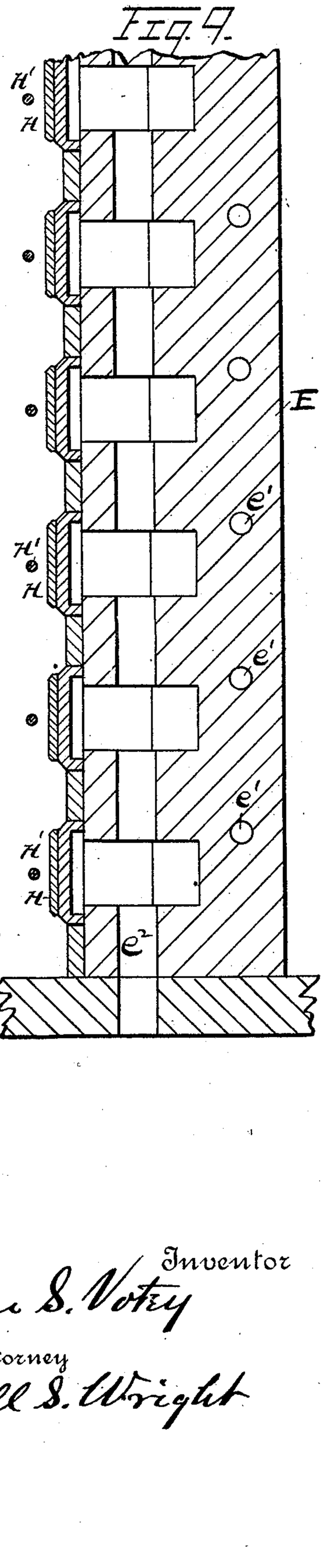

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FIG. 11.

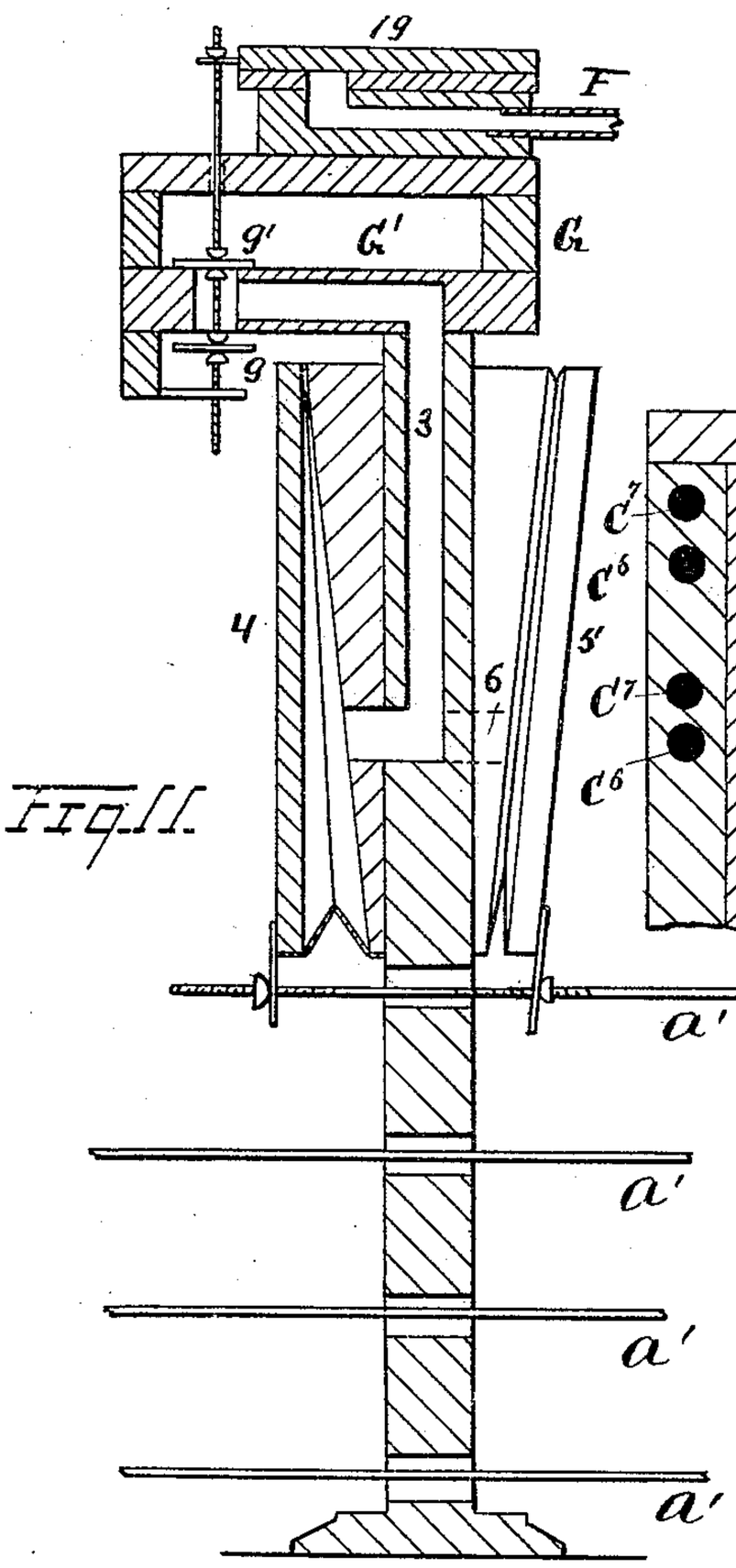
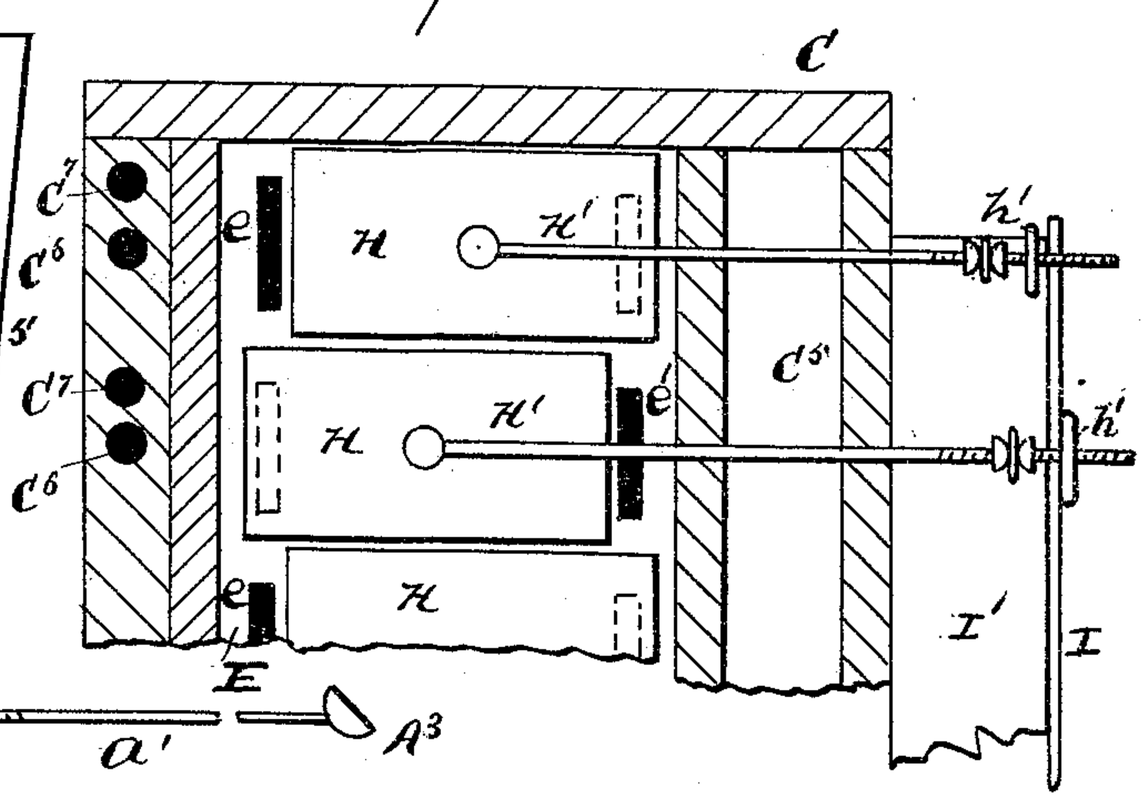


FIG. 10.



