(No Model.)

F. W. HEDGELAND.

EXPRESSION INDICATOR FOR SELF PLAYING INSTRUMENTS.

No. 549,916. Patented Nov. 19, 1895.

FIG. 1.

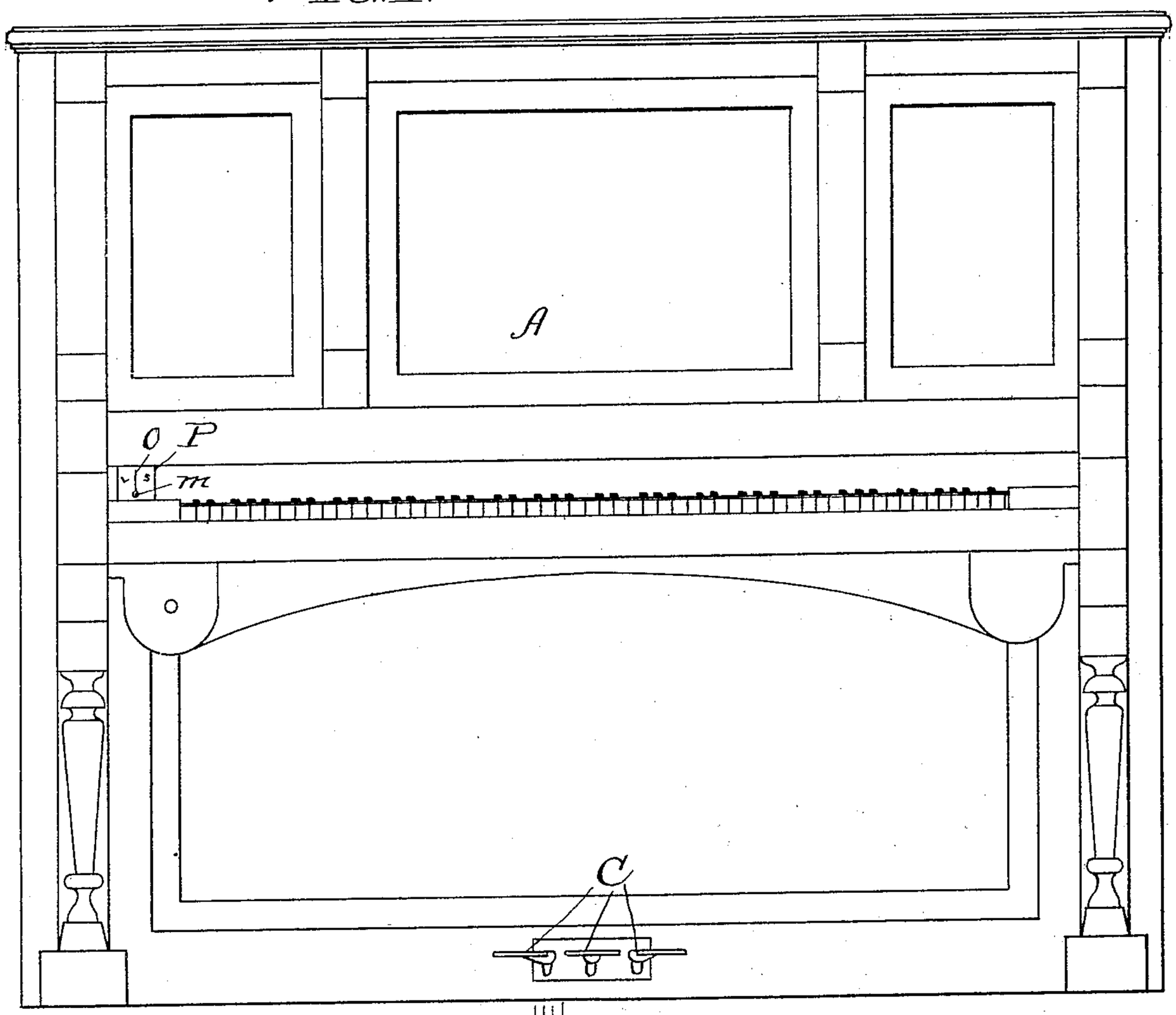


FIG. 2.

