

No. 752,920.

PATENTED FEB. 23, 1904.

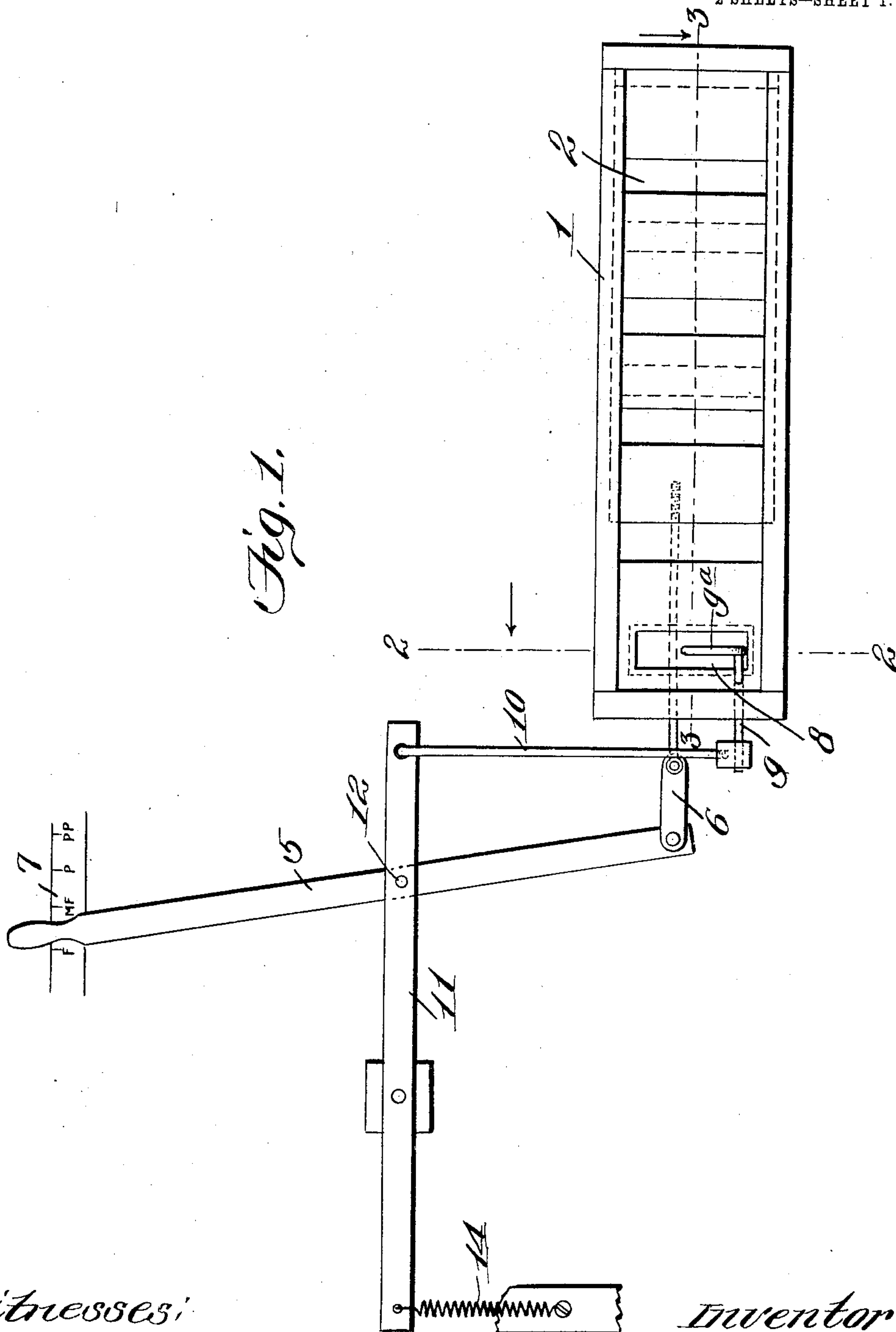
R. W. PAIN.

ATTACHMENT FOR EXPRESSION OR ACCENT CONTROLLING MECHANISMS  
FOR MECHANICAL MUSICAL INSTRUMENTS.


NO MODEL.

APPLICATION FILED OCT. 14, 1903.

