

C. OTTO.
DAMPER ACTION FOR PIANOS.

(Application filed June 16, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

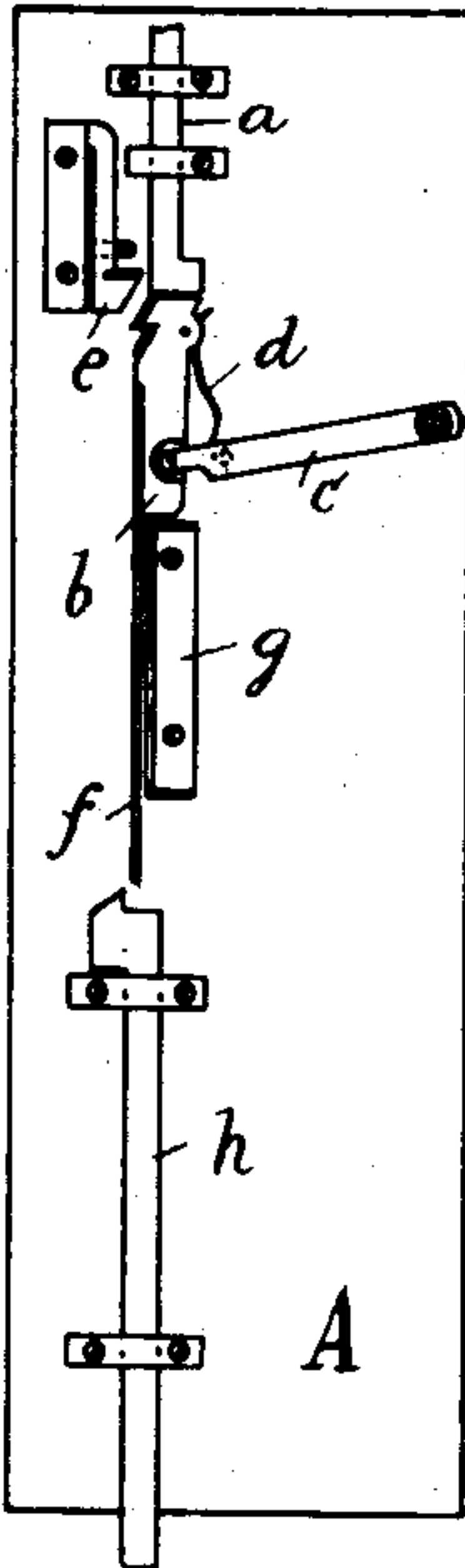


Fig. 2.

