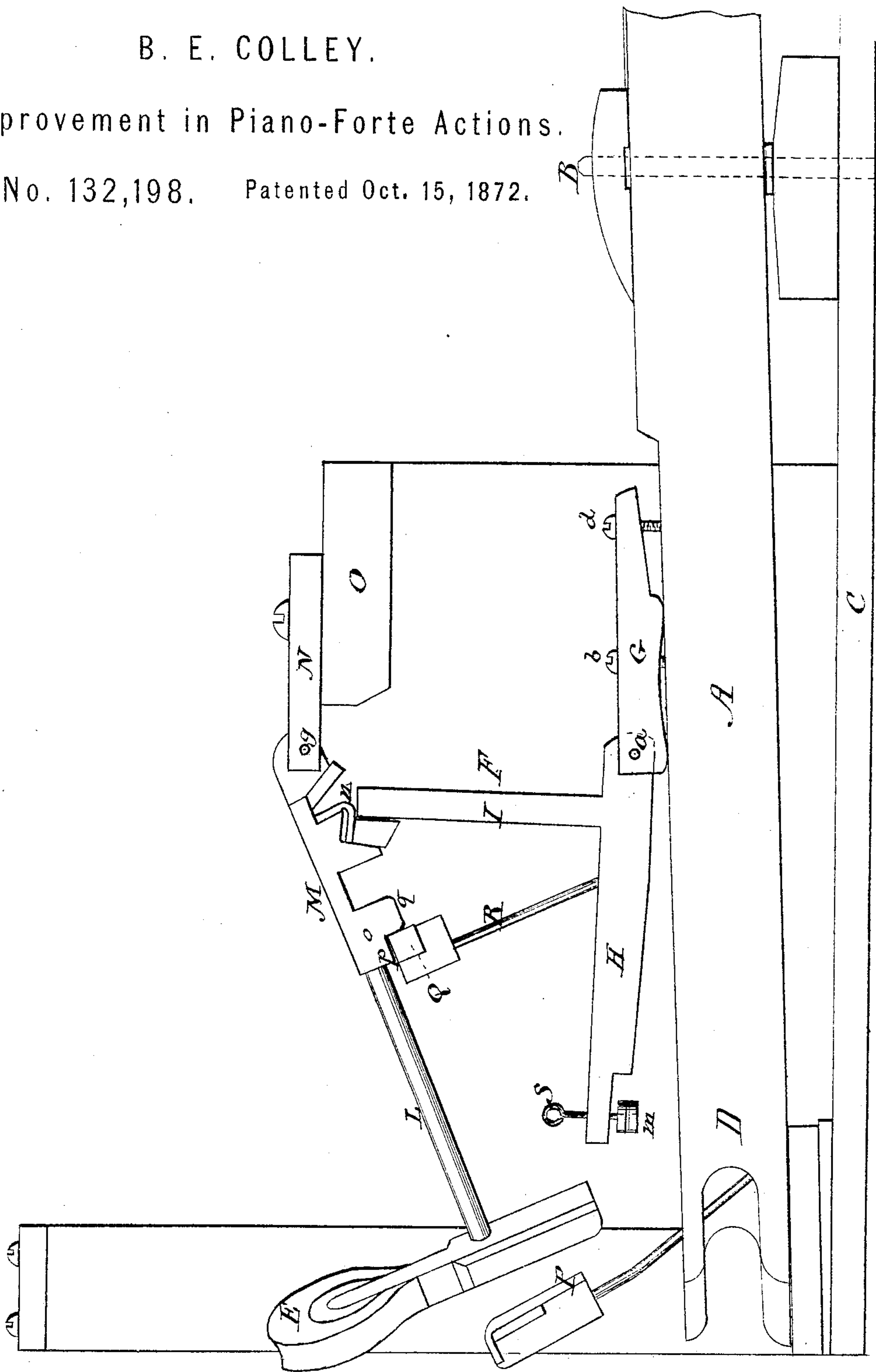


B. E. COLLEY.

Improvement in Piano-Forte Actions.

No. 132,198. Patented Oct. 15, 1872.



WITNESSES.

Edwin W. Brown,
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UNITED STATES PATENT OFFICE.