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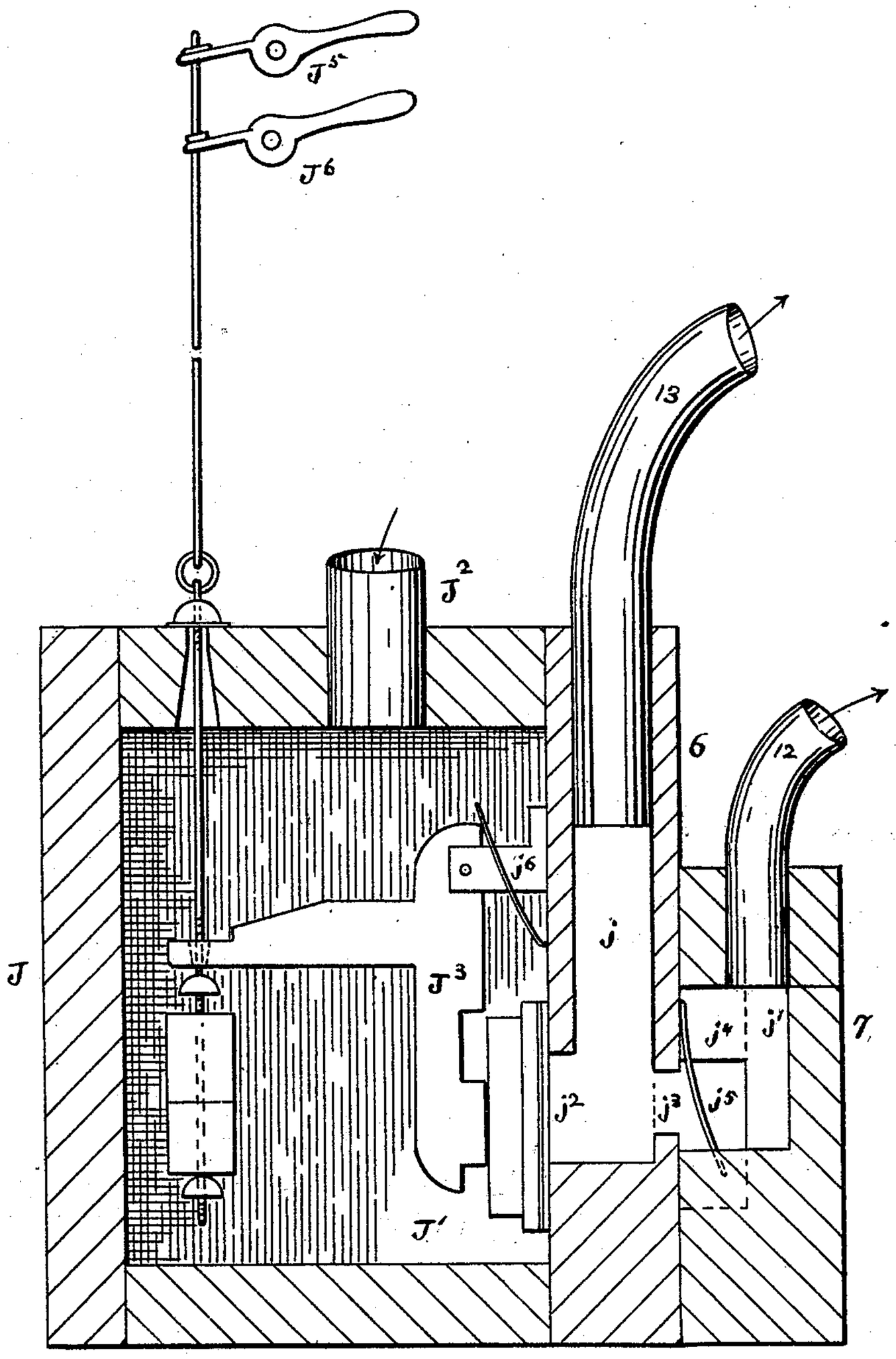

FIG. 12.

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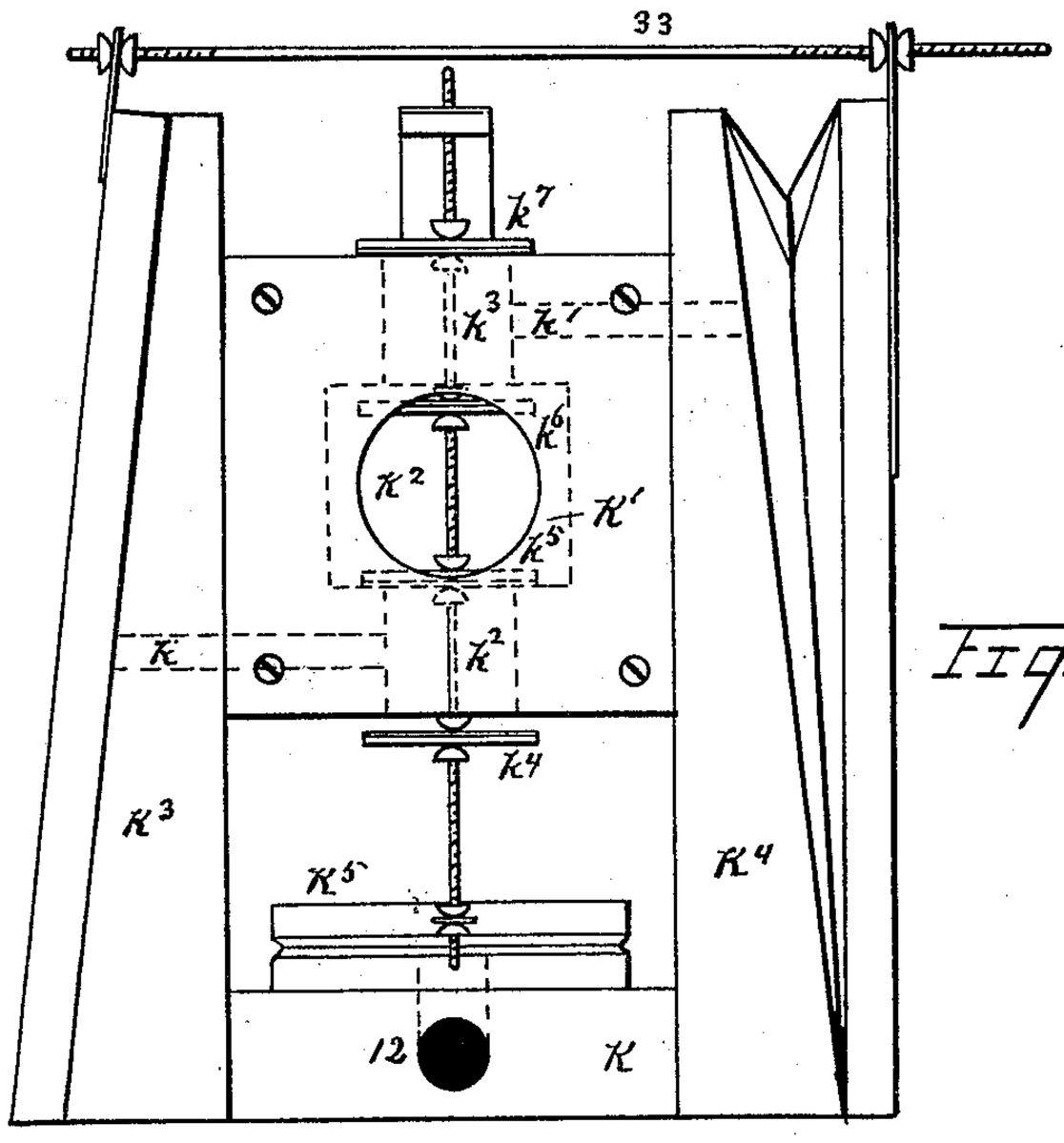


