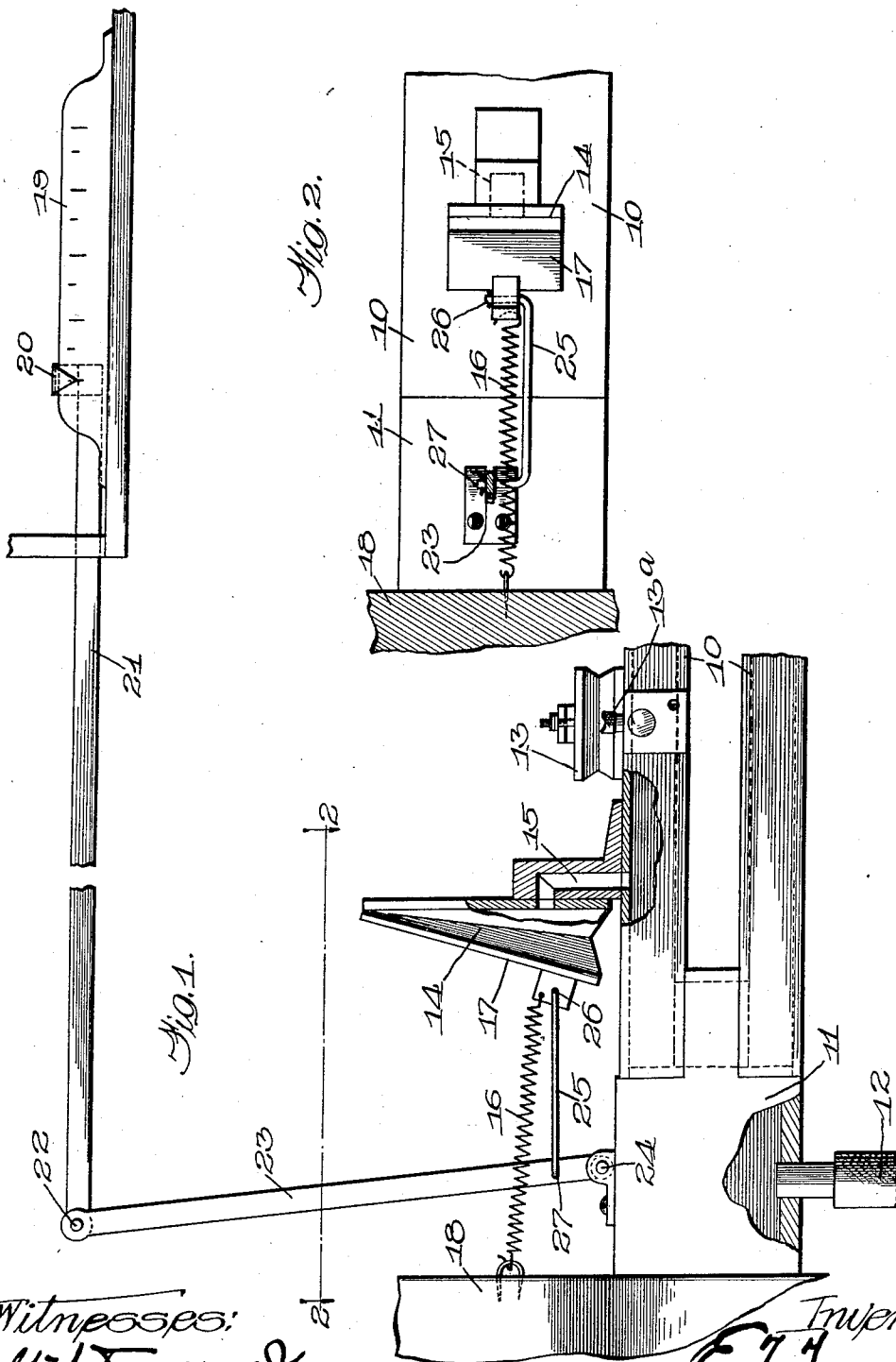


E. T. TURNEY.
WIND CHEST TENSION INDICATOR FOR PIANO PLAYING ATTACHMENTS.
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1,020,584.

Patented Mar. 19, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

EUGENE T. TURNEY, OF ROCK ISLAND, ILLINOIS, ASSIGNOR TO ARTISTA PIANO
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WIND-CHEST-TENSION INDICATOR FOR PIANO-PLAYING ATTACHMENTS.

1,020,584.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed April 23, 1908. Serial No. 428,783.

To all whom it may concern:

Be it known that I, EUGENE T. TURNEY, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Wind-Chest-Tension Indicators for Piano-Playing Attachments, of which the following is a specification.

This invention relates to improvements in wind chest tension indicators for piano playing attachments in which is employed a plurality of pneumatic actions having communication with air ducts or channels, which latter are adapted to be exhausted to operate the pneumatics, and the primary object of the invention is to provide improved means for automatically indicating the suction in the air ducts or channels whereby the suction or exhaust may be controlled by the operator to regulate the tone of the instrument.

A further object is to provide improved means for automatically operating an indicator, which means includes a pneumatic having communication with the air ducts or channels and which is adapted to be exhausted through the air ducts or channels.

