

No. 893,710.

PATENTED JULY 21, 1908.

W. R. CRIPPEN.

AUTOPNEUMATIC MUSIC PLAYING INSTRUMENT.

APPLICATION FILED JULY 11, 1907.

4 SHEETS—SHEET 1.

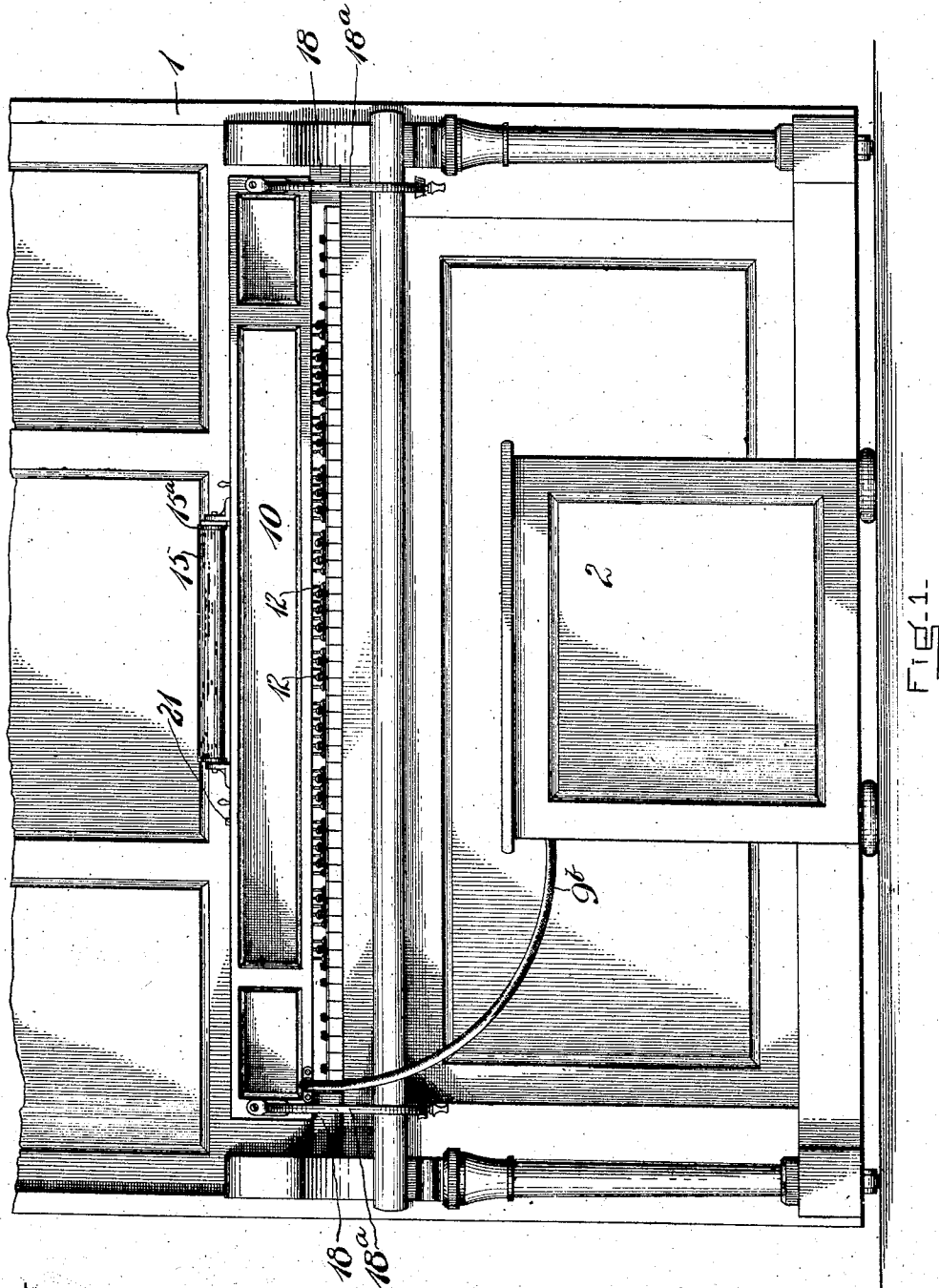


FIG-1

WITNESSES:

*Raughin Morrison*  
*Chas. A. Paul*

INVENTOR

WALTER R. CRIPPEN

By His ATTORNEYS.

