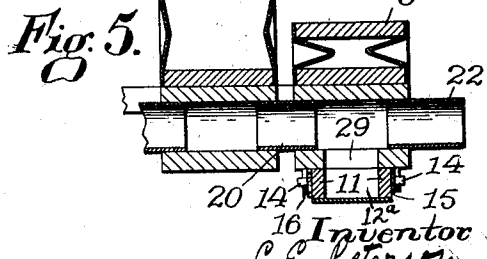
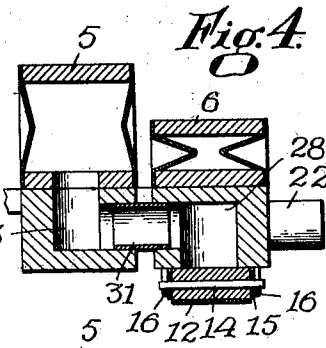
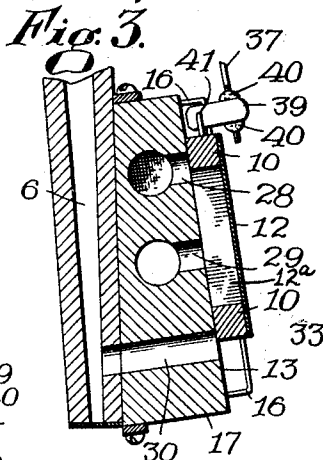
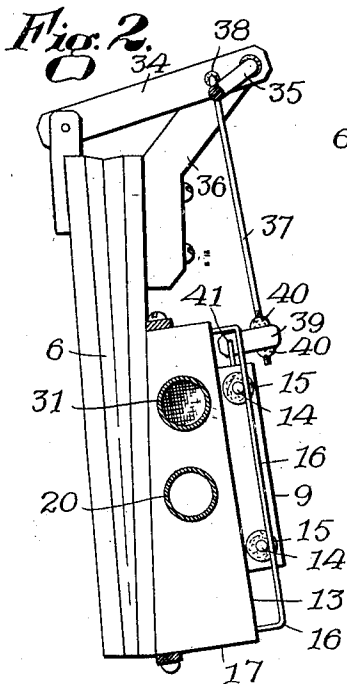
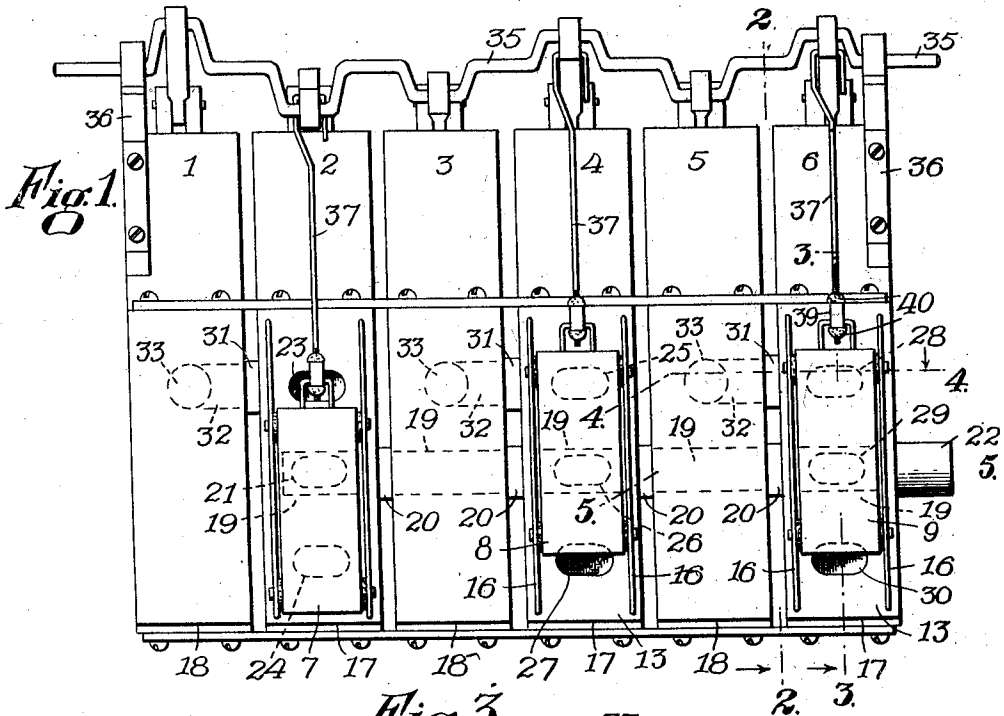


C. E. PETERSON.
 PNEUMATIC MOTOR FOR PIANO PLAYERS.
 APPLICATION FILED MAY 15, 1918.

1,327,731.

Patented Jan. 13, 1920.



Inventor
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 By Attorney
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UNITED STATES PATENT OFFICE.

CLAUS E. PETERSON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO IVERSON PIANO PLAYER COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

PNEUMATIC MOTOR FOR PIANO-PLAYERS.

