

Nº. 764,555.

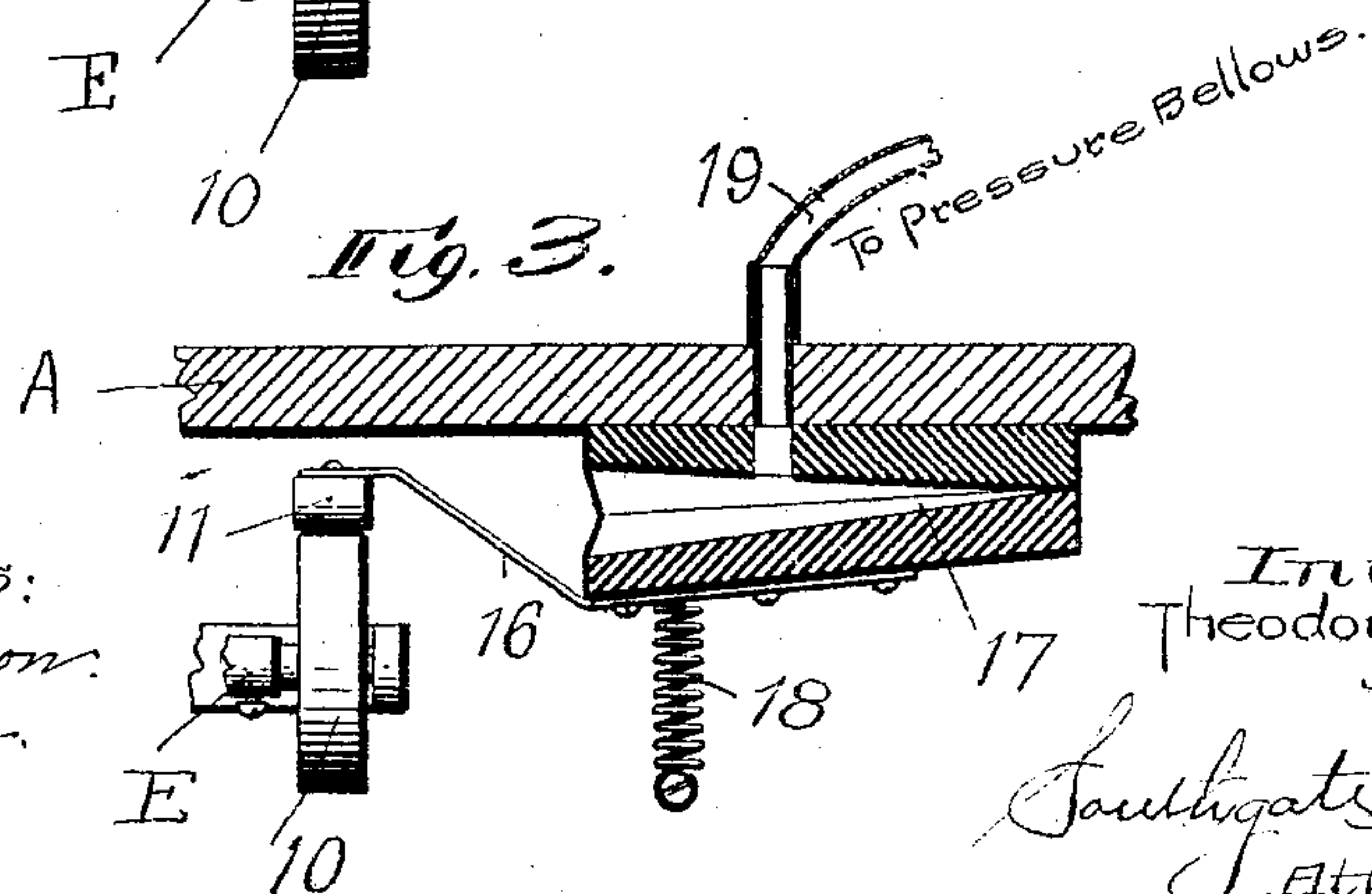
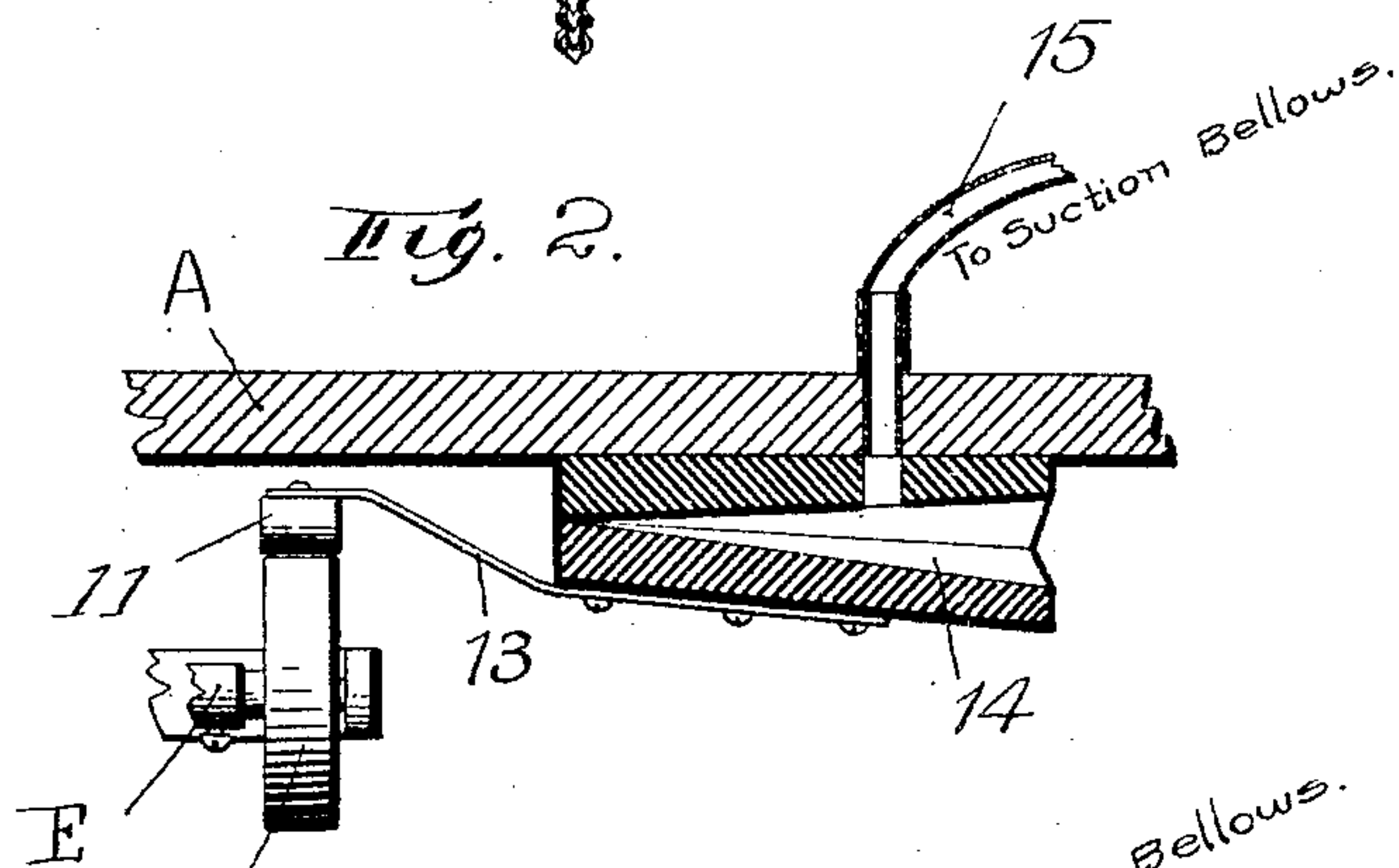
