C. G. BUTTKEREIT.

Improvement in Bell Pianos.

No. 120,415.

Patented Oct. 31, 1871.

Fig. 1

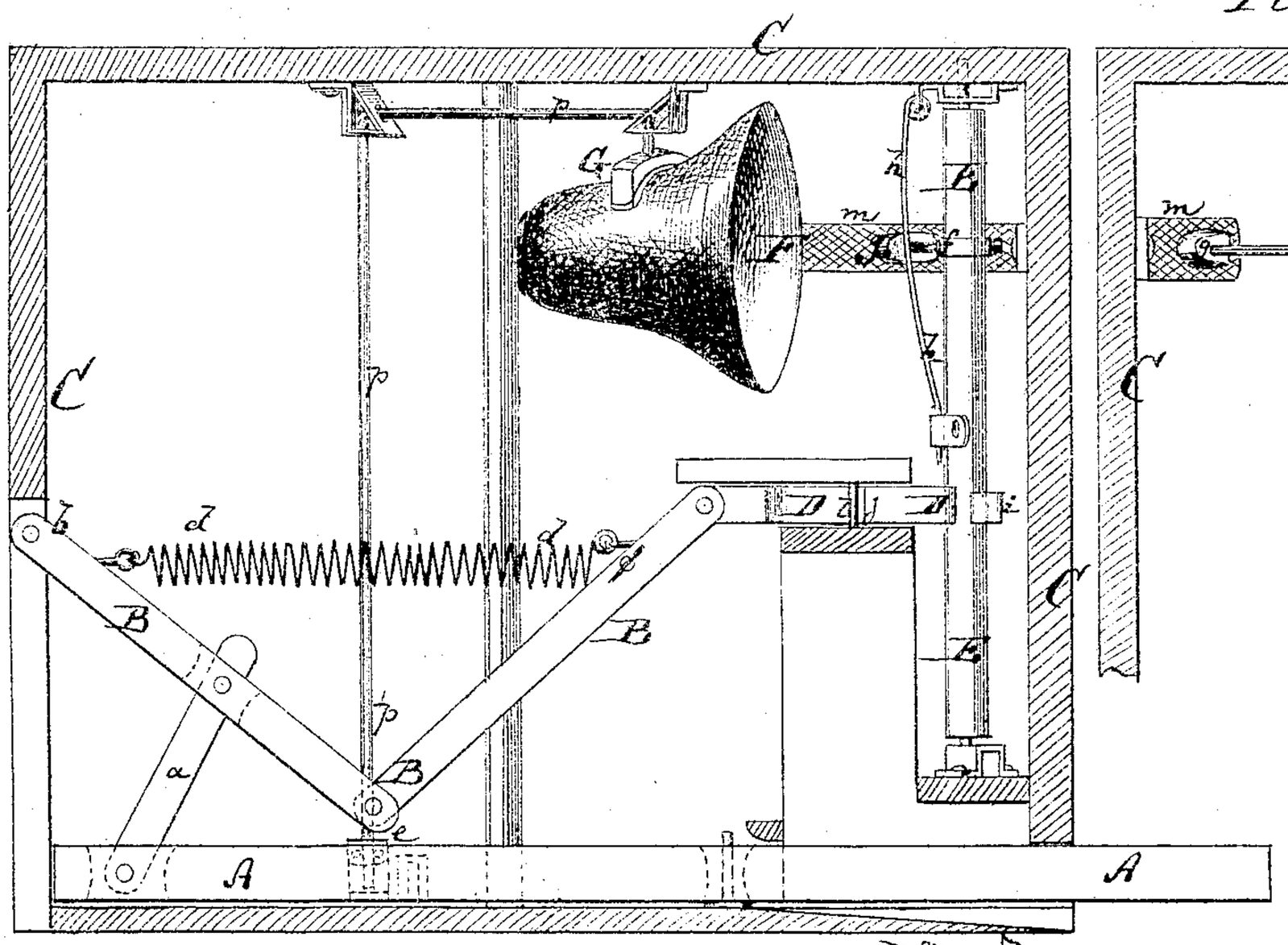


Fig. 2.

