

No. 897,008.

PATENTED AUG. 25, 1908.

W. PAPE.

MECHANICAL PLAYER FOR KEYBOARD INSTRUMENTS.

APPLICATION FILED JULY 30, 1907.

Fig. 1.

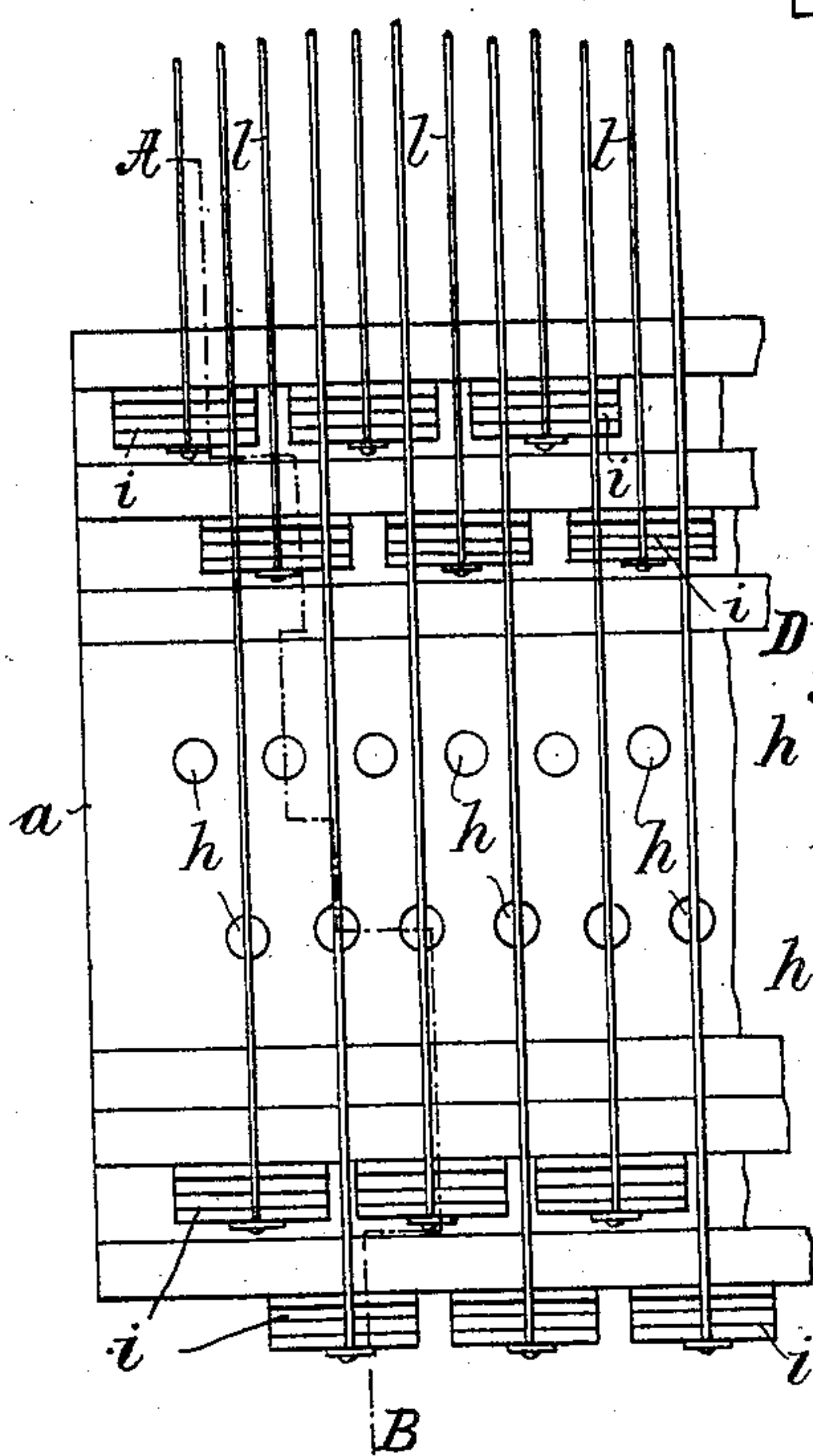


Fig. 2.

