

No. 756,469.

PATENTED APR. 5, 1904.

C. S. BURTON.

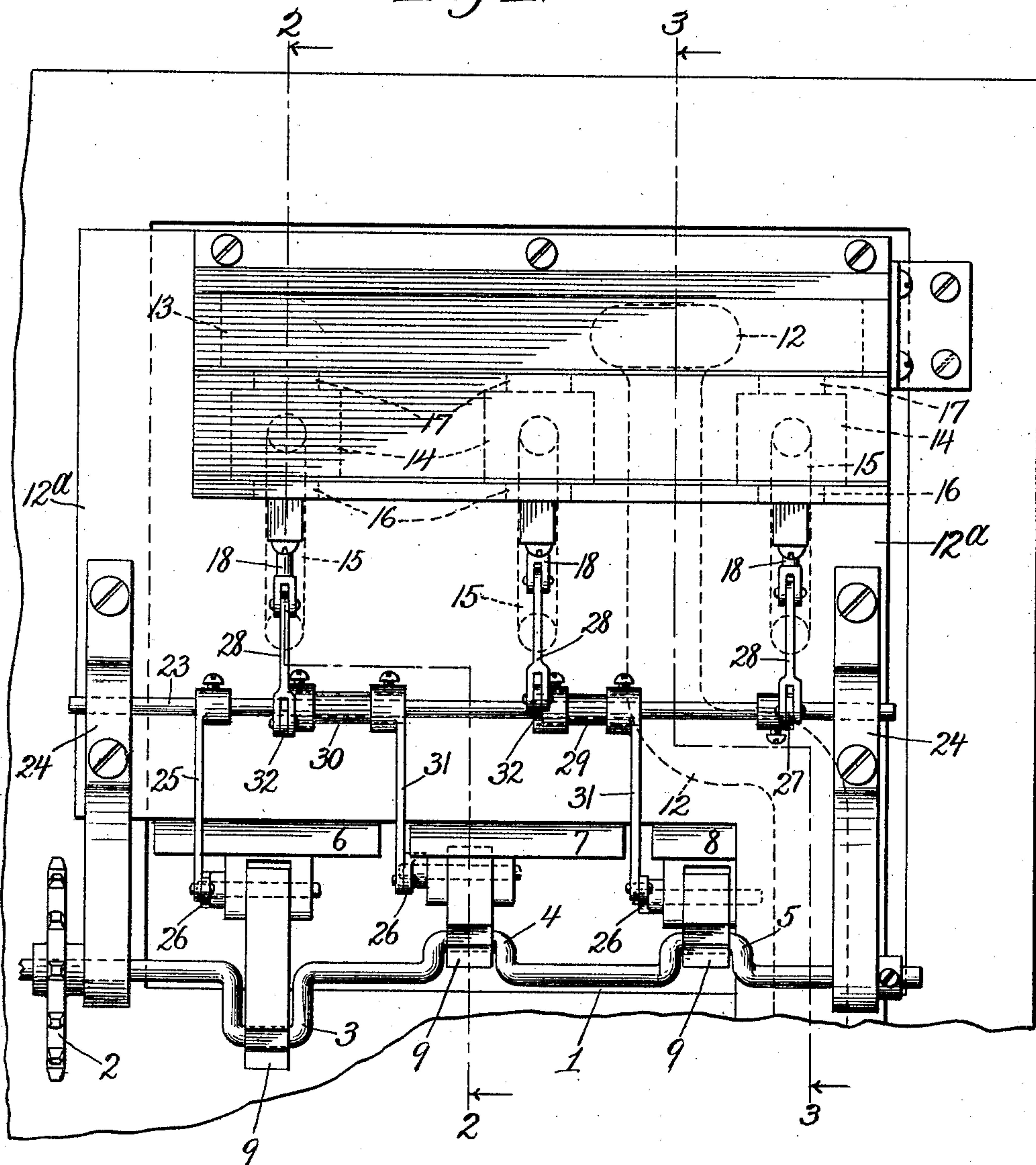
PNEUMATIC MOTOR FOR AUTOMATIC MUSICAL INSTRUMENTS.

APPLICATION FILED APR. 1, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

Edward T. Wray.

Fred B. Fischer

Inventor.

Charles S. Burton
by Burton Burton
his Attys.

No. 756,469.

PATENTED APR. 5, 1904.

