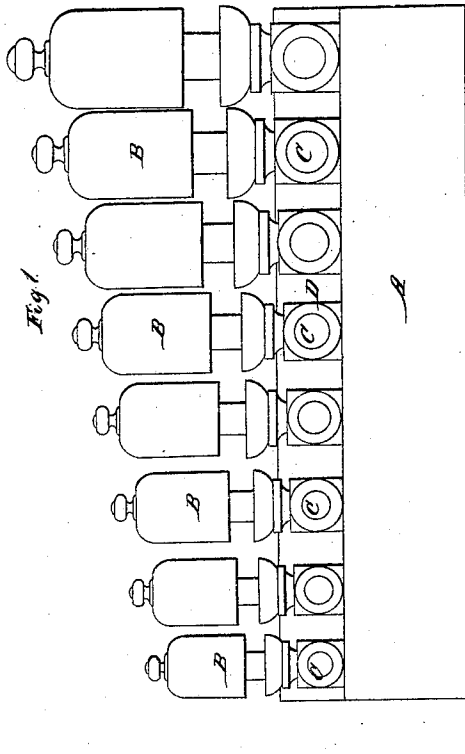
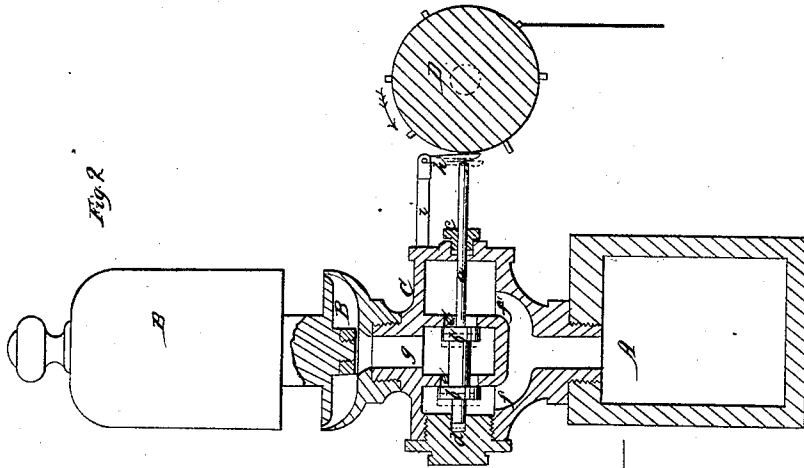


J. C. Stoddard,

Musical Instrument.

N^o 13668.

Patented Oct. 9 1855.



UNITED STATES PATENT OFFICE.

J. C. STODDARD, OF WORCESTER, MASSACHUSETTS.

APPARATUS FOR PRODUCING MUSIC BY STEAM OR COMPRESSED AIR.

Specification of Letters Patent No. 13,668, dated October 9, 1855.

To all whom it may concern:

Be it known that I, J. C. STODDARD, of the city and county of Worcester and State of Massachusetts, have invented a New Musical Instrument to be Played by the Agency of Steam or Highly-Compressed Air; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is an elevation of the instrument, and Fig. 2, a transverse section on a larger scale than Fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

This instrument consists of a number of steam whistles of proper relative size to produce any desired musical scale, arranged in any convenient manner and provided with separate valves by the opening of which they are caused to receive steam or air from any suitable pipe chamber or generator the said valves being opened for the steam or air to escape to the whistles, by finger keys or by the revolution of a studded barrel or by any other suitable mechanical means. One important feature of this instrument is the peculiar kind of valve I employ for the escape of the steam or air.

To enable those skilled in the art to which my invention appertains to make and use the same, I will proceed to describe its construction and operation.

A, is a steam chest supposed to be constantly supplied from a boiler, and having attached to the top of it a set of whistles B, B, which are arranged side by side in regular order according to their musical sound which is regulated by the size or thickness of the bell or size of the escape opening around the bell. These whistles being of the kind commonly used singly on locomotive and other steam boilers for signals, alarms, etc., need no particular description. The valves are placed in valve boxes C, C, between the whistles and the steam chests, with their stems, *a*, protruding from the said boxes to enable the valves to be opened by the keys, the studs of the barrel or by the other means provided for that purpose. I have for the sake of illustration shown a studded barrel D, as that will be the means most likely to be adapted as it is supposed the instrument will gen-

erally be used upon steam boats, steamships or locomotives, and that means of playing will obviate the necessity of employing a musician and enable it to be set in operation by the engineer or other person commonly employed. The barrel may be rotated by a band or other gearing from the engine, and then will only require to be thrown in gear for playing, or it may be rotated by hand by the aid of a crank.

The valve I employ which is shown in Fig. 2, is of the kind known as the puppet valve, and has two puppets *b*, *b*. It is arranged horizontally and its stem *a*, passes through one end only of the valve box, where a stuffing box *c*, is employed to keep it steam tight, and it is opened by pressing the protruding end of its stem inward. The other end of the stem works in a guide *d*, and is exposed to the pressure of the steam, both while the valve is open and closed the said pressure tending to close it. The puppets are slightly unequal in size, the puppet *b'*, which is nearest the protruding end of the stem being a trifle smaller than the other puppet *b* and the openings in their two seats *e*, and *e'*, having a corresponding difference in size. The steam is admitted by two inlets *f*, *f'*, to the ends of the steam chest, and escapes to the whistle by a single outlet *g*, between the two puppets. The studded barrel acts upon the protruding end of the valve stem to open the valve by the studs wiping in a downward direction against a hinged finger *h*, which is attached to an arm *i*, secured to the valve box above the valve stem. When the valve is closed the pressure of the steam tends to keep it tight not only by its action upon the valve stem in consequence of one end thereof being exposed to the atmosphere but by reason of the area of the puppet *b*, and opening *e*, being greater than that of the puppet *b'*, and opening *e'*, but as soon as the valve is moved from its seat both puppets are balanced by being exposed on both sides to the steam and the pressure acts only on the stem. So that in starting the valve to open it; greater force is required than is required to complete the opening as far as is necessary. The valve only remains open while a stud of the barrel is passing the finger, and as soon as the stud has passed it is closed instantaneously by the pressure of steam on the stem. By making the valve with two puppets I am enabled to have it balanced as nearly as practicable

only having pressure enough to close it and keep it closed. I find by experiment that it is advisable to have the puppets of unequal size as described, as a greater pressure is required to keep the valve tight when closed, than is required to close it, and by having too much pressure on the valve when open it would slam in closing; and in playing with finger keys this relieving of the valves of a portion of the pressure as soon as started, will greatly ease the player.

Having thus described my invention, I will proceed to state what I claim and desire to secure by Letters Patent:

1. I claim the musical instrument herein described consisting of a number of what are commonly known as steam whistles of

such tones as to produce a musical scale arranged in a convenient manner upon a steam chest, chamber pipe or generator, and furnished with valves and a rotating studded barrel, finger keys or other suitable mechanical means of opening the said valves to allow the escape of steam or air to the whistles substantially as herein set forth.

2. As a part of the said musical instrument, I claim the within described valve with its two puppets and seats of unequal size and with one end of its stem exposed to the atmosphere.

J. C. STODDARD.

Witnesses:

JONATHAN DAY,
LEVI JACKSON.