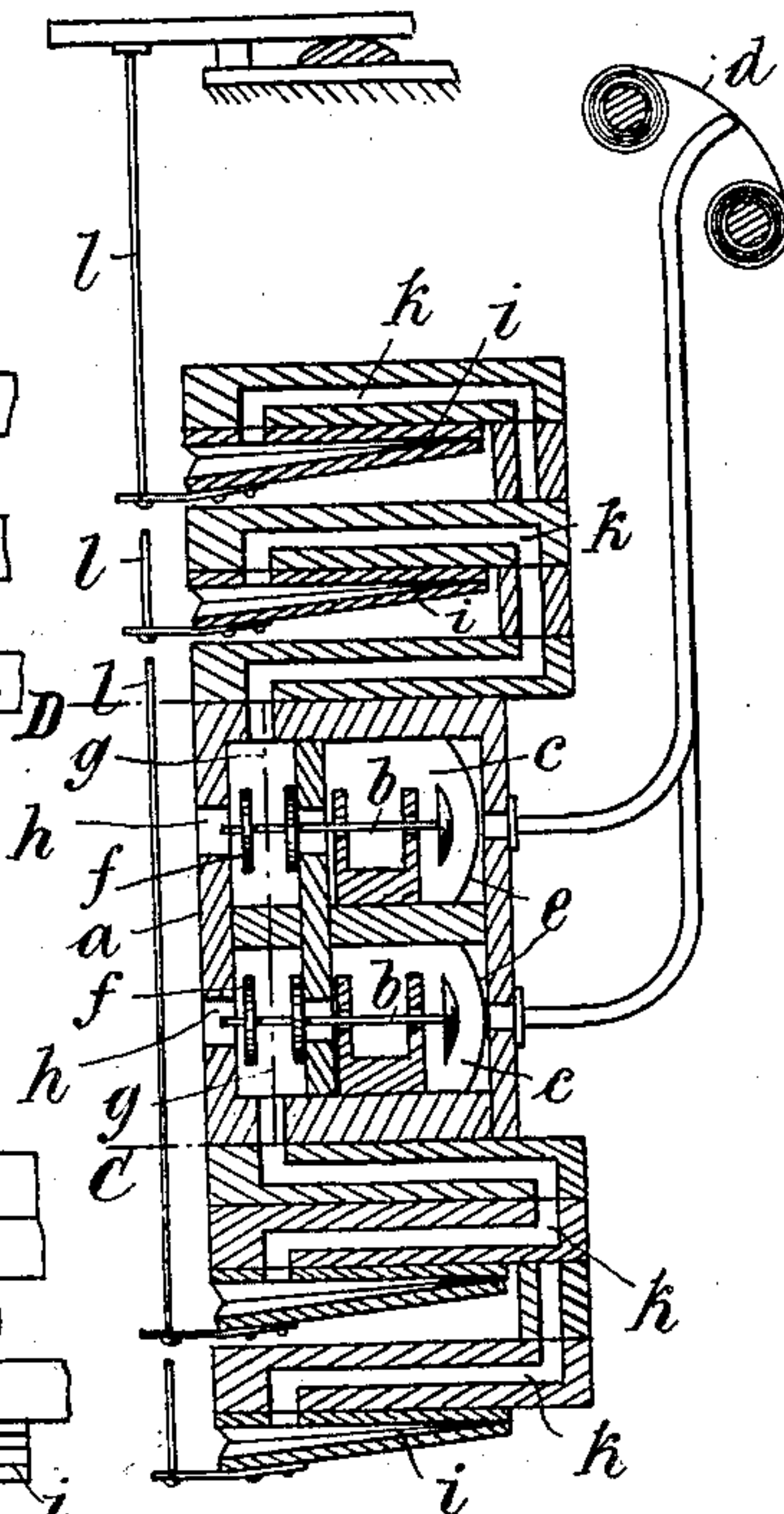


Fig. 3.

