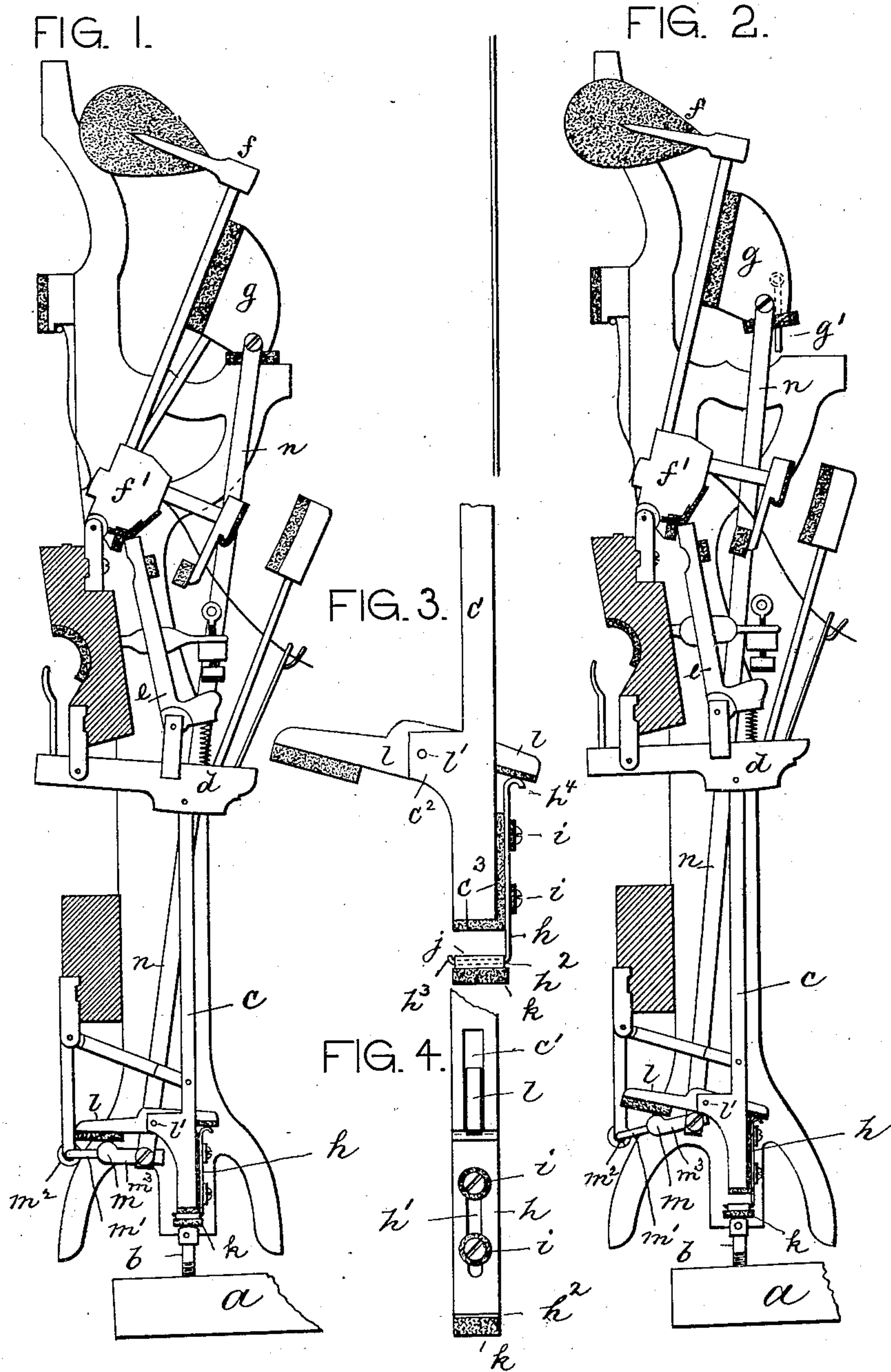


E. BORNHOEFT.
ACTION FOR UPRIGHT PIANOS.
APPLICATION FILED MAR. 16, 1903.

NO MODEL.



Witnesses:
Arthur Gump.
Edward Ray.

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by his attorney
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UNITED STATES PATENT OFFICE.

EDWARD BORNHOEFT, OF NEW YORK, N. Y., ASSIGNOR TO DAVID H. SCHMIDT, OF NEW YORK, N. Y.

ACTION FOR UPRIGHT PIANOS.

SPECIFICATION forming part of Letters Patent No. 730,866, dated June 16, 1903.

Application filed March 16, 1903. Serial No. 147,913. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BORNHOEFT, a citizen of the United States, residing at New York city, Bronx, county of New York, and State of New York, have invented certain new and useful Improvements in Actions for Upright Pianos, of which the following is a specification.

