B. DUFNER.

Organs, &c.

No. 168,561. Patented Oct. 11, 1875.

Fig. 1.

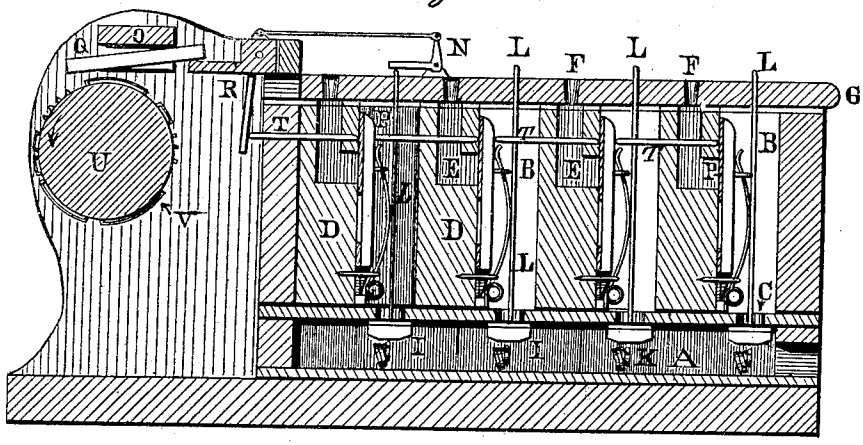
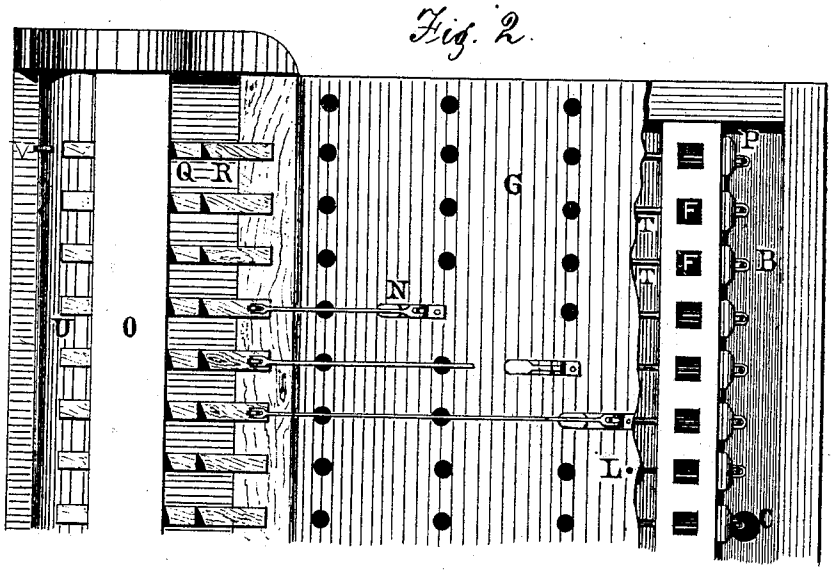


Fig. 2.



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BERNHARD DUFNER, OF BUFFALO, NEW YORK.

IMPROVEMENT IN ORGANS, &c.

Specification forming part of Letters Patent No. **168,561**, dated October 11, 1875; application filed August 26, 1875.

To all whom it may concern:

Be it known that I, BERNHARD DUFNER, of Buffalo, in the county of Erie and State of New York, have invented certain Improvements on Wind Instruments, such as Organs, Melodeons, or Orchestrions; and I do hereby declare that the following is a full, clear, and exact description of the same, having reference to the accompanying drawing, making a part of this specification, and illustrating my invention more fully.

In the same, Figure 1 is a longitudinal sectional elevation, and Fig. 2 a plan, of that part of the instrument above referred to to which my invention relates.

Like letters of reference indicate similar parts in the figures.