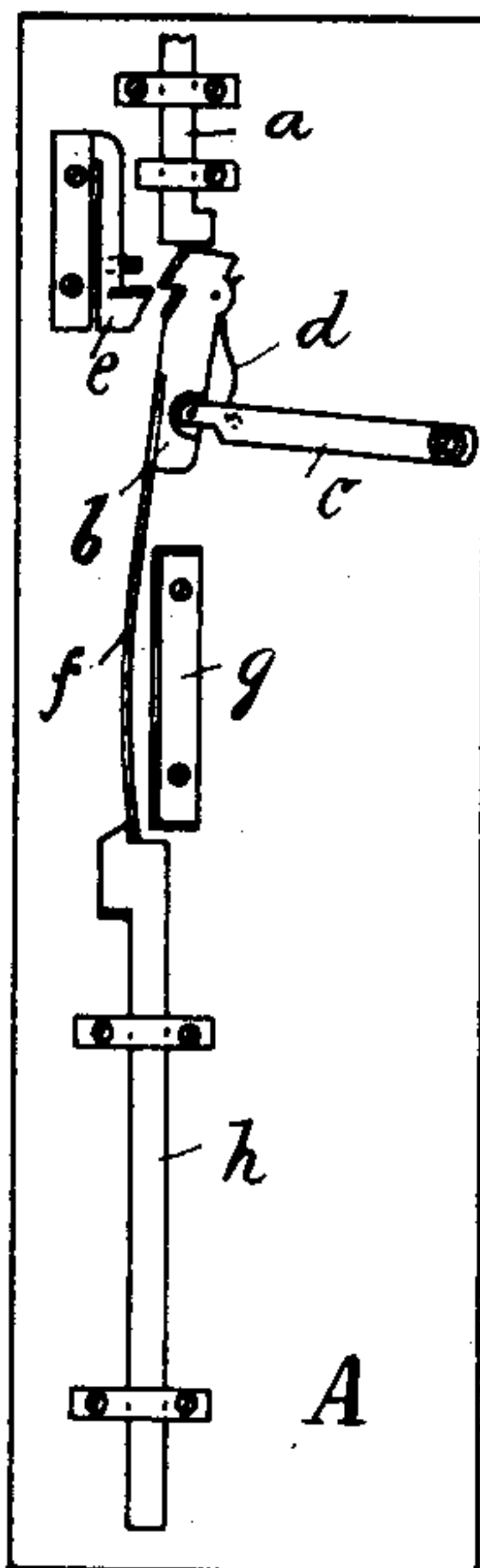


Fig. 3

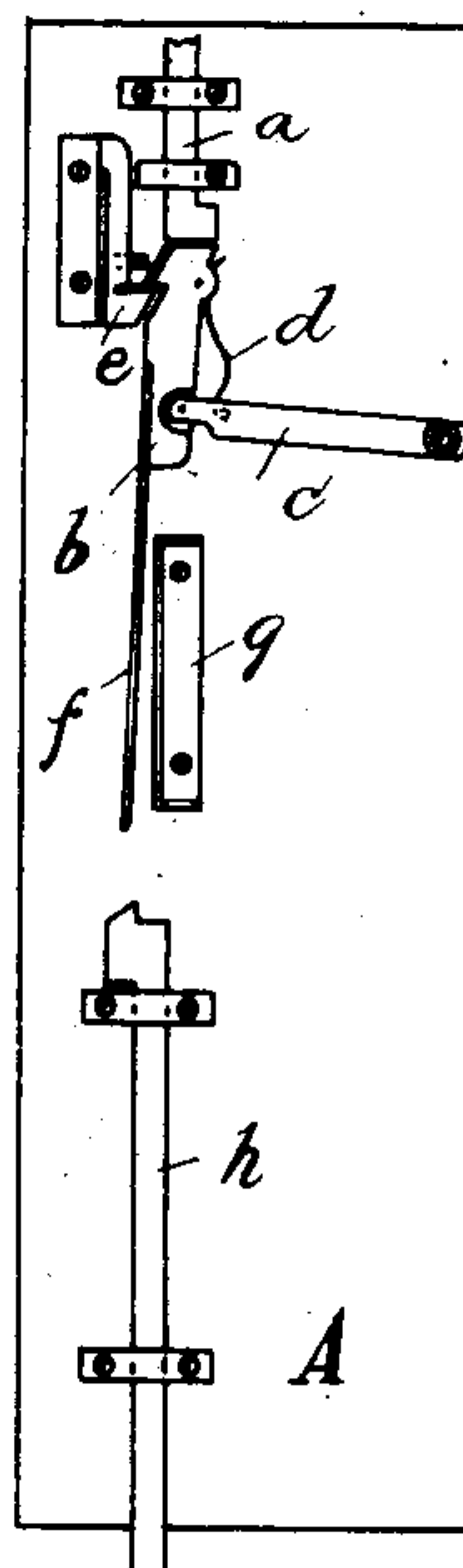


