J. W. CROOKS.

AUTOMATICALLY OPERATED MUSICAL INSTRUMENT.

APPLICATION FILED OCT. 4, 1911.

1,044,027. Patented Nov. 12, 1912.

Fig. 1.

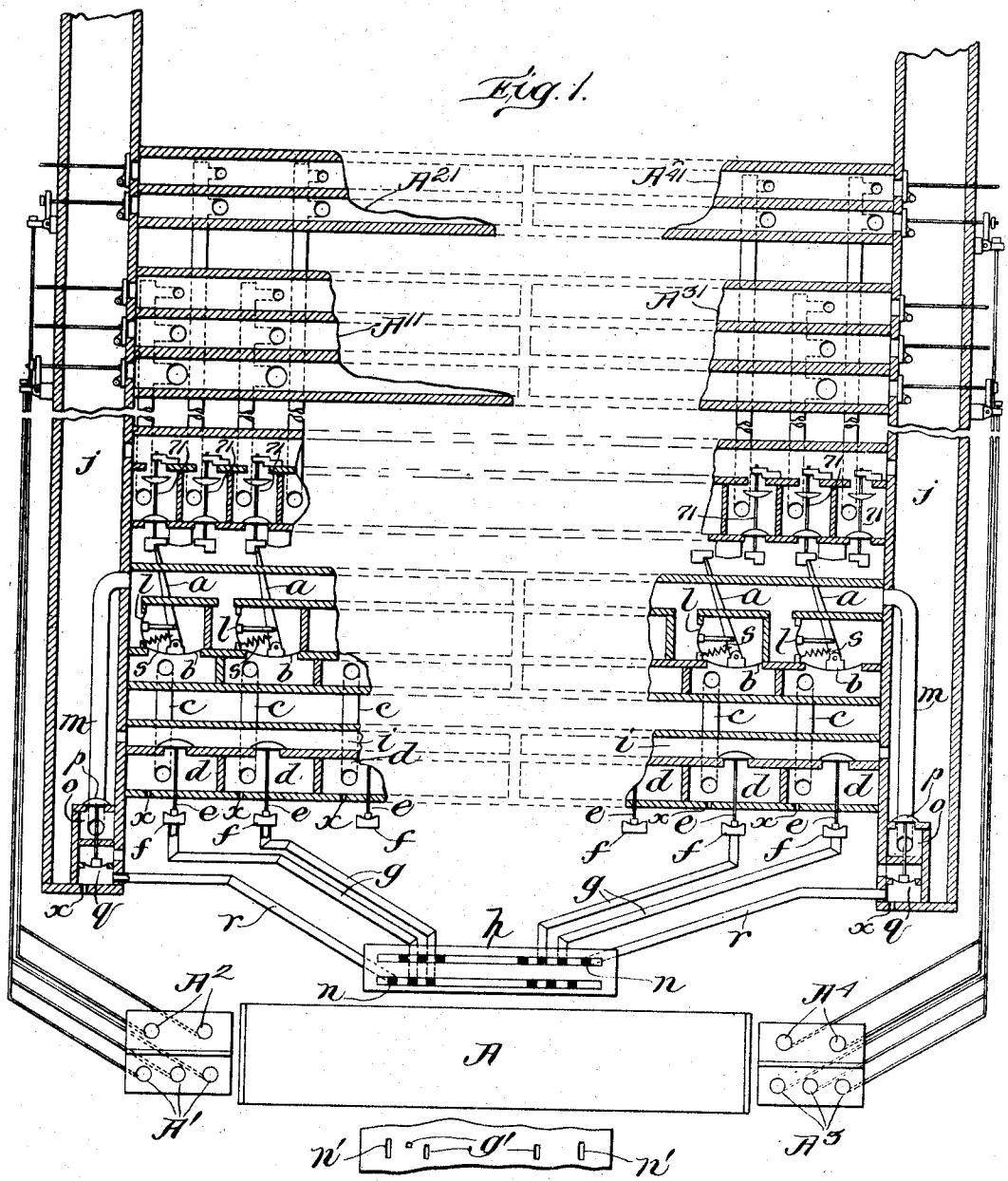


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES W. CROOKS, OF PELHAMWOOD, NEW YORK, ASSIGNOR OF ONE-HALF TO WINCHESTER VEAZIE, OF BARNSTABLE, MASSACHUSETTS.

AUTOMATICALLY-OPERATED MUSICAL INSTRUMENT.

1,044,027. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed October 4, 1911. Serial No. 652,786.

To all whom it may concern:

Be it known that I, JAMES W. CROOKS, of Pelhamwood, in the county of Westchester and State of New York, have invented a new and useful Automatically-Operated Musical Instrument, of which the following is a specification.

Heretofore in automatic musical instruments it has been possible to play only two independent parts and the main object of my invention is to provide an instrument which will have greater scope in this respect than heretofore and my invention consists primarily in providing mechanism for playing four or more independent parts, a feature of the invention being a single pneumatic for opening any one of two or more operating valves each independently of the remainder. Other features will be pointed out below.

In the drawing I have shown my invention diagrammatically as applied to an instrument of the type disclosed in my Patent No. 671,691, issued April 9, 1901.