*Robert B. ...*  
*Walter B. ...*

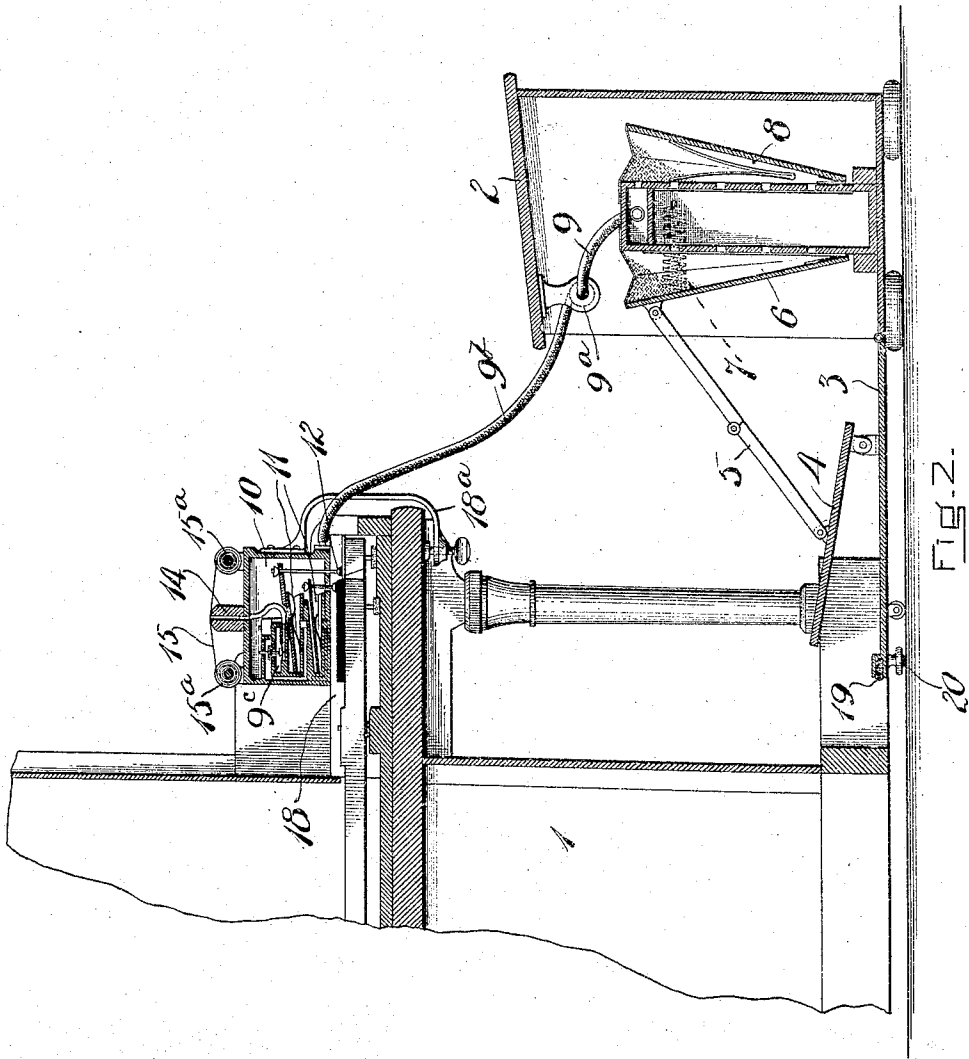
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4 SHEETS—SHEET 2.