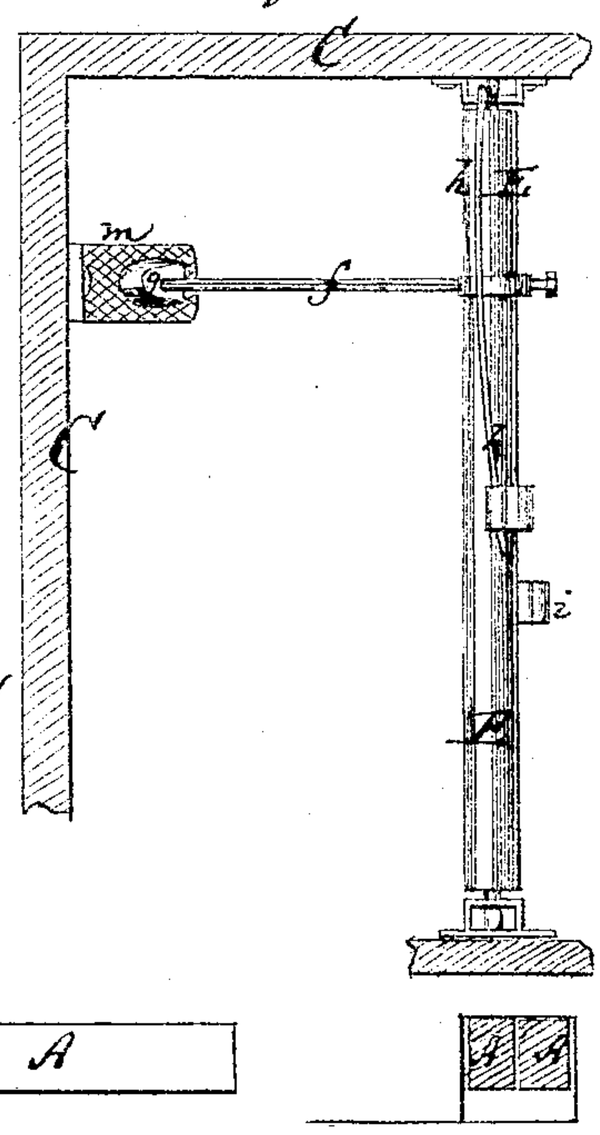


Fig. 3.