Fig. 13.

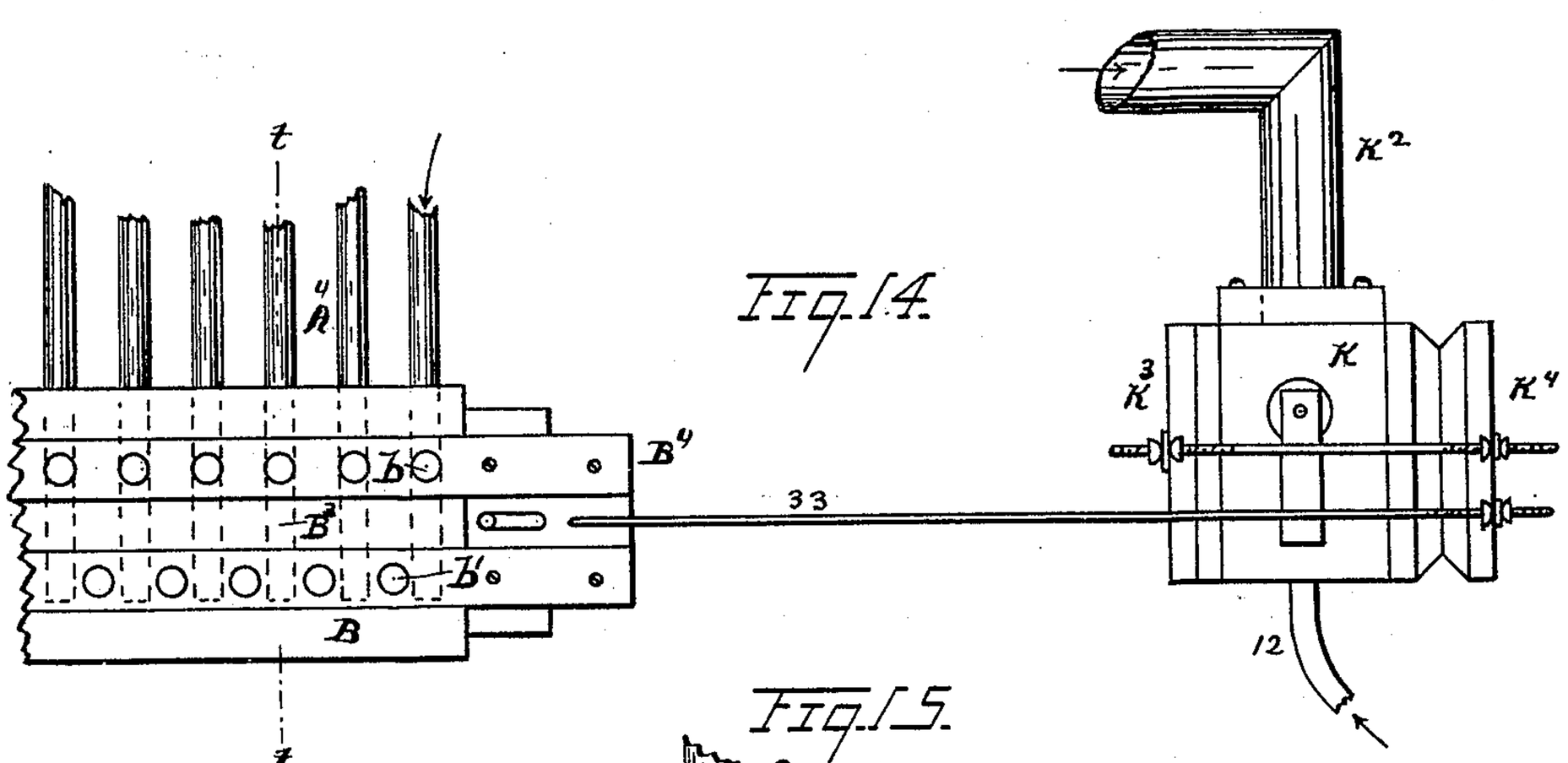
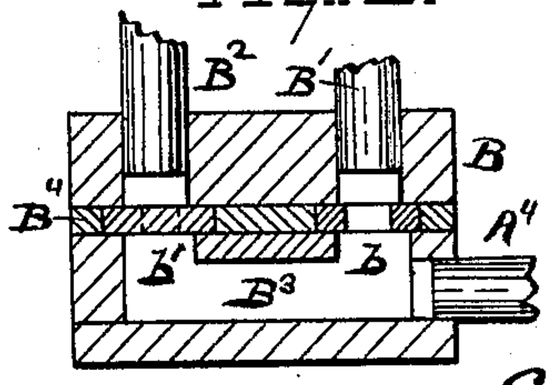


Fig. 14.

Fig. 15.