WITNESSES:

*Ransom Moore*  
*Charles Reid*

INVENTOR:

WALTER R. CRIPPEN

BY HIS ATTORNEYS

*Paul W. Spruce & Hutchins*

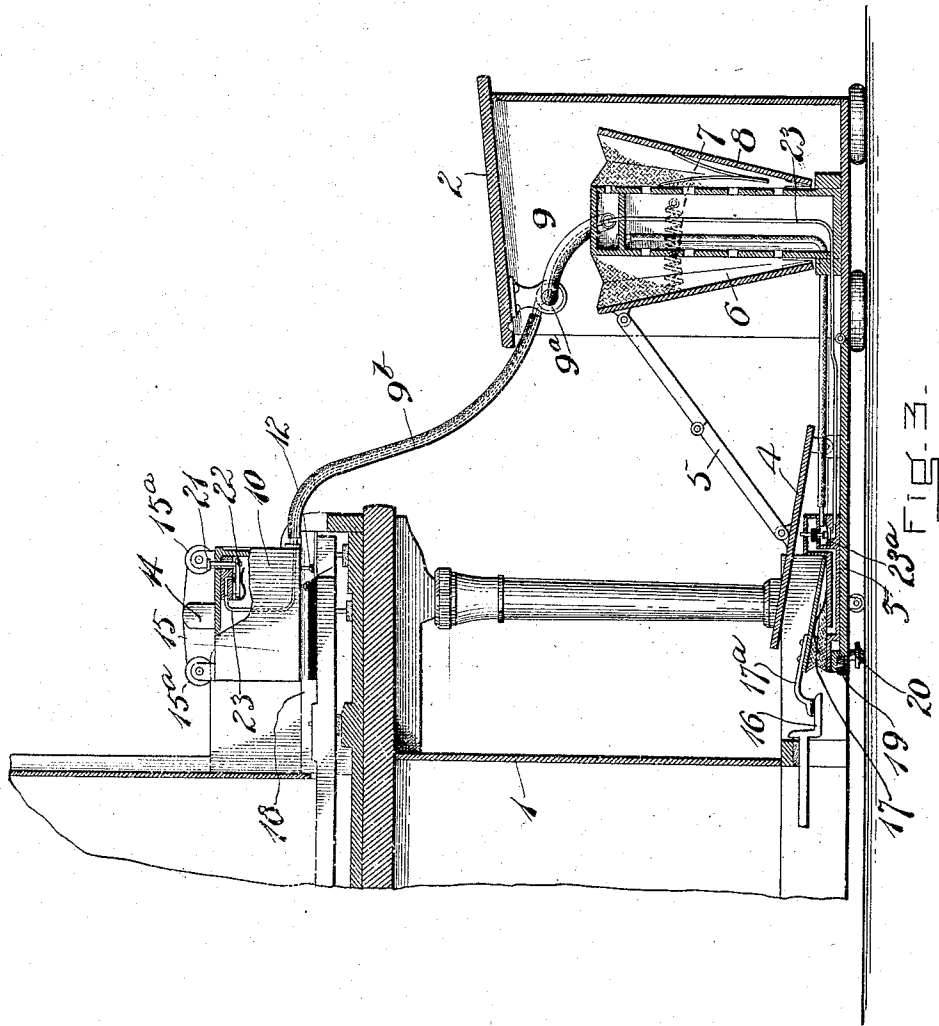
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4 SHEETS—SHEET 3.



WITNESSES:

*Langdon Moore*  
*Chas. W. Reed*

INVENTOR:  
WALTER R. CRIPPEN

BY HIS ATTORNEYS  
*Bartholomew Mitchell*

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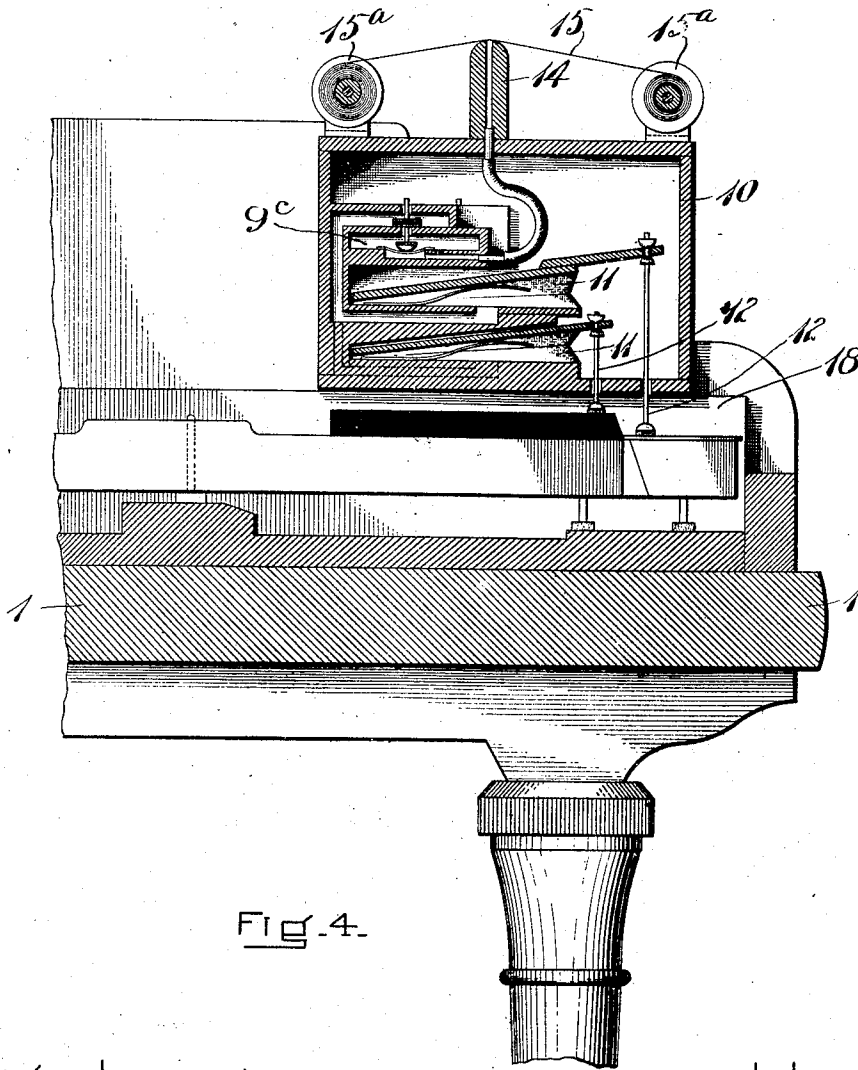


Fig. 4.

WITNESSES-

*Langum Moore*  
*Chas. A. Reed*

INVENTOR:  
WALTER R. CRIPPEN

By His ATTORNEYS  
*Partell, Dammes & Ketchum*

# UNITED STATES PATENT OFFICE.

WALTER R. CRIPPEN, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS  
TO FRED W. MOORE, OF CAMBRIDGE, MASSACHUSETTS.

## AUTOPNEUMATIC MUSIC-PLAYING INSTRUMENT.

No. 893,710.

Specification of Letters Patent.

Patented July 21, 1908.

Application filed July 11, 1907. Serial No. 383,180.

*To all whom it may concern:*

Be it known that I, WALTER R. CRIPPEN, a citizen of the United States, residing at Cambridge, county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Autopneumatic Music-Playing Instruments, of which the following is a full, clear, and exact description.

My invention relates to improvements in auto-pneumatic music players, the object being to provide a simple, compact, durable and efficient construction.

Heretofore piano-players, so-called, have been ordinarily in the form of cabinets, which are placed in front of the piano with an overstanding portion located above the case. In this construction the cabinet projects well in front of the instrument and occupies very considerable space. When this cabinet is not in use and is moved aside, it is still necessary to provide storage space which, in many instances, it is difficult to spare.