1,327,731.

Specification of Letters Patent.

Patented Jan. 13, 1920.

Application filed May 15, 1918. Serial No. 234,702.

To all whom it may concern:

Be it known that I, CLAUS E. PETERSON, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful improvement in Pneumatic Motors for Piano-Players, of which the following, together with the accompanying drawings, is a specification.

My present invention relates to certain details in the operative connection between the valves of the motor and the motor bellows; further, to the construction of the guides for the valves, and also to reduce the number of valves required to operate the motor bellows. The preferred embodiment of my invention is illustrated in the accompanying drawings, the novel features being pointed out in the annexed claims.

Figure 1 is a front elevation of one of my improved motors for piano players.

Fig. 2 is a side view shown in section on the plane of the broken line 2—2, Fig. 1.

Fig. 3 is a side elevation of one of the controlling valves shown in sectional view on the plane of the broken line 3—3, Fig. 1.

Fig. 4 is a transverse sectional view of two of the motor bellows shown in section on the plane of the broken line 4—4, Fig. 1.

Fig. 5 is a transverse sectional view of two of the motor bellows on the plane of the broken line 5—5, Fig. 1.

Similar reference characters refer to similar parts in the different figures.

The motor shown in Fig. 1 consists of six motor bellows, numbered 1, 2, 3, 4, 5 and 6, while the number of valves controlling the action of these bellows is reduced to three, numbered respectively, 7, 8 and 9. The valves 7, 8, and 9 are constructed as usual in instruments of this class having end pieces 10, 10, as shown in sectional view in Fig. 3, side pieces 11, 11, shown in sectional view in Fig. 5, and a cover or top piece 12 of some impervious material, such, for example, as rubber cloth, forming a pocket 12^a open upon the under side and adapted to slide upon a raceway 13. In order to hold the valves in position I place pins 14 in the thick end pieces of the valve projecting a short distance from the sides 11 of the valve, and over the pins I place annular washers 15. In the raceways 13 I insert wire staples 16 which extend the entire

length of the raceway over the pins 14. In order to remove the valves I spring the staples 16 apart slightly to allow the pins 14 to pass them. The raceways 13 are formed upon the tops of wind chests 17, 17, 17, constituting wind chests for the motor bellows 2, 4, and 6. Between the wind chests 17, 17, 17, I place wind chests 18, 18, 18, connected with the motor bellows 1, 3 and 5. Passing transversely through four of the wind chests upon the right hand side of the motor are air passages 19, connected by pipes 20 forming a continuous passage terminating at one end in a port 21, and connected at the opposite end by means of a pipe 22 with an exhaust bellows. Each of the raceways 13 which are provided with the sliding valves 7, 8 and 9 are provided with ports 21, 23, 24, 25, 26, 27, 28, 29, and 30. The ports 23, 25, and 28 are connected by pipes 31, and passages 32, with openings 33 leading to the motor bellows 1, 3 and 5. Each of the motor bellows is connected by a pitman 34 with a crank shaft 35, journaled in brackets 36 attached to the outer motor bellows. A sliding motion is given to each of the valves 7, 8 and 9 by a connection with the pitmen 34 consisting of a wire pitman 37 which is hooked at one end through an opening 38 in the pitmen 34. The opposite ends of the wires 37 are screwthreaded and carry blocks 39 held between the nuts 40, 40, making a rigid connection between the blocks 39 and the wires 37. The blocks 39 are pivoted upon staples 41, held in the end pieces of the valves. It will be noted that the number of valves employed is only one half the number of motor bellows.

The operation of the motor is as follows:—Air having been exhausted through the pipe 22 from the central transverse passage communicating with the several ports 21, 26, and 29 with the valves 7, 8 and 9 in the position shown, a communication will be established by the valve 7 between the ports 21 and 24, causing the port 24 to exhaust air from the motor bellows 2 through the port 21 to the exhaust mechanism, the motor 2 will therefore be collapsed by the exhaustion of air therefrom, while the port 23, being open, will admit air to the motor bellows 1, which will become expanded. In the position of the valve 8

communication is established between the ports 25 and 26 which will exhaust air from the motor bellows 3, while the port 27 being open, and communicating with the motor bellows 4, will cause the latter to be expanded. The position of the valve 9 will cause the motor bellows 5 to be collapsed and the motor bellows 6 to be expanded. The crank shaft 35 is arranged to produce the desired succession of operations in the motor bellows.

I claim,

1. In an apparatus of the class described, in combination, a raceway for a valve, a reciprocating valve, pins projecting from

the opposite sides of the valve near its ends, and a pair of elongated staples extending the length of the raceway and passing over said pins.

2. In an apparatus of the class described, in combination, a raceway for a valve, a reciprocating valve, pins projecting from the sides of the valve near each of its ends, flexible washers held on said pins, and a pair of elongated staples held in said raceway and extending over said pins.

CLAUS E. PETERSON.

Witnesses:

NELLIE WHALEN,
PENELOPE COMBERBACH.