Figure 1 is a diagrammatic view, partly in section, of an instrument embodying my invention; and Fig. 2 is a fragmentary view of the music sheet.

At one side of the keyboard A are the first manual stops A' and the second manual stops A^2 while at the other side are the third manual stops A^3 and the fourth manual stops A^4 although this particular arrangement of the several manuals is not essential.

My present instrument has twice as many controllers or valves 71 as the instrument of said patent, the valve for one note-sounding device of the first manual being paired with the similar note for the second manual and the valve of one note of the third manual being paired with the similar note of the fourth manual.

The pneumatics for the first and second manuals run clear across the instrument and in front of the pneumatics for the third and fourth manuals and the pneumatics for the third and fourth manuals also run clear across the instrument but I have not considered it necessary to indicate all of the pneumatics in the drawing. The third and fourth manuals also preferably extend higher than, and over the top of, the first and second manuals, although in the drawing they have been shown diagrammatically as nearly side by side. Either valve of each pair may be operated by means of an adjustable actuator *a* which is the main feature of the new device, there being an actuator *a* for each pair of valves. Each actuator *a* is operated by a pneumatic *b* connected by a pipe or passage *c* with a chamber *d* controlled by a valve *e* that is operated by a primary pneumatic *f* connected by a main passage *g* with one of the main ports of the tracker board *h*, the latter having the staggered arrangement of two sets of perforations which conduces to economy of space. There is an actuator *a*, pneumatic *b*, passage *c*, chamber *d*, valve *e*, primary pneumatic *f* and a main passage *g* for each pair of notes of the instrument. When pneumatic *f* is operated it opens chamber *d* to a chamber *i* which is connected with the wind box *j* by suitable pipes. Whenever valve *e* is raised air under pressure flows from *i* into *b* through passage *c* and moves actuator *a* bodily endwise, causing it to lift one or the other of the two valves 71 with which it cooperates, thus sounding the note of that valve. The actuator *a* is caused to selectively operate one of its pair of valves 71 by means of a supplemental pneumatic *l* connected by a pipe *m* with a chamber *o* that is controlled by a valve *p* which in turn is operated by a primary pneumatic *q* connected by a pipe *r* with a supplemental tracker board port *n*. Normally chamber *o* is open to the atmosphere and a spring *s* holds actuator *a* in position to coöperate with one of its pair of valves 71.

X X represent any suitable vents.

The music sheet is to be constructed like the music sheet of said Crooks patent except that it is suitably perforated at *g'* to coöperate with the staggered double tracker board and except that it has additional perforations *n'* to coöperate with the supplemental tracker board ports *n* and whenever one of these perforations uncovers a supplemental port *n*, air under pressure flows from the tracker board box which is connected with wind box *j* through pipe *r* into primary pneumatic *q* which lifts valve *p* so as to close chamber *o* to the atmosphere and open it to wind box *j*. Air under pressure now flows from *j* through *o* and *m* into pneumatic *l* which shifts actuator *a* over into position to coöperate with the opposite valve 71. Immediately thereafter one of the main perforations in the music sheet opens.

the pipe g to the wind box inclosing the tracker board h, which causes the pneumatic b to force actuator a endwise and cause it to operate the valve 71 to sound the note selected. In this way each actuator a is operated and controlled to selectively control and operate either of its pair of valves 71 independently of the other.

By the construction described, and with a properly perforated music sheet, any note of any one of the four manuals A^{11}, A^{21}, A^{31} or A^{41} may be independently sounded so that it is possible to play four parts upon my instrument instead of only two parts as heretofore. It will also be seen that the manuals A^{11} and A^{21} are paired and the manuals A^{31} and A^{41} are paired, so that any two corresponding notes of either pair of manuals may be simultaneously sounded. It will also be clear that the manuals may be coupled as desired and that all four may be coupled as one.

My invention is applicable to both pipe organs and reed organs, as well as to other musical instruments as will be clear to those skilled in this art. I do not claim the above-described music sheet as such in this application as I intend to make it the subject of another application.

What I claim is:

1. An automatically-operated musical instrument comprising a plurality of valves adapted to control note-sounding devices; and a single actuator for operating any one of said valves independently of the remainder and pneumatic means for operating the actuator.

2. An automatically-operated musical instrument comprising a plurality of controllers adapted to control note-sounding devices; an actuator normally in position to operate one of said controllers; means to shift the actuator into position to operate the remainder of said controllers; and pneumatic means to operate the actuator.

3. An automatically-operated musical instrument comprising a plurality of controllers adapted to control note-sounding devices; a member to actuate any one of said controllers independently of the remainder; a tracker board; and means controlled by the tracker board to shift said member into position to actuate the desired controller.

4. An automatically-operated musical instrument comprising a plurality of controllers adapted to control note-sounding devices; a single actuator to operate any one of said controllers independently of the remainder; means to shift the actuator into position to operate the desired controller; and a single pneumatic to operate the actuator in whatever position the latter may be.

5. In a musical instrument a selector; a plurality of means through which the selector controls the action of the instrument; and pneumatic means for operating the selector to selectively actuate the controlling means.

JAMES W. CROOKS.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."