

(No Model.)

M. CLARK.
COUPLER FOR PNEUMATIC ORGANS.

No. 606,175.

Patented June 21, 1898.

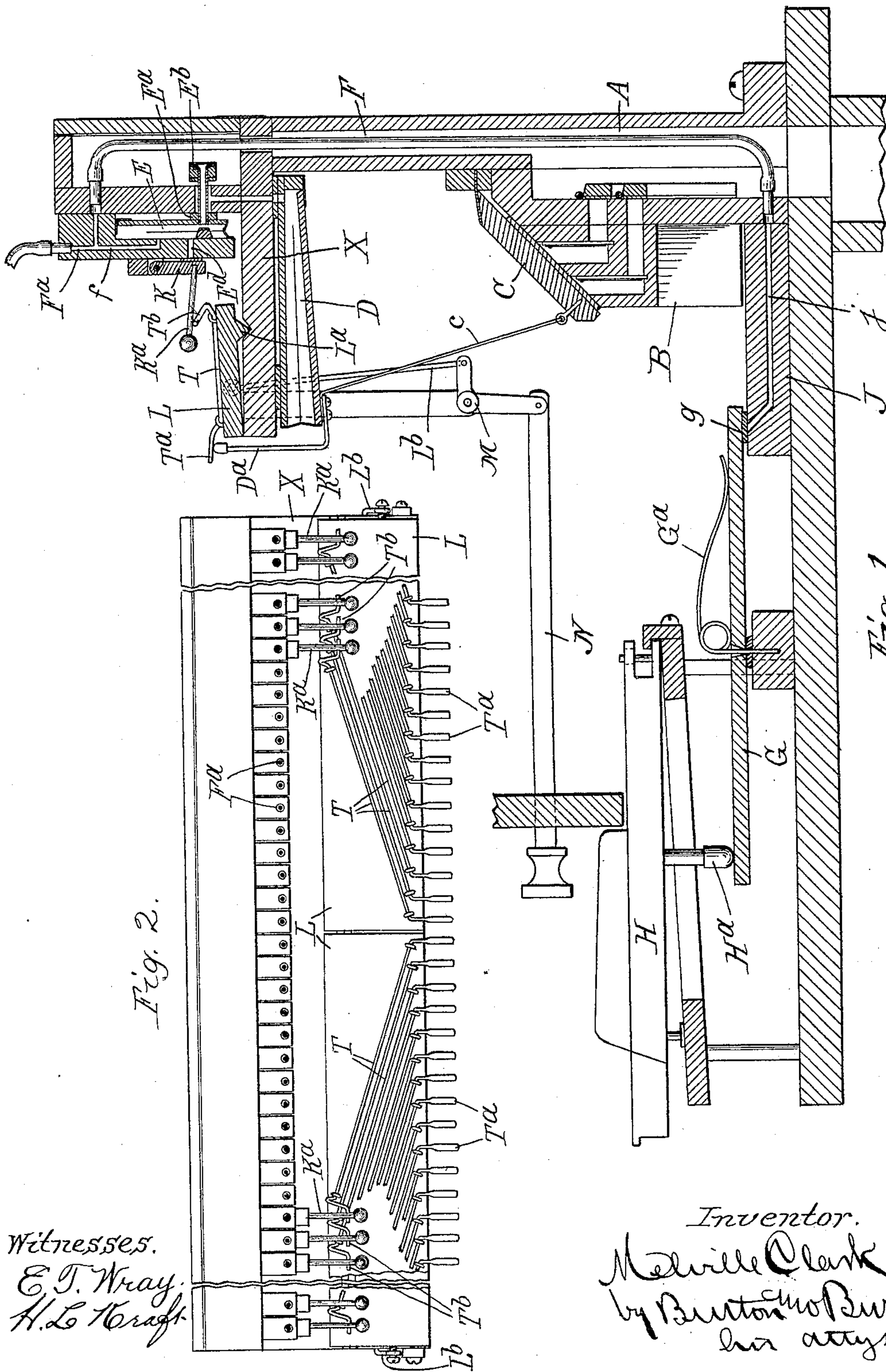


Fig. 2.

Fig. 1.

Witnesses.
E. J. Wray.
H. L. Kraft.

Inventor.
Melville Clark
by Burton & Burton
his attys

UNITED STATES PATENT OFFICE.

MELVILLE CLARK, OF CHICAGO, ILLINOIS.

COUPLER FOR PNEUMATIC ORGANS.

SPECIFICATION forming part of Letters Patent No. 606,175, dated June 21, 1898.

Application filed July 30, 1897. Serial No. 646,476. (No model.)

To all whom it may concern:

Be it known that I, MELVILLE CLARK, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Couplers for Pneumatic Organs, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide improved means for coupling octaves in pneumatically-operated reed-organs or other musical instruments whose sound-controlling devices are pneumatically actuated.

In the drawings, Figure 1 is a fore-and-aft section through a reed-organ having my improvement, showing one reed-valve and its operating mechanism, including the pneumatics and manual-key connections and the coupling stop-action. Fig. 2 is a detailed plan of the same structure in which parts of four octaves of the primary pneumatics and coupling connections are shown.

The general structure of the organ here illustrated is that which I have used heretofore and which is shown in several patents heretofore granted to me.

A is the wind-chest; B, a reed-block; C, the reed-controlling valve; D, the motor-pneumatic or reed-valve-actuating pneumatic; E, the primary pneumatic whose function is by means of the valves E^a and E^b , mounted on a common stem carried by said pneumatic, to control the communication of the motor-pneumatic with the wind-chest and with the outer air, and thereby cause the action of said motor-pneumatic to actuate with the reed-valve.