Fig. 4

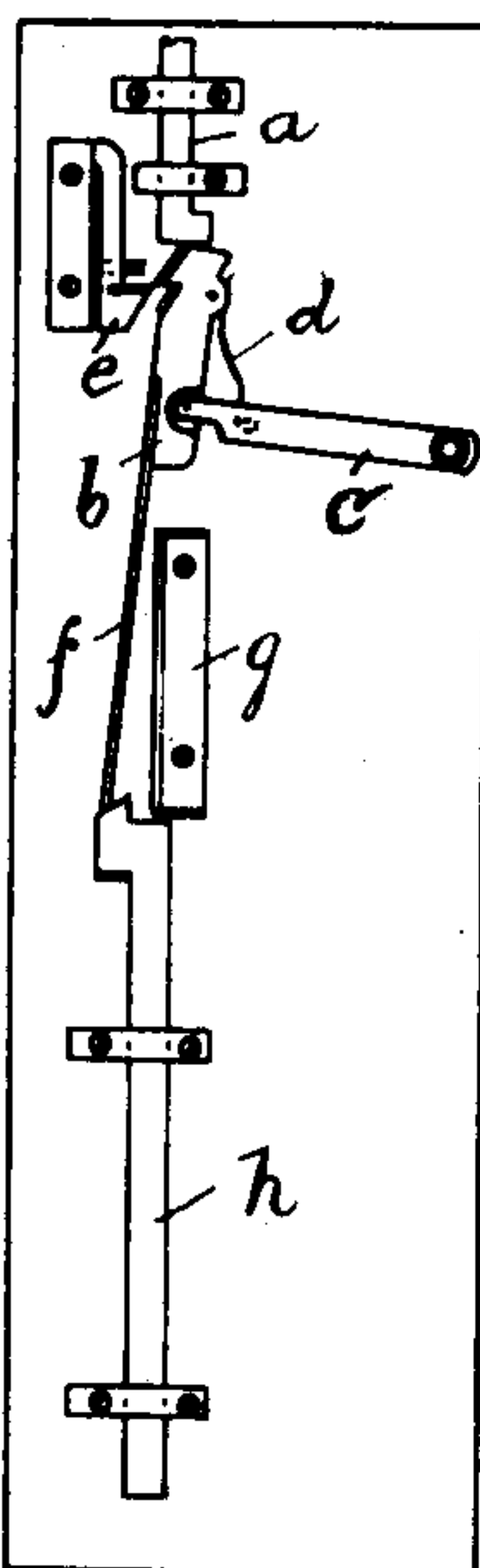


Fig. 5.

