H. W. Smith,

Coupler for Organs, &c.,

No. 13,048. Patented June 12, 1855.

Fig. 2.

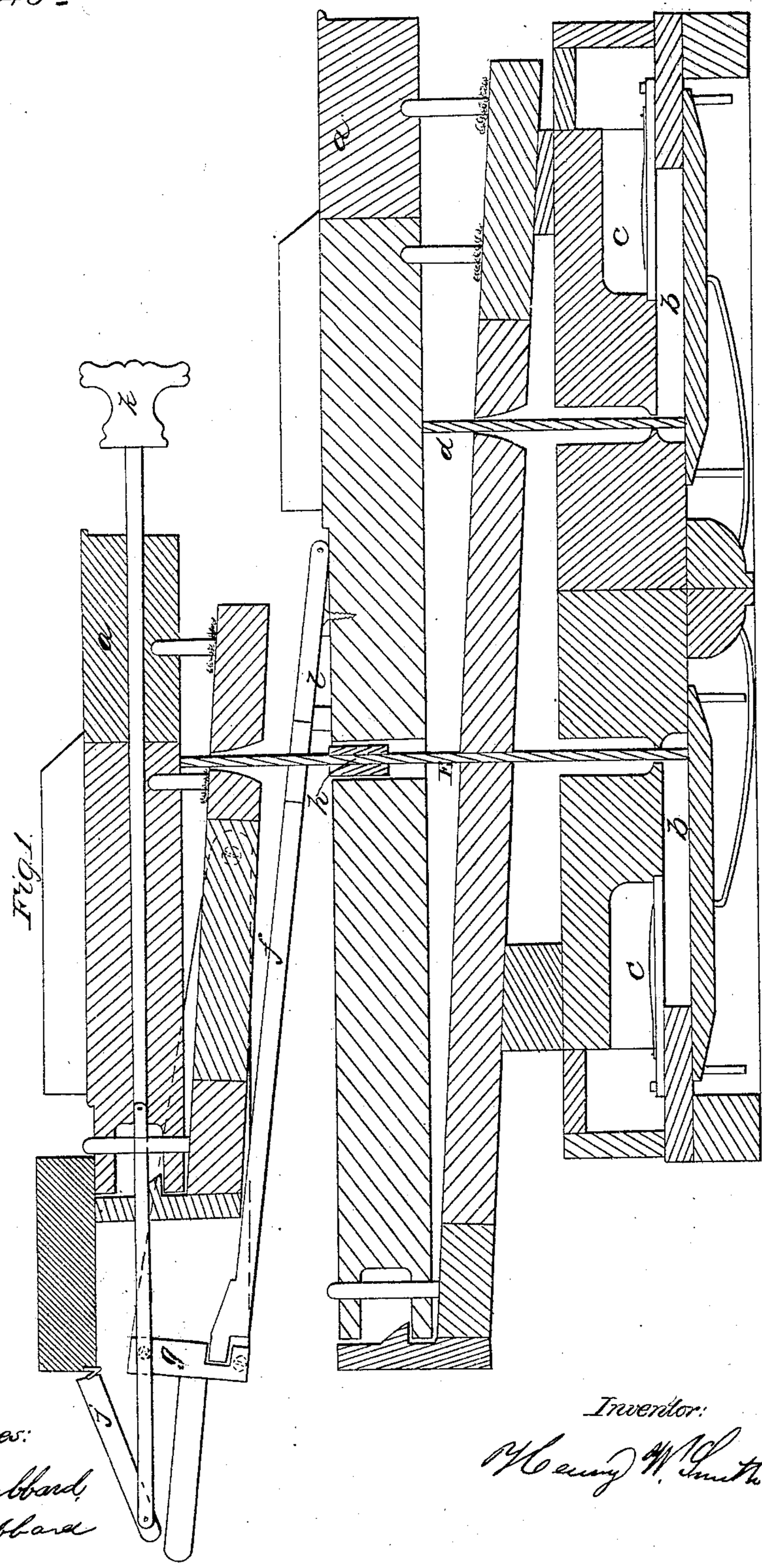

Fig. 1.

Witnesses:

Chs. H. Hubbard

Anson Hubbard

Inventor:

Henry W. Smith

UNITED STATES PATENT OFFICE.

HENRY W. SMITH, OF BOSTON, MASSACHUSETTS.

COUPLING FOR ORGANS AND MELODEONS.

Specification of Letters Patent No. 13,048, dated June 12, 1855.

To all whom it may concern:

Be it known that I, HENRY W. SMITH, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented a new and useful Improvement in the Mode of Coupling Two or More Banks of Keys in Organs and Reed Instruments; and I do declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawing, which makes a part of this specification.

The drawing represents a cross section of the action of a melodeon, where there is a combination of two sets of reeds with two sets of keys, when they are combined with two sets of valves.

The instrument is constructed in the usual way, "*a*" "*a*" representing the two banks of keys one above the other; "*b*" "*b*" represent the two sets of valves; and "*c*" "*c*" represent the two sets of reeds, and "*d*" and "*e*" represent the two sets of valve rods.

