

UNITED STATES PATENT OFFICE.

MELVILLE CLARK, OF CHICAGO, ILLINOIS.

INTERIOR-PLAYER PIANO.

1,014,811.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed April 13, 1909. Serial No. 489,625.

To all whom it may concern:

Be it known that I, MELVILLE CLARK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Interior-Player Pianos, of which the following is a specification, reference being had to the drawings forming a part thereof.

The purpose of this invention is to provide an improved interior player mechanism for an upright piano adapted for playing music of two parts, such as melody and accompaniment.

It consists of the features of construction and their combinations shown and described as indicated in the claims.

In the drawings:—Figure 1 is a fore-and-aft vertical section of a portion of an upright piano embodying this invention. Fig. 2 is a section at the line 2—2 on Fig. 1. Fig. 3 is a rear elevation of the parts shown in Fig. 1 above the piano foundation board. Fig. 4 is an edge view of the tracker board. Fig. 5 is a section at the line 5—5 on Fig. 2, showing the slide at closed position. Fig. 6 is a section at the line 6—6 on Fig. 2, showing the slide at closed position.

The customary parts of an upright piano which are shown in the drawings are represented in the usual form or construction, comprising a base or foundation board, A, manual keys, B, mounted thereabove adapted for customary connection to the piano action.

The tracker device has a set of ducts comprising three groups, the first group for connection with a principal action, the second group for connection with a supplemental or melody action, and the third group for connection with both actions and to be used in conjunction with either, according to the character of the music and the controller sheets therefor. The particular construction of the tracker device, C, is more fully shown and described in my application Serial No. 488,625, filed April 8, 1909, but will be here described sufficiently to indicate its relation to the remaining parts of the present invention.

Two sets of ducts, D and E, terminating in two parallel rows of mouths at the edge of the tracker on which the controller sheet, F, travels are differently spaced to accommodate controller sheets differently cut, the row, D, being more widely spaced than the

row, E. The ducts of this set are formed in the main body of the tracker board in customary staggered arrangement, conventionally indicated at the section of said board in Fig. 1, to obtain adequate space for the same on the downwardly facing rib or valve seat, C¹, at the rear side of the tracker. The set of ducts, E, more narrowly spaced at their mouths than the other set extend through a downwardly projecting rib, C², at the forward side of the tracker, and are connected by flexible tubes, E¹, with the forward edge of the rib, C¹, the spacing of their continuations in said rib, C¹, being the same as that of the set, D, the tubes, E¹, being played or diverged in extending from one rib to the other. The set of ducts, D, comprise 88 ducts for playing the full range of a manual of an ordinary piano. The set of ducts, E, comprises, in addition to 88 apertures of the middle portion for the same purpose as the corresponding 88 ducts of the set, D, 40 additional ducts, 20 at each end, of which 38, 19 at each end, are for playing melody, the two extreme ducts being for a supplemental purpose with which the present invention is not concerned, but which is more fully set out in my said application Serial No. 488,625. The flexible tubes from these additional forty ducts connect with extensions of the rib, C¹, at opposite ends of the tracker, C, twenty ducts being carried to each extension. Upon the downwardly facing surface of the rib, C¹, there is mounted a slide or valve bar, G, having ducts for registration with either the eighty-eight duct mouths of the set of ducts, D, or the corresponding eighty-eight mouths of the ducts, E, which open down through said rib, the distribution of said duct mouths relative to the ducts of the slide or duct bar, G, being such as fully explained in my said application Serial No. 488,625, so that longitudinal movement of the valve bar shifts the registration of the ducts of the bar from one to the other of the two sets, D and E. The particular details of the arrangement by which this result is obtained are no part of the present invention and will not be further described.

For the purpose of the present invention, it is only necessary to consider the ducts of the set, E, and their connections; and it will be understood that the slide or valve bar, G, is represented as adjusted for connection of its ducts with that set, and that

the set of ducts, D, may be ignored in the further consideration of this invention.

The ducts, E, and the flexible tubes which connect them with the pneumatic actions 5 comprise three groups, as above stated, which may be sufficiently indicated by reference to the flexible tubes from the ducts respectively. The first group, 5, comprises 10 sixty-seven tubes out of the middle portion of the eighty-eight tubes leading from the slide, G, for connection with the principal action. The second group, comprising 15 the tubes, 6, lead from the end portions of the rib, C¹, beyond the range covered by the slide, G, and are designed for connection with the supplemental action. The third 20 group comprises two portions consisting of ten tubes, 7, at one end and eleven tubes, 7, at the other end of the first group of tubes, 5, and are designed each for two connections, one leading to the principal action and the other to the supplemental action.

Both the principal action and the supplemental action are mounted below the foundation board, A, the principal action comprising the motor pneumatics, H, mounted 25 on the primary pneumatic chamber, J, and operating by means of pitmen, H¹, thrusting upwardly through the foundation board underneath the rear ends of the manual keys, 30 B, for actuating the same, the supplemental action comprising the motor pneumatics, K, mounted on the primary pneumatic chamber, L, and positioned for operating downwardly by means of the pitmen, K¹, upon 35 the keys forward of their fulcrums, each of the pitmen being for that purpose provided with a head, k, which engages a clip, b, secured to the under side of the key. The 40 construction and operation of both these actions is familiar and need not be described.