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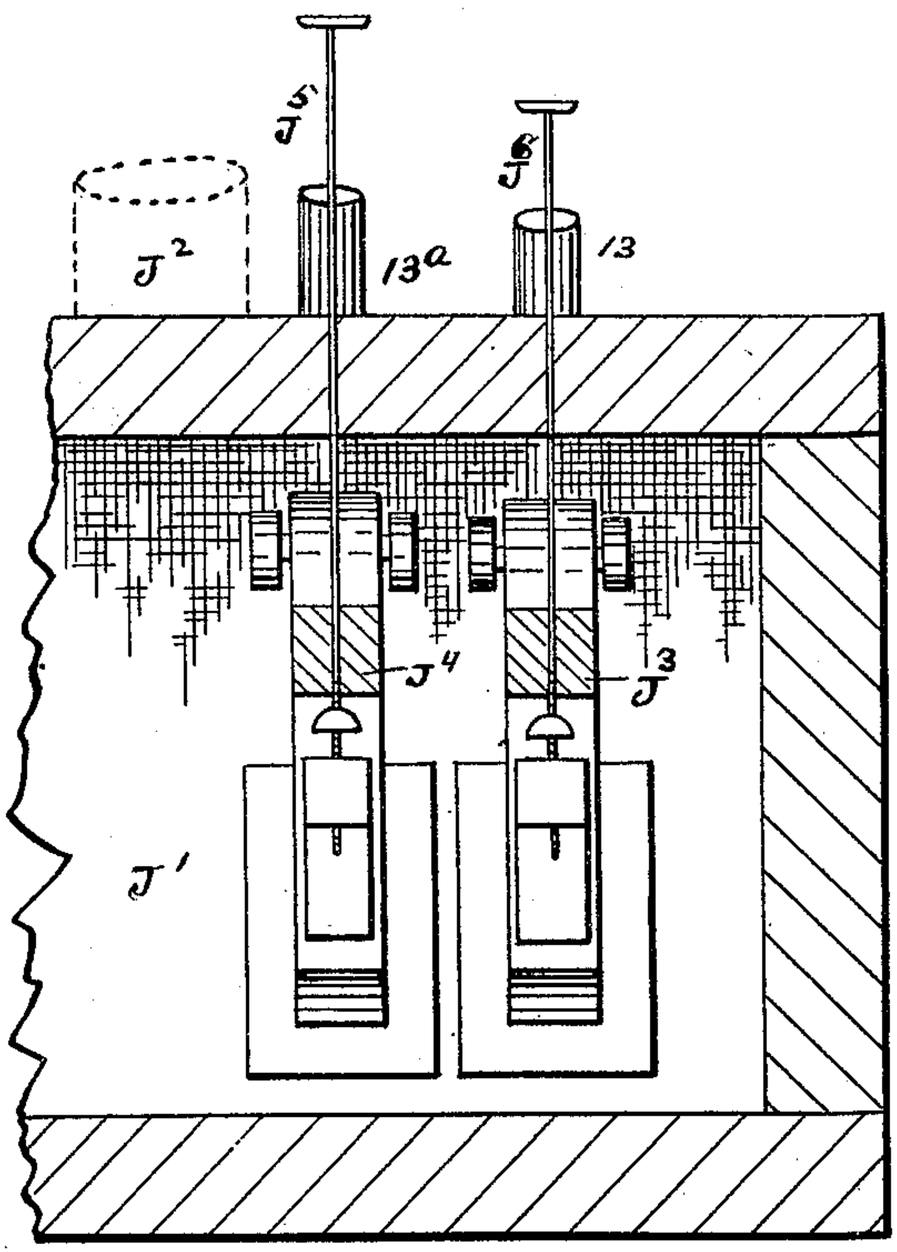

Fig. 16.

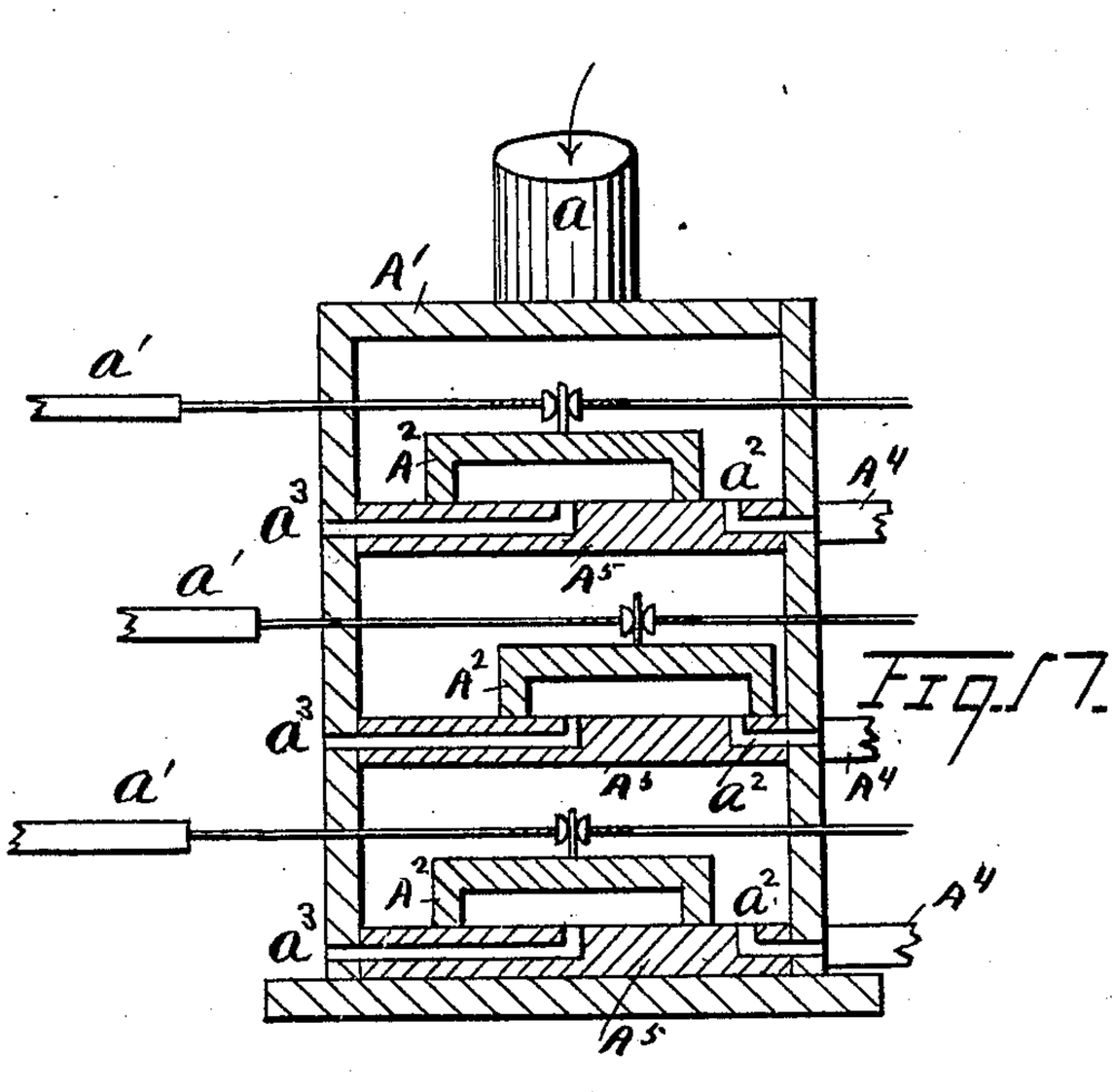

Fig. 17.

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No. 509,850. Patented Nov. 28, 1893.

Fig. 19.

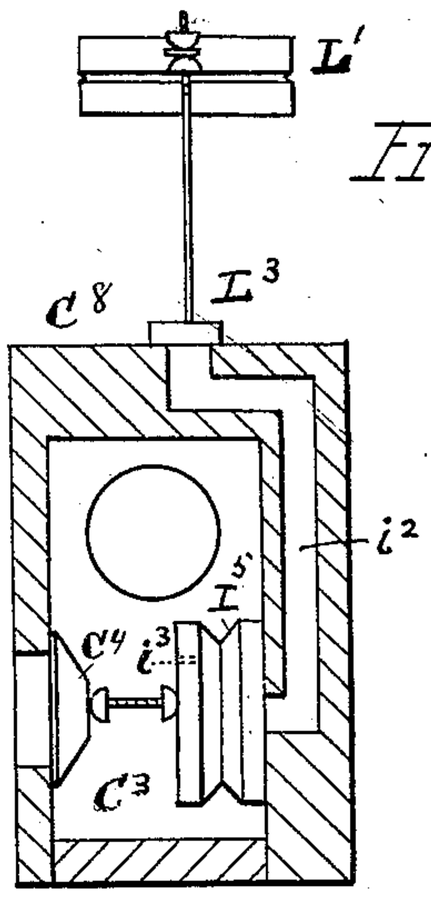


Fig. 18.