C. S. BURTON.

PNEUMATIC MOTOR FOR AUTOMATIC MUSICAL INSTRUMENTS.

APPLICATION FILED APR. 1, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.

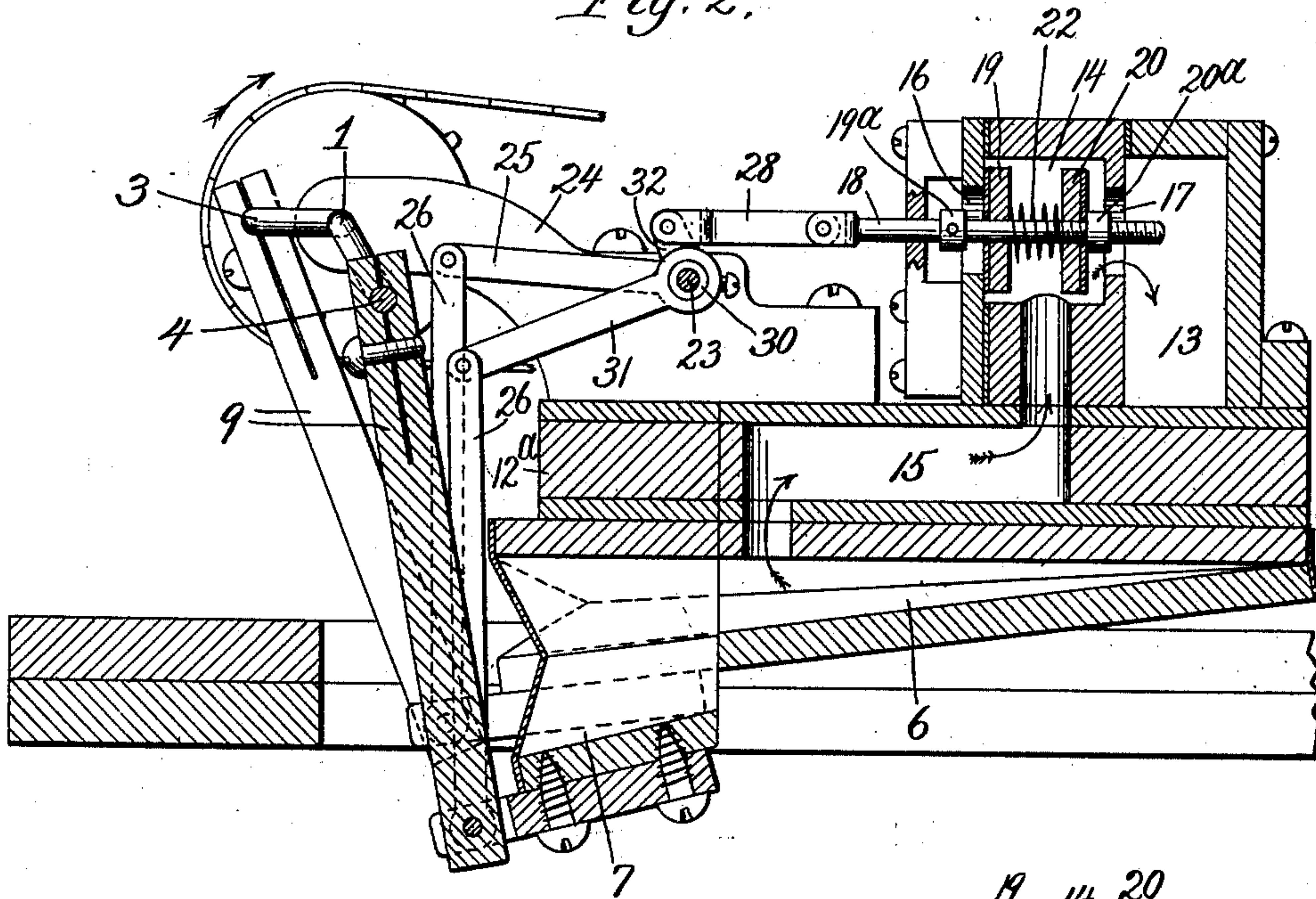
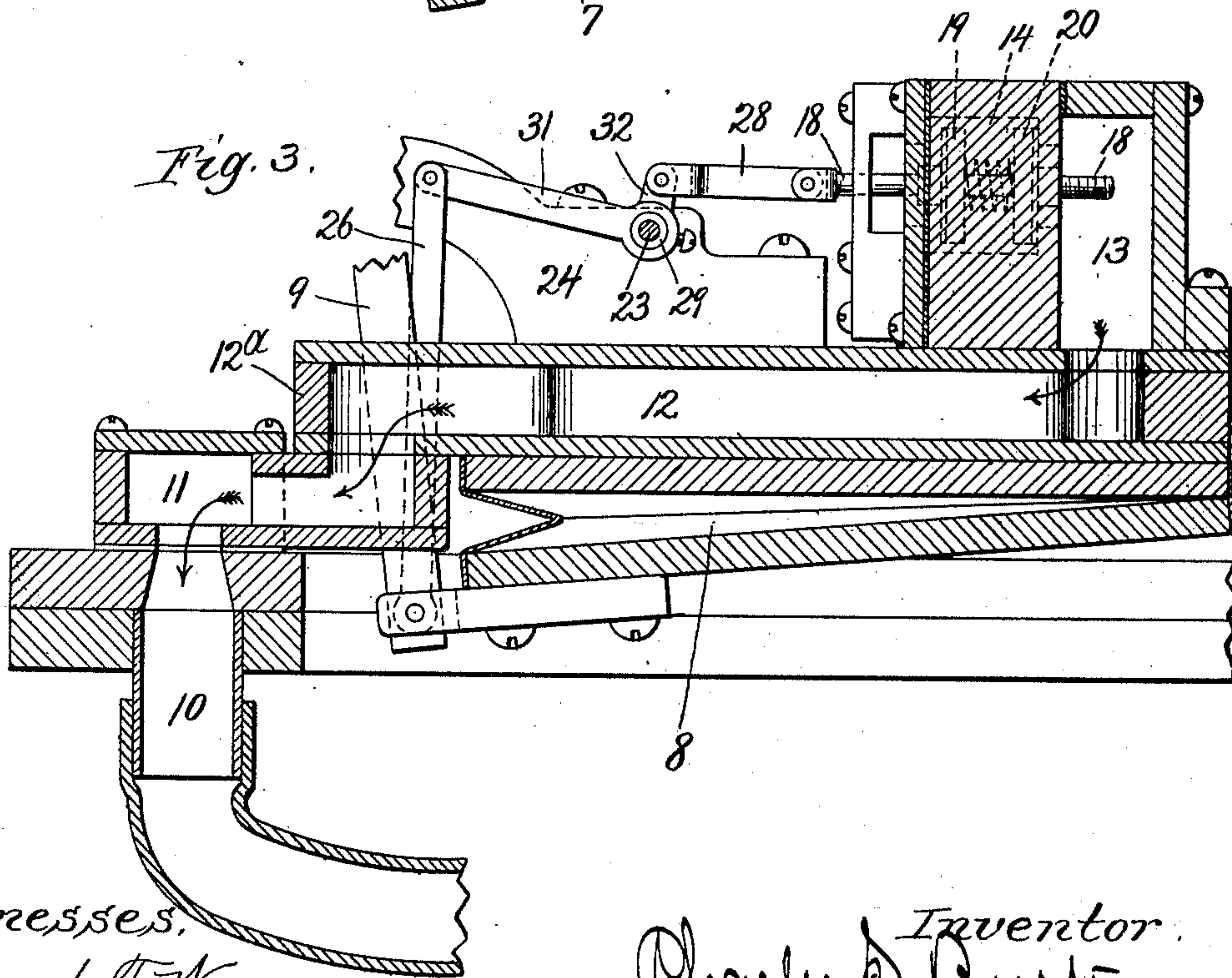