2 SHEETS—SHEET 1.



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*Atty.*

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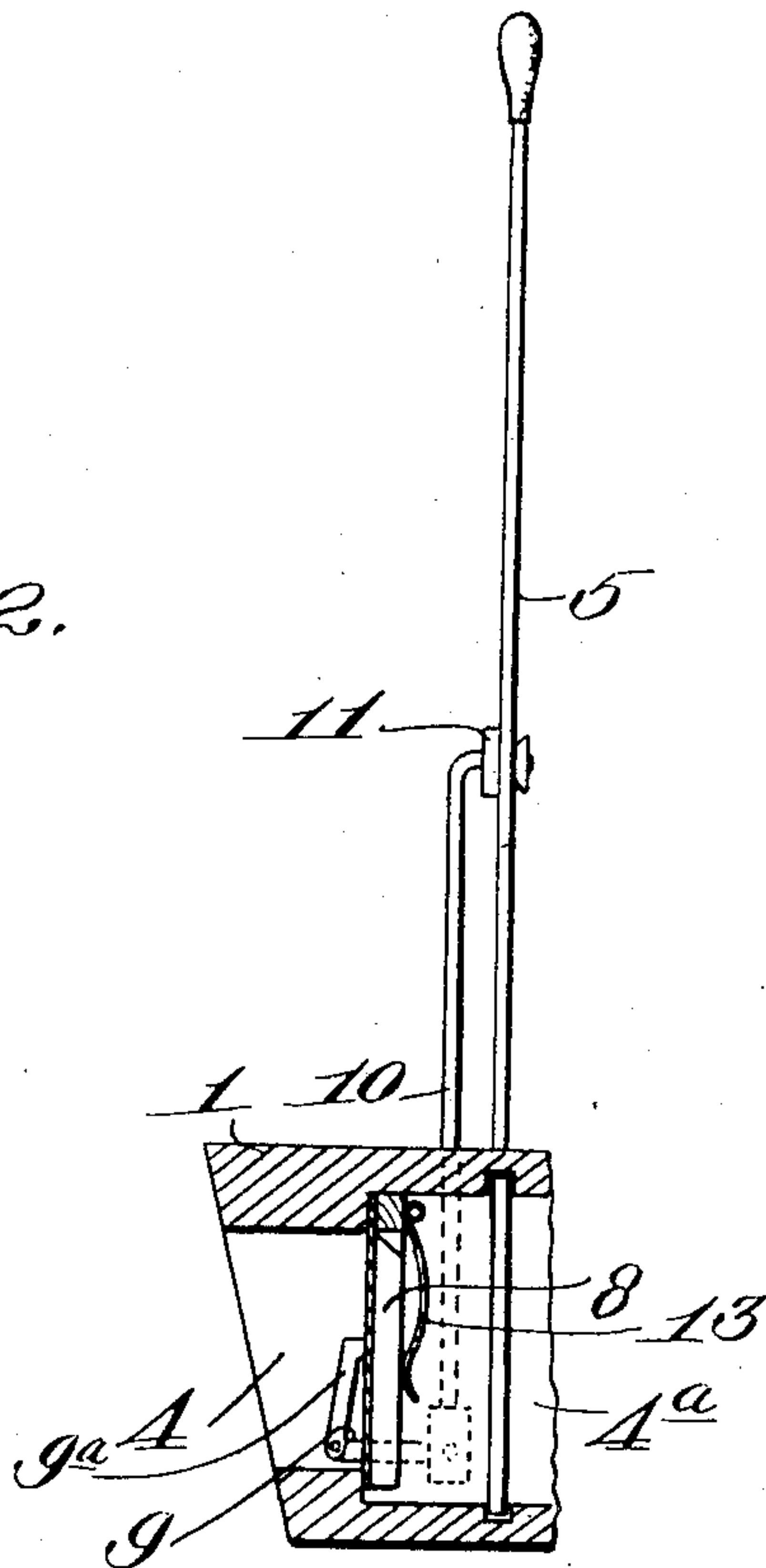
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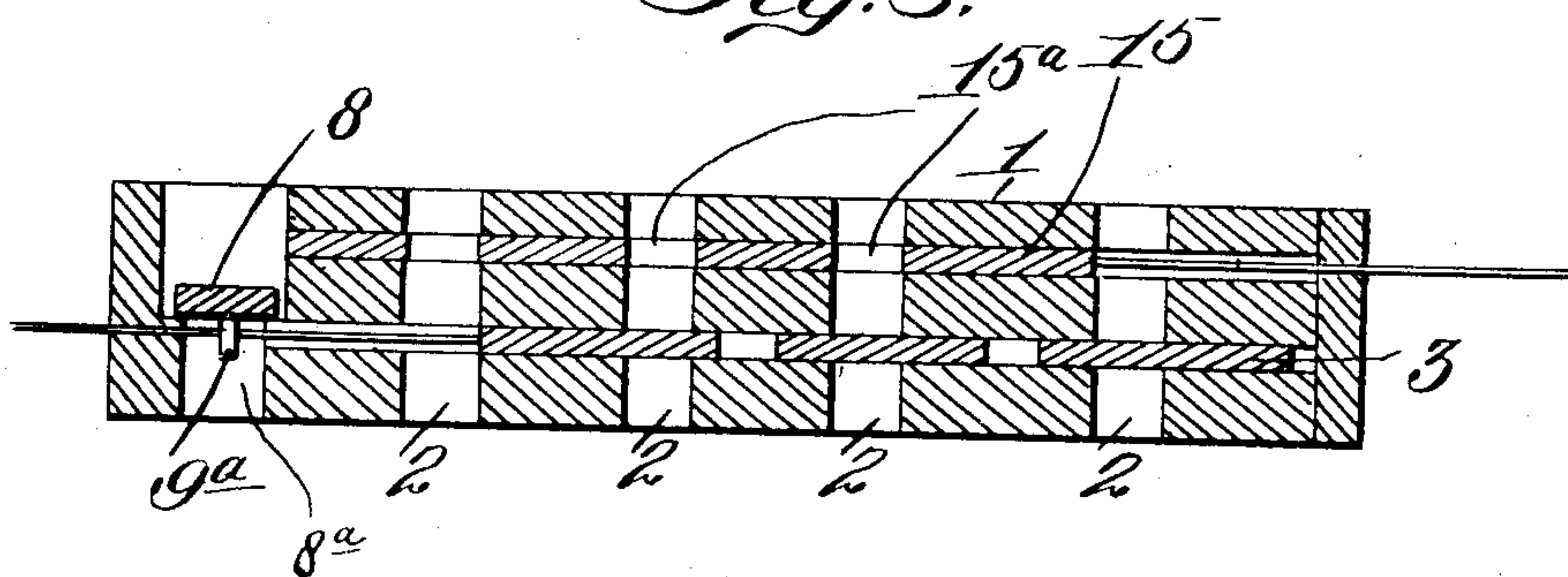
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2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR EXPRESSION OR ACCENT CONTROLLING MECHANISMS FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 752,920, dated February 23, 1904.

