(No Model.)

J. LLOYD, Jr.

KEY COUPLER FOR ORGANS.

No. 479,434. Patented July 26, 1892.

Fig. 1.

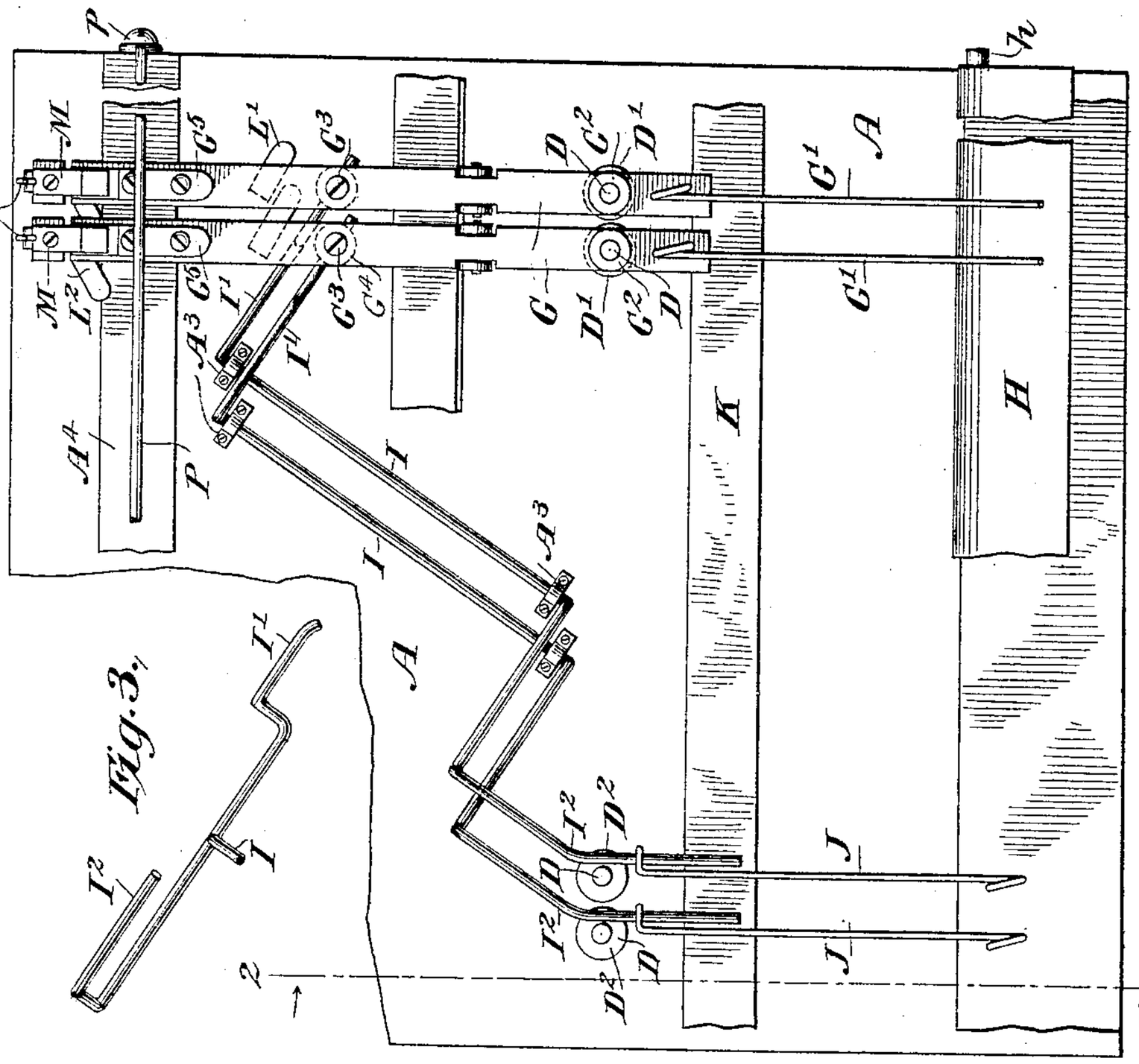
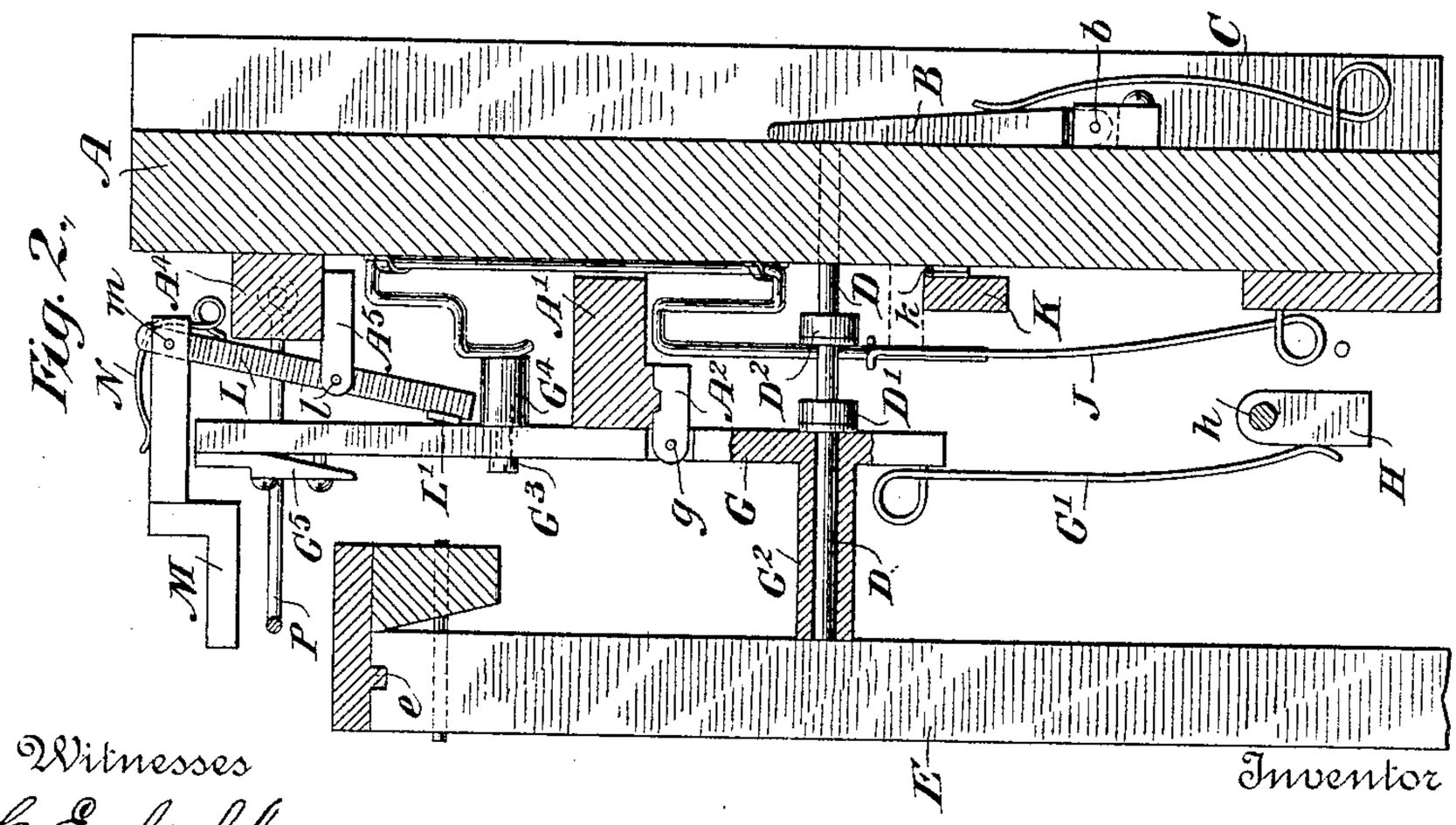