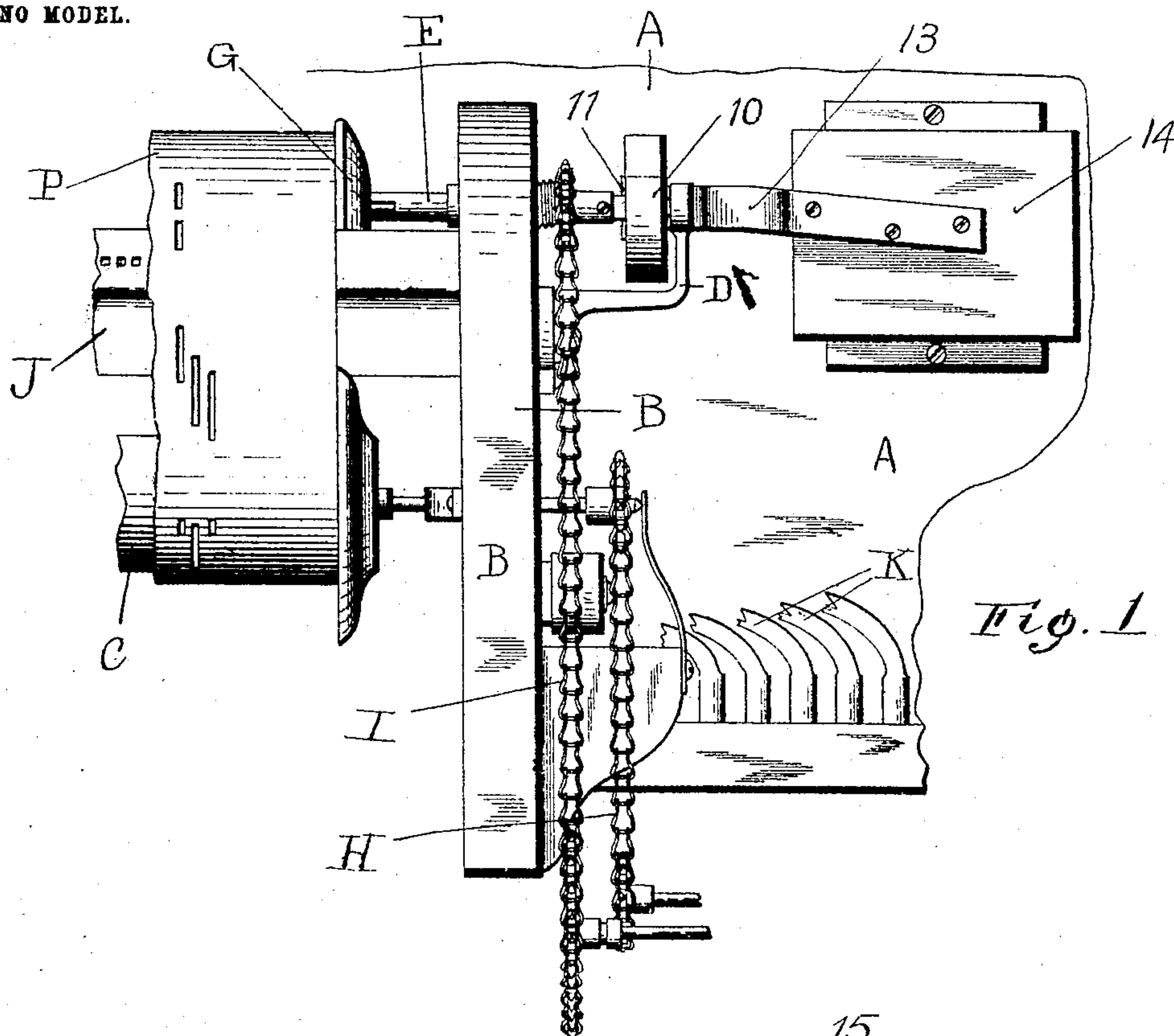
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T. P. BROWN.

