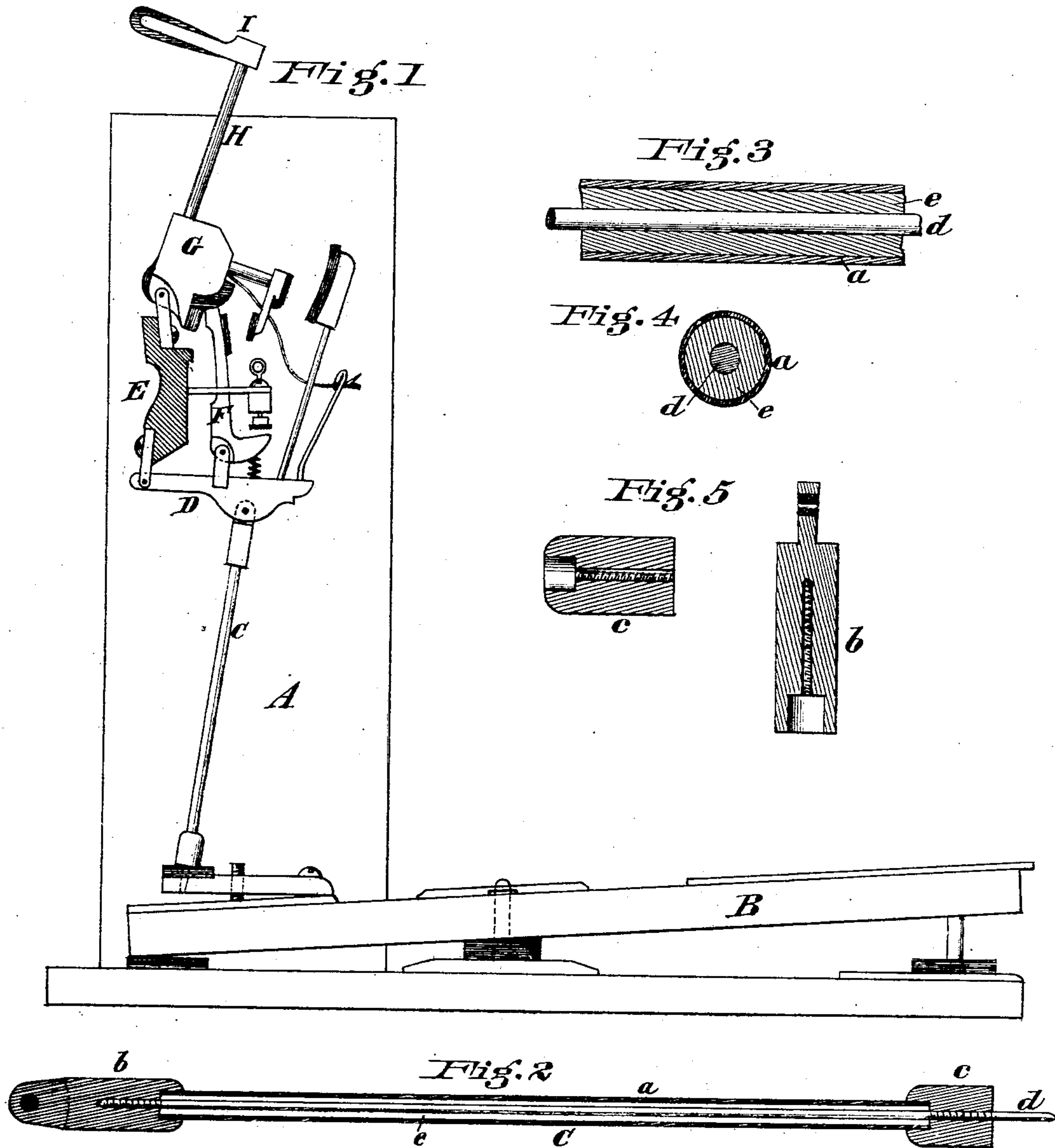


(No Model.)

M. J. CHASE.
Piano Action.

No. 238,214.

Patented March 1, 1881.



Attest

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UNITED STATES PATENT OFFICE.

MILO J. CHASE, OF RICHMOND, INDIANA, ASSIGNOR TO CHASE BROTHERS & CO., OF SAME PLACE.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 238,214, dated March 1, 1881.

