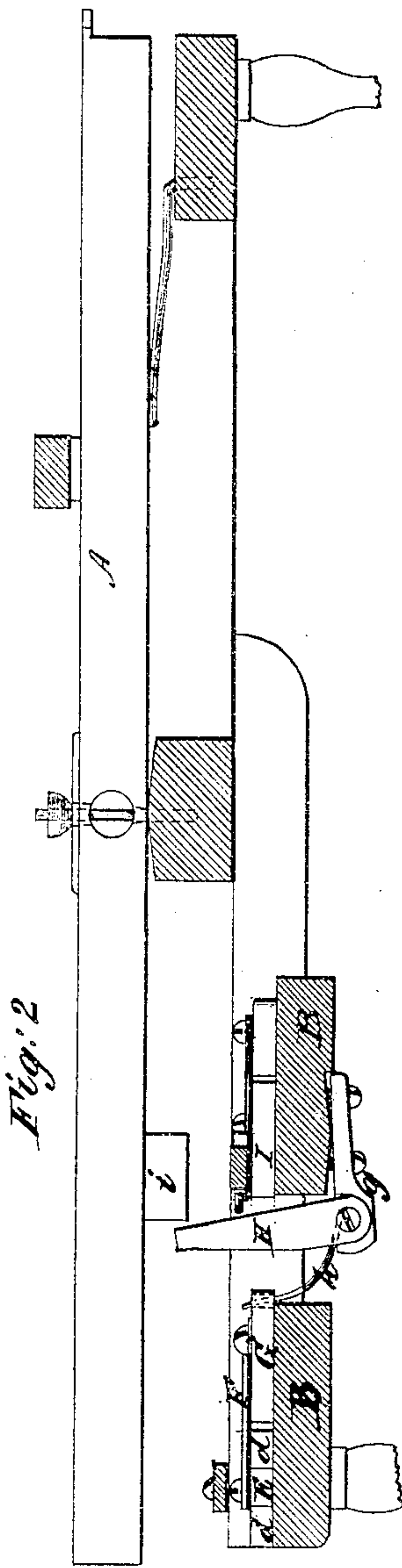
