

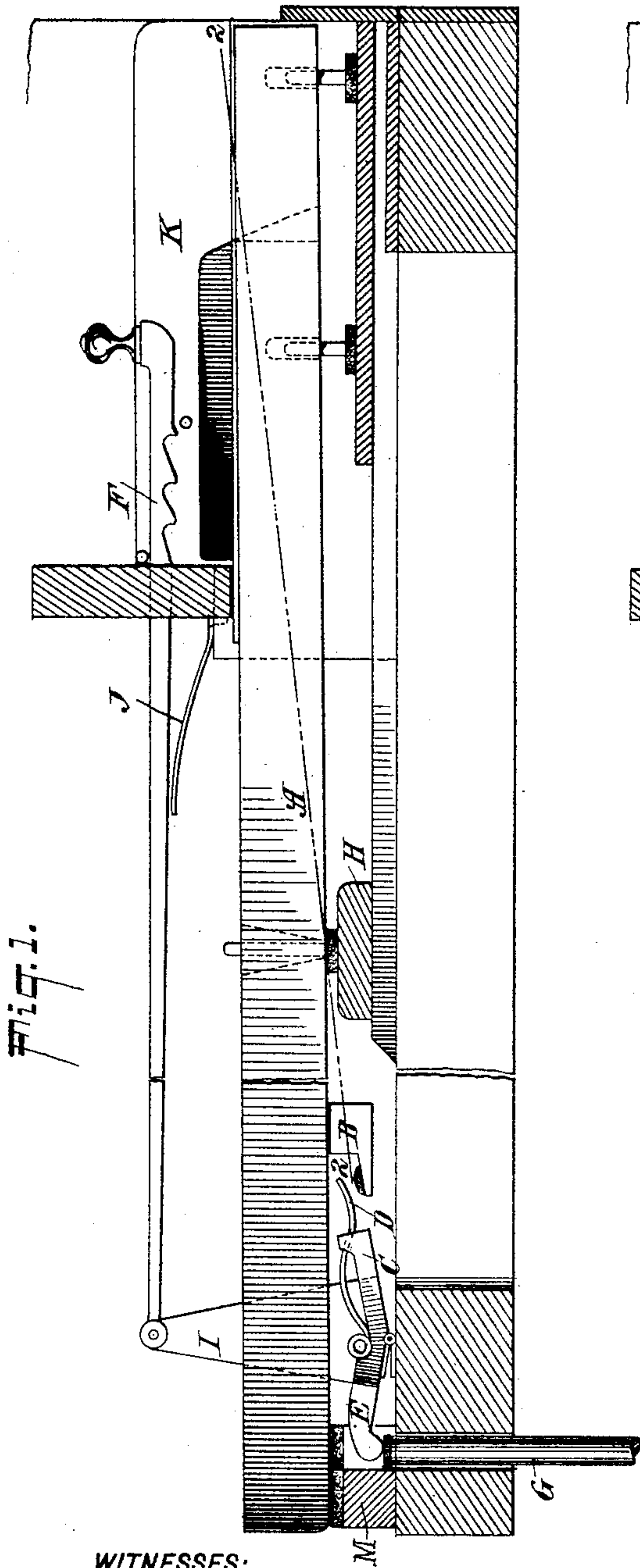
(No Model.)