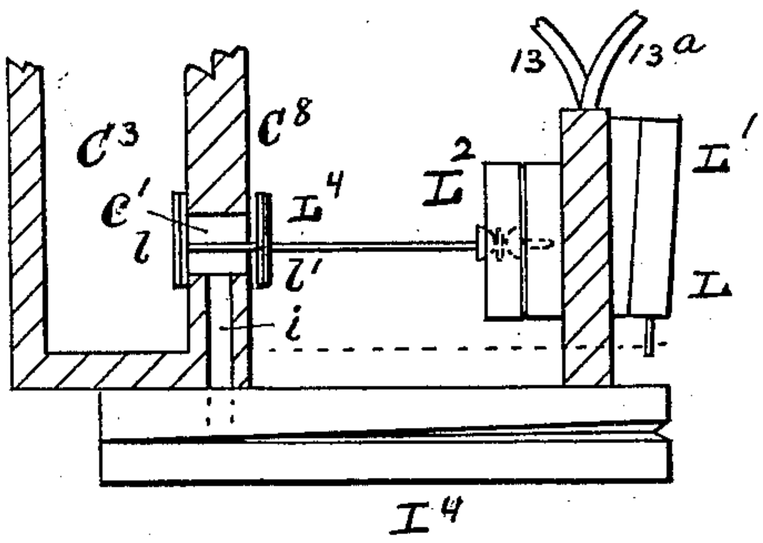


Fig. 20.

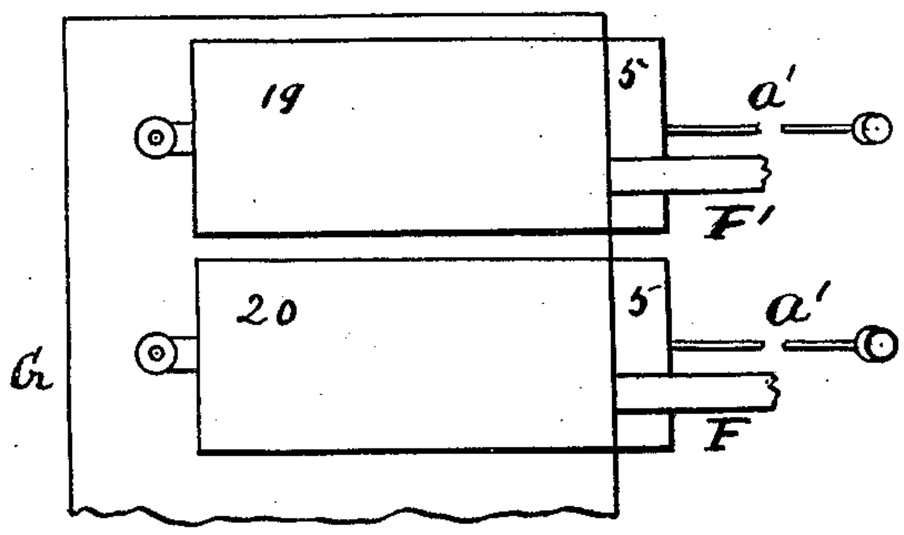
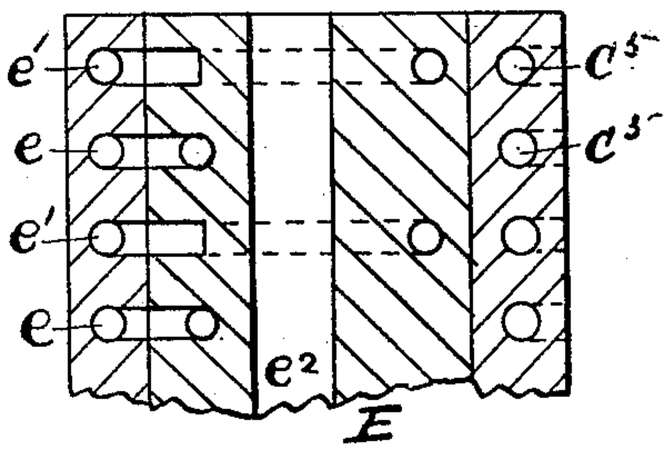


Fig. 21.



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ADJUSTABLE COMBINATION-PEDAL ATTACHMENT FOR PIPE-ORGANS.

SPECIFICATION forming part of Letters Patent No. 509,850, dated November 28, 1893.

Application filed November 14, 1892. Serial No. 451,986. (No model.)

To all whom it may concern:

Be it known that I, EDWIN S. VOTEY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Adjustable Combination-Pedal Attachments for Pipe-Organs; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in adjustable combination pedal attachments for pipe organs, and consists of the devices and appliances, their construction, combination and arrangement as hereinafter described and claimed, and illustrated in the drawings submitted herewith.

In brief, the main objects of my invention are to provide for the setting or arrangement of any desired combination of stops, the locking of the combination of stops so arranged by means of a lock pedal and connected devices, and the operation of the combination, as desired, at any time by means of a combination pedal and connected parts. I accomplish these ends by means of certain novel pneumatic and other actions described in the following specification, the operation thereof being readily adjustable to suit the purposes of the player.

Figure 1 is a diagram view in plan illustrating my invention, showing certain parts in section and elevation. Fig. 2 is a diagram view in side elevation. Fig. 3 is an enlarged view of a portion of the composition boxes shown at the left in Fig. 2. Fig. 4 is an enlarged top plan of the composition box. Fig. 5 is a cross section on the line *x*—*x* of Fig. 4. Fig. 6 is a view in perspective of one of the reciprocating bars I. Fig. 7 is a view in side elevation of a series of composition boxes with a portion of the case removed. Fig. 8 is an enlarged view in cross section on the line *z*—*z* Fig. 4. Fig. 9 is a cross section on the line *y*—*y* Fig. 8. Fig. 10 is an enlarged view in section on the line *v*—*v* Fig. 8. Fig. 11 is an enlarged view in vertical section of one of the engines G. Fig. 12 is a cross section through the pedal box J; showing the connection of the pedals. Fig. 13 is an enlarged view of one of the engines K. Fig. 14 is a plan view of one of the engines K and its connected switch and switch box. Fig. 15 is a view in section on the line *t*—*t* Fig. 14. Fig. 16 is a vertical sectional view of a portion of the pedal box J at right angles to Fig. 12. Fig. 17 is a vertical sectional view of the stop box A′. Fig. 18 is a partial horizontal section on the line *u*—*u* Fig. 7. Fig. 19 is a horizontal section on the line *s*—*s* Fig. 7. Fig. 20 is a partial plan view of one of the engines G. Fig. 21 is a partial section on the line *r*—*r* Fig. 8.

I carry out my invention as follows: As the first operation is to set or arrange a desired combination of stops, I will first proceed to describe certain features of my invention related thereto, whereby this object is attained. By setting a combination of stops is meant setting a desired combination of stops so that their corresponding pipes will sound as they are wanted without the necessity of manipulating the stops further to secure that particular combination in playing the organ. This is accomblished by opening the desired stops so that their pipes will speak when required and brought into use by proper means.

In the drawings A represents a main wind box supplied from the organ bellows.

A′ is a stop box supplied with wind in any suitable manner, as by a supply pipe "*a*," and provided with a series of D-valves A^2, shown more fully in Fig. 17, operated by a corresponding series of stops A^3 connected therewith, as by rods or traces "*a′*." Said valves each govern the passage of wind from the stop box into a pipe A^4. To this end the valves A^2 slide upon a channel board A^5, constructed with a channel "a^2" communicating with the pipe A^4, and with an exhaust port, as shown at "a^3."