BENJAMIN E. COLLEY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. **132,198**, dated October 15, 1872.

To all whom it may concern:

Be it known that I, BENJAMIN E. COLLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Piano-Forte Actions; and that the following is a full and exact description of the same, reference being had to the accompanying plate of drawing.

The present invention relates to that class of piano-forte actions in which is employed a jack arranged to escape directly from a butt on the hammer-stem by a movement toward fulcrum of hammer-stem, said jack being provided with an arm extending along and over the key-lever toward its rear or inner end, where the back-catch is located. This invention consists of a combination of parts, all of which are so fully hereinafter described as not to require a preliminary statement.

In the accompanying plate of drawing my improvements in piano-forte actions are illustrated, the figure being a side elevation of a piano-forte action constructed and arranged according thereto.

A in the drawing represents a key-lever, arranged in the ordinary manner, turning upon a pin, B, as a fulcrum, fixed in key-board C at the proper point; D, the rear or inner end of key-lever A, near which end mechanism for imparting motion to a hammer-head, E, is arranged, as will be now explained; F, the jack of the present action. This jack F is constructed of two arms, G and H, pivoted together at *a*, with the one G secured by a screw, *b*, and regulating-screw *d* to key-lever, leaving the other, H, free thereof, the free arm H being provided with a fixed upright, I, constituting the fly of the jack F; E, a hammer-head, secured to one end of stem L, that at its other end is hung through a butt-piece, M, on a fulcrum, *g*, of a bifurcated flange or block, N, secured by screw to rail O, the hammer-stem L through said butt-piece M resting, as will be hereinafter described, upon the fly I to jack F; P, the back-catch, fixed on rear end of key-lever; Q, a cushion, attached to one end of a rod, R, inserted in rear arm H to jack F in position for the hammer-stem L, through butt-piece M, to rest thereon when the action is at rest; S, a screw inserted in extreme inner end of rear arm H to jack F, passing through

the same, and provided with a cap or head, *m*, between it and key. By the screw S the moment of escape of the jack-fly I from butt-piece M is regulated as and in a manner to be presently explained. The butt-piece M is constructed with the usual bearing-surface and corner *n* for the jack-fly I, and, in addition thereto, and of one and the same piece of material, with a rest-block, *o*, having two faces or surfaces, *p* and *q*, the one for the hammer-stem to rest upon the cushion Q of jack F when the action is at rest, and the other for the seat of the hammer-stem on said cushion after the return of the hammer-head from string and the release of its tail-piece from the back-catch in the operation of the action.

The operation of the several parts above described, by depressing the finger end of the key, with the parts properly regulated, is as follows: Depressing the key-lever the hammer-head is raised through the jack-fly and made to strike the string, the jack, in its upward movement, turning upon its fulcrum-pin *a* until its regulating-screw S comes to a bearing on the upper face of key-lever, when it moves as one with the key, escaping by its fly I in its continuous upward movement from the corner of hammer-stem butt, allowing the hammer-head to fall and to be caught by the back-catch, as ordinarily.

Among many advantages secured by my improvements may be mentioned the following: First, that an almost constant communication is maintained between key and hammer-head, enabling repeats to be obtained at any and all positions of the key; second, that the jack-fly has but little distance to travel on the butt M to hammer-stem; third, that through the regulating-screw S the escape of the jack-fly, as described, may be adjusted to occur when the hammer is extremely near the string; fourth, that no springs are employed, and the force of the blow is direct to the hammer, losing nothing by the play of the jack-fly on hammer-stem butt; and fifth, that the regulating-screw is located to allow the action to be regulated when in the piano-forte, placing the regulating-tool down through the strings beyond the edge of sounding-board.

In lieu of securing the rest-cushion Q to rear arm of jack F it might be secured to the fly I;

and it may be, if desired, adapted for elasticity or spring; but the arrangement described produces the result aimed at.

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

The pivoted arms G H, upright I, regulating-screw S, and cushion Q on the rod R, in combination with the rest-faces *p q*, butt M,

and hammer and stem L, all operating substantially as described.

The above specification of my invention signed by me this 26th day of June, A. D. 1871.
B. E. COLLEY.

Witnesses:

EDWIN W. BROWN,
ALBERT W. BROWN.