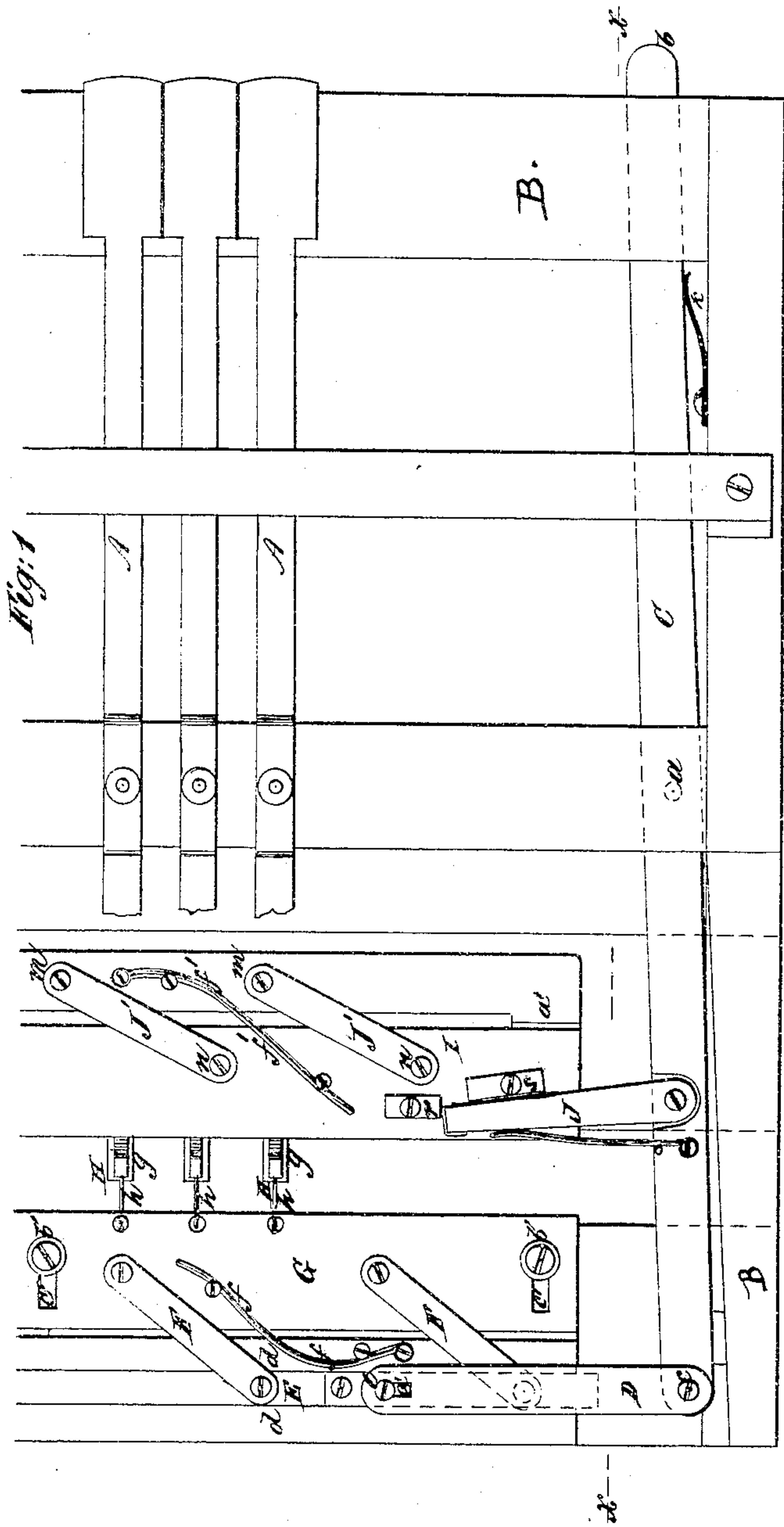