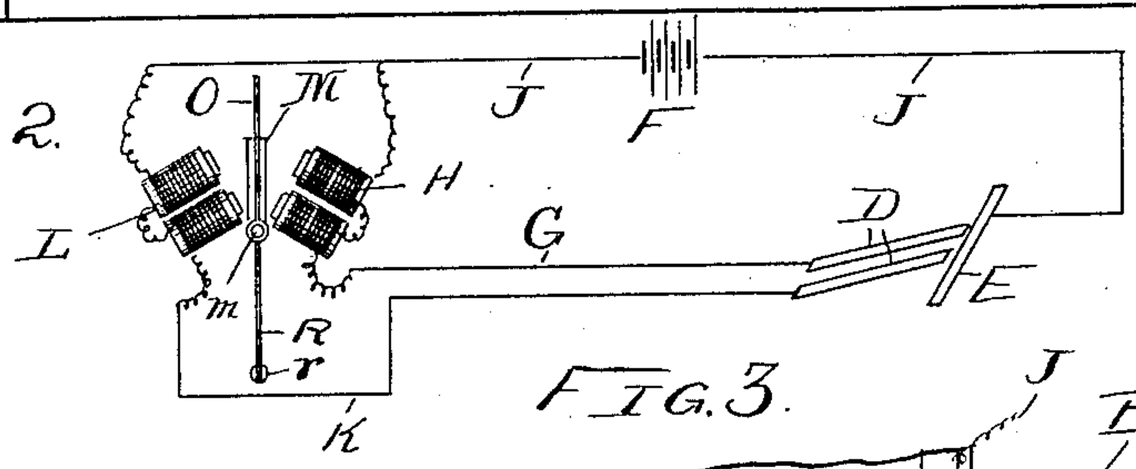


FIG. 3.

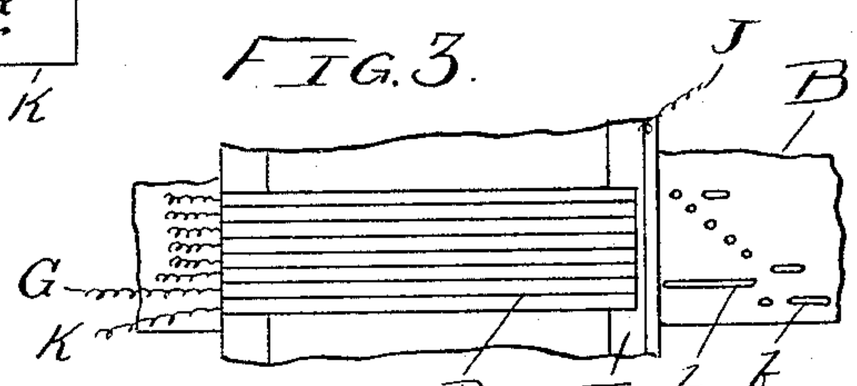
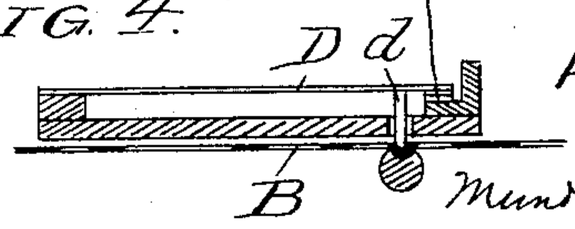


FIG. 4.



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UNITED STATES PATENT OFFICE.

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EXPRESSION-INDICATOR FOR SELF-PLAYING INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 549,916, dated November 19, 1895.

