

(No Model.)

W. & E. J. KING.
ACTION FOR PIPE ORGANS.

No. 522,902.

Patented July 10, 1894.

Fig. 1.

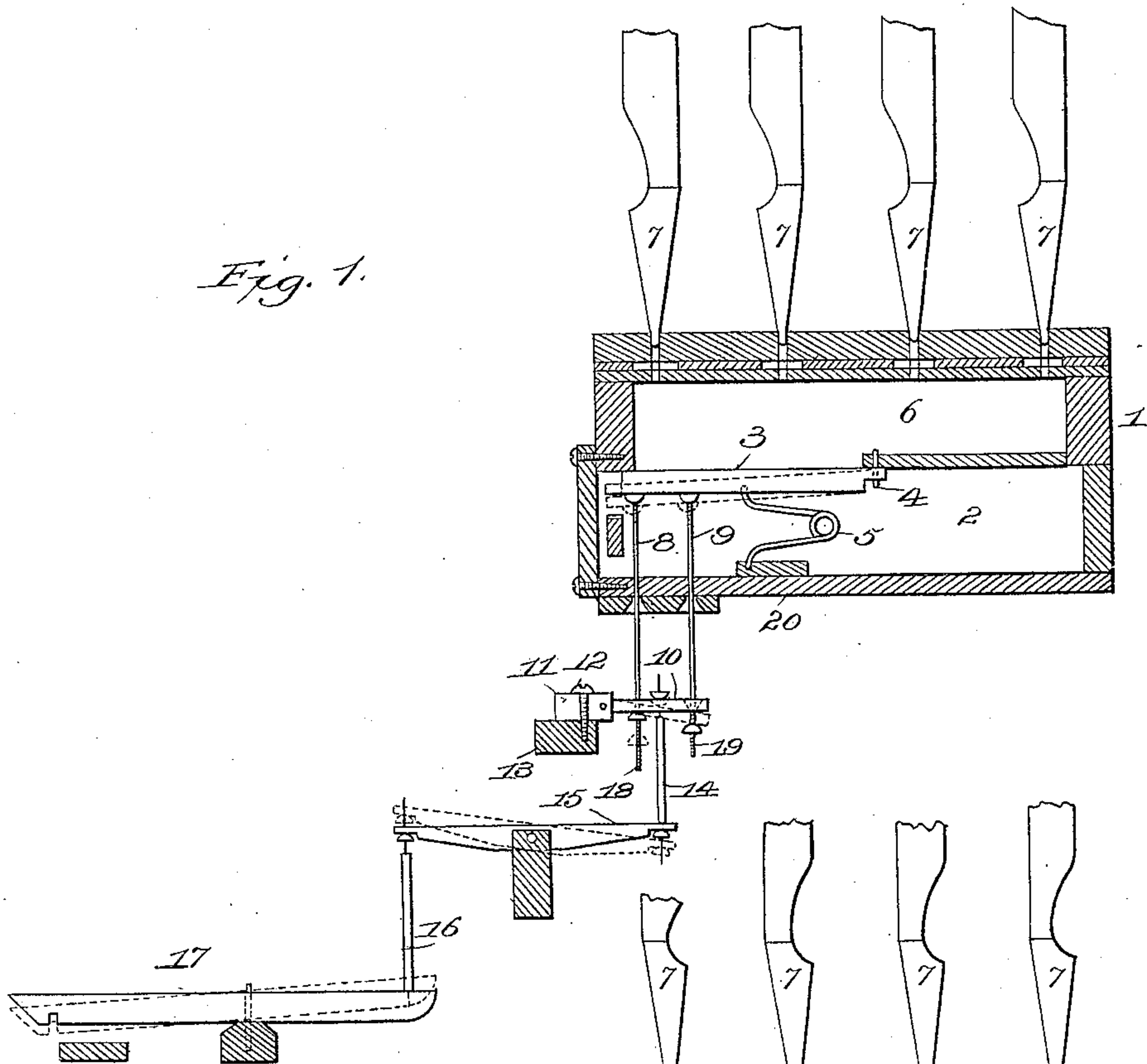
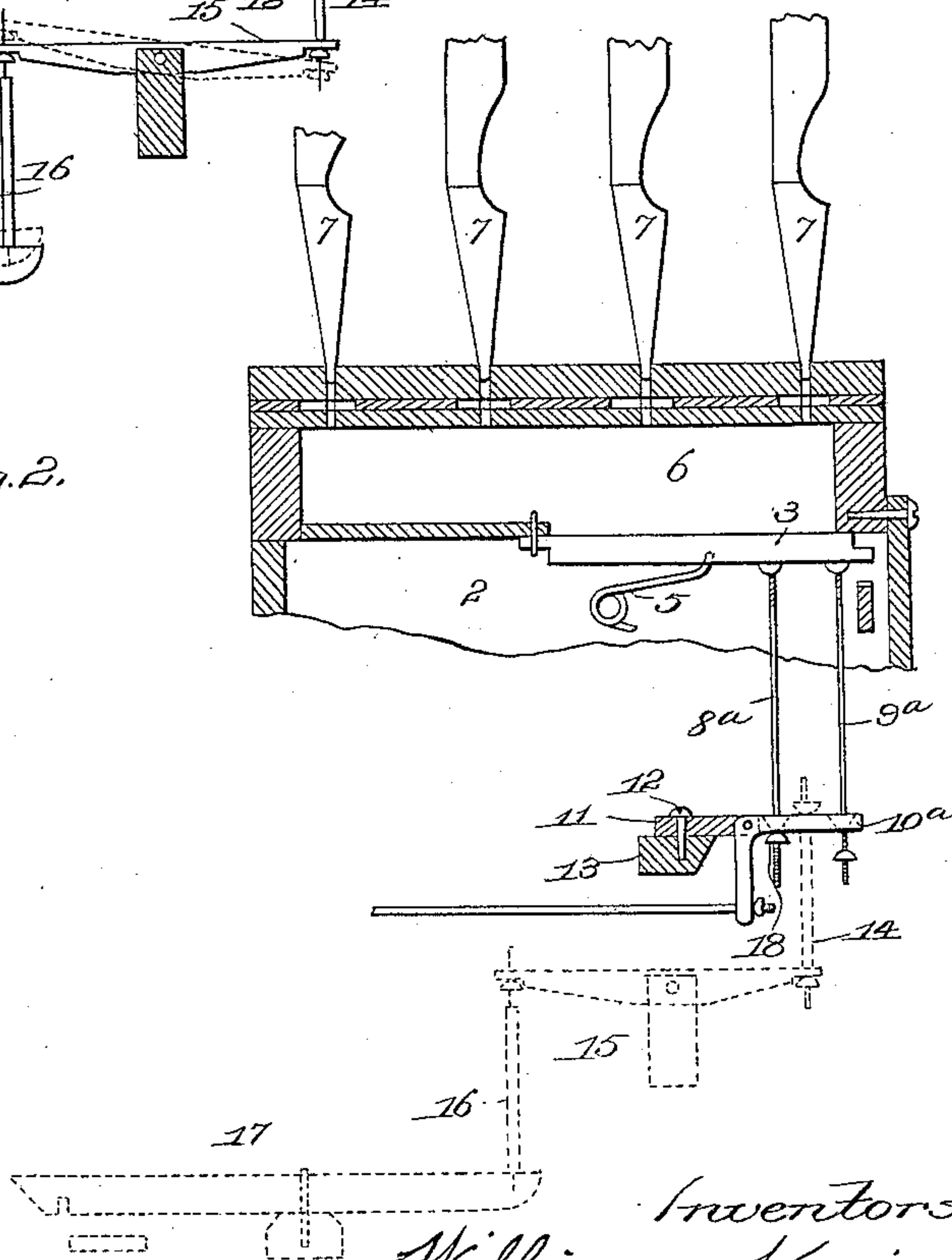


