

(No Model.)

W. L. HAWES.
PIANO ACTION.

No. 480,014.

Patented Aug. 2, 1892.

FIG. 1.

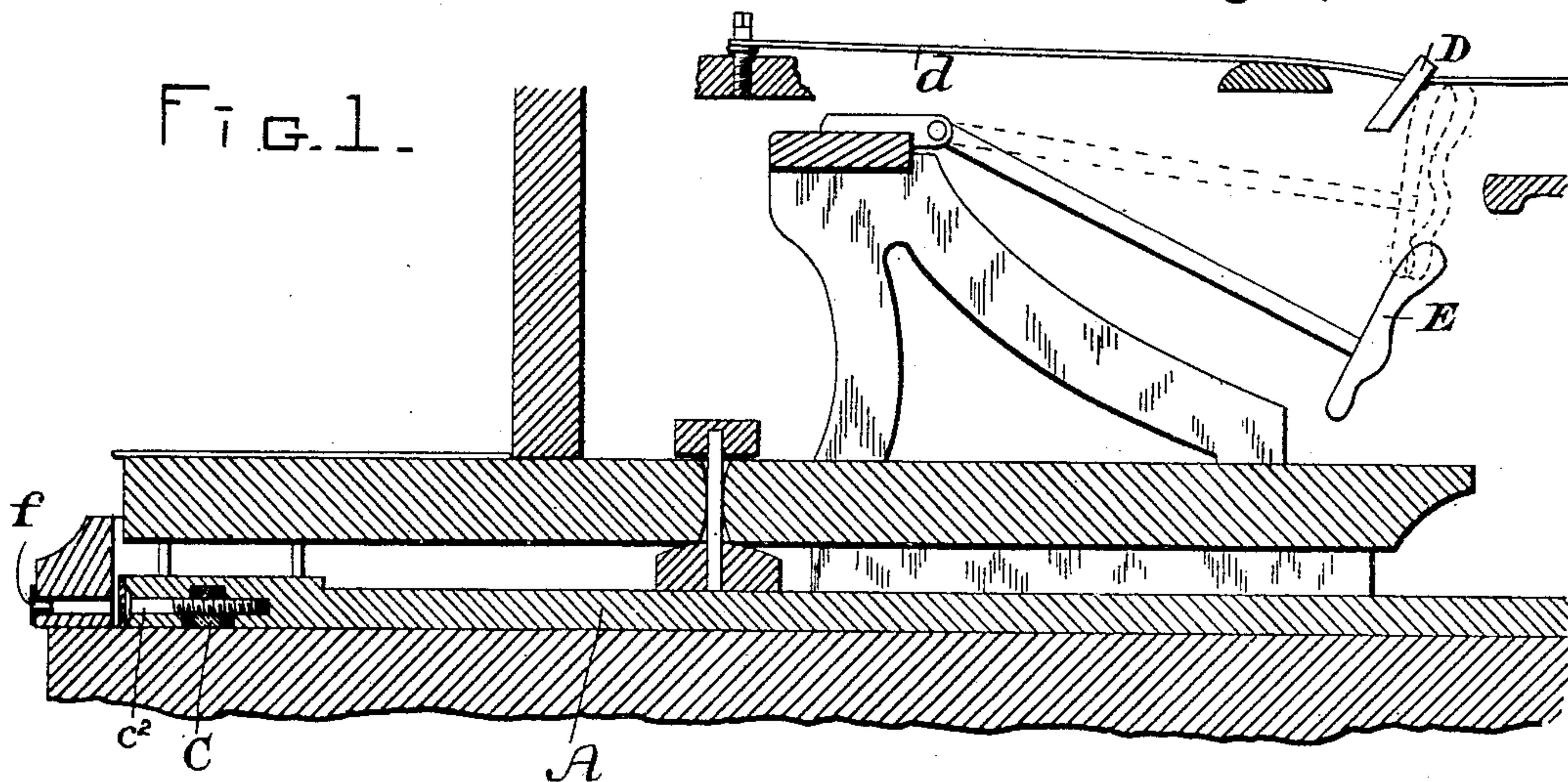


FIG. 2.