MEANS FOR CONTROLLING THE PAPER WINDING MECHANISM OF
AUTOMATIC MUSICAL INSTRUMENTS.

APPLICATION FILED FEB. 17, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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MEANS FOR CONTROLLING THE PAPER-WINDING MECHANISM OF AUTOMATIC MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 764,555, dated July 12, 1904.

Application filed February 17, 1902. Serial No. 94,353. (No model.)

To all whom it may concern:

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Means for Controlling the Paper-Winding Mechanism of Automatic Musical Instruments, of which the following is a specification.

This invention relates to that class of automatic musical instruments or automatic playing attachments for the musical instruments which are controlled by perforated paper.

The especial object of this invention is to provide an automatic tension-regulator or brake for paper-winding mechanisms employed in instruments of the class referred to which will act automatically to properly tension the paper while the instrument is being played, the said tension being relaxed while the paper is being rewound.

To this end this invention consists of the parts and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a fragmentary front view of sufficient parts of an automatic musical instrument to illustrate the application of my invention thereto. Fig. 2 is a sectional plan view of the brake and the pneumatic for setting the same, and Fig. 3 is a similar view illustrating a modified form of construction.

This invention relates especially to that class of musical instruments in which automatic playing devices are operated by one source of power—such, for example, as the ordinary pedal-actuated suction-bellows—while the paper-winding mechanism is operated from a separate source of power—such, for example, as a spring-motor or other suitable device.

The especial object of this invention is to provide a controlling and tensioning brake for the paper-winding mechanism which is arranged to be automatically applied during the playing of the instrument, but which may be relaxed to leave the paper unrestrained dur-

ing the rewinding of the paper. To accomplish this purpose, an automatic musical instrument constructed according to my invention comprises a paper-winding mechanism, a brake therefor, and pneumatic connections acting to set the brake during the playing of the instrument.

In practice the pneumatic connections for setting the brake are adapted to be operated from the same source of power as the pneumatic playing devices, whereby the tension of the brake will be automatically maintained during the playing of the instrument, but may be relaxed when the action of the suction-bellows or other source of pneumatic power is stopped, which is usually the case during the rewinding of the paper.

Referring to the accompanying drawings and in detail for a description of sufficient parts of an automatic musical instrument to understand the application of my invention thereto, A designates a portion of an upright partition or support, extending from which is a bracket B. Journaled in the bracket B is the shaft of a roll C, hereinafter termed the "winding-roll," and also journaled in the support B and a bracket D, extending therefrom, is a stub-shaft E, which may be connected to turn the roll G, which roll G is the ordinary music-roll on which the paper is wound and which is hereinafter termed the "rewinding-roll."