This invention relates to an improved action for upright pianos of the class in which the reach of the action is increased upon the depression of the soft pedal, so as to avoid the formation of an objectionable gap between the jack and the hammer-butt. By my invention this increase in the reach is effected by a slide movably secured to the abstract and having a rearwardly-extending foot which projects between the base of the abstract and the capstan. The slide is readily accessible, may be easily adjusted, and is constructed to effect a noiseless and positive operation of the parts.

In the accompanying drawings, Figure 1 is a side view of an upright-piano action embodying my invention and showing the parts in their normal position. Fig. 2 is a similar view showing the position of the parts when the soft pedal is depressed; Fig. 3, a detail side view of the slide and lower part of the abstract, showing the position of the parts when the soft pedal is depressed; and Fig. 4, a front view thereof.

The letter *a* represents the key of an upright-piano action.

b is the capstan; *c*, the abstract; *d*, the wippen; *e*, the jack, and *f* the hammer.

The hammer-rail *g* is engaged by a lifter *g'*, actuated by the soft pedal, (not shown,) so that the hammer-rail is swung up by the depression of said pedal, and the hammer is thus brought nearer to the string in the usual manner. The raising of the hammer-rail will likewise raise the hammer-butt *f'*, and thus form an objectionable gap between the latter and the upper edge of the jack unless the jack is correspondingly raised. My improved means for raising the jack are as follows: To the lower end of the abstract *c* there is secured at the front thereof a sliding plate *h*, having a longitudinal slot *h'*. This slot is engaged by a pair of cushioned set-screws *i*,

which connect the slide to the abstract and permit the frictional contact between the parts to be regulated. The lower end of the slide *h* is turned backward at right angles to form a flange or foot *h²*. This foot extends directly beneath the abstract *c* and between the latter and the capstan. The foot *h²* is embraced by a flexible endless band *j*, to the lower side of which is glued a cushion *k*, which forms the bearing for the capstan and effects a noiseless and gentle operation. To hold the endless band *j* to the foot *h²*, the rear edge of the latter is slightly turned upward or flanged, as at *h³*. To the front and bottom of the abstract *c* is secured a cushion *c³*, which is interposed between the abstract and the slide. The upper front edge of the slide *h* is turned downward to constitute a curved or hook-shaped bearing *h⁴* for the front end of a two-armed lever *l*. This lever passes through a slot *c'* of abstract *c* and is fulcrumed at *l'* to rearwardly-extending cheeks *c²* of the abstract. The rear arm of lever *l* is engaged by a horizontal rod *m*, extending along the back of the entire action and having rearwardly-projecting arms *m'* turning in fixed bearings *m²*. At its front the rod *m* has an arm *m³*, which is connected to the hammer-rail *g* by a bar *n*.

The operation is as follows: When the soft pedal is raised and the parts are in their normal position, Fig. 1, the hammer-rail *g*, and consequently the rod *m*, are in their lowermost position. Thus the front end of the lever *l* will not influence slide *h*, and the latter remains raised, with its foot *h²* in contact with the cushion *c³* on the bottom of the abstract *c*. When the soft pedal is depressed, it will raise the hammer-rail *g*, and consequently by bar *n* the rod *m*, Fig. 2. This rod will tilt lever *l*, so that the front arm of the latter is swung down to depress slide *h* and cause the lower end of the latter to be projected a distance below the abstract which is proportionate to the upward movement of the hammer-rail. Thus the abstract and the jack are raised and the formation of any gap between the latter and the hammer-butt is avoided.

What I claim is—

1. In an upright-piano action, the combina-

tion of an abstract, with a slotted slide having a rearwardly-extending foot, set-screws for movably securing the slide to the front of the abstract, and means for depressing the
5 slide upon the depression of the soft pedal, substantially as specified.

2. In an upright-piano action, the combination of a slotted abstract, with a slotted slide having a rearwardly-extending foot, means
10 for movably securing the slide to the abstract, a lever projecting through the abstract-slot, a rod engaging the lever, a hammer-rail, and a bar for connecting said rail to said rod, substantially as specified.

15 3. In an upright-piano action, the combination of a slotted abstract having rearwardly-extending cheeks, with a slotted slide having a rearwardly-extending foot, set-screws for securing the slide to the abstract, a lever piv-
20 oted to the abstract-cheeks and projecting through the abstract-slot, a rod engaging the lever, a hammer-rail, and a bar for connecting said rail to said rod, substantially as specified.

4. In an upright-piano action, the combination of an abstract, with a slide thereon having a rearwardly-extending foot, an endless band encircling the foot, and a cushion secured to the band, substantially as specified. 25

5. In an upright-piano action, the combination of an abstract, with a slotted slide thereon having a downwardly-curved upper end, and a rearwardly-projecting foot, substantially as specified. 30

6. In an upright-piano action, the combination of an abstract, with a slotted slide thereon having a downwardly-curved upper end, a rearwardly-projecting flanged foot, an endless band embracing the foot, and a cushion secured to the band, substantially as specified. 35 40

Signed by me at New York city, (Manhattan,) New York, this 14th day of March, 1903.

EDWARD BORNHOEFT.

Witnesses:

FRANK V. BRIESEN,
EDWARD RAY.