Application filed October 14, 1903. Serial No. 177,024. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. PAIN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Attachments for Expression or Accent Controlling Mechanisms for Mechanical Musical Instruments, of which the following is a specification.

This invention relates to attachments for mechanism for regulating or controlling the modifications of expression or accent of mechanical musical instruments, and has for its object to provide means whereby in any position of the selective mechanism by which the expression or accent is controlled a desired or predetermined expression—such as, forte or fortissimo—may be produced.

To the end stated the invention resides in a means or appliance hereinafter described, and set forth in the appended clauses of the claim.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is an elevation illustrating so much of expression-controlling mechanism as is necessary to an understanding of this invention. Fig. 2 is a view taken on the line 2 2 of Fig. 1, and Fig. 3 is a view taken on the line 3 3 of Fig. 1.

In the said drawings the reference-numeral 1 designates a gate box or casing having a plurality of passages 2 therethrough, which passages are selectively opened and closed by means of a gate 3, having ports so arranged that when one passage is opened the others are closed. At one side of said box or casing 1 is a chamber 4 (see Fig. 2) in communication with the action of the mechanical musical instrument, which chamber is well known and which will be hereinafter for convenience designated as the "action-chamber" of the instrument, and at the other side, 4<sup>a</sup>, the passages 2 through said box or casing lead to exhausters. (Not shown.)

All of the foregoing mechanism and arrangement is shown, described, and claimed in my application for Letters Patent filed August 21, 1903, Serial No. 170,362, and since the same

is not herein claimed it is not deemed necessary to illustrate the arrangement.

The present invention is particularly adapted to a system of expression control such as disclosed in my said application for patent, but is not restricted to such particular mechanism, as it may be useful in connection with other manners of expression-controlling mechanism.

The gate 3 for selectively opening and closing the passages through the box or casing 1 and which in turn communicates with the exhausters is manipulated by a suitable operating-handle 5, which has a pivotal link connection 6 therewith and the exposed end of which is adapted to be moved past an indicating-scale 7, marked with suitable indicia, and having such interrelation with the operating-handle that when the latter is brought into given positions with relation to said scale given exhausters adapted to cause selected expressions are made operative. By moving the operating-handle properly with relation to the said scale—that is to say, in the example of my invention illustrated in the drawings and as is fully set forth in my said application for Letters Patent, laterally—appropriate exhausters for causing a selected expression or expressions are made operative. It may frequently happen that when the operating-handle has been adjusted to cause, say, a pianissimo expression the performer will desire (without moving the operating-handle to pass the intervening scale indicia or bring into circuit the corresponding intervening exhausters) to cause an immediate forte expression. It is in a means to permit accomplishment of this purpose that this invention resides, and to this end a valve 8, of any suitable construction, but preferably a flap-valve, is arranged to control a port 8<sup>a</sup> to establish communication between the action of the instrument and that exhauster which causes, say, a forte expression. This valve in the illustrated example of my invention is located in the box or casing 1 and is arranged to establish communication between the action of the instrument and a given exhauster in any lateral or angular position to which the op-