A. FOWLER.

Improvement in Devices for Holding Down Organ-Keys.

No. 131,090.

Patented Sep. 3, 1872.



Witnesses:  
Michael Ryan  
Fred Hayner

A. Fowler  
by his attorneys  
Bennett & Allen

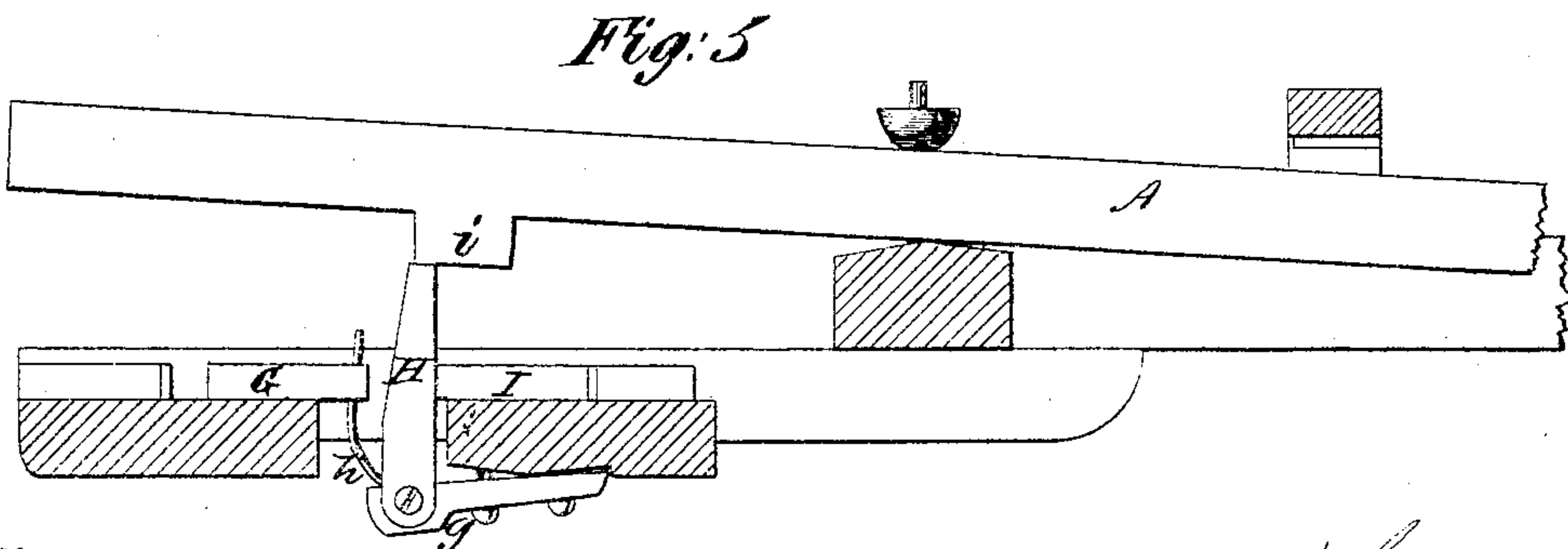
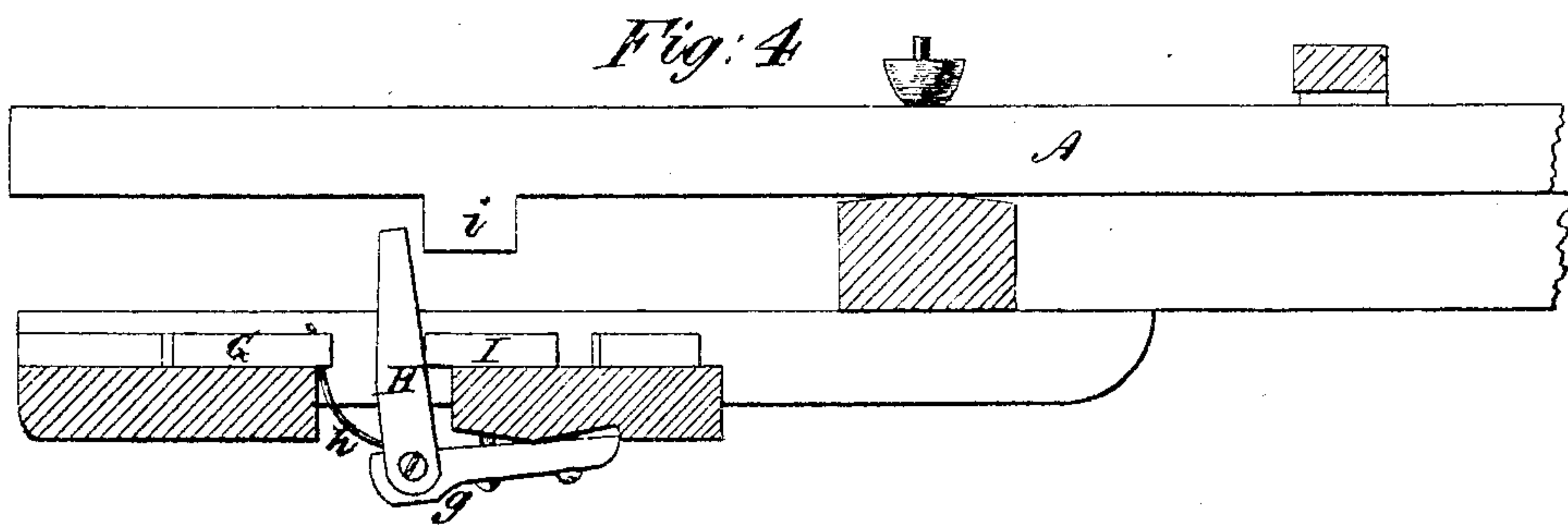
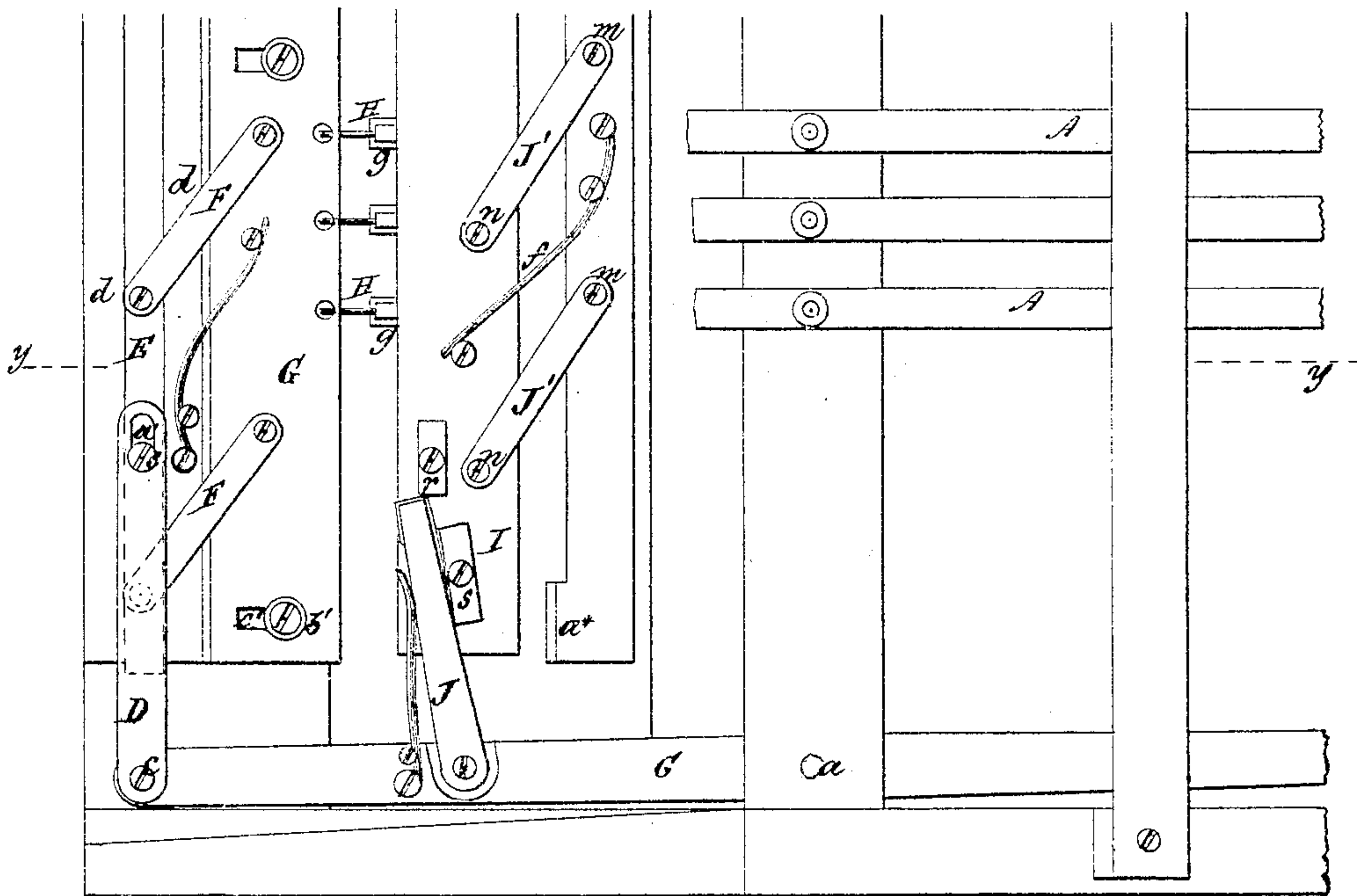
A. FOWLER.