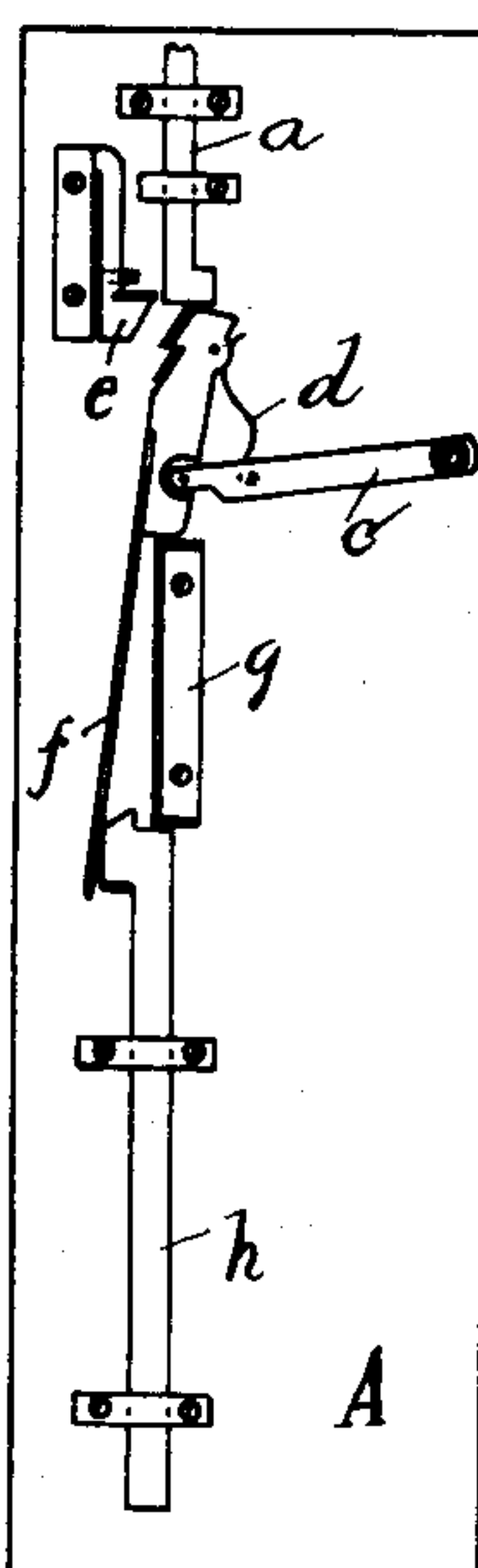
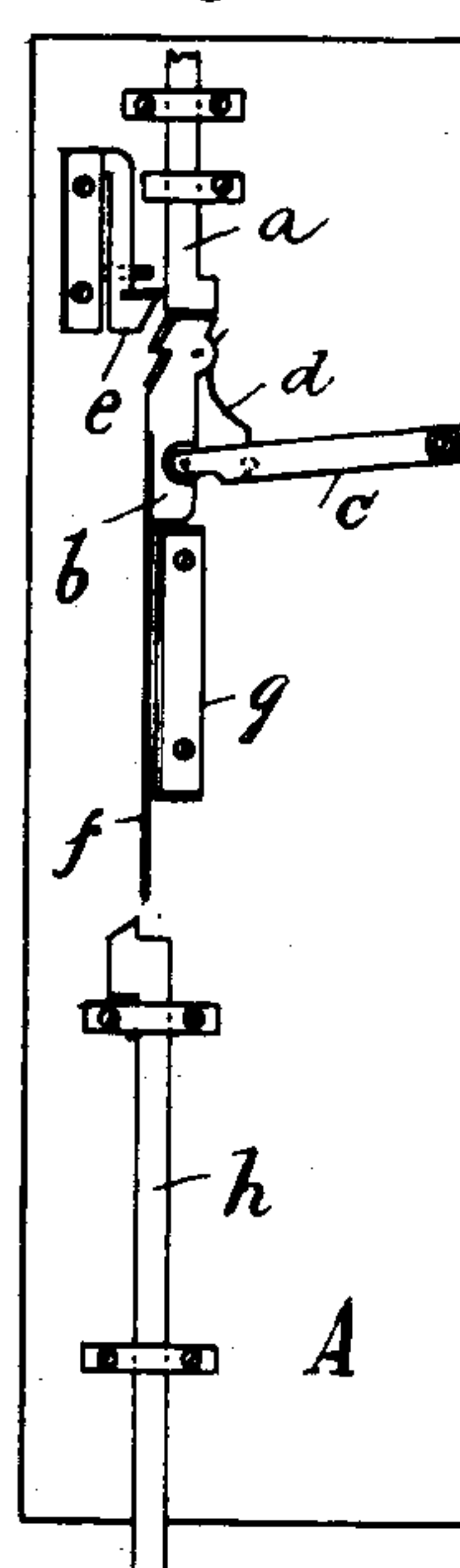


Fig. 6



WITNESSES:

Edw. M. Aldom
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Carl Otto

BY

Richard D.

ATTORNEYS.

No. 713,337.

Patented Nov. 11, 1902.