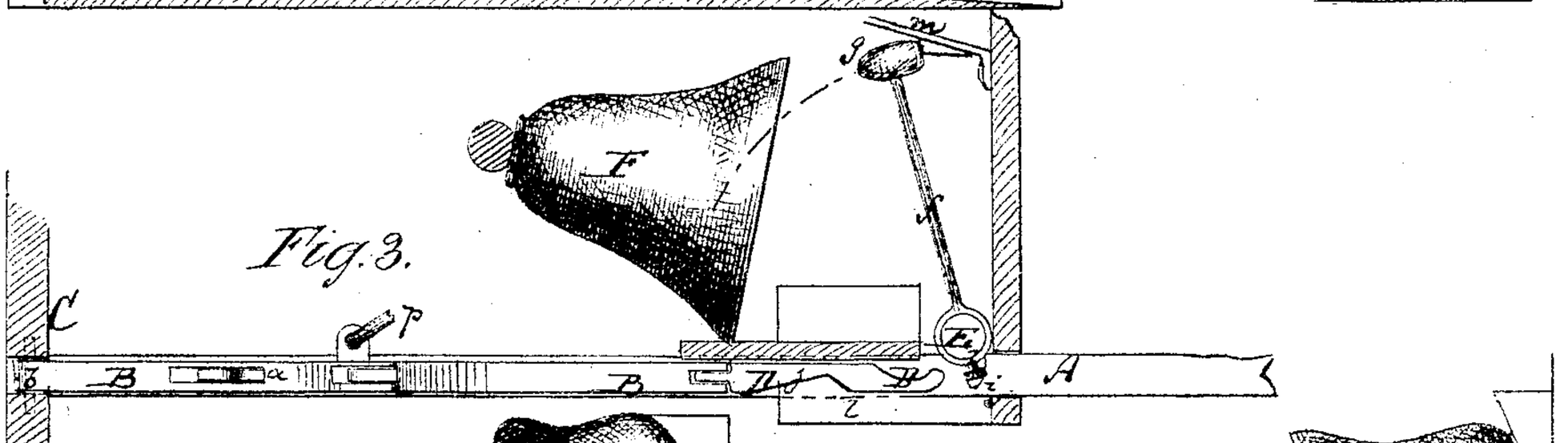


Fig. 4.