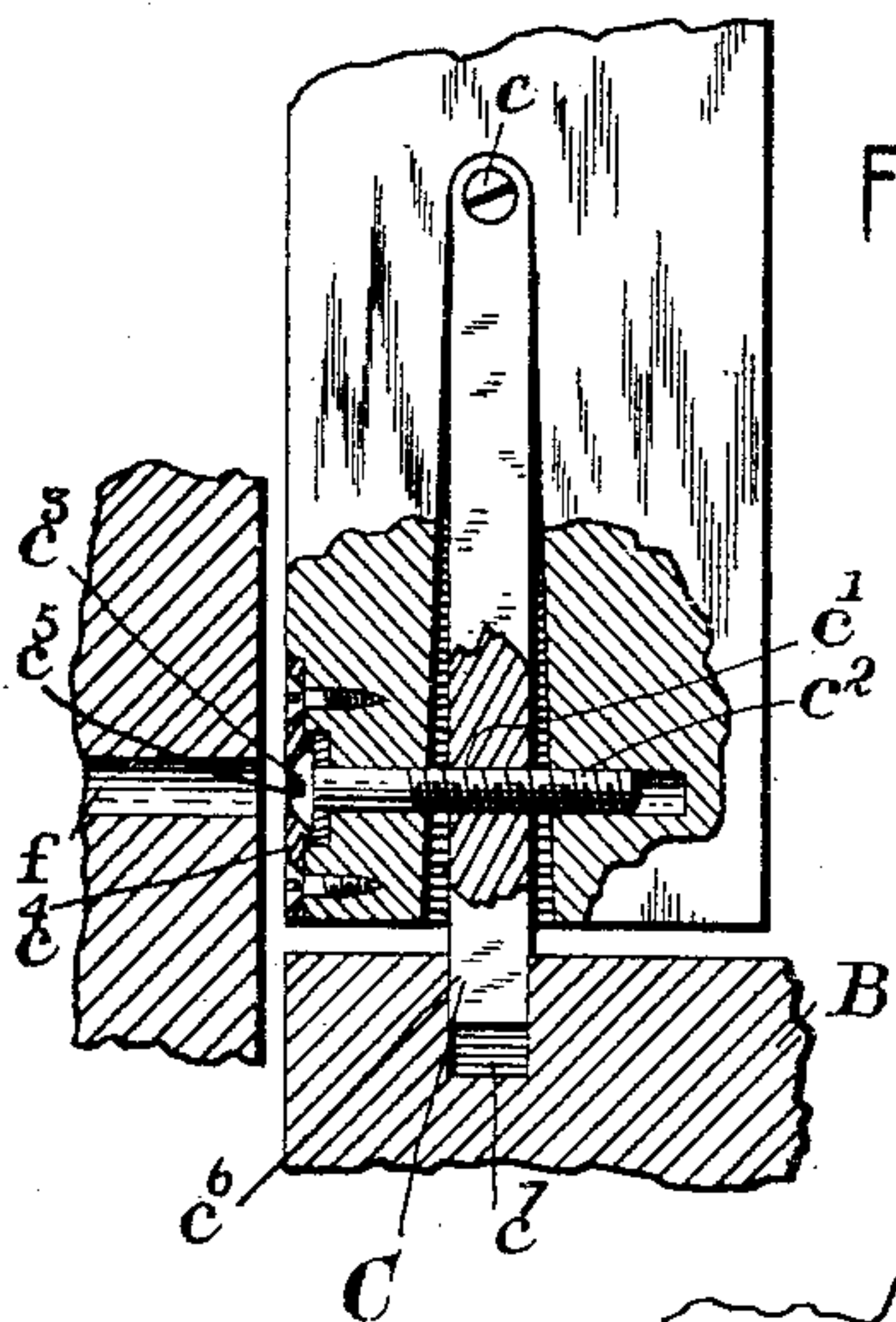


FIG. 3.