In Fig. 17 the upper and lower D-valves are shown in position when the stops are drawn out. The intermediate D-valve is shown in position when the corresponding stop is in. The pipes A^4 communicate with a switch box B, shown more in detail in Figs. 14 and 15. Pulling the knobs A^3 thus opens the valves A^2, whereby wind is admitted to

the switch box, where it is made either to switch into the organ proper, indicated at M, Fig. 1, through pipes B′ or into a composition box C through pipes B^2, the composition box being preferably arranged with air chambers C′ located in series, as shown in Fig. 7.

The switch box B is constructed with wind chambers B^3, indicated in dotted lines in Fig. 14, and is provided with a sliding switch B^4, constructed with two rows of ports "*b*" and "*b′*," alternately arranged, the port "*b*" when open communicating with the pipes B′, and the port "*b′*" when open communicating with the pipes B^2. Thus, it will be seen, as the slide or switch B^4 is reciprocated the wind entering the switch box B is either directed to the organ proper as at M, through pipes B′, or through pipes B^2 to the composition box C, as may be desired.

The composition boxes are constructed with wind chambers C′ supplied with air from the main wind box, or otherwise, as by a duct C^2. The series of chambers C′ of the composition boxes may be supplied by a common air chamber C^3, into which the duct C^2 communicates, communication between the common air chamber and the series of chambers C′ being controlled by valves C^4, two of said valves being shown closed in Fig. 7, and one of them being shown open.

The composition box is constructed with a series of channels C^5 shown more particularly in Fig. 8, into which the pipes B^2 enter, as through orifices "*c*" in the top of the composition box. The channels C^5 communicate with pneumatics D, as through passages "*d*" indicated in dotted lines in Fig. 8.

Within the wind chambers C′ are located channel boards E constructed with ports "*e*" and "*e′*," communicating respectively with channels C^6 and C^7, said channels C^6 and C^7 communicating through pipes F and F′ with an engine G, the construction and operation of which will hereinafter be explained. Said channel boards E are also provided with exhaust ports "e^2."

H represents a series of sliding D-valves engaged upon said channel boards and governing the ports "*e*" "*e′*" and the exhaust port "e^2," as shown more particularly in Fig. 8. These slide valves are engaged by connecting rods H′ with the pneumatics D. It is obvious that when the air is let into the pneumatics D from the switch box B through the pipe B^2 it will force outward said pneumatics and thereby move the slide valves H. When the air from said switch box is closed off from the pneumatics D, the latter will be closed by means of springs "*h*" and throw the slide valves H in the opposite direction. Thus, it will be seen, the air admitted by the slide valves H passes either into the port "*e*" or "*e′*," air exhausting through the port "e^2." The port "*e*" is a pressure port, while the port "*e′*" is a back pressure port, as will more fully hereinafter be explained. The outer ends of the connecting rods H′ are provided with heads "*h′*," adjustable thereupon.

H^2 represents a guide bar located over the valves H to hold them down in proper position upon the underlying ports.

I denotes a reciprocating bar shown in detail in Fig. 6, to engage the heads "*h′*" of the connecting rods H′ and lock the slide valves H in position either in or out when moved by the inflation of the pneumatics D. Thus, in Fig. 8, for example, the lower slide valve is thus locked in open position by the locking slide or bar I, while the upper slide valve, in said figure, is in closed position, said bar I being disengaged therefrom. I provide one of said bars I for each series of valves H, as indicated in Fig. 2. The bar I is engaged upon a bracket I′ secured upon the case of the composition box C, by means of studs or screws I^2, extended into elongated slots I^3 in the bar I, said slots being extended on an incline to the edges of the bar, so that in being forced in one direction the bar will ride downwardly at an angle and away from the heads "*h′*," to release the pneumatics D and valves H. When forced in the opposite direction the said bar I rides upward on an angle so as to engage in rear of the heads "*h′*" and thereby lock the valves H in position to open the ports "*e*" and close the ports "*e′*," as indicated at the lower end of Fig. 8.

It will now be necessary to describe certain features of the invention connected with and operated by the lock pedal. To this end J denotes a pedal box, shown in Figs. 1, 2, 12 and 16, constructed to form an air chamber J′ therein, which is supplied with wind from the bellows or other source of supply, as through a pipe J^2. Within the chamber J′ is located one or more lock pedal valves J^3 and one or more composition pedal valves J^4, arranged in pairs, one of said valves as the valve J^4 being actuated by a pedal J^5, and the other valve, as the valve J^3 by a pedal J^6, as indicated in Fig. 16. The pedal box J is provided with grooved boards, indicated by numerals 6 and 7 provided with grooves or channels "*j*" and "*j′*" communicating with the chamber J′, as by openings "j^2," and "j^3," said communications being controlled by the valve J^3. The groove *j′* also communicates with a groove or channel "j^4" indicated by dotted lines in Fig. 12. The groove "*j′*" communicates with the chamber J′ through the groove "*j*," the communication of the groove "*j′*" into the groove "*j*" being controlled by a valve "j^5" allowing air from the chamber J′ to pass thereinto through the valve J^3, as well as into the groove "*j*" simultaneously, the valve "j^5," however, closing when air is admitted into the groove "*j′*" through the groove "j^4," so that air admitted simply to the groove "j^4" is prevented from passing into the groove "*j*."

Numerals 12 and 13 indicate pipes leading from the grooves "*j*" and "*j′*" respectively

into which air is admitted through the valve J^3, the pipe 12 leading to a switch engine K, which is to be further explained, the pipe 13 leading into an engine L, also to be explained hereinafter. Thus by pressing the lock pedal and opening the valve J^3, air passes through pipe 13 to the engine L, and through pipe 12 to the engine K simultaneously. Through the pipe 13 the air goes to the engine L to move the locking strip or bar I, as will be explained, and through the pipe 12 air passes to the engine K to move the switch B^4. The composition pedal valve J^4 opens only into a groove similar to the groove "*j*" Fig. 12, but to the rear thereof, a separate pipe indicated by the numeral 13^a, Figs. 1, 3, 4 and 16, leading therefrom also to the engine L. The valves J^3 and J^4 are closed by springs as shown at "j^6," Fig. 12.

I will now proceed to describe the engine K, the purpose of which is to move the switch B^4. This engine is shown more in detail in Figs. 13 and 14, in which K′ is the box of the engine which is filled with wind constantly when the organ is in operation, as from a supply pipe K^2. K^3 and K^4 represent pneumatics communicating with the engine box K′, as through channels "*k*" and "*k′*," shown in dotted lines in Fig. 13. These pneumatics are connected by a rod 33 to the switch B^4. The pipe 12 leads into a self contracting pneumatic K^5 of the engine. The box of the engine is constructed with ports "k^2," "k^3," controlled by double valves "k^4" and "k^5" and "k^6" and "k^7," united by a connecting rod, the valves "k^5" and "k^6" seating on the inner ends of said ports, and the valves "k^4" and "k^7" seating on the outer ends of the ports. It will thus be observed that when the pneumatic K^5 is expanded by air entering through the pipe 12 when the lock pedal is depressed, the valves "k^4" and "k^6" seat, raising the valves "k^5" allowing air to pass from the engine box into pneumatic K^3, while at the same time the valve "k^7" is unseated allowing the pneumatic K^4 to exhaust. On cutting off the wind from the pneumatic K^5, the valves are correspondingly moved to permit the wind to pass into the pneumatic K^4, as shown in Fig. 13. Thus if one of the pneumatics K^3, K^4 is extended, the switch B^4 is moved to admit wind from the switch box B to the organ through pipes B′, and the composition of stops set in the composition box is not used. If the other of said pneumatics K^3, K^4 is extended, the wind in the switch box B is passed to the composition box C. An engine L is related to each one of the composition boxes C, and the air chamber C′, there being as many engines L, as there are air chambers, three being shown for example in Figs. 2 and 5, corresponding to the three air chambers therein shown. Each engine is provided with two self closing pneumatics L′ and L^2, the pneumatic L′ being connected with and controlling a valve L^3, the pneumatic L^2 being connected with and controlling a double valve L^4, consisting of valves "*l*" and "*l′*" the one seating on the inside and the other on the outside of one of the walls C^8 of the chamber C^3. It will be observed from Fig. 5 especially that the wind controlled by the lock pedal from pipe 13 admits air into the pneumatic L^2, and that the pipe 13^a governed by the composition pedal leads into pneumatic L′ to operate the valves L^4 and L^3 respectively.