2 Sheets—Sheet 1.

A. H. HASTINGS.
TOUCH REGULATOR FOR PIANOS.

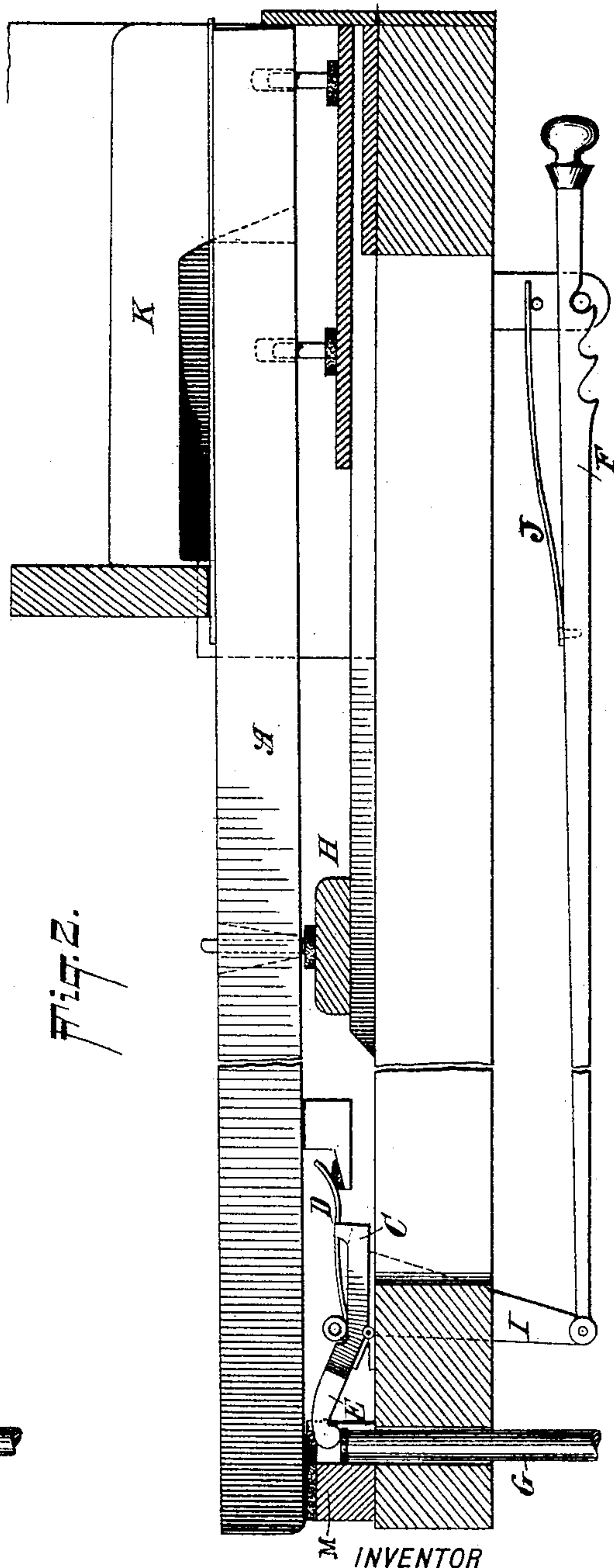
No. 497,051.

Patented May 9, 1893.



WITNESSES:

William Goebel.
Harrie A. Hastings.