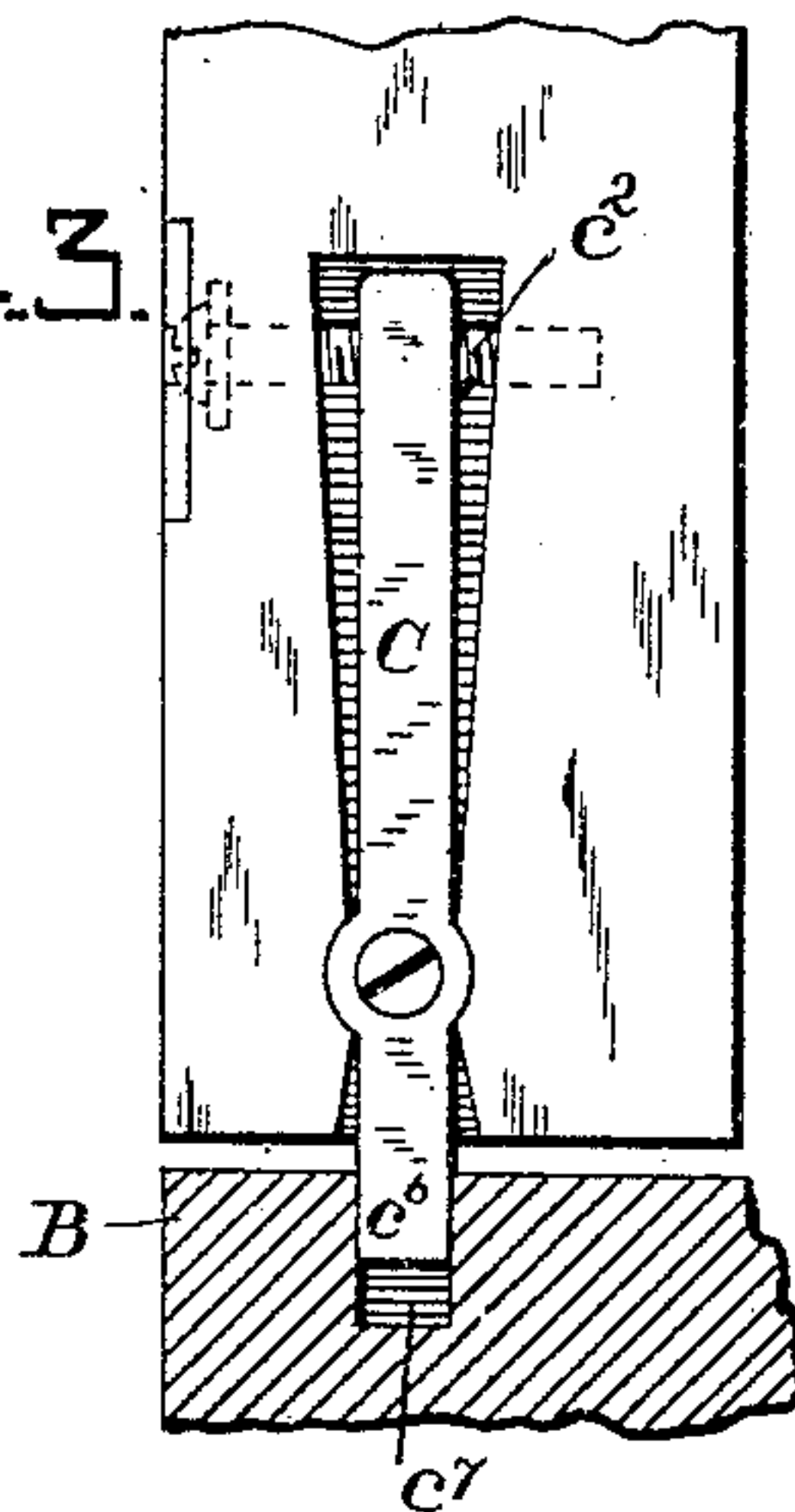


FIG. 4.