F is a duct leading from the primary pneumatic to a board J, which is controlled by valve g on the lever G, which is provided with a spring G^a , tending to hold the valve g seated. The lever G is actuated by the pitman H^a on a manual-key H. It will be understood that the depression of the manual-key, lifting the valve g , and venting the primary pneumatic will cause the latter to be inflated and to close the communication of the motor-pneumatic with the outer air and open communication with the wind-chest, thus causing said motor-pneumatic to be collapsed

and to actuate the reed-valve C by means of the connecting-tape c . The duct f , of which the tube F is a continuation and through which the primary pneumatic is vented, has a branch F^a , which may lead to a tracker-range, (not shown,) where it may be controlled by a perforated music-sheet for the purpose of venting the primary pneumatic and operating the instrument automatically.

The self-playing appurtenances are not illustrated, because their action, so far as the present invention is concerned, is precisely equivalent to that caused by the depression of the manual-key, and it may be understood that the coupler devices which constitute the invention and which will now be described perform their function in precisely similar manner whether the instrument is operated by manual or self playing appurtenances.

For the purpose of coupling I provide each primary pneumatic with an additional vent-opening E^d and over each such vent-opening a valve K, which may be arranged to seat by being pivoted at its upper end, as illustrated, and its seating further insured by means of the weighted lever-arm K^a , which projects forward from its lower end. Each motor-pneumatic is provided with a rigid arm or finger D^a . On the board X, on which the motor-pneumatics are mounted, I mount pivotally a coupler-board L, which is pivoted at its rear edge upon a rib L^a and is adapted to be raised and lowered at its forward edge, and for that purpose is connected at one end by the link L^b with the rearward-projecting arm of the bell-crank lever M, whose downwardly-projecting arm is connected at its lower end to the stop-rod N, so that the pushing in of the stop-rod lifts the coupler-board at the forward edge and the drawing out of the stop-rod lowers the board at the forward edge. On the coupler-board I mount rock-shafts T T, &c., which extend obliquely across the board, so that their rear ends are laterally remote from their forward ends substantially one octave distance. Each rock-shaft has at the forward end a lever-arm T^a and at the rear end a lever-arm T^b . To state the relation of the two ends more exactly, the lever-arm T^a at the forward end of the rock-shafts T overhangs the finger D^a of the motor-pneumatic, and the lever-arm T^b at the rear end of the same rock-

shaft is overhung by the lever K^a of the vent-valve K , which pertains to the octave-distant primary pneumatic.

When the forward edge of the coupler-board is depressed, as shown in Fig. 1, this position corresponding to the position of the stop when it is pulled out, the lever-arms T^a are in a position to be encountered by the arms D^a of their respective motor-pneumatics when the pneumatics are collapsed—that is, in the reed-valve-opening movement of the pneumatic—and being thus encountered the rock-shafts are rocked by the collapsing movement of the motor-pneumatic sufficiently to cause the arms T^b to encounter the lever-arms K^a of the valves K and open said valves, thus venting the primary pneumatic one octave distant from each motor-pneumatic with which the motion originates, and thereby causing the reed corresponding to such octave-distant primary pneumatic to speak simultaneously with the reed whose valve it operated by the first motor-pneumatic. When the stop is pushed in and the coupler-board is thereby lifted at the forward edge, the lever-arms T^a are carried out of reach of the arms D^a of the motor-pneumatics, and the coupling effect is not produced.

For the purpose of coupling the range of the instrument is divided into an upper and a lower half, so that above the division-point the coupling will be made upward and below that point will be made downward, and the coupling-board may be divided at the corresponding point and the two sections operated by separate stops, the connection being precisely similar in the two cases; but on the right-hand or upper coupler-board the rock-shafts T will extend obliquely to the right from front to rear, and on the left-hand or lower coupler-board the rock-shafts will extend obliquely to the left from front to the rear, as shown in Fig. 2.

I claim—

1. In a mechanically-operated organ in combination with the reed-valves, motor-pneumatics which operate them, primary

pneumatics which cause the motor-pneumatics to act; vent-valves for the primary pneumatics, and lever-arms extending from the motor-pneumatics and from the vent-valves respectively; a pivoted coupler-board; rock-shafts mounted obliquely thereon having lever-arms at their opposite ends adapted to cooperate respectively with the lever-arms of the motor-pneumatics and with those of the vent-valves of the octave-distant primary pneumatics, the coupler-board pivot being so located that at one position of the board the rock-shaft lever-arms at one end will be encountered and actuated by the motor-pneumatic lever-arms, and those at the other end will encounter and actuate the vent-valve lever-arms, and at another position said rock-shaft lever-arms at one end shall be out of operative relation to the lever-arms of the cooperating part.

2. In a pneumatic organ in combination with the horizontally-located motor-pneumatics and the board X upon the under side of which they are mounted; the primary pneumatics having vent-valves K ; a coupler-board mounted upon the upper side of the board X ; and the rock-shafts mounted obliquely thereon having lever-arms at their opposite ends respectively, one octave distance apart; the motor-pneumatics having the lever-arms D^a and the vent-valves having the lever-arms K^a in position to cooperate with the front and rear rock-shaft arms respectively; the coupler-board being pivoted at one edge and provided with stop connections for tilting it on its pivot, to carry the lever-arms at one end of the rock-shafts into and out of operative relation with the lever-arms of their respective cooperating parts.

In testimony whereof I have hereto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 23d day of July, 1897.

MELVILLE CLARK.

Witnesses:

CHAS. S. BURTON,
E. T. WRAY.