The bars I are reciprocated by means of pneumatics I^4 on the side of the air chamber C^3 connected therewith, shown more fully in Fig. 4. To operate said pneumatics I^4, the case C^8 of the chamber C^3 is constructed with channels "*i*" leading thereinto and opening into the passage "*c′*" controlled by the valve L^4. By reference to Fig. 18 it will be seen that when the inner portion "*l*" of said valve is unseated, wind from the chamber C^3 is permitted to enter and inflate the pneumatic I^4, thereby moving the bar I connected therewith in a corresponding direction. When the portion "*l*" of said valve is seated, the said pneumatic is permitted to exhaust thereby shifting its connected bar I in the opposite direction. In this manner the bars I are moved into locked engagement with the rods H′ of the valves H, and are unlocked therefrom, as will be seen more particularly by again referring to Fig. 8. There will be as many of the pneumatics I^4 as there are bars I, each operated in the manner just described.

To operate the valves C^4 and allow the air to pass into each of the wind trunks C′ from the common air chambers C^3, I provide for each of said valves a pneumatic I^5, which exhausts through a channel "i^2" in one of the walls of the chamber C^3, as shown in Fig. 19, and in dotted lines Fig. 7, the channel "i^2" being controlled by the valve L^3. Pressure within the chamber C^3 exhausts said pneumatic I^5 when the valve L^3 is unseated. The pneumatic inflates by sucking air through a small opening "i^3" leading thereinto. The action of closing the valve C^4 is thus prevented from being abrupt, as the valves C^4 must close slowly in order to give the wind in the chamber C′ time to blow out all the stops before the valves close.

The engine G is constructed with a wind box G′ shown in Fig. 11, supplied with air as by a supply pipe marked by a numeral 2, in Figs. 1 and 2, the said wind box communicating through a channel marked 3 in Fig. 11 with a pneumatic marked by the numeral 4, and by a similar channel shown in dotted lines marked 6 with a pneumatic 5, the communication of the wind box with said channel being controlled by a double seated valve "*g*," "*g′*."

The numerals 19 and 20 indicate a pair of pneumatics supplied by the pipes F and F′ from the composition box C. It will be observed by referring to Fig. 11, that when the pneumatic 19 is inflated, the corresponding valve will be opened to allow the passage of

air from the wind box G′ into the pneumatic 4. When the pneumatic 20 is inflated air passes to pneumatic 5. When the pneumatic 19 is exhausted the channel 3 is open to the atmosphere, as indicated by the position of the valves in said drawings.

The pneumatics 4 and 5 are as shown in Fig. 11, engaged with the stop rods "*a*′" to move them in or out, according as the pneumatic 4 or 5 by either pneumatics 19 or 20 is inflated. Thus, it will be seen, that both the pneumatics 19 and 20 act upon each stop rod "*a*′," and there will be as many pairs of said pneumatics operated by corresponding pipes from the composition box C, as there are stops. By such a construction each alternate pneumatic of the pair 19 and 20 throws the stop in, and the other will throw it out.

Any number of switch boxes B and composition boxes C with their engines L may be employed as may be desired or required. But the foregoing explanation with the accompanying drawings will be sufficient to illustrate the invention as applied to a series of such devices.

In Fig. 1, I have shown other customary parts of an organ M, with which the pipes B′ communicate, for illustration, although I do not limit myself solely thereto, consisting, in this instance, of a wind chest M′ for supplying wind to pipes N, shown in dotted lines. M^2 is a wind trunk communicating with said wind chest, the communication being controlled by a suitable valve P, operated by a stop knob. Air is admitted into said trunk from the bellows by a pipe Q. In this instance the valve P is operated by a pneumatic S, with which the pipe B′ communicates, the pneumatic S operating a pneumatic S′ within the trunk M^2, the latter pneumatic operating the valve P. The pipes 13 and 13^a are permitted to exhaust through suitable orifices, as at "*n*," Fig. 3. It should be understood that when a given composition has been set, as hereinbefore described, the lock pedal is reversed, reversing the engine K and switch B^4, thus allowing wind to pass from the stop box A′ directly through the switch box B and pipe B′ to the organ M, by pulling down the composition pedal and blowing the corresponding stop out. The engine K is only in operation to pull out the switch B^4 in setting the desired combination.

The operation of my invention is as follows: Supposing it is desired to set any given combination of stops, as the two shown in Fig. 2, said stops are first pulled out opening the valves A^2 in the stop box A′, thereby admitting air to the switch box B, through pipes A^4. The lock pedal J^6 is then put down admitting air from the pedal box J through valve J^3 into the pipes 12 and 13. The pipe 12 leads to the switch engine K and manipulates the switch B^4 to admit air from the switch box into the pipes B^2 leading to a composition box C to operate the valves H, and admit air through ports "*e*" e^2 "*e*′" into one of the pipes F, F′, leading to the engine G, to blow the stops in or out. At the same time air is also admitted from the pedal box into pipe 13 leading to the pneumatic L^2 of engine L to move the lock strip I, to lock said valves H to leave either port open. If the stop is on, it locks the slide valve out. If the stop is in, it locks the slide valve in. Then by putting down the composition pedal J^5 at the will of the operator, air is admitted into pipe 13^a leading to pneumatics L′ of engine L, to open the valves C^4 into the chambers C′ of the composition box, to blow out the stops. Thus each lock pedal locks the desired combination into the corresponding combination pedal. There will be, it is apparent, a lock pedal and a combination pedal for each combination provided for. By means of the lock pedals, thus, we are enabled to set a combination, and by means of the combination pedals we are enabled to use the combination after it is set by blowing the stops out. If we have no lock pedal down, then there is no wind in pipe 12, and the wind goes direct to the organ from the stop box through the switch box. But if a lock pedal is down, the wind is let into pipe 12, to operate the engine K, which operates the switch to let wind into the composition box. By letting up the lock pedal, the engine K is shifted back again as above observed, which shifts the action into the organ M, and cuts it off from the composition box. The wind turned into the composition box by the operation of the composition pedal is governed by the valves H in its passage through pipes F and F′ to one side or other of the engine G, *i. e.*, to one of the pneumatics 19 or 20, whereby the stops are blown in or out according as they may be set. If we use the combination wind is thus blown through pipe 13 and through the whole organ system. Otherwise wind is blown into the organ M without using the composition box.

A single pipe 12 communicating with the channel "j^4" is all that is needed for the whole series of lock pedals, while there are required as many pipes 13 and 13^a, as there are lock pedals.

What I claim as my invention is—

1. In an organ, pneumatically operated locking mechanism to set a desired number of stops having in combination therewith a pedal attachment to operate said combination of stops, substantially as described.

