(No Model.)

# H. P. BROWN.

## ACTION REGULATOR FOR PIANOS.

No. 515,279. Patented Feb. 20, 1894.

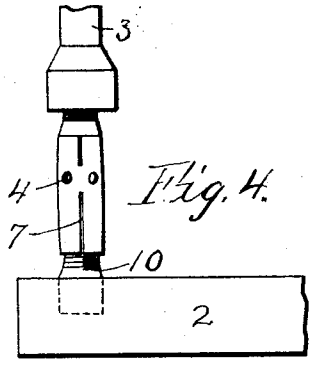



Fig. 4.

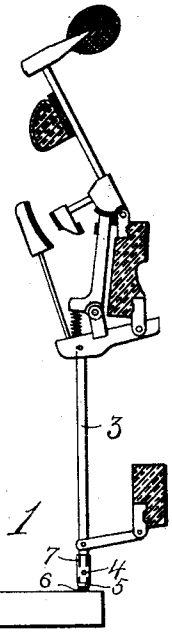



Fig. 1

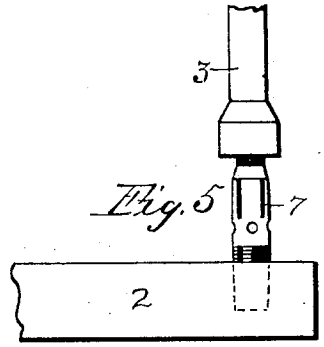



Fig. 5

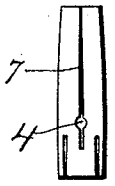



Fig. 7

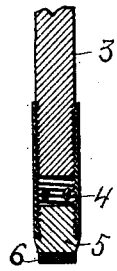



Fig. 3.




Fig. 2




Fig. 8.

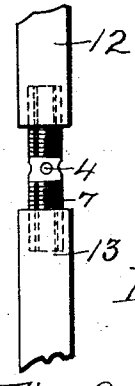



Fig. 9

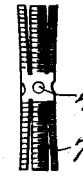



Fig. 10.

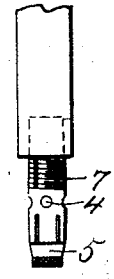



Fig. 6.

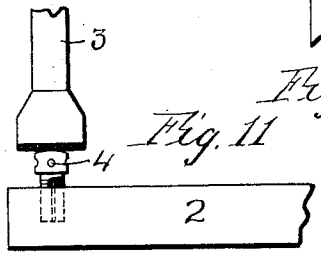



Fig. 11

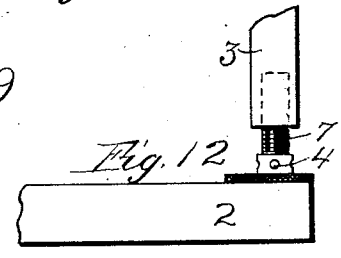



Fig. 12

Witnesses
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F. S. Lyon

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Herbert P. Brown.
By Paul Hawley Attys

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

HERBERT P. BROWN, OF MINNEAPOLIS, MINNESOTA.

## ACTION-REGULATOR FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 515,279, dated February 20, 1894.

Application filed March 20, 1893. Serial No. 466,848. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT P. BROWN, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Action-Regulators for Pianos, of which the following is a specification.

My invention relates to means for adjusting the action parts of pianos, and the object which I have in view is to provide an adjustable device for connection between certain parts, whereby their relative positions and action may be regulated; and further to so construct said device that it may be very easily moved or adjusted regardless of the condition of the wooden parts.

To this end my invention consists in the combination with the wooden parts of an expansible part threaded to engage the end of one or both of said part or parts; and my invention further consists in various details of construction and in combinations all as hereinafter described and particularly pointed out in the claims, and will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a view showing a piano action provided with an abstract having one of my devices for its ready adjustment. Fig. 2 is a detailed view showing the adjustable foot for the abstract. Fig. 3 is a vertical section thereof. Figs. 4 and 5 show modified forms of my device applied to the inner end of the key-bar. Fig. 6 shows an adjustable device similar to that of Figs. 2 and 3 but having exterior threads. Fig. 7 is a modified form of the device shown in Fig. 2. Fig. 8 shows one of my adjustable devices used as a coupling for a divided abstract or pedal rod. Fig. 9 shows a modified form of my device for the same purpose. Fig. 10 shows the coupling screw of Fig. 9 detached, Figs. 11 and 12 showing still simpler embodiments of my invention.

As shown in the drawings, 2 represents a key-bar and 3 the abstract through which the movement of the key-bar is transmitted to the hammers and other parts of the action.