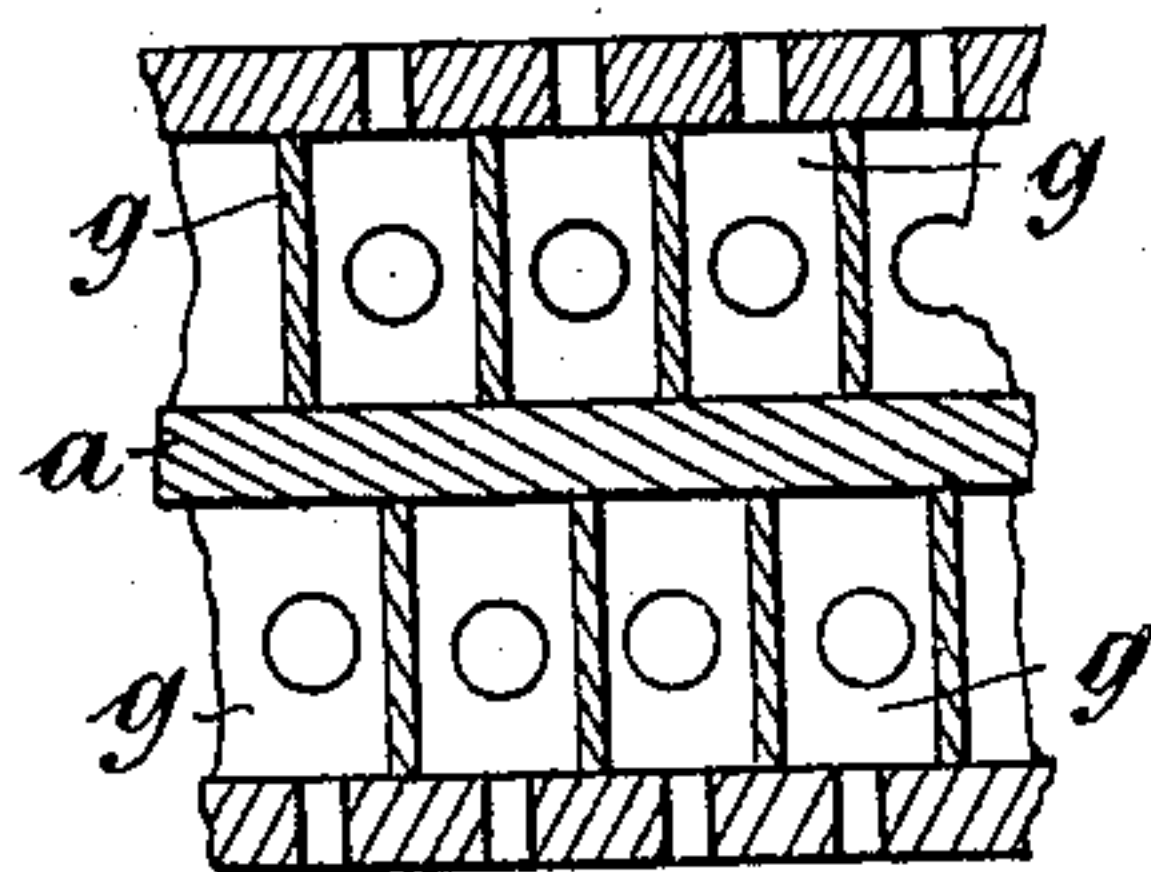
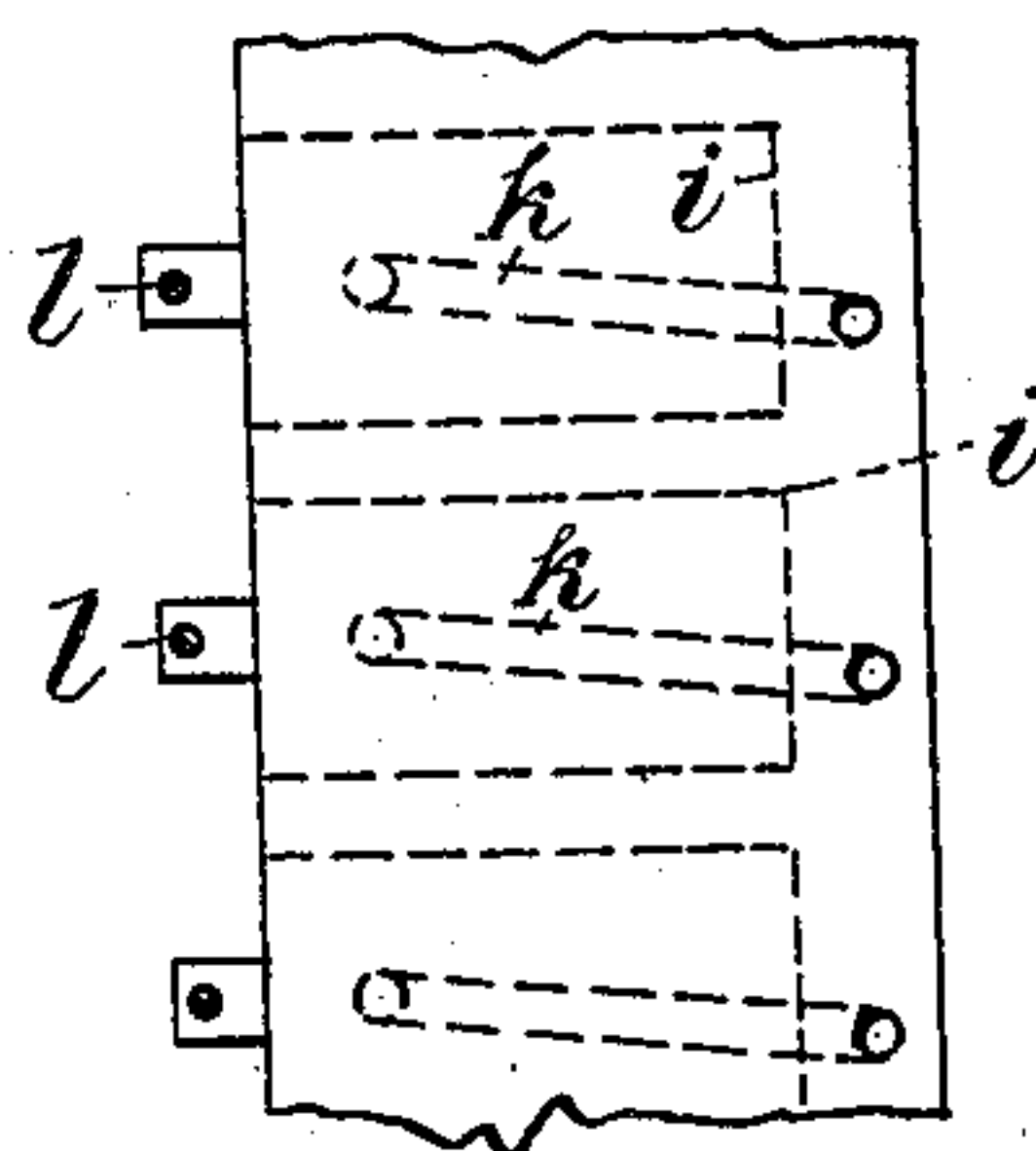