A further object is to provide an improved device of this character, which is simple, durable and cheap in construction and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawing, illustrating an embodiment of the invention, and in which—

Figure 1 is a detail elevation partly in section of an improved device of this character constructed in accordance with the principles of this invention. Fig. 2 is a detail plan view taken on line 2—2 of Fig. 1.

Referring more particularly to the drawing and in the present exemplification of the invention, the numeral 10 designates suitable air ducts or channels which preferably have communication with each other through a chamber 11, and these channels may be exhausted through the chamber 11 by means of a tubular member 12, which is

connected with a suitable chamber or chest (not shown) and supported by these air ducts or channels 10 and communicating therewith are pneumatic actions 13, which have communication with the tracker board of the instrument (not shown) by means of flexible tubular connections 13^a in the ordinary and usual manner in devices of this character, so that when an opening in the record passes over the apertures in the tracker board in the usual manner, the respective pneumatics will be operated by the suction created in the air ducts or channels 10.

Supported by one of the air ducts or channels 10 is a pneumatic 14, which has communication with the air duct or channel by means of a port or passage 15. An elastic member 16, such as a coil spring or the like, is connected by one extremity to the movable member 17 of the pneumatic 14 and the free extremity thereof is connected to a fixed portion 18 of the casing of the instrument so that when the pneumatic 14 is being collapsed by the suction in the air duct or channel 10, a tension will be created upon the elastic member 16 and this member 16 will move the member 17 of the pneumatic 14 to expand the pneumatic when the suction has decreased.

Supported by the instrument within the casing thereof and in a convenient position to be seen by the operator is a gage 19 and an indicator 20 is provided to cooperate with the gage. This indicator 20 is adapted to be adjusted by means of a suitable arm 21, the free extremity of which is preferably pivotally connected as at 22 to an arm or lever 23, which latter is pivotally supported as at 24 to any fixed portion of the instrument, preferably the chamber 11, and this arm or lever 23 is located in proximity to the pneumatic 14. A link 25 is connected by one end as at 26 to the movable member 17 of the pneumatic 14 and by its other extremity as at 27 to the arm or lever 23 at a point remote from its pivot 24, and this link 25 is of such a length that the movement of the member 17 of the pneumatic 14 will rock the arm or lever 23 about its point of pivotal support and thereby adjust the arm 21.

When the pneumatic 14 is exhausted, the pneumatic will collapse causing the member 17 to move the arm or lever 23 about its

point of pivotal support against the tension of the elastic member 16, and when so adjusted the index 20 will be moved with respect to the gage 19 to indicate the strength of the exhaust in the air ducts or channels 10. When the exhaust or suction in the air ducts or channels is not so strong, the elastic member 16 will tend to move the member 17 of the pneumatic to expand the latter against the strength of the suction and thereby adjust the indicator 20 in the opposite direction with respect to the gage 19.

With this improved construction, it will be apparent that the suction in the air ducts or channels may be controlled by the operator and that the suction in the air ducts or channels will automatically operate the regulator to indicate the proper regulation of the suction which is necessary to obtain the proper tone, that is, if the suction in the air ducts or channels is sufficient to entirely collapse the pneumatic 14, the respective pneumatics 13 which operate the piano actions will also be entirely collapsed to impart a full strong stroke to the respective hammer, but when the pneumatic 14 is only partially collapsed, it will indicate that the suction in the air duct or channel is not sufficient to impart a full heavy stroke to the respective hammer and by the manipulation or the regulation of the suction in the air ducts or channels, the operator may maintain the indicator 20 at the desired point with respect to the gage 19 to give the proper tone or sound to the notes. As the exhaust or suction in the air ducts or channels varies the elastic member 16 will automatically adjust the movable member 17 of the pneumatic 14 to partially expand the pneumatic.

In order that the invention might be fully understood the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is—

1. A device of the character described including in combination an air duct, means whereby said duct may be exhausted, an indicator, a pneumatic, and an operative connection between the pneumatic and the indicator whereby the action of the pneumatic will operate the indicator, said pneumatic having communication with the air

duct whereby the suction in said duct will operate the pneumatic.

2. A device of the class described including in combination an air duct, means whereby said duct may be exhausted, an indicator, a pneumatic, means tending normally to expand the pneumatic, an operative connection between the pneumatic and the indicator whereby the action of the pneumatic will operate the indicator, and means whereby the suction in the said duct will tend to collapse the pneumatic against the tension of the second said means.

3. A device of the character described including in combination an air duct, means whereby said duct may be exhausted, an indicator, a pneumatic including a movable member, an elastic member, one end of which is connected to the movable member, a fixed member to which the other end of the elastic member is secured, said member being adapted to normally expand the pneumatic, and an operative connection between the indicator and the movable member of the pneumatic whereby the operation of said pneumatic will adjust the indicator, said pneumatic having communication with the air duct whereby the suction in said duct will collapse the pneumatic against the tension of the said elastic means.

4. In an automatic pneumatic piano player, the combination with the usual air chamber, and means under the control of the operator for governing the pressure therein, of an expression indicating device including a pointer, a pneumatic separate from but in communication with said air chamber, said pneumatic comprising fixed and movable members, and an operative connection between said movable member and said pointer, whereby variations of the pressure in said chamber will operate the pneumatic, and cause the movable member thereof to shift said indicator.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 10th day of April A. D. 1908.

EUGENE T. TURNEY.

Witnesses:

DAVID SEARS,
C. A. LITT.