By my invention a minimum of storage space is required and no extra space whatever is occupied in front of the piano, the seat being arranged in its customary place and the position of the operator being the same as though no piano-player were present. In this and in many other respects the invention will be seen to possess many advantages.

In the drawings, Figure 1 represents the front of the piano, the top being broken away, the player being shown in place as it would appear when ready for use; Fig. 2 is a side elevation, mainly in section; Fig. 3 is a similar view showing a different section through the action, and showing parts not illustrated in Fig. 2; Fig. 4 is a relatively enlarged cross section through the action and associated parts.

1 represents a piano case, exposing the usual key-board and keys.

2 represents a bench-like seat in the form of a small cabinet, the forward part of which is hinged, as at 3, to close back when the piano-player is not in use, but at other times to swing down and form a platform or forward extension and support for one or more foot pedals 4. Each foot-pedal 4 is connected, as by a hinge-link 5, to the exhausterbells 6, the same being located entirely within the cabinet-bench 2, and being pro-

vided with the usual spring 7 to work against the action of the pedal 4.

8 is a spring-distended equalizer bellows of any suitable form, also inclosed within the cabinet-bench, which serves as a container therefor.

9 is a wind-way leading to a head 9<sup>a</sup> to which is suitably connected an external wind-way extension 9<sup>b</sup>, leading to the space 9<sup>c</sup> of the action chest or container 10. The usual governor (not shown) is provided in the course of the wind-way leading to space 9<sup>c</sup>. Within the container 10 is any suitable action mechanism; including action pneumatics 11—11, arranged to control hammers 12—12, adapted to the keys of the instrument.

14 is the tracker-board, of conventional form.

15 is a note sheet arranged to traverse the tracker-board 14, and mounted on rolls 15<sup>a</sup>—15<sup>a</sup>, which latter may be driven by any suitable form of motor well known in this art.

Since the particular form of action mechanism shown is immaterial to this invention, it is unnecessary to describe the same in detail.

16 represents one of the piano pedals, and 17 is a pneumatic for controlling the same. This pneumatic has a removable extension 17<sup>a</sup>, whereby, when removed, the hinged front 3 may be folded up so as to completely inclose and protect the equalizer, feed-bellows and associated parts. The external wind-way extension 9<sup>b</sup> may be a flexible hose, which may be easily attached to or detached from said action 10. When detached it may be stored within the cabinet-bench 2. The action 10 may be sufficiently long, or may have extensions adapted to rest upon the key-blocks 18—18, or upon some adjacent stationary part suitable to support said action. By means of clamps 18<sup>a</sup>—18<sup>a</sup>, or equivalent devices, the action 10 may be firmly secured to the key-board of a piano so as to bring the several hammers 12—12 in the proper position relatively to their respective keys.

From the foregoing, it will be seen that when it is desired to play the piano automatically, it is merely necessary to open the forward side of the cabinet-bench 2, so as to throw the front 3 down into the proper position, indicated in Figs. 2 and 3. This auto-

matically brings the pedals 4 into proper position, inclining upward and away from the operator, so that the operator sitting on the cabinet-bench may readily use the same.

5 The shifting of bench 2 will not disturb the relative position of the pedals 4, because they are carried by and move with said bench.

10 19 is a suitable latch which serves to hold the hinged front 3 in place when closed.

20 is a foot which may be carried by the front 3 to support it at the proper elevation when open. When the front 3 has been opened, the flexible tubular connection 9<sup>b</sup> may be taken out and applied to the action 10, the same having first been secured in place over the key-board. By then putting a suitable roll of music in place, the instrument may be operated.

20 The pedal control is best seen in Fig. 3, in which a button 21 is provided for manual operation to open the valve 22, which, in turn, through a small duct 23, operates a primary duct 23<sup>a</sup> to actuate a valve to put 25 the pedal pneumatic 17 in communication with the vacuum, thus collapsing the latter and operating the pedal 16 through the extension 17<sup>a</sup>. The duct 23 is preferably located inside of the wind-way extension 9<sup>b</sup>, 30 suitable fittings being provided to permit of the simple arrangement.