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILHELM PAPE, OF BERLIN, GERMANY, ASSIGNOR OF ONE-HALF TO K. HEILBRUNN SÖHNE,  
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## MECHANICAL PLAYER FOR KEYBOARD INSTRUMENTS.

No. 897,008.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed July 30, 1907. Serial No. 386,238.

*To all whom it may concern:*

Be it known that I, WILHELM PAPE, citizen of Germany, residing at Keibelstrasse 39, Berlin, Germany, have invented new and useful Improvements in Mechanical Players for Keyboard Instruments, of which the following is a specification.

The subject of my invention is an apparatus for mechanically playing keyboard instruments.

By means of my invention the playing-bellows together with the wind-chest for the controlling-valves can be manufactured wholesale independent of fixed dimensions, and can be fitted to all instruments of ordinary construction, whatever the particular arrangement of the keys.

The essential feature of the invention is the provision of four rows of bellows, two above and two below the windchest for the controlling-valves. With this arrangement, the cells for the controlling-valves can be made relatively large and stable, and wide air ducts can be provided, whereby in addition to durability, a quick positive action of the key-operating bellows is assured. Furthermore, the bellows themselves can be made shorter and broader, so that in this manner also the power is increased.

One form of construction of my invention is illustrated in the accompanying drawing, in which

Figure 1 is a front elevation, Fig. 2 a section on the line A—B of Fig. 1. Fig. 3 is a vertical section on the line C—D of Fig. 2 with the wind valves *b* removed, and Fig. 4 is a plan view showing the arrangement of the chest containing the pneumatics *i* and the channels *k*.

*a* is the wind-chest for the controlling-valves *b*, which operate in superposed staggered cells. Each cell comprises two chambers in one of which, chamber *c*, a vacuum is constantly maintained. Within the cells are

provided valves *b* which operate under the action of the note-sheet *d* and diaphragms *e*. Upon the wind-valves *b* being operated by the diaphragms *e*, the outside air apertures *h* are closed by the valve ends *f*, whereupon air is caused to flow from the chambers *g* into the vacuum chambers *c*.

Above and below the change-valve arrangement are two rows of playing-bellows *i*, whose oscillating cheeks are directly connected with the keys by rods 1. The bellows themselves are connected by ducts *k* with the chambers *g*. When, therefore, the air is caused to flow from the chamber *g* through the chamber *c* a suction is also created within the bellows *i*, which will be caused to collapse and to operate the key.

To enable the bellows apparatus when made wholesale to be fitted to instruments of ordinary construction but having different arrangements of keys, the boards carrying the bellows are not provided with the connecting-ducts *k* until after the instrument in question has been suited.

The action of the bellows is in no wise affected by the connecting-ducts *k* being run in a more or less inclined direction, (Fig. 4).

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

In a keyboard operating mechanism, the combination with the wind-chest provided within with controlling valves, of two rows of bellows above said wind-chest, and two rows of bellows below said wind-chest, all of said bellows being in communication with the wind-chest.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM PAPE.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.