The winding-roll C is driven by means of suitable sprocket-wheels and drive-chain H, while the rewinding-roll is driven from suitable sprocket-wheels and the drive-chain I. The driving-trains for the winding-roll C and rewinding-roll G may be alternately actuated from any suitable source of power—such, for example, as a spring-motor.

As the perforated paper P is wound back and forth between the winding-roll C and rewinding-roll G it passes over an inclined tracker-board J, having channels which may be connected by pipes K to the primary pneumatics controlling the playing devices. It is to be understood, however, that these parts may be of any ordinary or preferred con-

struction employed in instruments of this class.

The brake or automatic tension mechanism for controlling the paper-winding device according to my invention comprises a wheel or disk 10, secured on the stub-shaft E. Coöperating with the disk or wheel 10 is a brake-piece 11, carried by a spring-arm 13, secured to the movable section of a collapsible pneumatic 14. The pneumatic 14 may be connected by a pipe 15 to the suction-bellows or to any one of the suction-chambers from which the air is exhausted while the instrument is being played. By means of this construction so long as suction is maintained in the passage 15—that is to say, so long as the instrument is playing—the pneumatic 14 will be collapsed and the brake will act to impart proper tension to the paper to prevent the same from becoming slack as it passes over the tracker-board.

The disk 10 and brake-piece 11, which co-operates therewith, are preferably made of lignum-vitæ or other hard oily wood which does not require lubrication, and the spring-arm 13 is sufficiently flexible to permit the pneumatic 14 to be entirely collapsed without materially increasing the braking pressure.

In a number of automatic musical instruments which have been heretofore manufactured it has been proposed to operate the playing devices by pneumatic pressure instead of by suction. In Fig. 3 I have illustrated the application of my invention to instruments of this class. As shown in Fig. 3, the brake-piece 11 is carried by a spring-arm 16, secured to the movable section of an expanding pneumatic 17, which may be connected to the pressure-bellows or to other pressure-chambers of instruments of this class by a passage 19. The pneumatic 17 is normally collapsed or rendered inoperative by a spring 18, so that the brake is normally relaxed, but is automatically applied whenever the pressure is generated for operating the playing devices.

I am aware that numerous other changes may be made in practising my invention by those who are skilled in the art without departing from the scope thereof as expressed in the claims. I do not wish, therefore, to be limited to the particular construction I have herein shown and described, but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In an automatic musical instrument, the combination of paper-winding mechanism, a brake therefor, a pneumatic, and a connection from said pneumatic for exerting a uniform pressure on the brake when the pneumatic is collapsed.

2. In an automatic musical instrument, the

combination of paper-winding mechanism, a brake therefor, a pneumatic operated from the same source of power as the playing devices, and a spring connection between the pneumatic and brake adapted to exert a uniform pressure upon the brake when the pneumatic is operated, whereby the tension of the brake will be maintained during the playing of the instrument, but may be relaxed while the paper is being rewound.

3. In an automatic musical instrument, the combination of a winding-roll, a rewinding-roll, a driving-train for operating the winding-roll, a driving-train for operating the rewinding-roll, a brake-disk turning with the rewinding-roll, a brake, a pneumatic, a spring-arm connecting the brake to the movable section of the pneumatic, whereby the brake will exert a uniform pressure when the pneumatic is collapsed, and connections for controlling the pneumatic from the same source of power as the playing devices, whereby the tension of the brake will be uniformly maintained during the playing of the instrument, but may be relaxed while the paper is being rewound.

4. In an automatic musical instrument, the combination of a paper-winding mechanism, a brake therefor, a pneumatic operated from the same source of power as the playing device, and a spring connection between the pneumatic and brake adapted to prevent an excess of pressure being applied with a high vacuum.

5. In an automatic musical-instrument, the combination of a paper-winding mechanism, a brake therefor, a pneumatic, and connections between the brake and pneumatic whereby the brake is operated therefrom but may yield relative thereto at any stage of the movement of the pneumatic.

6. In an automatic musical instrument, the combination of a winding-roll, a rewinding-roll, a disk operable therewith, a driving-train for operating the disk, a brake, a pneumatic, a spring-arm connecting the brake to the movable section of the pneumatic, whereby the brake will exert a uniform pressure when the pneumatic is collapsed, and connections for controlling the pneumatic from the same source of power as the playing devices, whereby the tension of the brake will be uniformly maintained during the playing of the instrument, but may be relaxed.

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

THEODORE P. BROWN.

Witnesses:

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LOUIS W. SOUTHGATE.