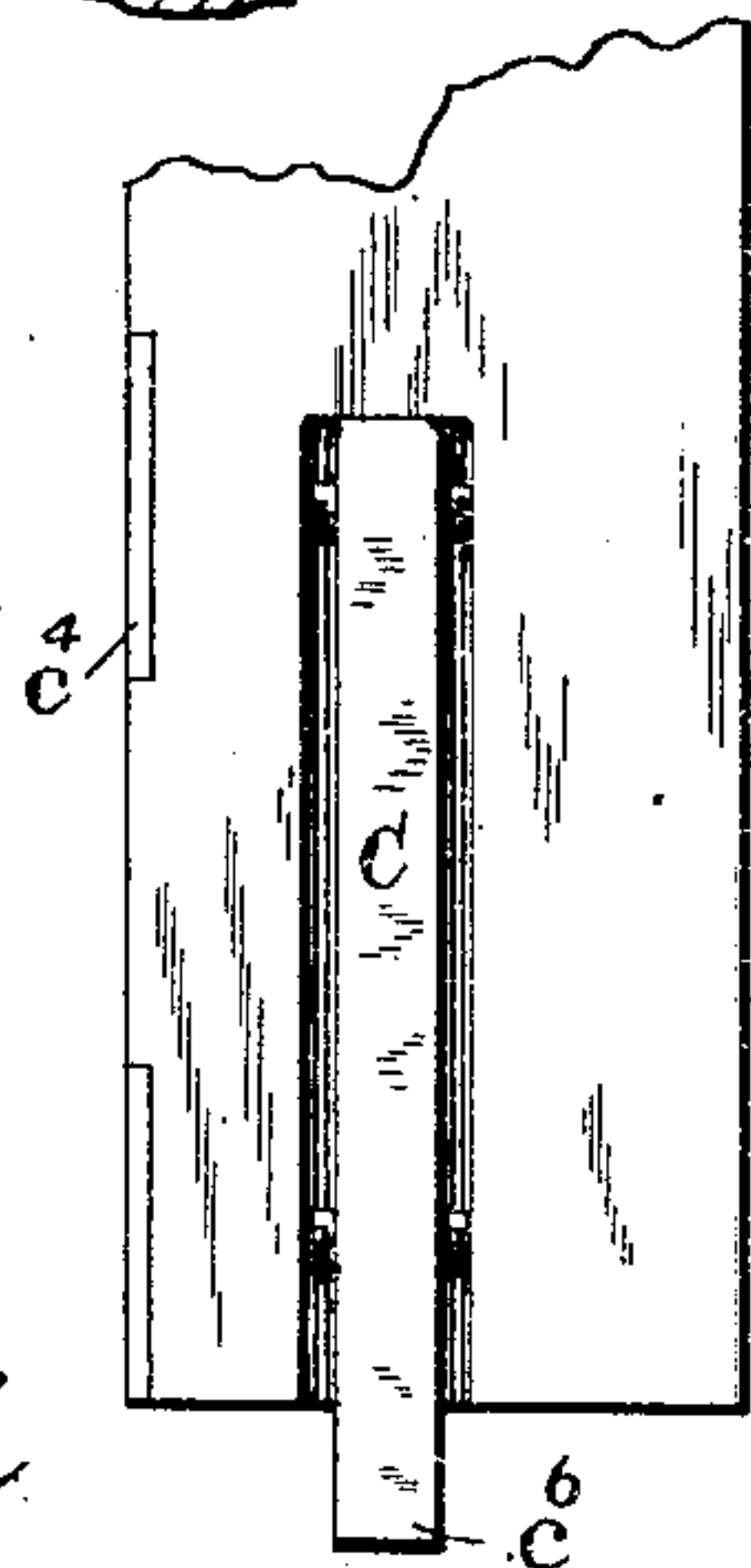


FIG. 5.



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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 480,014, dated August 2, 1892.

Application filed April 18, 1892. Serial No. 429,548. (No model.)