Fig. 3.

Fig. 2.



Witnesses
C. E. Ashley
H. W. Lloyd.

Inventor
John Lloyd Jr

UNITED STATES PATENT OFFICE.

JOHN LLOYD, JR., OF RED BANK, NEW JERSEY.

KEY-COUPLER FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 479,434, dated July 26, 1892.

Application filed November 14, 1891. Serial No. 411,918. (No model.)

To all whom it may concern:

Be it known that I, JOHN LLOYD, Jr., a citizen of the United States, residing at Red Bank, Monmouth county, in the State of New Jersey, have invented a certain new and useful Improvement in Key-Couplers for Organs and Analogous Instruments, of which the following is a specification.

The improvement applies to reed or pipe instruments which are worked by keys. It is capable in one adjustment of causing the depression of each key to sound not only its proper note, but also an octave below or an octave above. In another adjustment the coupler is out of use and the depression of the keys induces only their own proper notes to speak.

My coupler is also capable of adjustment in another condition, to which I attach especial importance. It attains the end, the importance of which has been long appreciated by musicians and which is ordinarily attained in playing with pedal-keys, of allowing any two or other number of bass-notes to be depressed simultaneously, each giving its proper sound, with the ordinary effect of playing such chords, and causing the octave of only the lowermost to be sounded.

There are objections in the nature of music, well recognized in the theory of sounds, to producing the octaves of all of such notes simultaneously. The ear is pleased with a single chord of thirds and fifths; but if the octave of each is sounded the ear is offended. It adds brilliancy, force, and power to the instrument to sound the octave of the lowermost of any number of bass-keys that are depressed simultaneously and the uppermost of any number of treble-keys that are depressed simultaneously, leaving the others to sound singly in the ordinary way. My instrument can be adjusted to attain this. In the ordinary use of my instrument it will be so adjusted. For example, the player may depress the keys for "C," "E," and "G," and the octave of the lowest key, sometimes designated "C" "C," one octave below "C," will sound; but "E" "E" and "G" "G" will not sound. A few moments later the player plays another chord, depressing "D" and "A," and simultaneously therewith the instrument gives "D" "D," but does not give "A" "A."

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention as applied to the bass-notes.

Figure 1 is a plan view showing the novel parts with the key-levers and other upper portions of the instrument removed. This figure shows the work for only two keys and their octaves. All the entire series for the base portion are alike. A drawing and description of two will suffice for the whole. Fig. 2 is a vertical section on the line 2 2 in Fig. 1, and Fig. 3 is a perspective view of one of my coupling-wires detached.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the reed-board; B, a valve turning on a hinge *b;* C, its actuating-spring, and D a push-pin or sticker performing its usual function of receiving the force of the key-lever E, turning on a center *e*. All these parts, as also all the parts not otherwise described or shown, may be of the ordinary form and arrangement and may perform their usual functions.

A′ is a rail supporting by flanges A^2 and pins *g* a series of levers G, which I will term "balance-levers." All are alike, and a description of one will suffice for all. The forward end of each balance-lever G is held up by a button D′ on the push-pin D, and also by a spring G′, which extends forward and rests on an adjustable support H, turning on an axis *h*, supported in the fixed framework. On the upper face of this lever is a tube G^2, which extends upward, loosely embracing the push-pin D up to the lower face of the key-lever. Working the key not only depresses the push-pin D, but also the front end of the balance-lever G, and correspondingly raises the rear end of the latter.

At a proper distance from the center on the rearward extension of each balance-lever is a regulating-screw G^3, which attaches adjustably the button G^4. When the key-lever is depressed and this balance-lever is tilted, it raises this button.

I′ I^2 is one of my wires. The portion I is straight and is held in bearings A^3 A^3, close to the upper face of the reed-board. The arm I′ is pressed upon by the button G^4. The opposite arm I^2 extends across the top of a sec-

ond button D^2, fixed at a proper level on a push-pin D an octave below the key which acts on the arm I′, and is subjected to a depressing force exerted by a spring J. The force of this spring must be sufficient to depress the valve B in opposition to the gentle force of the spring C, but must not be sufficient to equal the combined forces which ordinarily hold down the button G^4. The coupling-wires I are made of such form and dimensions and are so mounted in the instrument that the button D^2, acted on by any given arm I^2, is always an octave below that of the key which operates the button G^4, which presses on its opposite end I′. In other words, my coupling-wires extend, like other coupling-wires in instruments of this kind, always one octave. When a key-lever E is depressed, it depresses its proper push-pin D, tube G^2, and balance-lever G directly, raising regulating-button G^4, which releases arm I′ and allows spring J, which rests on arm I^2 one octave below, to depress button D^2 and push-pin D.

I can throw my whole coupling mechanism out of use by a very simple movement.

K is a hinged piece lying in the position shown and connected to the reed-board by hinges *k*. When this is in the position shown by strong lines, it is of no effect and the coupling is allowed to act; but by simply turning this piece K up into the position shown in dotted lines it holds up the entire series of arms I^2 against the force of their several springs J. With this piece K elevated the key-levers may be operated and each will sound only its proper note. None of the notes an octave below will be sounded. A third adjustment is the one to which I attach the most importance. It involves a number of additional parts, which appear in the rear of the button G^4.