Fig. 2.



witnesses:

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UNITED STATES PATENT OFFICE.

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ACTION FOR PIPE-ORGANS.

SPECIFICATION forming part of Letters Patent No. 522,902, dated July 10, 1894.

Application filed January 18, 1894. Serial No. 497,279. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM KING, residing at Elmira, Chemung county, State of New York, and EDWARD J. KING, residing at Philadelphia, Philadelphia county, State of Pennsylvania, both citizens of the United States, have invented certain new and useful Improvements in Actions for Pipe-Organs; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1, is a cross section of so much of a pipe organ as is necessary to illustrate our invention, together with one arrangement of organ action embodying our said invention, and Fig. 2, is a similar view showing a modification in the arrangement of lever, pallet and combining pull down wires.

Like symbols refer to like parts wherever they occur.

It is well known to those skilled in organ construction, that the wind pressure in the wind-chest and upon the pallets which admit the wind to the larger pipes of large and medium sized organs, is too great to be easily overcome by the pressure of the fingers on the keys, consequently the manipulation of such organs is laborious and tiresome; and it is also well understood that the required pressure on a key of an organ to actuate the pallet in the wind-chest, when under pressure, is the least when the pull down wire is connected with the pallet at a point nearest to the actuated end, and that the first impact of the finger on the key overcomes the pressure of the wind on the pallet when the key has been depressed one-half the dip allowed for the same, but the whole dip of the key or range of movement of the pallet actuating mechanism required to fully open or pull down the pallet is increased in proportion as the connection of the pull down wire with the pallet recedes from pivot and approaches the actuated end of the pallet.

The object of the present invention is, therefore, to obtain such a construction of pipe organ action as will overcome the wind pressure on the pallet by a slight pressure of the finger on the key, and which will open the pallet fully

with a limited range of movement in the pallet actuating mechanism.