To all whom it may concern:

Be it known that I, WILLARD L. HAWES, a citizen of the United States, residing at Wakefield, in the county of Middlesex, State of Massachusetts, have invented a new and useful Improvement in Piano-Actions, of which the following is a full, clear and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to the class of piano-actions known as the "grand." In such actions the keys, hammers, and intermediate parts are mounted upon a frame which is provided, for well-known reasons, with a slight longitudinal movement when desired to vary the relation which the hammers bear to the strings. It is also necessary in the setting up of the actions as now constructed to adjust the position of the hammers toward and from the agraffe, under which the wires are strung, for the purpose of bringing them into that position in regard to the agraffe as shall give desirable or suitable tone effects and also preserve the wearing properties of the hammers. It is also desirable at times to adjust or move the said hammers after they have once been so adjusted or fixed in relation to the agraffe toward it for the purpose of obtaining the increased brilliancy of tone which often comes from such location of the hammers in relation to the agraffe, and such, for instance, as might be desirable in the temporary use of an instrument in a large hall for concert purposes. The bringing of the hammers into this relation with the agraffe, however, is not a desirable one for them to occupy continuously, because of the increased wear to which the hammers are subjected on account of the fact that they are very liable to strike the agraffe in part as well as the wires. Heretofore, so far as I am aware, there has been no construction whereby the hammers and their support are provided with the last-named adjustment.

In the setting up of the piano-frame it has been customary to obtain the desired relation of the hammers to the strings and agraffe by a laborious process of fitting the key-frame to the key-blocks, as in any act of joining, and after such position has been found the parts are permanently fastened or united to the

frame-work of the piano. It will thus be seen that there is no provision for the easy adjustment of the hammers and key-frame in relation to the agraffe during the setting up of the action, and also no provision for a change in the relation of these parts—namely, the hammers, strings, and agraffe—after the action has been put together and mounted in the piano-case. It will be understood, however, that there has been for years the sliding movement of the key-frame, hammers, &c., lengthwise the piano-frame or toward and from parts called the "key-blocks," which are the abutments at each end of the key-frame, and the connection between the key-frame and key-blocks at each end has been maintained by means of an extension from each end of the key-frame, known as a "bolt" or "key-frame" guide, which enters a recess or socket formed in each key-block, respectively. My invention has to do with these bolts or key-frame guides, and particularly with means for varying the position of the key-frame in relation to them. In other words, instead of joining the end of the key-frame to the key-block by a bolt or construction which provides only for the lengthwise movement of the key-frame in relation to the key-block, I have by making the bolt or key-frame guide laterally movable in relation to the key-frame and key-block established means by which the key-frame and hammers may be moved inward or outward in relation to the front edge or key-slip of the piano front. There are a number of ways whereby this adjustment may be obtained, and I have shown what I consider to be the most desirable in the drawings.

Referring to the drawings, Figure 1 is a view in vertical cross-section illustrating a sufficient portion of a piano action and frame to show my invention. Fig. 2 is a view, part in plan and part in vertical section, of the portion to which the invention immediately relates. Figs. 3, 4, and 5 show modified forms of devices for applying the invention, to which reference is hereinafter made.

In the drawings, A represents the key-frame or composite support upon which the keys and hammer-actions and hammers are mounted.

B represents one of the key-blocks, there being one at each end of the key-frame.

The key-frame, with actions and hammers, is made longitudinally movable in relation to the key-blocks, such movement being imparted to the frame at the desired time by a pedal connected with it. It is necessary that the key-frame and its belongings should be guided during this movement. Consequently the key-frame is provided with two bolts or key-frame guides, one of which is shown marked C, which enter sockets, recesses, or guideways in the key-blocks, one of which is shown and is marked B, being free, however, to slide a limited distance in such holders.

D is the agraffe.

d represents the wires; E, the hammers. It is desirable that the hammers strike the wires, as a rule, slightly beyond the inner edge of the agraffe; but this point, on account of the way in which the action is mounted in the frame, cannot be easily and accurately fixed without requiring a considerable manipulating and changing of the parts, unless there be some means of adjustment whereby this point may be changed easily after the parts have been assembled and united together, and as I have above intimated it is even then desirable to quickly change this point, and what I have said in regard to the necessity for this adjustment relates especially to the upper range of notes rather than to the lower range, so that for the purposes of my invention only the bolt or connection upon that end of the key-frame needs to have the means for inward and outward adjustment referred to.

