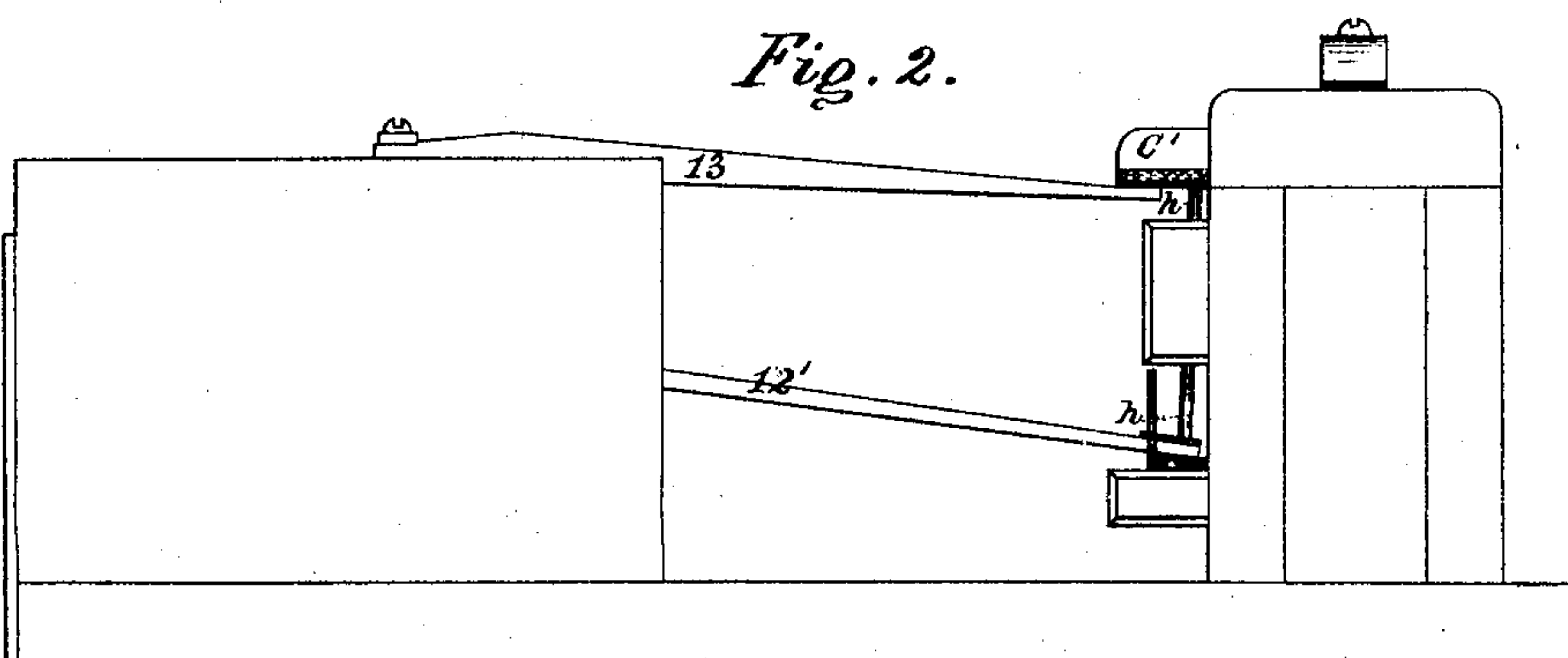
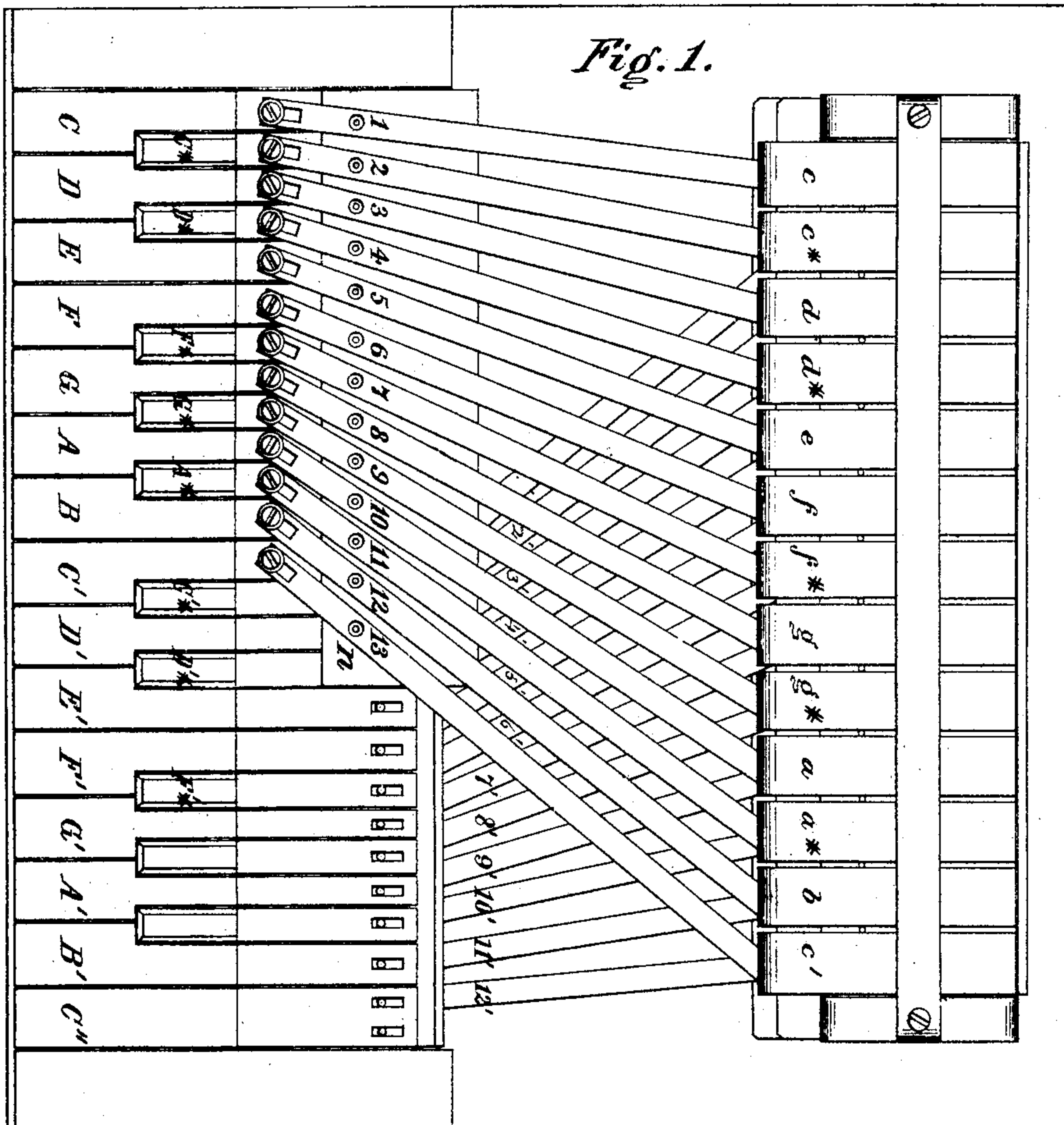