To this end the main feature of our invention, embraces the combination with a pallet of a plurality of pull down wires connected therewith at different distances from the actuated end of the pallet, and means for actuating the pull down wires successively.

A second feature, embraces the combination with a pallet and a plurality of pull down wires connected therewith, of a pivoted lever for actuating the pull down wires, said wires being connected with the lever at different distances from the fulcrum.

There are other minor features of invention, all as will hereinafter more fully appear.

We will now proceed to describe our invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings 1 indicates the outer frame of the wind-chest, 2 the pallet box, 3 the pallet held in position by the pivot 4 and spring 5, and 6 the channel through which the wind passes to the pipes 7 placed over it, all of which may be as shown or of any other well known or desirable form.

Connected with the pallet at different distances from the pivot end are two pull down wires 8 and 9 (see Fig. 1), one of which is preferably attached thereto at the nearest accessible point to the actuated end of the pallet, and the other in rear thereof or nearer to the pivot 4, and said pull down wires pass down and are connected with a lever 10 having its fulcrum or pivot on a butt 11 which may be secured by a screw 12 to a bar 13 or otherwise supported, as desired. The lower ends of pull down wires 8 and 9 are threaded, pass through suitable slots at different distances from the pivot or fulcrum of lever 10, and are provided with leather nuts 18 and 19 or other suitable adjustable connections.

In the construction shown in Fig. 1, which is for some reasons the preferred construction, the pull down wire 8 is connected to the pallet 3 at the nearest possible point to the actuated end, and passes through the pull board 20, also through the lever 10 at a distance of one inch and a half ($1\frac{1}{2}$) from the ful-

crum in the butt 11 and when the pallet is at rest the leather nut 18 is adjusted up close to the under side of the lever holding the lever 10 in a horizontal position; the pull wire 9 is
 5 connected with the pallet 3 at a point two and a half ($2\frac{1}{2}$) inches more or less from the front end of the same, and passes down through the pull board 20 and through the outer end of lever 10 with the leather nut 19 adjusted
 10 about one quarter ($\frac{1}{4}$) of an inch below the under side of the lever, while the lever 10 is actuated by a tracker 14 provided with leather nuts for purposes of adjustment, a back fall 15 and a sticker 16, which connect it with the
 15 key so that the lever 10 acts first as a lever of the second order and then as a lever of the third order, but all this detail may be varied by persons skilled in the art, as shall be determined by the installment, and without de-
 20 parting from the scope or spirit of our invention. For instance, as indicated in Fig. 2, the lever may be a right angle 10^a , or other lever of the first order, and the connection of the pull down wires may, if desired, be re-
 25 versed, all as indicated at 8^a 9^a of said Fig. 2, and furthermore, though the lever 10 is herein shown as located outside of the pallet box 2 because we deem that position best, it being more accessible for purposes of adjustment,
 30 yet it is apparent that said lever can be located within the pallet box if desired.

The action being constructed substantially as hereinbefore specified will operate as follows: On the first impact of the finger on key
 35 17 depressing it about one-half the dip allowed for the same, or to the dotted line (see Fig. 1) this half movement given to the key is transmitted through the sticker 16, back-fall 15, tracker 14 (or equivalent mechanism)
 40 to the lever 10 (or 10^a) and pull down wires 8 (or 8^a) and 9 (or 9^a) connected with the pallet 3, and in case of the preferred construction (Fig. 1) the pallet 3 is actuated first about one-half its proper movement and from a
 45 point where the pressure of the wind on the

pallet is reduced to a minimum. At the same instant the lever 10 having been depressed so as to strike the leather nut at 19 on the lower end of the pull down wire 9, the pallet is fur-
 50 ther actuated, and there being little resistance, other than the spring 5, which is easily collapsed, the pallet is opened the full width desired to allow a sufficient amount of wind to flow from the pallet box, and this with the
 55 exertion of little power and with a limited range of motion in the actuating devices.

Having thus described the nature, construction, and operation of our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an organ action, the combination with a pallet, of a plurality of pull down wires, and means for actuating the pull down wires successively; substantially as and for the pur-
 60 poses specified.

2. In an organ action, the combination with a pallet, of a plurality of pull down wires and a lever for actuating the pull down wires, said wires arranged to engage the lever at
 65 different distances from its fulcrum; substantially as and for the purposes specified.

3. In an organ action, the combination with a pallet, and a pivoted lever, of a plurality of pull down wires, said wires connected with
 70 the pallet at different distances from the actuated end thereof and arranged to successively engage the lever at different distances from its fulcrum; substantially as and for the purposes specified.

In testimony whereof we affix our signa-
 80 tures, in presence of two witnesses, this 15th day of January, 1894.

WILLIAM KING.

EDWARD J. KING.

Witnesses as to William King:

CHAS. E. WHITLOCK,

WM. B. EDSON.

Witnesses as to Edward J. King:

WM. P. LANDIS,

CHAS. L. LOCKWOOD.