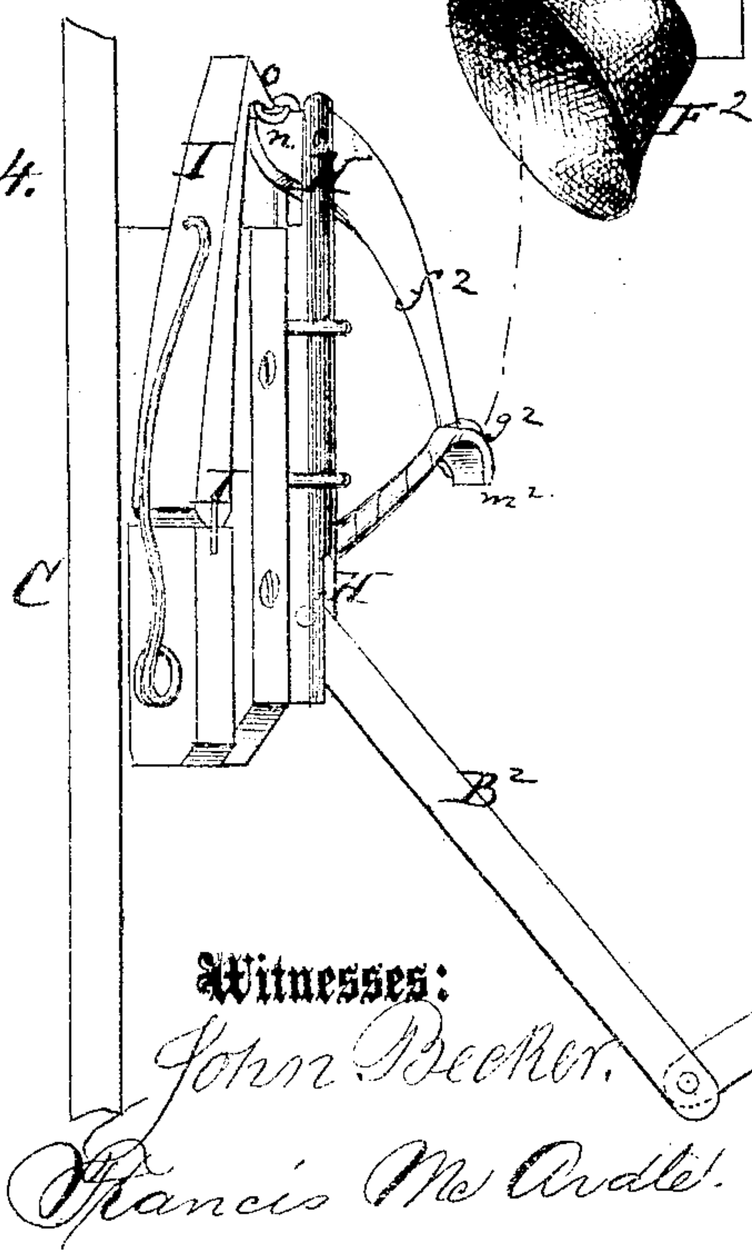
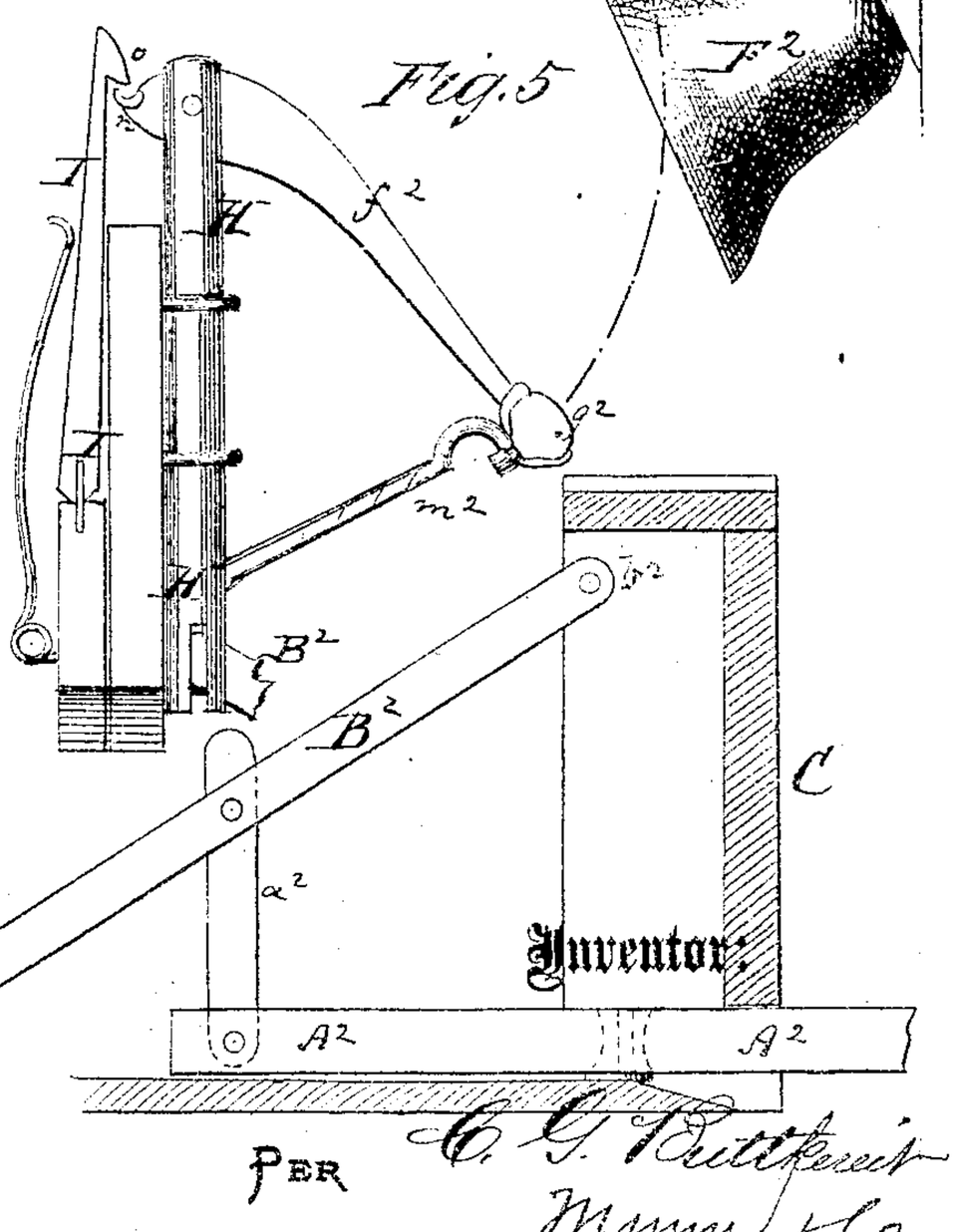


Fig. 5



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UNITED STATES PATENT OFFICE.

CARL GUSTAV BUTTKEREIT, OF TOLEDO, IOWA.

IMPROVEMENT IN BELL-PIANOS.

Specification forming part of Letters Patent No. 120,415, dated October 31, 1871.

