

C. H. DAVIS.
ROLL MECHANISM.

(Application filed Sept. 9, 1901.)

(No Model.)

Fig. 1.

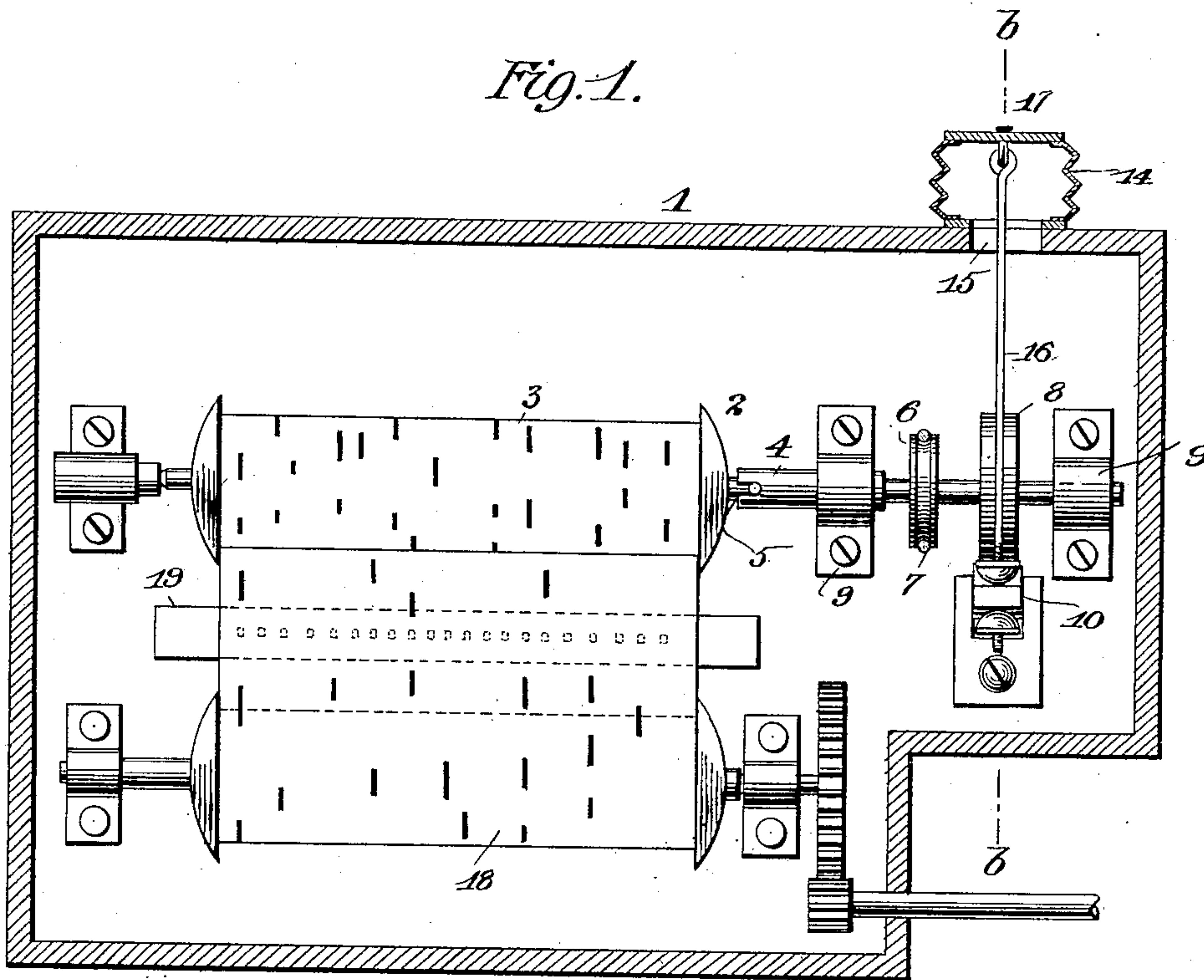
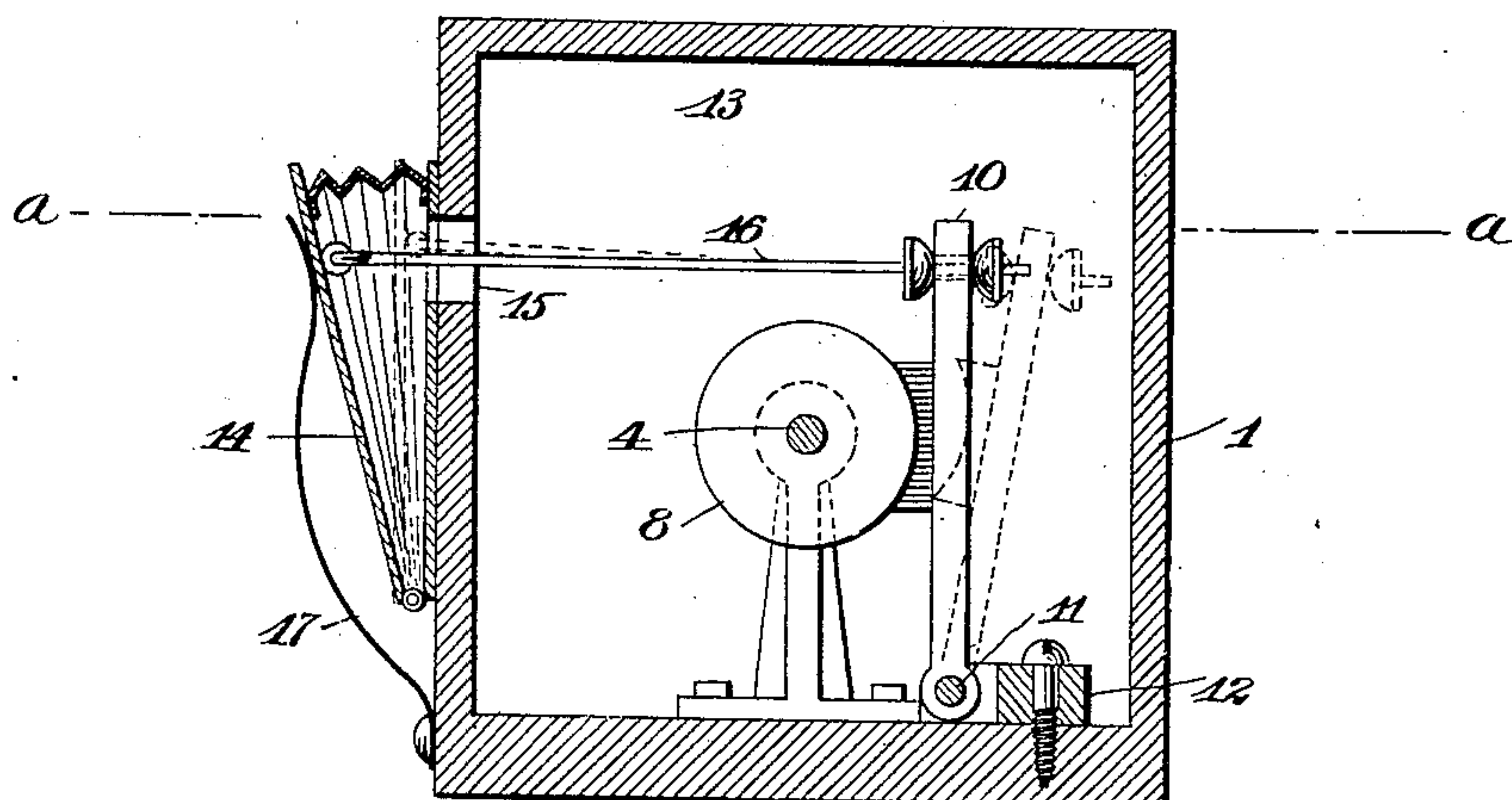