My coupling apparatus is represented in that part of the drawing included in red lines.

The bar of wood or lever, marked "*f*" is about eight inches in length, one half an inch in breadth, and from one eighth to one fourth of an inch in thickness. It may be made of metal or other firm material, but wood is preferable. The dimensions of the lever, especially the length will depend somewhat upon the size of the instrument. One end of the lever is permanently attached with a hinge to the upper surface of a key on the lower bank of keys, and extends to the back part of the action between the two banks of keys and terminates in the rail marked "*g*" which is hereinafter described. An aperture is made in the lever, usually about two inches from the end fastened to the key; an oblong form I think the most desirable for this aperture, through which the valve-rod "*e*" passes. The aperture must be of sufficient size to admit the valve rod to pass through it with ease when the end of the lever terminating in the rail is elevated or depressed; but not of sufficient size to admit the shoulder on the valve rod marked "*h*", which is hereinafter described.

Figure number 2 on the drawing represents the upper surface of the lever with the aperture, and the hinge in the end.

There are as many levers as keys in the key board. One end of each lever is fastened to the upper surface of each key in the lower bank of keys, and terminates in the rail as above described.

The rail is a strip of wood extending the whole length of the key board between the back ends of the two banks of keys. It is about one half an inch in thickness, and one and one fourth of an inch in width. It may be made of metal or other substance; and its width and thickness may be varied. On one side of this rail I sink a groove about one eighth of an inch in width and depth, and extending the whole length of the rail. This groove is a little below the center of the rail. The back ends of the levers terminate in the groove in the rail. The rail is attached to the instrument by the arms hereinafter described; and its position being between the action and the case, it may be elevated and depressed as hereinafter described. On the back side of the rail I attach a strip of wood or other material which extends the whole length of the rail. This strip of wood is about one fourth of an inch in thickness, and one inch and one half in width; it need extend only a short distance from the end of the rail where the coupling rod or stop is fastened as hereinafter described. This strip of wood makes a right angle with, and forms a part of the rail.

Letter "*g*" in the drawing represents one end of the rail with the strip of wood attached; also the end of the lever "*f*" terminating in the rail. I attach an arm to each end of the rail, about five inches in length; the opposite ends are fastened with screws to the key frame, upon which they move, allowing the rail to rise and fall; these arms are represented by the red dotted lines on the drawing. When the rail is elevated or depressed the back ends of all the levers move in the same direction, while the ends fastened to the keys remain almost stationary.

I attach with a hinge near the top of the back part of the action, on the end where the coupling rod is adjusted, an arm about one inch and one half in width; the end of the arm opposite the hinge rests upon the upper surface of the strip of wood fastened to the end of the rail at nearly the remotest point from the rail. The coupling rod "*k*" is fastened to the outside of this arm with a screw. This arm and the coupling rod attached are represented on the plan at letters

"*i*" and "*k*." When the coupling rod is pulled toward the performer, the end of the arm which rests upon the rail is pulled toward the action and forces down the rail and all the levers until they rest upon the surface of the keys. When the coupling rod is pushed toward the action the end of the arm is elevated, and the pressure being removed the rail is carried up by a set of springs, which are placed under the levers, one of which is represented in the drawing at letter "*l*." These springs may be made of wire or any other material. The arm then throws down the ends of levers, and the springs elevate them when the pressure from the arm is removed. One spring placed under the rail will operate to elevate the rail as well as a series of springs.

The valve rod marked "*e*" is made in the usual form, with the exception hereinafter stated. It passes through an opening in the lower bank of keys in the usual way. On this valve rod I make a shoulder, which is merely an enlargement of the diameter of the rod for about one fourth of an inch in length. The shoulder is represented on the plan at the letter "*h*". When the instrument is at rest the top of the shoulder is on a line with the upper surface of the lower bank of keys. When a key on the lower bank is depressed the shoulder will rise above the surface of the key if the coupling apparatus is not adjusted. If the coupling rod be pulled out and the levers are forced down on a line with the lower bank of keys, and the key of the lower bank be then depressed, both sets of valves must be opened, because the shoulder "*h*" on the valve rod is larger in diameter than the aperture in the lever through which the small part of the rod passes, as above described. In this way I am able to couple both banks of keys in such a manner that the lower bank will play both sets of reeds.

The coupling apparatus may be used in instruments where any number of banks of keys are combined with an equal number of sets of valves and reeds or pipes, by merely adding the shoulder to each set of valve rods, in the manner above described.

The same lever may be used to couple any number of banks of keys. This coupling apparatus may be used in organs.

The coupler may be adjusted while the performer is playing upon the lower bank of keys without any pause or interruption in the harmony of the instrument. If several keys be depressed in the act of playing, and the coupler be applied, it merely operates to open the back set of valves, and the advantage in my improvement consists in the simplicity of the arrangement, and the perfect manner in which the object sought is accomplished.

What I claim as my improvement, and for which I desire to secure Letters Patent, is—

The combination of the lever with the shoulder on the valve rod, operating in the manner and for the purpose described.

HENRY W. SMITH.

Witnesses:

SAML. D. SMITH,

GEO. H. RAND.