A^4 is a rail supporting flanges A^5, which carry, by means of horizontal center pins *l*, short levers L, one under the rear end of each balance-lever G. The rear end of each lever L is pivoted by a horizontal pin *m* to a hook M, extending upward and pressed forward by the gentle force of a spring N and in its ordinary position reaching over the rear end of the balance-lever G. When the key-lever E is depressed and the balance-lever G is rocked, the extreme rear end of the latter acting through the rocker G^5, which may be provided with ordinary adjustments and faced with cloth, engages the hook M and lifts it. This tilts the short lever L and depresses its forward end. The parts are so arranged that the forward end of each lever L lies over the arm I′, not of its own coupling-wire I, but of the coupling-wire of the note immediately above it. The forward end of each lever L is also provided with a lateral extension or arm L′, which extends over the forward end of the lever L for the note next above. The rear end of each lever L is also provided with a lateral arm L^2, which extends across over the rear end of the lever L for the key next below. These are arranged obliquely, as indicated in Fig. 1, so that they do not interfere with each other. It follows that the depression of the forward end of any one lever L acts through its arm L′ to depress the forward end and similarly rock the corresponding lever of the note next above and that, through its arm L′ and of arm L^2 of the note next above, it acts to depress the forward end and raise the rear end of the note next above, and so on through the entire series, extending to the center line of the instrument. It will now be seen that the energy with which the player acts in playing any given note of the bass when the instrument is thus adjusted is transmitted through the key-lever E, tube G^2, balance-lever G, hook M, and lever L and holds down with sufficient firmness on the whole series of arms I′ of the notes above it, from that note to the center line of the instrument, and prevents their octaves from being sounded when any one of those keys above are simultaneously depressed. So soon as the key-lever is relieved all the parts are again restored to place. This entire series of levers L and their connections may be thrown out of action at will by forcing the several hooks M sufficiently rearward. This is done by a lever P, which extends the whole length of the series in front of the upper ends of the hooks M and is pivoted at each end at *p*. When this lever, operated by a suitable stop, (not shown,) is pressed rearward, it acts against the hooks M, pressing them so far rearward that they are out of the path of the levers G. Thus adjusted the instrument may be played and all the notes will sound their several octaves, as before described. It will be rare, if ever, that the instrument will be used in this condition. The main use of this lever P and its connections throwing the hooks M and their connections out of gear is to serve simultaneously with the elevation of the piece K to avoid working the rear parts uselessly when none of the octaves are being sounded.

In addition to other advantages my combination attains the important end of making the touch uniform whether the coupler is on or off.

Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention.

Parts of the invention can be used without the whole. I can work successfully with either of the lateral arms L′ or L^2 without the other. It is sufficient that there is a reliable connection between each lever L and the adjacent one for the next higher note, so that the depressing of any key will not only cause the sounding of the note an octave below, but will also so operate through the levers L and their connections that the couplers for all the notes above up to the center line of the instrument will be thrown out of use, so that other notes may be played in the lower register of the in-

strument in the ordinary manner without sounding their octaves.

It will be understood, as before intimated, that my invention is also applied to the upper register of the instrument, so as, when desired, to cause the several keys, in addition to their proper sound, to each produce a sound an octave higher. In such case the same provisions which I have described for preventing any note but the lowest from sounding its octave may also apply to prevent any note but the highest from sounding its octave.

I claim as my invention—

1. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, as herein specified.

2. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, in combination with a stronger spring or set of springs which, unless prevented, hold the valves closed and with coupling-wires, as I I′ I², arranged to prevent the action of such latter springs and to allow the valves to open when required, substantially as herein specified.

3. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, in combination with a stronger spring or set of springs which, unless prevented, hold the valve closed and with mechanism operated by the key-lever for relieving the valve from the control of such stronger springs and allowing it to be opened, as herein specified.

4. In a reed or pipe organ having coupling-wires arranged to allow the depression of a key to open its proper valve and also to liberate and allow to be opened a valve giving the octave thereof, provisions, as the levers L and their lateral arms L′, for holding out of action the valves on one side of the octave of the one being played, so that only the extreme lowest and highest keys shall produce their octave-sounds, as herein specified.

5. In a reed or pipe organ having coupling-wires adapted to sound the octaves of the extreme keys, the levers L and the lateral arms L′ L² thereon adapted to engage each lever L with the corresponding lever on one side thereof and to insure that the levers L on one side of the one being played shall be operated, and thus to allow the sounding of the octave of the extreme key to compel the non-sounding of the octaves of others, the key-levers of which may be depressed simultaneously, as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JOHN LLOYD, JR.

Witnesses:
CHARLES R. SEARLE,
M. F. BOYLE.