To all whom it may concern:

Be it known that I, CARL GUSTAV BUTTKEREIT, of Toledo, in the county of Tama and State of Iowa, have invented a new and Improved Action for Bell-Pianos; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a sectional side view of my improved bell-piano action. Fig. 2 is an end view of the same, showing only the vertical oscillating post and its arm. Fig. 3 is a top view of the action. Figs. 4 and 5 are side views of an action of modified construction.

Similar letters of reference indicate corresponding parts.

My invention consists in actuating bell-hammers for musical instruments, as hereinafter fully described and subsequently pointed out in the claims.

A in the drawing represents one of the keys of the instrument, there being a row of keys on a key-board similarly as on an ordinary piano-forte. Every key A is, by means of an arm, *a*, connected with a pair of toggle-levers, B, pivoted at *b* to the frame C of the instrument, and connected at the other end with a sliding pawl, D. A spring, *d*, draws the arms of the toggles together so that their elbow rests on a pad, *e*, of the key A. E is an upright post, held in the frame C so as to rotate freely on its ends. It carries on a projecting arm, *f*, the hammer *g*, and is connected with a spring, *h*, which turns it so as to keep the hammer away from the belt F, that is rigidly secured to the frame C. *i* is a projecting lug on the post E for the pawl D to act against. When the key A is depressed the toggles are so acted upon as to move the pawl against the lug *i*, thereby causing the post to be turned so that the hammer will strike the bell quickly and sharply. Immediately after the hammer has struck it is rapidly withdrawn from the bell by the spring *h*, its action upon the bell being almost instantaneous. The pawl is hook-shaped and catches over the lug *i* immediately after striking the same, so that the lug will only be struck by the end of the pawl and then enter the concave part of the same, wherein it can turn to permit the aforesaid action of the spring *h* upon the hammer. In being withdrawn from the lug the pawl receives slight lateral motion for the purpose of clearing the lug, and is on this account made with a V-shaped recess, *j*, on its face, which permits it to swing toward a fixed guide-pin, *l*, and thus pass over the lug in the desired manner. The hammer in swinging back from the bell strikes a cushion or band, *m*, which causes the soundless arrest of backward motion. The striking of the toggle-elbow on the pad *e* defines the action of the spring *d* in a noiseless manner. G is a damper, connected by a rod, *p*, with the key A, and drawn by the power of the spring *d* upon the bell. When the key is touched this damper is lifted off the bell, but immediately upon the release of the key it is drawn upon the bell and arrests further vibration of its component parts.

Figs. 4 and 5 illustrate a modification of the action which I propose to use for playing bells of higher notes, while the action already described is to be more particularly applied to bass bells. In the latter case the key A^2 is by an arm, a^2, connected with toggle-levers B^2, which are at b^2 pivoted to the frame C, while their other end is connected with an upright slide H. To the upper end of the slide is pivoted a lever, f^2, carrying the hammer g^2 for striking the bell F^2. When the slide H is raised by the depressing of the key A^2 the short arm *n* of the lever f^2 catches against a hook or nose, *o*, on a spring-plate, I, and is thereby quickly swung so as to carry the hammer against the bell. Directly upon touching the bell the lever is released from the hook *o* and drops back, letting the slide by its own weight carry itself, the toggles, and the key to the position of rest. A cushion, m^2, arrests the fall of the hammer g^2. This last-described action is still more rapid than the first, and therefore preferable for the higher notes.

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

1. The sliding pawl D, hook-shaped, and having the recess *j* to operate and move over the lug *i*, substantially as herein shown and described.

2. The combination of the key A, toggles B, and slide D with the oscillating post E, hammers g, and spring h, substantially as and for the purpose herein shown and described.

3. The damper G and the rod p combined with the bell F and key A, substantially as and for the purpose herein shown and described.

4. The slide H carrying the lever f^2, connected with the spring-plate I having the nose o, all arranged as described for transmitting motion from the key A, rapidly to the hammer g^2 on the lever f^2, as set forth.

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