For convenience of assembling the various parts of the pneumatic action in the piano case, there is mounted above the manual 45 keys between the same and the tracker device a horizontal duct connection board, M. In this board there are mounted nipples, m, extending through the board and having the upper sections of the tubes, 5, joined to 50 their upper ends and lower sections of the same tubes joined to their lower ends and extending thence in two masses or trunks past the manual keys at the opposite ends of the instrument and past the ends of 55 the foundation board, A, suitably apertured for that purpose, so that they may be connected with the primary pneumatic ducts of the principal action, as shown with respect to one of said tubes, 5, in Fig. 1. 60 The tubes, 7, designed, as stated, for connection both with the principal action and with the supplemental action, are branched or forked above the board, M, and one branch, E⁷¹, of each is connected to a slide 65 or valve bar, M¹, mounted for sliding on

the duct connection board, M, the ports in the lower face of the valve bar being adapted for registration with corresponding ports in said duct connection board, the valve bar being movable for registration or non-registration of the ports. The said ports of the duct connection board are furnished with nipples, m³, to which extensions of the flexible tubes, E⁷¹, are connected and included in the same masses or trunks with the tube, 5, 70 extending past the ends of the manual keys and foundation board for connection with the primary pneumatics of the principal action at the opposite ends of the middle group to which the sixty-seven tubes, 5, lead. The tubes, 6, for connection as stated with the supplemental action, together with the branches, E⁷², of the tubes, 7, which are also designed for connection with that action, extend to a valve or slide bar, M², 80 mounted on the duct connection board, M, and having its ports registering with ports of that board whose lower ends are provided with nipples, m⁴, from which extensions of the tubes, 6 and E⁷², lead in two trunks or masses past the opposite ends of the manual and foundation board for connection below the latter with the primary ducts of the supplemental action, as clearly seen with respect to one of the tubes, 6, in Fig. 1. 90

The slides or valve bars, M¹ and M², are pivotally connected to levers, L² and L³, respectively, fulcrumed on the board, M, and extending forward therefrom to any convenient point for manipulation by the operator. The supplemental action is designed to be ordinarily operated at a higher tension than the principal action; and for that purpose, there are provided high tension and low tension chambers for connection with the two actions respectively, such connection being made by trunks, S and S¹, leading to the primary pneumatic chambers of the actions respectively. Neither 100 said chambers nor the pumping devices nor the means for producing two degrees of tension in the two chambers respectively, nor said chambers, are illustrated, any familiar expedients and devices for these purposes being suitable. 105

When this instrument is to be operated with the perforated controller sheets cut for playing only sixty-five notes instead of the full range of eighty-eight notes, and for playing this number without melody supplement, both the slides, M¹ and M², are moved into position for cutting off the ducts which they carry at the duct connection board, M, as seen in Figs. 5 and 6 leaving 110 only the sixty-seven ducts, 5, connected for operation, these leading to the middle portion of the principal action, as shown, and being adapted for playing sixty-five-note music, the additional notes being useful to allow range for transposition in a manner 115

well understood and not illustrated. When the instrument is to be operated for playing the full range of eighty-eight notes without melody accompaniment, the slide or valve bar, M^3 , is adjusted to closed position, cutting off the tubes which it carries from communication with the supplemental action; and the slide or valve bar, M^1 , is adjusted by its lever, L^2 , for connection of the tubes, E^{71} , which it carries with the principal action, bringing into connection with said principal action said twenty-one tubes in addition to the sixty-seven tubes, 5.

When the instrument is to be operated for playing melody and accompaniment, the slide or valve bar, M^1 , is adjusted to closed position, cutting off the tubes, E^{72} , from the principal action and leaving only the tubes, 5, operatively connected with that action; and the slide or valve bar, M^3 , is adjusted to open position, bringing the entire sixty-one tubes which it carries into operative position with the supplemental action by which the melody is played.

I claim:—

1. In an interior player piano, in combination with the manual keys, a tracker device and a roll carriage mounted above the manual keys forward of the hammer action; a principal pneumatic action and a supplemental pneumatic action mounted below the manual keys; a duct connection board mounted above the manual keys and below the roll carriage frame and tracker device, the tracker device having ducts comprising a group for connection with the principal action, a second group for connection with the supplemental action, and a third group branched for connection with both actions; a valve bar mounted on the duct connection board, and flexible tubes connected therewith from the second group and one of the branches of the third group; a second valve bar mounted on said duct connection board, and flexible tubes of the second branch of the third group connected with it, and means for operating said valve bars independently of each other.

2. An interior player piano comprising in combination with the case and the manual keys, a principal pneumatic action and a

supplemental pneumatic action mounted for operation upon the manual keys at points requiring such operation to be in opposite directions; a tracker device having ducts for connection with the pneumatic actions respectively; a duct connection board mounted within the case above the part of the manual keys rearward of their exposed portion; valve bars on such duct connection board; flexible tubes from the tracker devices to the valve bars respectively; flexible tubes from the duct connection board to the pneumatic actions respectively, and valve bar operating devices extending through the front of the case.

3. In an interior player piano, in combination with the case, tracker devices and pneumatic actions, a duct-connection board mounted in the case apart from the tracker device and from the pneumatic actions; valve bars on such duct connection board; flexible tubes from the tracker device to the valve bars and flexible tubes from the duct connection board to the pneumatic actions, and means for operating such valve bars extending to the exterior of the case.

4. An interior player piano comprising, in combination with the case and the manual keys, a principal pneumatic action and a supplemental pneumatic action mounted for independent operation on the manual keys; a tracker device having ducts for connection with said pneumatic actions respectively; a duct connection board mounted within the case above the part of the manual keys rearward of their exposed portion; valve bars on such connection board; flexible tubes from the tracker device to the valve bars respectively; flexible tubes from the duct connection board to the pneumatic actions respectively, and valve bar operating connections extending through the front of the case.

In testimony whereof, I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 25th day of March, A. D. 1909.

MELVILLE CLARK.

In the presence of—

JULIA S. ABBOTT,

SOPHIE B. WERNER.