Fig. 2.



WITNESSES:

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ROLL MECHANISM.

SPECIFICATION forming part of Letters Patent No. 708,999, dated September 16, 1902.

Application filed September 9, 1901. Serial No. 74,788. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DAVIS, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Roll Mechanisms, of which the following is a specification.

My invention relates to roll mechanisms for pneumatically-operated musical instruments in which a perforated sheet or roll is used to control the action of the keys or notes.

The object of my invention is to provide a means whereby as the perforated sheet or roll is being unwound from the music-roll during the playing of the instrument a resistance is applied to the music-roll to prevent its running ahead and to maintain a certain tension in the perforated sheet and whereby during the rewinding of the music-roll the said resistance is automatically withdrawn.

My invention consists in mounting a brake-wheel upon the music-roll shaft and in providing a pneumatically-controlled brake-shoe adapted to engage the brake-wheel while the perforated sheet is being unwound from the music-roll and the instrument is being played and in providing a means for automatically disengaging the brake-shoe from the brake-wheel while the music-roll is being rewound.

There are two classes of pneumatically-controlled self-playing musical instruments to which my invention is applicable which differ from each other in that in one class the keys of the instrument are actuated by air under pressure—that is, pressure above atmospheric pressure—while in the second case the keys are actuated through the instrumentality of a partial vacuum or pressure below atmospheric pressure. In the application of my invention shown in the drawings the former of these classes is particularly illustrated. It will, however, be apparent to those skilled in the art that it is equally applicable to the latter class as well.

In the drawings accompanying and forming part of this specification, Figure 1 is a horizontal section on line *a a* of Fig. 2, representing a pneumatically tight box or case and the music-roll mechanism operating therein. Fig. 2 is a section on line *b b* of Fig. 1.

The reference characters are used in the same sense in both figures.

Numeral 1 represents a box or case which incloses the music-roll mechanism.

2 represents music-roll on which the perforated sheet 3 is wound in the usual manner.

4 represents the music-roll-driving shaft, which engages the end of the spindle 5 of the music-roll.

6 represents a pulley secured to the shaft 4, driven by the belt 7 in any convenient manner. 8 represents the brake-wheel, also secured to the shaft 4.

9 represents the bearings in which the driving-shaft 4 is journaled.

10 represents the lever, which is connected by the pivot 11 to the bracket 12, said bracket being secured to the base of box 1.

13 represents a brake-shoe secured to the lever 10, which is adapted to engage the brake-wheel 8.

14 is a small bellows or pneumatic secured to the wall of the case 1 and communicating therewith through the port or opening 15.

16 represents a rod connecting the pneumatic 14 with the brake-lever 10.

17 represents a spring acting upon the back of a pneumatic, tending to close it and release the brake from the brake-wheel.

18 represents the take-up roll, on which the perforated sheet is wound from the music-roll during the playing of the instrument.

19 represents the tracker-board, which is provided with a series of ports which register with the perforation of the music-roll, said ports leading, by means of suitable ducts or pipes, to the pneumatics which operate the keys in a manner that is well understood.

In the instrument illustrated and described herein during the playing of the instrument air under pressure is maintained in the case 1. This air-pressure is communicated through the port 15 to the pneumatic 14, thereby through connections between the pneumatic and the brake-shoe causing the brake-shoe to press against the brake-wheel 8. When the air-pressure is released from the case 1, to rewind the perforated sheet upon the music-roll the pressure will be simultaneously released from the pneumatic 14 and the spring

17 will cause the brake-shoe 13 to be released from the brake-wheel. The wind-pressure is supplied to the case 1 by a bellows, there being a valved connection between the bellows
5 and the case 1. When it is desired to rewind the perforated sheet or to cease playing the instrument, the valve controlling the connection between the bellows and the case is closed, and the pressure either above or below the
10 atmospheric pressure in the case is released in a manner that is well understood.

In the case of the second class of instruments referred to—that is, those in which instead of using air under pressure in the case
15 1 to actuate the keys air is exhausted from the ducts leading to the tracker-board—the pneumatic 14 is then simply reversed, and instead of having a port connecting it with the case 1 it may be connected with the exhaust
20 bellows or chamber.

Having thus described my invention, what I claim is—

1. In a music-roll mechanism, for pneumatically-actuated musical instruments, the
25 combination with the music-roll of a brake-wheel driven by said music-roll, a brake-shoe, adapted to engage said brake-wheel and a

pneumatic actuating said brake-shoe by the pneumatic pressure which actuates said instrument.

2. In a music-roll mechanism for pneumatically-actuated musical instruments, the combination with the music-roll, of a brake-wheel connected with said music-roll, and means for automatically applying frictional
35 resistance to the revolution of said brake-wheel during the playing of the instrument.

3. In a music-roll mechanism for pneumatically-actuated musical instruments, the combination with the music-roll, of a brake-wheel connected with said music-roll, and means whereby frictional resistance is automatically applied to said brake-wheel during the playing of said instrument and automatically relieved therefrom during the rewind-
45 ing of the music-roll.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. DAVIS.

Witnesses:

O. R. JUDD,
J. WALTER LANGE.