My invention is designed to overcome the obstacles and drawbacks experienced in the operation of the register-slides of organs as commonly constructed. These slides are usually made with openings registering with the pipe-openings to supply a stop or number of pipes pertaining to one stop with the necessary wind, and they are moved to connect and disconnect a particular set of pipes with the instrument. These slides are made of wood, and from the nature of that material are open to the objection that, in a moist atmosphere, they will swell and operate with difficulty, while in warm weather or in hot climates they shrink and allow considerable waste of wind. In fact they are influenced by the ever-varying climatic changes, constantly out of order, or at least not in what may be termed perfect working order.

To overcome these objections and obstacles I construct the wind-chest of an organ or orchestrion and the like with a number of auxiliary wind-chests corresponding with the number of stops required in the instrument, and provide each with a full set of valves for all the pipes belonging to one stop. These chests are arranged upon one plane, and all the valves in the alternate chests belonging to the same key are coupled together so as to operate simultaneously whenever acted upon by the proper key upon the key-board. Each of the auxiliary chests is provided with a supply-opening closed by a valve opening into the main chest, and operated from the outside of the instrument either by keys from the key-frame, as in automatic or self-playing instruments, or by pulls, as in organs or melodeons. These valves admit the wind into the auxiliary wind-chests, and the pipes pertaining to these chests will sound whenever the pipe-valves are opened. The various valves in the main chest may be coupled, if desired. The arrangement of the stop-valves discards the usual slides altogether, and is from its nature and construction free from the objections to which the slides are liable. The pipe-valves are placed vertically behind the partitions containing the wind-passages, and each set is pushed open simultaneously, as fully illustrated in the accompanying drawings.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I shall proceed to describe its particulars of construction.

A is the main wind-chest, and supplied with the compressed air from bellows in the usual manner. B are a series of auxiliary chests placed over the main chest A, and connected therewith by passages C. The chests B are produced by a number of partitions, D, having wind-passages E leading to the pipes inserted into the pipe-sockets F in the cover G of the instrument. The passages C are each provided with a valve, I, opening into the main chest and provided with springs K to keep them in proper position. These valves serve to open connection between the main and auxiliary chests, and are operated upon either automatically from the key-frame O by levers or rods N acting upon the valve-rods L, or by pulls and proper connections with the said valve-rods L similar to those of organs and melodeons with the sliding register. P are the pipe-valves placed vertically into the auxiliary chests B behind the partitions D, and they are connected with their proper key Q by the bell-crank levers R and the rods T. These pipe-valves are fitted with springs similar to those of the stop-valves in the main chest. Other mechanism, as that described to operate the pipe-valves, may be substituted in different instruments to open the valves P by the rods T from the key-board according to the nature of the instrument, the mechanism, as described, being for an orchestrion or auto-

matically-playing instrument, wherein the keys are lifted by the pins V in the revolving cylinder U.

It will be observed that all the pipe-valves P in the series of auxiliary chests B belonging to the same key or being, as it were, of the same pitch, operate together whenever the proper key is actuated, but none of the pipes whose valves are open can sound, although the main chest be full of wind, unless the chest-valve or valves I are opened to supply the respective auxiliary chest or chests with the necessary wind. Thus, it will be seen, the pipe-valves P and chest-valves I operate independent of each other, although they at times work in unison, there being separate keys for the pipe-valves, and keys or pulls for the chest-valves.

The whole chest, with its appurtenants, is so constructed as to be easily dissected for repair or other purposes, and climatic changes have but little if any influence upon the proper action of the mechanism.

Having thus described my invention, I desire to secure to me by Letters Paent—

1. The combination, with the auxiliary chests B, each provided with a full set or stop of pipes, of the chest-valves I, arranged to be operated substantially as described, whereby any one or more set or sets of stops may be engaged or disengaged at pleasure, for the object specified.

2. The combination, with the auxiliary chests B, of the partitions D, having wind-passages E, and the vertically-pivoted pipe-valves P, operated by the rods T, in the manner substantially as described, for the object specified.

3. The combination, with the main chest A, of the auxiliary chests B, partitions D, provided with the wind-passages E, valves I and P, all arranged as set forth, and a suitable operating mechanism, substantially as described.

BERNHARD DUFNER.

Witnesses:
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