INVENTOR

Asariah Horace Hastings

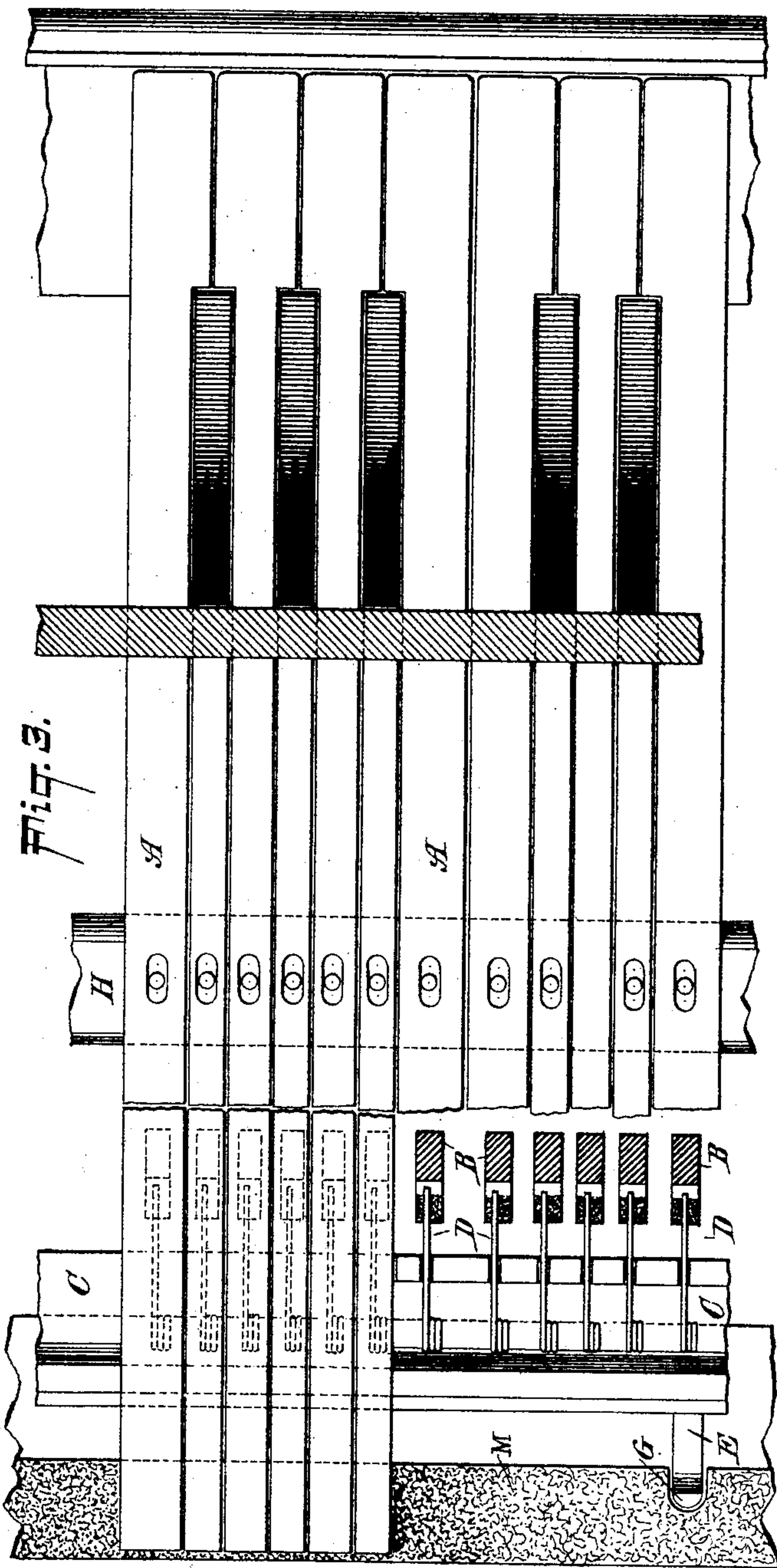
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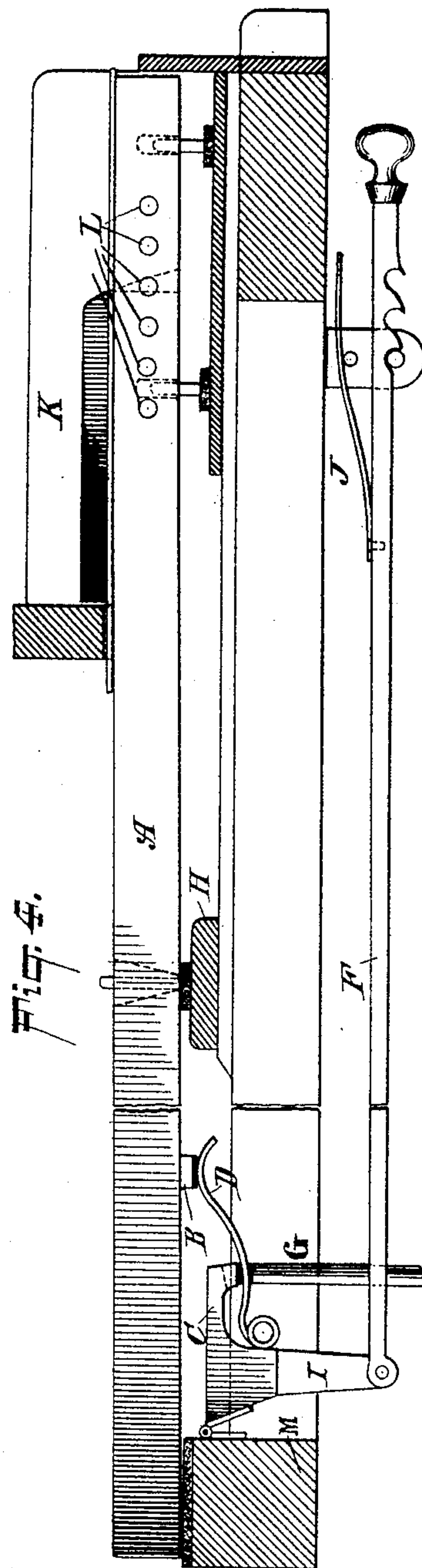
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UNITED STATES PATENT OFFICE.

AZARIAH HORACE HASTINGS, OF NEW YORK, N. Y.

TOUCH-REGULATOR FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 497,051, dated May 9, 1893.

Application filed April 5, 1892. Serial No. 427,786. (No model.)

To all whom it may concern:

Be it known that I, AZARIAH HORACE HASTINGS, a citizen of the United States, and a resident of New York city, county and State of New York, have invented a new and useful Improvement in Touch-Regulators for Pianos and Similar Instruments, of which the following is a specification.

This invention relates to means for regulating the touch in the keys of pianos and similar instruments and its object is to produce an adjustable pressure upon the key levers behind the fulcrum to increase or diminish the pressure or touch weight at the fingering end of the key levers that will be simple in construction not interfering with the removing of the keys or action in regulating and one that has the pressure applied to the key lever at the back and under side nearly in line with the fulcrum and power which avoids friction and wobbling of the key levers and the said pressure may be applied more or less as may be desired by a stop lever moved by the hand, knee or pedal or all in the same instrument each one working independently of the others.

In the accompanying drawings Figure 1 is a side view of the key lever, stop lever and pressure spring, with a section of the adjustable rail that supports the springs with the stop lever over the keys or key block and pedal rod all as it is when the pressure is not applied. Fig. 2 is the same as Fig. 1, except having the stop lever applied under the key bottom with the spring pressure applied. Fig. 3 is a plan view of Fig. 2. Fig. 4 is my invention as applied to a horizontal piano with a reverse pressure to lighten the touch with the pressure applied.