2. In an organ, the combination of a composition box constructed to control the stops, locking mechanism to set a desired combination of stops and a pedal attachment to operate the combination of stops when set, substantially as described.

3. In a pipe organ, an adjustable combination pedal attachment having in combination, a stop box, a switch box communicating with the stop box and with the wind chest of the organ, a composition box communicating with the switch box, valves controlling the communication of the stop box with the

switch box, stops to operate said valves, switching mechanism controlling the communication of the switch box with the composition box and with the wind chest of the organ, a pneumatic engine communicating with the composition box and connected with said stops, pneumatically operated locking mechanism connected with said composition box to set a desired combination of stops, a lock pedal governing said locking mechanism, pneumatically operated valves controlling the communication of the composition box with the pneumatic engine, and a composition pedal attachment to control said valves, substantially as described.

4. In a pipe organ, a stop box, a switch box provided with a movable switch communicating with the stop box, a pneumatic engine to operate said switch, a wind box communicating with said engine, and valves controlling said latter communication, substantially as described.

5. The herein described switch box constructed with wind chambers and pipes leading therefrom, said chambers having in combination therewith a sliding switch provided with two rows of ports arranged to alternately communicate with said pipes, to switch the wind in the wind chamber into either of said pipes at the will of the operator, substantially as described.

6. The herein described pedal box, consisting of a wind chamber J′, pipes 12, 13 and 13ª, leading therefrom and pedal controlled valves to govern the communication of said chamber with said pipes, substantially as described.

7. In an organ, a pedal box consisting of a wind chamber, and with channels "*j*" and "*j′*" communicating therewith and with each other, and a channel "*j*⁴" communicating with the channel "*j′*," and valves controlling said communications, substantially as described.

8. In an organ, the combination with a switch box provided with a movable switch, of an engine to operate said switch, said engine provided with a wind box and with pneumatics K^3 K^4 communicating with said box, and valves controlling said communication, substantially as described.

9. In a pipe organ, the combination of a stop box, a switch box communicating with the stop box and with the wind chest of the organ, valves to control the communication of the stop box with the switch box, and stops to operate said valves, substantially as described.

10. In a pipe organ, a stop box, a switch box provided with a movable switch, means to control the communication of the stop box with the switch box, and pneumatically operated mechanism to operate said switch, substantially as described.

11. In an organ, a composition box constructed with a wind chamber having ports leading therefrom, valves to control said ports, and a pneumatically operated valve to control the passage of wind into said chamber, substantially as described.

12. In an organ, a composition box constructed with a wind chamber, having ports leading therefrom, a valve to control said ports, a pneumatic to operate said valve, and pneumatics communicating with said ports and connected with the stops of the organ, substantially as described.

13. In an organ, a composition box constructed with a wind chamber, having ports leading therefrom, a valve to control said ports, and a locking device to lock said valve in a given position, substantially as described.

14. In an organ, a composition box constructed with a wind chamber, having ports leading therefrom, a valve to control said ports, and a movable bar to engage and lock the valve in a given position, substantially as described.

15. In an organ, a composition box, constructed with a wind chamber, having ports leading therefrom, a valve to control said ports provided with a valve rod, a pneumatic engaged with said rod, and a movable locking bar to engage said rod and hold the valve in a given position, substantially as described.

16. In an organ, a composition box constructed with a wind chamber C′ and a channel C^5, ports leading from said chamber, a valve to control said ports, a pneumatic communicating with said channel and connected to operate said valve, substantially as described.

17. In an organ, a composition box constructed with a wind chamber C′, a channel C^5 and channels C^6, C^7, a channel board in said chamber provided with ports communicating with the channels C^6, C^7 respectively and with an exhaust port a valve to govern said ports, and a pneumatic communicating with the channel C^5 and connected with said valve, substantially as described.

18. In an organ, the combination of a composition box constructed with a wind chamber, a wind trunk C^3 communicating with said chamber, a pneumatically controlled valve C^4 to control said communication, and in combination therewith a pneumatically controlled locking device, substantially as described.

19. In an organ, a composition box constructed with a chamber C′, a wind trunk C^3 communicating therewith, a valve controlling said communication, a pneumatic to operate said valve, a pedal box, a pipe communicating with said pneumatic and with said pedal box, and a pedal operated valve to control the communication of the pedal box with said pipe, substantially as described.

20. In an organ, a composition box constructed with a wind chamber, having ports leading therefrom, valves controlling said ports, a movable locking device to lock said valves in a given position, a pneumatic to operate said locking device, a pedal box, a pipe leading from said box to said pneumatic, and a pedal controlled valve to govern the

communication of said box with said pipe, substantially as described.

21. In an organ, a composition box constructed with a wind chamber C′, a pneumatic engine G to operate the organ stops, pipes leading from said chamber to said engine, valves H to control said communication, a wind trunk C^3 communicating with said chamber, a valve C^4 to control said communication a locking bar to hold the valves H in a given position, a pneumatic I^4 to actuate said bar, pneumatics L′ and L^2 to actuate the valves C^4 and the pneumatic I^4, a pedal box, pipes leading from the pedal box to the pneumatics L′, L^2, and pedal actuated valves to control the communication of the pedal box with said pipes, substantially as described.

22. In an organ, a wind chamber C′, a wind trunk C^3 communicating therewith, a valve C^4 to control said communication, a pneumatic I^5 to control said valve, a channel "i^2" in the case of said trunk communicating with said pneumatic, a pneumatically actuated valve L^3 to control said channel, a locking device, a pneumatic I^4 to govern the locking device, channels "i" and "c" in the case of said trunk leading to the pneumatic I^4, and a pneumatically controlled valve L^4 to govern the last named channels, substantially as described.

23. In an organ, a composition box constructed with a wind chamber having ports leading therefrom, pneumatically operated valves H governing said ports, and a pneumatically operated locking device to hold said valves in a given position, a wind trunk communicating with said chamber, a pneumatically operated valve C^4 controlling said communication, and a pedal box communicating with pneumatics controlling the locking device and the valve C^4, said box provided with lock and composition pedal valves controlling the communication therefrom to said pneumatics, substantially as described.

24. In an organ, a composition box constructed with a wind trunk C^3 provided with valves L^3 and L^4 for the purposes described, pneumatics L′ and L^2 to govern said valves, a pedal box J, pipes 13 and 13^a leading from said pedal box to said pneumatics respectively, a lock pedal valve, and a composition pedal valve to independently control the communication of the pedal box with said pipes respectively, substantially as described.

25. The combination with an organ as M, of a composition box C, a switch box provided with a switch and arranged to communicate with the organ and the composition box at the will of the operator, a stop controlling pneumatic engine G communicating with the composition box, a stop box communicating with the switch box, a pneumatic engine to control said switch, valves in said switch box to govern its communication with said stop controlling engine, pneumatics to control said valves, a locking device to hold said valves in a given position, a pneumatic to operate the locking device, a pedal box communicating with said pneumatics and with the switch controlling engine, a lock pedal valve and a composition pedal valve to control the communication of said pedal box to said pneumatics and to the last named engine, substantially as and for the purpose described.

26. The combination with an organ as M, of a switch box B, a composition box communicating with the switch, switching mechanism to govern the communication of the switch box with the organ and with the composition box, a stop box communicating with the switch box provided with stop controlling valves, a composition pedal mechanism connected with the composition box arranged to lock a desired combination of stops onto the composition pedal mechanism, substantially as and for the purpose described.

In testimony whereof I sign this specification in the presence of two witnesses.

EDWIN S. VOTEY.

Witnesses:
N. S. WRIGHT,
JOHN F. MILLER.