### Improvement in Devices for Holding Down Organ-Keys.

No. 131,090.

*Fig: 3*

Patented Sep. 3, 1872.



Witnesses  
Michael Ryan  
Fred Haynes

Agnes Fowler



# UNITED STATES PATENT OFFICE.

AZRO FOWLER, OF MOUNT VERNON, ASSIGNOR TO E. P. NEEDHAM & SON,  
OF NEW YORK, N. Y.

## IMPROVEMENT IN DEVICES FOR HOLDING DOWN ORGAN-KEYS.

Specification forming part of Letters Patent No. **131,090**, dated September 3, 1872.

Specification describing certain Improvements in Wind Musical Instruments having Key-Boards, invented by AZRO FOWLER, of Mount Vernon, in the county of Westchester and State of New York.

This invention is applicable to all wind instruments, such as pipe-organs, reed-organs, harmoniums, melodeons, &c., having key-boards; and its object is to enable the tone or tones resulting from the action of one or more keys to be prolonged to any desired extent beyond the time during which the fingers of the performer exert pressure thereon. The invention consists in certain novel means whereby one or more of the valves for the purpose specified may be kept open for any desired time after being relieved from the pressure of the performer's fingers; also, whereby the valves thus opened may be closed singly to resume their normal position after the due prolongation of the tone, without interference with others of the valves similarly held open, and this by a simple pressure of the fingers upon the key itself; also, whereby the open valves, whatever their number, may be simultaneously closed without any direction upon the keys by the hands or fingers of the performer.

Figure 1 is a plan view of part of a wind instrument of the organ class, constructed according to my invention, certain parts being indicated as broken away to better show the arrangement of other portions. Fig. 2 is a vertical longitudinal section of the same taken in the line *xx* of Fig. 1. Fig. 3 is a plan view corresponding to Fig. 1, but showing the parts in a different position. Figs. 4 and 5 are vertical longitudinal sectional views taken in the line *yy* of Fig. 3, and showing, in different positions, certain portions of the apparatus.

A are the keys, arranged upon the key-board in the usual manner, and connected in any ordinary or appropriate way with the valves of the instrument. At one side of the frame B is a lever, C, pivoted at *a* and capable of a horizontal movement. The forward end *b* of this lever is in such a position as to be easily operated by the hand or otherwise of the performer, and its opposite extremity is pivoted at *c* to a rod, D, connecting with a

transverse slide, E, by a pin, *e*, passing through a slot, *a'*, in the end of the rod. The slide E moves in suitable guides *d*, and is connected by pivoted radius bars F with the moving block G, the movement of which is at right angles to that of the slide and controlled by pins *b'* working through the slots *c'* in the block. At *f* is a spring, so applied as to press the block G back toward the slide E. Pivoted in bearings *g* fixed to the frame B are dogs H, to which are attached springs *h*, with their upper or free ends bearing back against the block G, being passed through holes at the front thereof. The upper ends of these dogs, when the keys are in their normal position are situated behind rectangular studs or projections *i* formed on the under sides of the inner or rear portions of the keys, as shown in Figs. 2, 4, and 5. When the lever C is moved laterally to move inward the slide E, the latter, acting through the radius bars F, forces forward the block G against the springs *h* of the dogs H, and, compressing the said springs, causes them to exert an elastic forward pressure upon the dogs. Consequently, when the rear end of any key is lifted by the depression of its forward extremity, the dog H, arranged with reference thereto, is forced forward under the rectangular projection *i* of such key, and, consequently, prevents the return of the key to its original position, when its forward end is relieved from pressure. On relieving the lever C from the force inducing its previously-indicated lateral movement it is returned to its original position by a spring, *k*, which, by reversing the movement of the slide E, remits the forward pressure on the springs *h*, and drawing back on such springs reverses the direction of their pressure, thereby withdrawing all the dogs except that engaged in holding the valve open, as previously explained, from underneath studs *i*, adjacent to each respectively. The strength and elasticity of each spring are such that, when the dog to which it is connected is engaged under the stud *i* in front of it, the friction of the stud will be sufficient to prevent the return of the dog by the reverse action of the spring until either the rear of the key be lifted by further depression of its forward end, or a positive force is applied