In Fig. 2 I have represented the bolt C contained in a recess in the end of the key-frame, which expands or widens from its inner end outward, the bolt-frame being pivoted to the frame by the pivot *c*. The bolt also has a threaded nut *c'* near its outer end, through which an adjusting-screw *c²* extends. This adjusting-screw is confined in a hole in the key-frame, and is prevented from having endwise movement by its flanged head *c³* and metal plate *c⁴*. The head of the adjusting-screw has a slot *c⁵* and faces toward the key slip or front of the piano-frame. The outer end *c⁶* of the bolt extends beyond the edge of the key-frame into the holder or recess *c⁷* in the key-block, and while it has endwise movement therein it does not have lateral movement. It will thus be seen that by turning the screw *c²* the key-frame, actions, and hammers are made movable in relation to the key-block and front of the piano, and that the hammers are consequently moved toward or from the agraffe, according as the screw may be turned, while at the same time the key-frame and its bolts are movable lengthwise at will in relation to the key-block.

In Fig. 4 I have represented the bolt as contained in a long recess in the key-frame of uniform width, but wider than the bolt, and the bolt instead of being pivoted has two adjusting-screws carried by the frame running through it, and by turning these screws the frame is adjusted inward or outward in rela-

tion to the bolt, the bolt having its outer end of course held by the key-block.

In Fig. 3 I have shown the position of the pivot and adjusting-screw of the bolt transposed to those they occupy in Fig. 2. This calls for a slightly-different form of bolt-recess in the key-frame, and I prefer when this form of bolt and pivoting is used to back up the pivot by making the sections of the bolt about it curved and causing the wood of the frame to bear against said curved sections.

In Fig. 5 I have represented the bolt as having a sliding connection with the key-frame by a somewhat different means from that represented in the figures above referred to, the bolt being represented as projecting from a slide-frame, which is transversely adjustable upon the end of the key-frame by means of slots *e*, through which fasteningscrews *e'* extend. By loosening the screws the slide may be moved inward or outward in relation to the front edge of the frame and then be rigidly fastened by the tightening of the screws.

If desired, there may be formed in the key-slip the hole *f*, (see Fig. 1,) by which the head of the adjusting-screw may be reached by a screw-driver, or the adjusting-screw may be extended through the hole in the key-slip to bring its end in a constantly exposed and operative position.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A piano-action mounted upon a frame adjustable inward and outward in relation to the bed or key-frame bottom and the key-blocks, whereby the position of the hammers in relation to the agraffe is varied at will, as and for the purposes described.

2. In an action for grand and similar pianos, the longitudinally-movable key-frame carrying the action and hammers, and means for adjusting said frame or one end of it inward or outward in relation to the piano-front and upon the bed, as and for the purposes described.

3. In a grand piano, the combination of the longitudinally and transversely movable key-frame, the hammers and hammer-actions supported thereby, and the agraffe, as and for the purposes described.

4. The combination, in a piano, of a key-frame, the hammers and hammer-actions supported thereby, the agraffe, the key-blocks, and guiding connection between one or both ends of the key-frame and key-block, and means for moving the key-frame and bolt or guide transversely in relation to each other, as and for the purposes described.

5. The combination of the key-frame, the hammers and hammer-actions mounted thereon, the agraffe, the key block or blocks, the bolt or key-frame guide connecting the key-frame at each end with the blocks arranged at one end at least to be adjustable transversely to the frame, with an adjusting-screw carried

by said frame and engaging said bolt, as and for the purposes described.

6. The combination of the key-frame, the key-block, the bolt at one end entering a slide-
5 way in said block and adjustably connected with the key-frame, and means for adjusting said frame on said bolt carried by said frame, as and for the purposes described.

7. The combination of the key-frame, the

key-block, the adjustable connecting-bolt, and 10 the key-slip having a hole by which access to the adjusting-screw is had, as and for the purposes described.

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In presence of—

WILLIAM N. VOGLER,
FRANK W. HAYDEN.