Fig. 3.



Witnesses,

Edward T. Wray,

Fred G. Fischer

Inventor,
Charles S. Burton
by Burton Burton
his Atty's.

UNITED STATES PATENT OFFICE.

CHARLES S. BURTON, OF OAKPARK, ILLINOIS, ASSIGNOR TO MELVILLE CLARK, OF CHICAGO, ILLINOIS.

PNEUMATIC MOTOR FOR AUTOMATIC MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 756,469, dated April 5, 1904.

Application filed April 1, 1903. Serial No. 150,502. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. BURTON, a citizen of the United States, residing at No. 328 Wisconsin avenue, Oakpark, in the county of Cook and State of Illinois, have invented new and useful Improvements in Pneumatic Motors for Automatic Musical Instruments, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention is designed particularly for the purpose of operating the perforated sheets which control the sounding devices of an automatic musical instrument; and it consists of the features of construction which are set out in the claim.

In the drawings, Figure 1 is a plan view of a motor involving my invention. Fig. 2 is a section at the line 2 2 on Fig. 1. Fig. 3 is a section at the line 3 3 on Fig. 1.

In my improved motor the train for actuating the rolls for propelling the perforated sheet (neither rolls nor sheet being shown) is driven by a crank-shaft 1, on which a sprocket-wheel 2 is provided for communicating power to one of the rolls, the other being driven by other connections. This crank-shaft, which has three cranks 3, 4, and 5 one hundred and twenty degrees apart around the axis, is actuated by three bellows or pneumatics 6, 7, and 8, whose moving walls, respectively, are connected by pitmen 9 9 9 to the cranks 3, 4, and 5, respectively. The pneumatics in the structure illustrated are operated by means of rarefaction of their air contents, which is effected by connection with an exhaust-bellows, (not shown,) said connection being made by way of the duct 10, which leads through a valve-chamber 11, in which a valve is provided (not shown) for throttling the air, and thence by the passage 12, formed in the foundation-board 12^a, on which the mechanism is mounted, said passage 12 leading to a chamber 13, which communicates with the three pneumatics, respectively, by way of the valve-chambers 14 and passages 15, leading from the side of such chamber to the pneumatics, as seen in Fig. 2. The chamber 14 communicates through a port 16 with the atmosphere,

said port being opposite the port 17, by which it communicates with the chamber 13. A valve-stem 18 extends through the valve-chamber, carrying a compound or double-faced valve comprising two disks 19 and 20, both within the chamber and adapted to seat, respectively, over the ports 16 and 17. Stops 19^a and 20^a on the stem at opposite sides of the valves, respectively, limit the separation of the valve-disks on the stem at a distance permitting them both to be on their seats at once, and a spring 22 coiled about the stem between the disks tends to hold the valves separated as far as the stops or their seats permit.

23 is a rock-shaft journaled in the brackets 24 24, which afford journal-bearings for the crank-shaft. This rock-shaft has a lever-arm 25, connected by a link 26 with the moving wall of the pneumatic 6, and at the other end it has a lever-arm 27, connected by a link 28 with the stem 18 of the valves which control the inlet and outlet of air to and from the pneumatic 8. On the rock-shaft 23 there are mounted two short sleeves 29 and 30, constituting rock-shafts, each having two lever-arms 31 and 32, respectively. The lever-arm 31 of the sleeve 29 is connected by a pitman 26 with the moving wall of the pneumatic 8, and its lever-arm 32 is connected by a link 28 with the stem 18 of the valves which control the pneumatic 7. The corresponding lever-arm 31 of the sleeve 30 is similarly connected to the pneumatic 7, while its lever-arm 32 is similarly connected to the stem of the valve for operating the pneumatic 6. With this construction it may be understood that each pneumatic as it is collapsed by the opening of the valve which connects it with the exhaust-chamber operates the valve for similarly connecting the next pneumatic in order with the exhaust-chamber to cause its collapse in turn, the last pneumatic of the series being connected through the rock-shaft to operate the valve of the first pneumatic, and thus the action being once initiated is maintained so long as the communication with the exhaust-chamber is open.

The action of the valves is familiar in this class of devices and constitutes no part of the

present invention, which relates only to the means of deriving proper movement of the valves of the respective pneumatics from the collapsing action of a pneumatic whose valve
5 has been previously set in position for producing such collapse.

I claim—

A pneumatic motor comprising a crank-shaft having a plurality of cranks at intervals of
10 less than one hundred and eighty degrees apart about its axis; a like plurality of pneumatics having their moving walls connected with the cranks respectively; valves which control the pneumatics respectively; a rock-
15 shaft parallel with the crank-shaft having a lever-arm connected with the moving wall of

the pneumatic at one end of the group, and a second lever-arm operatively connected with the valve for controlling the pneumatic at the other end, and sleeves mounted on the rock- 20 shaft having each two lever-arms connected respectively with a preceding pneumatic and the valve of a succeeding pneumatic.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at 25 Chicago, Illinois, this 20th day of March, A. D. 1903.

CHARLES S. BURTON.

In presence of—

FRED. G. FISCHER,
EDWARD T. WRAY.