*G. W. Woodruff,*

*Reed Organ.*

*No. 113714.*

*Patented Apr. 11. 1871.*



*Witnesses.*

*William D. Gellette*

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*Inventor.*

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attys.*

# United States Patent Office.

GEORGE W. WOODRUFF, OF HARTFORD, CONNECTICUT, ASSIGNOR TO JOHN FARRIS, OF SAME PLACE.

Letters Patent No. 113,714, dated April 11, 1871.

## IMPROVEMENT IN REED-ORGANS.

The Schedule referred to in these Letters Patent and making part of the same.

I, GEORGE W. WOODRUFF, of Hartford, in the county of Hartford and State of Connecticut, have invented certain Improvements in Organs, of which the following is a specification.

### *Nature and Objects of the Invention.*

My invention consists in extending the register of the sub-bass of an organ by using two sets of connecting-levers for opening the valves, so that the valve for any note in the sub-bass can be opened by pressing down either the ordinary lower key or its octave above.

The object of my invention is to enable the performer to play the sub-bass an octave higher or lower on the key-board, as may be desired.

### *Description of the Accompanying Drawing.*

Figure 1 shows a top view of my invention.

Figure 2 is an end view of fig. 1.

C, C sharp, D, D sharp, E, F, F sharp, G, G sharp, A, A sharp, B, C' C' sharp, &c., to C'' are the keys of the instrument.

c, c sharp, d, d sharp, e, f, f sharp, g, g sharp, a, a sharp, b, c' are the valves for opening the corresponding notes of the sub-bass.

1 to 13 are the levers connecting the lower octave of the key-board with the valves; and

1' to 12' are the levers connecting the next octave above with the same valves.

h is a post or standard at the end of each of the levers 1' to 12', extending from the end of the lever to the under side of the corresponding valve.

### *General Description.*

Each of the keys from C to C' has a lever, 1 to 13,

on top, the forward end of which is depressed by pressing down the key. This raises the back end under the valve c to c', and pushes it up to open the note.

These levers rest across the bridge n, which acts as a fulcrum.

Each of the keys from C' sharp to C'' has a lever, 1' to 12', underneath for operating the same set of valves from c sharp to c'. The forward end of each of these levers is pressed down by the key, and raises the corresponding valve by means of the small connecting-post or standard h.

Thus two sets of keys, from C sharp to C' and C, sharp to C'', operate the one set of valves from c sharp to c'. The g, for instance, can be opened, and that note of the sub-bass sounded by touching either the key G or the key G', and so with the other notes of the scale.

These levers do not interfere with the usual valves placed underneath the key-board for opening the notes of the ordinary scale, as commonly arranged in reed-organs.

### *Claim.*

I claim as my invention—

The combination of one set of valves, c, c sharp, d, d sharp, &c., with two sets of keys, C, C sharp, D, D sharp, &c., and C', C' sharp, D', D' sharp, &c., on the same key-board, by means of the two sets of levers 1 to 13 and 1' to 12', substantially as described.

GEORGE W. WOODRUFF.

Witnesses:

THEO. G. ELLIS,  
WM. E. SIMONDS.