Application filed December 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, MILO J. CHASE, a citizen of the United States, residing at Richmond, Wayne county, Indiana, have invented new and useful Improvements in Piano-Actions, of which the following is a specification.

My invention relates to the mechanism or "action" of pianos, in which certain parts—such, for example, as the "extensions" or "lifters" of upright pianos, which are usually strips of wood—are liable to derangement under changes of atmospheric conditions, and its object is to remedy this difficulty and improve the construction of the action.

To this end my invention consists in constructing the lifters or extensions, hammer-shanks, and other similar parts of piano mechanism of metal tubing, as hereinafter more fully described.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a side elevation of a portion of the action of an upright piano, showing the lifter and hammer-shank embodying my invention. Fig. 2 is a longitudinal section of the lifter detached. Fig. 3 is an enlarged section of a portion of the lifter-shank. Fig. 4 is a cross-section of the same, and Fig. 5 sections of the two head-pieces detached.

Similar letters of reference indicate similar parts in the specification and drawings.

In the drawings, A designates the framework of the piano; B, one of the finger-keys of the action; C, the lifter or extension, to which my improvement is applied. D is the jack or fly-lever, pivoted to an arm of the hammer-rail E; F, the "fly;" G, the hammer-butt; H, the hammer-shank, to which my invention is also applied; and I, the hammer-head.

The various parts named are specified for the purpose merely of showing the relative position of the parts to which my invention is applied, and, excepting as to the latter parts, require no further description.

The lifter C in upright pianos is required to be of considerable length; and as it is usually of wood, it is liable to be affected by changes in the humidity or temperature of the atmosphere, and to warp and bend, thus destroying

the delicate adjustment of parts necessary to perfect action.

I construct the lifter of three parts—to wit, a main portion or shank, *a*, and two heads or connection-pieces, *b* and *c*, respectively. The shank portion *a*, in which my invention principally resides, consists of a tube of metal of the required length, which may be provided with screw-threads at each end, and screwed into or upon suitable heads, *b* and *c*, respectively, or, as in the construction preferred, as shown, having extended through its axis a metal rod, *d*, which is provided at its ends with screw-threads entering and engaging the heads *b* and *c*. The latter are recessed for the reception of the ends of the tube in the sockets thus formed, and the tube is firmly held between the heads by means of the tensile strain of the central rod, upon which the heads *b* and *c* are screwed against the ends of the tube, acting as retaining-nuts. The central rod, *d*, is prolonged through the head *c*, and forms a pin, by which the lifter is retained in position on the finger-key B.

I prefer to interpose between the central rod and the tube *a* a bushing, *e*, of cloth, felt, or similar material, which fills the space without adding appreciably to the weight, and also prevents any rattling of parts in case the heads become loose. This construction may be applied to any other part of the mechanism—such as a jack or fly—which has a shank.

The advantages afforded by the metal tubing in attaining stiffness, strength, and permanency, without increasing the weight to a material degree, are sufficiently obvious without special description; and improvement of the entire mechanism in respect to precision of adjustment and certainty and permanency of action in consequence of my invention will also be understood without further reference.

The use of the central rod is not absolutely necessary; nor, when used, is it necessary to screw the heads thereon, as the parts may be held together by extending the rod through and upsetting or riveting the ends against the heads; or the rod may be entirely dispensed with, and the tube either secured around a plug projecting from the heads or to the in-

terior walls of recesses in the heads. These and any other modes of securing the tube-shank to the heads I regard as within the spirit of my invention; but I prefer the mode described and shown as the best for the purpose.

5 Having described my invention, I claim and desire to secure by Letters Patent—

1. A lifter or other similar part of piano-actions, consisting of a shank of metal tubing and terminal heads of wood or other suitable material secured thereupon, substantially as and for the purpose specified.

2. A lifter for piano-actions embodying, in combination, a hollow metal shank, *a*, heads *b c*, and rod *d*, as set forth, and for the purpose specified.

3. A shank for hammers, lifters, and other similar parts of piano mechanism, constructed with two recessed heads of wood adapted to act as nuts on the end of a threaded retaining-rod, and holding between them a metal tube fitted in the recesses, and provided with a bushing of felt or other non-conductor of sound, covering the rod, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MILO J. CHASE.

Witnesses:

C. P. DOOLITTLE,
L. M. HOSEA.