Application filed February 23, 1894. Renewed September 25, 1895. Serial No. 563,662. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. HEDGELAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Expression-Indicators for Self-Playing Instruments, of which the following is a specification.

This invention is an improvement in self-playing keyboard instruments; and its object is to enable a person, whether skilled or unskilled, and whether familiar or unfamiliar with the music being played, to operate the pedals or other devices of the instrument whereby the character of the tone is regulated and proper expression obtained.

The invention consists in the combination, with such an instrument, of an indicator adapted to convey to the operator knowledge as to when the pedals or other expression-controlling devices should be put into operation and when they should be released, so that the operator may work those devices accordingly.

In the drawings, Figure 1 is an elevation of a piano embodying my invention. Fig. 2 shows the electric circuit employed. Fig. 3 is a plan of the perforated strip and the circuit-closer, and Fig. 4 is a vertical section of the parts shown in Fig. 3.

In said drawings, A represents the case of the piano; B, the moving perforated strip whereby the self-playing mechanism is controlled, and C the pedals.

The perforated strip is provided with two or more rows of perforations *b b* in addition to those used to control the self-playing mechanism of the instrument, and each of these rows passes under an independent circuit-closer, consisting preferably of a spring D, bearing a stud *d*, adapted to enter the perforations in the strip B and to be lifted out of the perforations by the strip itself, and a contact-plate E. Each of the springs is located in a separate circuit around the battery F, one of which circuits may consist of the contact-plate E, individual wire G, magnets H, and wire J, and the other of contact-plate E, individual wire K, magnets L, and wire J. The magnets are relatively placed, as shown, so that a single armature M may be placed between and employed with both pair of them. This armature is secured at one end to a rocking axis *m*, the movements of the armature being calculated to rock the axis slightly. The axis *m* also carries a pointer or hand O, which is located at some point upon the piano where it can be easily observed by the person who is to operate the pedals. The front of the finger-board is a very suitable location for this pointer, and when so located the axis will be passed through the board and the magnets located behind it. A dial or plate P, carrying appropriate indicating-letters—such as L (for loud) and S (for soft)—should be placed where the pointer will co-operate therewith in giving the proper information to the person pedaling. Thus when the pointer is vibrated toward the letter L it indicates that the loud pedal should be operated, and when the pointer is moved toward the letter S it is a signal to the pedalist to press upon the soft pedal. These movements of the pointer are, it will be readily understood, due to the rocking of its axis by the armature and magnets. When the central or neutral position is assumed by the pointer, it is an indication that the pedals are to remain idle, and in order that the pointer may be quickly returned to this position after the release of the armature by the magnets, I employ a spring R, one end of which is fast to a fixed stud at *r* and the other end of which is attached to the armature, so that whenever the armature is drawn to one side by the magnets it will bend this spring, and thus cause the latter to return the armature and pointer to the central position instantly upon the release of the armature.

It will be seen that whenever either spring D is allowed to complete its circuit by the dropping of its stud into a perforation of the moving strip the magnets corresponding to said circuit-closer will be energized and the armature attracted to them, and this results in a corresponding movement of the pointer.

The same means may be employed for similar purposes in instruments other than pianos, and I do not wish, therefore, to be limited in my claims to a piano nor to the employment of the invention in pedaling pianos.

The perforated strip is invisible and located under the keyboard, though it may be else-

where located and concealed within the case, if desired.

I claim—

1. The combination in a self playing keyboard instrument, of pedals for operating the expression giving devices of the instrument, an indicator for directing a pedalist in operating the pedals, electric devices for actuating the indicator, and self playing mechanism controlling said electric devices, substantially as specified.

2. The combination in a self playing instrument of the perforated moving strip controlling the self playing mechanism, an indicator for directing the operating of the expression controlling devices of the instrument and electric devices and circuits also controlled by the perforated strip and adapted to actuate said indicator, substantially as set forth.

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Witnesses:
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