erating-handle 5 is capable of adjustment by connected means consisting in the illustrated embodiment of my invention of a crank-arm 9, mounted in the box or casing 1, the active end 9<sup>a</sup> of which has operative engagement with said valve. The crank-arm is connected, as by a rod 10, with a pivoted arm 11, (which may be pivoted to any suitable part of the frame of the instrument or otherwise,) and said arm is connected to the operating-handle 5 at one side of its pivotal point by means of a pin 12.

The normal position of the valve is closed, in which position it is held by suitable means, as a spring 13, and the active end of the crank-arm 9 is normally such that it may be caused immediately to open the valve on proper manipulation of the operating-handle. After operation the valve-manipulating elements are automatically returned to normal position by suitable means, as a spring 14.

It will be observed that the connection of the operating-handle 5 with the valve-opening mechanism is such that in any lateral or angular position to which said handle may be adjusted in the operation of cutting into and out of operation appropriate exhausters to vary the expression of accent a movement thereof in a direction different from its gate-operating movement will cause the valve to be opened to establish communication between a given exhauster and the action of the instrument to cause the production of a given, say, forte expression or accent. This arrangement is very desirable in that the performer may at any time during the execution of a musical composition and according to his individual interpretation thereof or with the assistance of well-known guides cause the production of a given expression—say forte—by manipulation of the operating-handle (in the arrangement shown in the drawings by a slight depression thereof) no matter what may be the position of said operating-handle, avoiding the necessity of moving it to that relative position with respect to the scale which ordinarily would cause the given—say forte—expression. Other advantages of this arrangement will readily suggest themselves to the skilled in the art and may be further developed in the practical use of the invention.

In the drawings I have shown a slide or gate 15, called a "rerolling" or "rewinding" slide in my before-mentioned application for Letters Patent. This slide or gate is provided with symmetrically-arranged ports 15<sup>a</sup>, which when the instrument is in operation are adjusted to open all the passages 2 through the box or casing 1 and may be so adjusted when it is desired to rewind a music-sheet that all of said passages are closed.

I desire it understood that my invention is not restricted to the details of construction and arrangement herein shown, except in those clauses of the claim where such details

are set forth, and then only for the purposes of those particular claims, as my invention resides, broadly, in a means whereby at any position of adjustment of the operating-handle a given expression may be effected.

Having thus described my invention, what I claim is—

1. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, an exhauster-selector arranged to control the opening and closing of said passages, and a handle for operating said exhauster-selector, of a supplemental port communicating with said action-chamber and a predetermined exhauster, and means connected to the exhauster-selector-operating handle for opening and closing said port whereby said handle may be manipulated to open said port and produce a predetermined accent.

2. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, and means connected to the gate-operating handle for opening and closing said port and whereby said handle may be manipulated to open said port and produce a predetermined accent.

3. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, and connections between said valve and handle whereby the valve may be opened by manipulation of the handle of the latter.

4. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying a gate and a handle for operating said gate, of a normally closed valve, and connections between said valve and handle whereby the valve may be opened by manipulation of the handle in any position of angular adjustment of the latter.

5. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, an arm pivotally connected to said handle, and connections between said arm and said valve whereby the valve may be opened by manipulation of said handle.



6. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages communicating with the action-chamber of the instrument and exhausters, a gate for selectively opening and closing communication between the action of the instrument and the exhausters, a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, a gate-operating handle having pivotal link connection with the gate, a pivoted arm connected with the handle, and connections between said arm and said valve whereby the latter may be opened by manipulation of said handle.

7. The combination with means for regulating or controlling the accent of mechanical musical instruments, embodying a gate and a movable handle for operating said gate, of a normally closed valve, and connections be-

tween said valve and handle whereby the valve may be opened by a movement of said handle different from that imparted thereto in operating the gate.

8. The combination with means for regulating or controlling the accent of mechanical musical instruments, embodying a gate and a separate normally closed valve, of an operating-handle having connection with said gate and said valve and having two motions, one in direction to operate said gate and the other in different direction to open said valve.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT W. PAIN.

Witnesses:

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W. C. MANSFIELD.