It will be seen that the bulky part of the apparatus, to wit, the exhauster and equalizer-bellows and associated parts, are com- 35 pactly housed in the cabinet-bench, which is at all times valuable as the usual piano seat; hence the only part of the apparatus requiring space for storage is the action chest, which may be quickly removed and easily 40 stored in any convenient place, for example, on top of, or at the end of, a piano, as desired, the same occupying very little room.

These instruments may be used with either pianos or organs, although in the drawing I 45 have shown the apparatus applied to a piano.

What I claim is,

1. In an apparatus of the character described, a key-board, an action, a support for 50 said action adjacent to and above the exposed portion of the key-board, means for exhausting air, a cabinet therefor separate from and independent of the action, and a detachable wind-way connection between 55 said exhauster means and said action.

2. In an apparatus of the character described, a key-board, means including an action container, action pneumatics therein, said parts being arranged to be detachably 60 supported by said key-board, an exhauster container independent of the action container and supported independently of the piano, an exhauster therein, and a detachable connection from one to the other.

65 3. In an auto-pneumatic music playing

device, an action, means for detachably mounting the same in operative position above and adjacent to the exposed portion of a piano key-board, a cabinet-bench independent thereof, an exhauster in said bench, 70 and flexible detachable means of connection from said exhauster to said action.

4. In a device of the character described, keys, an inclosed action supported above and adjacent to said keys, an exhauster and 75 a support therefor movable independently of said action support, and detachable means of connection leading from said exhauster to said action inclosure.

5. In a device of the character described, 80 keys, an action supported above and adjacent to said keys, an exhauster and a support therefor movable independently of said action support, and detachable means of connection leading from said exhauster to said 85 action.

6. In a device of the character described, a piano having a key-board and end key-blocks, action mechanism, a container therefor detachably mounted at its ends on said 90 key-blocks and above the keys, an exhauster supported by and movable independently of the piano key-board and action, and a detachable wind-way operatively connecting the exhauster with the action mechanism. 95

7. In an auto-pneumatic music playing instrument, an action container, action mechanism including action pneumatics and selecting mechanism therefor carried thereby and operating through the bottom thereof, 100 an exhauster, a container therefor, movable independently of said action container, exhauster pedals carried by and movable with the exhauster container, and a wind-way connection between said exhauster and action. 105

8. In an auto-pneumatic music playing instrument, an action container, action pneumatics, hammers operating through the bottom thereof, and a note-sheet winding mechanism carried by said action container, an 110 exhauster container movable independently of the action container, an exhauster therein, and a wind-way connection between said exhauster and action. 115

9. In an auto-pneumatic music playing instrument, an action container, action pneumatics and hammers carried thereby, an exhauster, a container therefor movable independently of said action container, a 120 piano pedal-actuating pneumatic mounted independently of the action container, a wind-way connection between the exhauster and said pedal pneumatic, exhauster pedals carried by said exhauster container, said 125 pedals being operatively connected with said exhauster.

10. In an auto-pneumatic music playing instrument, an action including action pneumatics, hammers operated thereby, an ex- 130

hauster movable independently of said action, a detachable wind-way connection between said exhauster and action, a cabinet-bench carrying said exhauster, a hinged part on said bench, and pedals carried by said hinged part and operatively connected with said exhauster when said hinged part is in one position relatively to said bench.

11. In an auto-pneumatic music playing instrument, an action container having key-actuating pneumatics therein, a support therefor, an exhauster, a support therefor independent of said action support, a pedal-actuating pneumatic carried by said exhauster support, and means of connection between said exhauster and said pedal-actuating pneumatic and said key-actuating pneumatics.

12. In an auto-pneumatic music playing instrument, an action container, a support therefor, an exhauster operatively connected with said action container, a support for said exhauster independent of the action support, a piano pedal-actuating pneumatic carried by the exhauster support, means of connection between said exhauster and said pedal-actuating pneumatic, and means carried by the action container for controlling the moment of operation of the pedal-actuating pneumatic.