The difficulties experienced with devices for adjusting the key pressure or touch weight in piano construction has been in their complication causing the adjustment and regulating of the keys and action difficult as they have been applied over the keys and are in the way of lifting a key to remove it from the piano also in the way of removing the action from the case and the pressure upon the keys is so far above the line of the fulcrum and touch weight of the fingering end of the key levers a wobbling effect is had causing friction and wearing which disturbs their even-

ness of movement. It will be observed that I obviate all these difficulties by placing my spring rail C. under the back end of the lever A. back of the fulcrum H. of the key and forward of the key rest rail M. preferably pivoted at the back side of the pressure spring rail C. and front side of the key rest rail M. with the springs D. reaching forward to come in contact with a hook bearing B. attached to the under side of the key lever which is cushioned to avoid noise. This spring rail C. when tilted back holds the springs D. above the hooks B. to give the keys freedom—when not applied. It will be observed that no part of this attachment comes in the way of removing the action and in raising a key lever in removing it, the springs being arranged under the key levers they pass away from the springs and cannot come in contact with them. It will be observed that arranging the key lever to have the pressure position of the finger and the spring pressure in line with the fulcrum of the key lever wobbling of the key is overcome and friction is much reduced.

I attach to the spring rail C. at one end or any convenient place in its length a crank arm I. Fig. 1, extending upward above the keys and at its end I pivotally attach the stop lever F. which passes forward in a convenient place to be moved and engaged with a catch to apply the pressure upon the keys. This stop lever can as well be applied under the key bottom as shown in Fig. 2 which has the advantage of being out of the way and can be applied in a central or any position in the length of the keyboard and can be moved by the hand or knee and in either case the object of my invention is accomplished.

I arrange in the stop lever one or more hooked notches which are to engage with a pin or notch to hold the stop in any desired place to give the spring pressure required. I attach a spring to the stop lever to press in the direction to keep the hooks from engaging with the pin unless a pressure is applied to cause them to do so. The lever may be arranged to have its weight serve the purpose of a spring. With this arrangement the pressure can be applied by a pedal independent of the stop lever. Great advantage is had in being able to apply the pressure both ways in

the same instrument and it may be combined with any of the pedals now in use so as to have them work independent of each other either one not interfering with the others when either one is applied. The importance of this is in that a heavy or varied touch is wanted when the pedals are not wanted to be applied.

In horizontal pianos a reverse pressure is wanted which I apply as shown in Fig. 4. as the touch is always too heavy at the fingering end of the key levers without some means of lightening them. The usual way is to insert leads (as shown at L in Fig. 4) in the key levers in front of the fulcrum H. as many as ten pounds is often used in a set of keys before the desired effect is had as to the balance weight but in such a condition the keys are sluggish in rapid movements as the inertia effect cannot be overcome. Therefore my invention is of much importance in horizontal pianos.

I prefer a spring to each note but as two keys side by side are rarely if ever struck at once a continuous elastic strip of material such as hair cloth, springy fabric or felt may accomplish the pressure effect required.

I do not claim any arrangement of springs applied above the keys or springs attached strictly to the keys.

What I claim as my invention is—

1. In pianos or similar instruments, a touch regulator or key pressure attachment consisting of springs attached to a pivoted rail at the under side of the key levers A. and back of their fulcrum H. in combination with the bearings for the pressure of the springs attached to the under side and back of the fulcrum of the key levers substantially as set forth.

2. In pianos or similar instruments a touch regulator having the spring rail C applied under the key levers and back of their ful-

crum H. pivotally attached to the key bottom or the back rail of the key frame in combination with the springs D. attached to the pivoted rail C. and the rest B. on the keys for the spring pressure all applied at the under side of the key levers. and back of their fulcrum as set forth.

3. In pianos or similar instruments, a touch regulating attachment having springs attached to a pivoted rail situated under the key levers and back of their fulcrum in combination with a crank arm *i*, extended upward above the keys having a stop lever F. adapted to be adjusted by the hand as shown and described.

4. In pianos or similar instruments a touch regulator having springs attached to a pivoted rail situated under the key levers and back of their fulcrum arranged to adjust their weight heavier or lighter than the standard touch, in combination with a crank arm and pedal rod G. adapted to be applied by the pedal as set forth.

5. In pianos or similar instruments a touch regulator having springs attached to a pivoted rail situated under the key levers and back of their fulcrum arranged to adjust their weight heavier or lighter than the standard touch in combination with the crank I. stop lever F. and pedal rod G. adapted to be applied by the stop lever or pedal in the same instrument each independent of the other as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 2d day of April, 1892.

AZARIAH HORACE HASTINGS.

Witnesses:

HULBERT PECK,
HARRIE A. HASTINGS.