to the dog, as herein presently explained, to push it out from under the stud. By this means the tone resulting from the action of any key may be prolonged for any length of time desired after the pressure of the performer's fingers upon it has been removed; and may be stopped when desired by a second downward pressure upon the key, which, sufficient play being allowed the latter, causes the rear end to be lifted clear of the dog, which, relieved from the frictional contact of the stud *i*, is brought back by its spring *h*, and thus allows the return of the key to its normal or original position. By retaining the lever *C* in such position as to keep the block *G* pushed forward, as hereinbefore explained, any desired number of the keys may be locked in position to prolong the several tones. To provide for the simultaneous release of a number of keys so locked, provision is made as follows: Arranged in front of the dogs *H*, and below the keys, is a sliding bar, *I*, limited in its forward movement by stops *a*, connected with fixed pivots *m* by radius-arms *J'*, pivoted to it at *n*, in such manner that an endwise movement given to such bar *I* will move it back against the dogs *H*. Upon this bar *I* is a shoulder, *r*, and a check-stud, *s*. Against the former bears the end and against the latter the side of a spring-pawl, *J*, attached to the lever *C*, as shown in Figs. 1 and 3. When the lever *C* is actuated to throw inward the slide *G*, the slot *a'* on the rod *D* permits a limited movement of the lever before the slide is acted upon. During the interval thus afforded the inward movement of the pawl *J*, the pawl, acting on the shoulder *r*, forces the sliding bar inward and, through the operation of its radius-arms *J'*, backward until it comes in contact with the dogs *H*, and pushes such of them as may be under studs *i'* out and away therefrom, to permit the return to their normal position of the keys on which the several studs are provided. This done, the continued movement of the sliding bar *I* brings the check-stud *s* against the pawl in such wise as to push it out of contact with the shoulder *r*. Thus relieved, the sliding bar is brought back to its original position by a spring, *f'*, while the lever *C* is further actuated to operate the slide

*E*, as and for the purpose hereinbefore fully explained.

By these means the tone or tones resulting from the operation of one or more of the keys of a wind instrument provided with a keyboard, may be prolonged to any desired extent either singly or collectively, and such prolongation, of either one or more, may be caused to cease at the will of the operator, the whole apparatus being of simple and durable construction and capable of easy management or manipulation; whereas, of the other devices devised for a somewhat analogous purpose, a *basso tenuto*, so termed, and another a French invention, the former permits but one key in an octave to be depressed at a time, such key being released by touching another key of the same octave, while the latter has catches or hooks attached to each key—an arrangement found to be extremely liable to get out of order and become practically inoperative.

What I claim as my invention is—

1. The dogs *H*, actuated by power applied through the springs *h*, in combination with the keys *A*, substantially as herein set forth, for the purpose specified.

2. The combination of the lever *C*, slide *E*, block *G*, and radius-bars *F*, with the springs *h*, dogs *H*, and keys *A*, substantially as herein set forth, for the purpose specified.

3. The combination of the sliding piece *I*, having a movement to and from the dogs *H*, in combination with the said dogs and the keys *A*, substantially as and for the purpose herein set forth.

4. The combination of the lever *C* having the spring-pawl *J*, the sliding piece *I* working on radius-arms *J'* and furnished with the shoulder *r*, and the check-stud *s*, with the dogs *H* and keys *A*, substantially as and for the purpose herein set forth.

5. The combination of the block *G*, the springs *h*, dogs *H*, sliding piece *I*, and keys *A*, substantially as herein set forth.

AZRO FOWLER.

Witnesses:

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