13. In an auto-pneumatic music playing instrument, an action container, key-actuating pneumatics carried thereby, an exhauster, a support therefor, a pedal-actuating pneumatic carried by said support, said support, exhauster and pedal actuating pneumatic being movable independently of said action container, and means for controlling the moment of operation of the key-actuating pneumatics and the pedal-actuating pneumatic, said controlling means being carried by said action container.

14. In a piano-playing instrument, action apparatus arranged to be detachably mounted on a piano above the key-board thereof, exhauster apparatus arranged to be supported independently of the piano, and a detachable means of connection between said exhauster apparatus and action apparatus.

15. In a piano-playing instrument, an action arranged to be supported above the piano key-board, means for detachably securing said action in place, a cabinet bench having a hinged front, an exhauster in said cabinet-bench, a wind-way connection between said exhauster and said action, and pedals carried by said hinged front and operatively connected with said exhauster.

16. In a piano-playing instrument, action apparatus arranged to be detachably supported on a piano and above the key-board thereof, exhauster apparatus arranged to be supported independently of the piano, detachable means of connection between the

exhauster apparatus and the action apparatus, exhauster pedals, a folding support for said exhauster pedals.

17. In a piano-playing instrument, action apparatus arranged to be detachably supported on a piano, and including hammers to act on the upper side of the key-board thereof, exhauster apparatus and means for supporting the same independently of said action apparatus, exhauster pedals, a hinged support for said exhauster pedals, said hinged support being connected to said exhauster support, and means of connection between said exhauster pedals and said exhauster to permit said hinged support to be moved.

18. In an apparatus of the character described, an action container, action mechanism therein including hammers projecting through the lower side thereof, an exhauster, a support therefor independent of said action container, and a tubular connection leading from said exhauster to said container.

19. In a piano-playing instrument, action apparatus arranged to be detachably connected to and supported on a piano, exhauster apparatus and means for supporting the same independently of said action apparatus, exhauster pedals, a hinged support for said exhauster pedals, said hinged support being connected to said exhauster support, means of connection between said exhauster pedals and said exhauster to permit said hinged support to be moved, and a piano-pedal actuator carried by the hinged part of said exhauster support.

20. In a piano playing instrument, an action arranged to be detachably supported above the piano key-board, a bench independent of the piano, an exhauster in said cabinet bench; a wind-way operatively connecting said exhauster with said action, a hinged pedal support carried by said bench, and pedals hinged on said support and operatively connected with said exhauster.

21. In a piano playing instrument, action mechanism arranged to operate directly upon the piano keys and being detachably carried by the piano, a bench, an exhauster carried by said bench, a wind-way connection from said exhauster to said action mechanism, a movable pedal support carried by said bench, pedals hinged to said support, and connections between said pedals and said exhauster.

22. In a playing apparatus for pianos, action mechanism arranged to operate directly upon the keys of such an instrument and being detachably carried by such instrument, a bench, an exhauster carried by said bench, a wind-way connection from said exhauster to said action mechanism, a movable pedal support carried by said bench, pedals hinged to said support, connections between said pedals and said exhauster, a piano pedal pneumatic carried by said bench, and a wind-

way from said exhauster to said piano pedal  
pneumatic.

23. In a playing apparatus for pianos, ac-  
tion mechanism arranged to operate directly  
upon the keys of such an instrument and  
being detachably carried by such instrument,  
a bench, an exhauster carried by said bench,  
a wind-way connection from said exhauster  
to said action mechanism, a movable pedal  
support carried by said bench, pedals hinged  
to said support, connections between said

pedals and said exhauster, a piano pedal  
pneumatic carried by said bench, a wind-way  
from said exhauster to said piano pedal  
pneumatic, and means carried by the action  
support for controlling the moment of oper-  
ation of said piano pedal pneumatic. 15

WALTER R. CRIPPEN.

Witnesses:

R. C. MITCHELL,  
LANGDON MOORE.