As shown in Figs. 1, 2, 3 and 7, one form of my regulating or adjusting device consists in a tubular screw having several holes 4 through which a wrench pin may be inserted to turn the screw. The long upper part of the sleeve is screwed upon the lower end of the abstract 3 and has a long and secure bearing thereon to effectually prevent its becoming loose. In the lower and shorter threaded end of the tubular screw I insert a short plug 5, threaded to enter the end of the tube and provided with a felt tip or pad 6 adapted to rest upon the smooth top of the key-bar 2. Much difficulty has been experienced heretofore with screws when used upon the wooden parts of pianos, by reason of the fact that the swelling of the wood in damp weather so locks or binds the screw as to make it very difficult of adjustment. The avoidance of this difficulty is the chief end of my invention and for this purpose I provide longitudinal slots 7 in my various couplings or jack-screws and, as shown in Figs. 2 and 7, I bend the parts of the tube inwardly thus forming springs, which readily admit of either shrinkage or expansion of the abstract or other wooden part and at all times maintain a tight hold thereon, while at the same time being so free and loose they may be easily turned upon the same.

With the devices shown in the above figures the adjustment may be obtained by turning the tubular screw upon the end of the abstract to move the same up or down; or adjustment may be had by turning the tip-plug 5; the first method however, is preferred. The same result may be obtained by the use of the jack-screw shown in Fig. 6, or by that shown in Fig. 12. The device in Fig. 6 is preferably made smaller than that in Fig. 7 and its lower or outer end is provided with an interior thread and slots like that of Fig. 3. The upper end, however, though slotted in the same way, has an exterior thread in place of the inside thread of the first device, and the spring ends of this screw are pressed inwardly and screwed into the hole in the end of the abstract; the spring ends afterward performing the same function as those of the other screw. A still simpler form of the screw is shown in Fig. 12, where the independent plug or short-tip is replaced by a solid metal screw head formed on the spring shank, the head resting upon a soft face pro-

vided on the key-bar 2. In Fig. 11 this construction is altered by placing the spring or expansion screw in the key-bar instead of in the end of the abstract.

In Fig. 4, the tubular screw of Fig. 2 is shown in connection with a wooden post 10 inserted in the end of the key-bar and over which the long end of the screw is turned while the foot of the abstract rests upon the padded upper end of the device. Fig. 5 shows the reversal of the arrangement shown in Fig. 6, the spring shank being screwed into an opening provided in the top of the key-bar.

The devices so far explained all refer to the ends of the abstract or to the end of the key-bar. In place thereof I may prefer to employ a construction which will permit of the pivoting of the ends of the abstract to the key-bar and to the upper part of the action respectively. For this purpose I provide the spring or expansible coupling shown in Figs. 8, 9 and 10. In Fig. 8 a modification of the tubular screw of Fig. 2, is employed, the ends being of equal length and oppositely threaded after the manner of a turn-buckle, both ends being slotted and having their parts either left normal or bent inwardly to engage the approaching ends or sections 12 and 13 of the abstract or of the pedal rod, as the case may be. In order that the center of the tubular screw may also yield slightly to a strong expansion, I preferably extend extra slots 14 through the pin holes therein. The opposite construction is shown in Figs. 9 and 10 where the slotted ends are threaded on the outside and have their parts bent slightly outward.

It is obvious that my metal-spring wood-screws and couplings may be employed in other devices besides pianos, organs and like musical instruments; and further that for certain uses the screws may be made of wood or like material.

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

1. The combination, in a piano action, of a regulable part or rod, with the tubular metal screw having an interior thread and wherein the end of said rod is screwed, the threaded portion of the screw being divided by longitudinal slots into several spring parts closely embracing said rod and adapted to expand and contract therewith, substantially as described.

2. The combination, in a piano action, of the abstract, with the tubular metal screw having an interior thread, and wherein the end of the abstract is screwed, the threaded portion of the screw being divided by longitudinal slots into several spring parts closely embracing the abstract and adapted to expand and contract therewith, substantially as described.

3. The combination, in a piano action, of the abstract, with the tubular metal adjusting screw, having an interior thread and wherein the end of the abstract is secured the screw being provided with a head to engage an actuating part, and the threaded part being divided into a number of spring parts and having near the head several holes to permit full expansion or contraction with the wooden part, substantially as described.

In testimony whereof I have hereunto set my hand this 13th day of March, 1893.

HERBERT P. BROWN.

In presence of—
C. G. HAWLEY,
F. S. LYON.