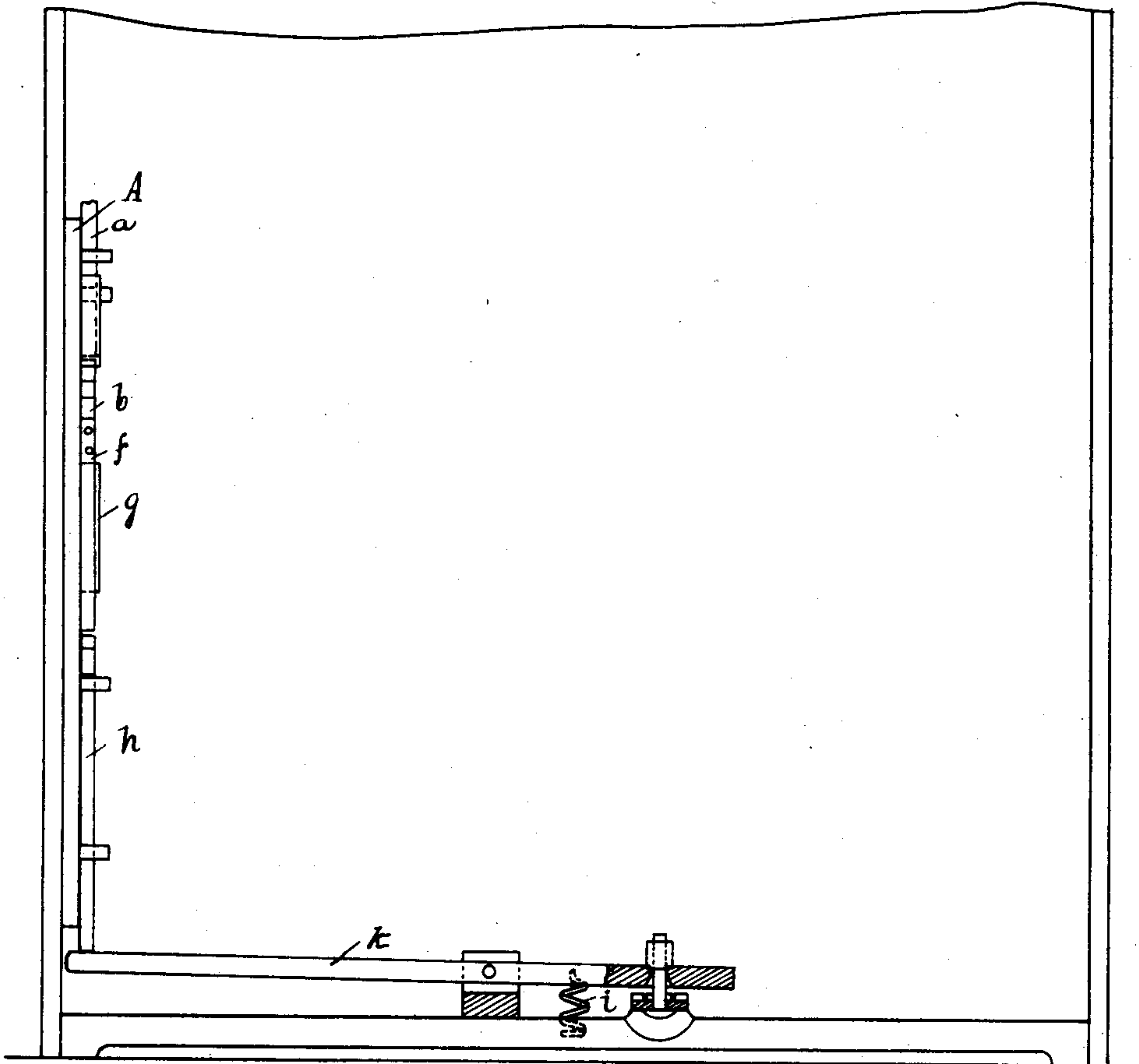
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2 Sheets—Sheet 2.

Fig. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CARL OTTO, OF BERLIN, GERMANY.

DAMPER-ACTION FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 713,337, dated November 11, 1902.

Application filed June 16, 1902. Serial No. 111,903. (No model.)

To all whom it may concern:

Be it known that I, CARL OTTO, piano-maker, a subject of the Emperor of Germany, residing in Berlin, in the Empire of Germany, (whose full postal address is 3 Liegnitzerstrasse, Berlin, aforesaid,) have invented certain new and useful Improvements in Damper-Actions for Pianos, of which the following is a full, clear, and exact specification.

10 This invention relates to a damper-action for pianos in which both the raising and the lowering of the damper is merely effected by means of a pressure exerted vertically on the pedal.

15 The arrangement has for its object to cause the damper-rail to be thrown into action with absolute certainty the first time the pedal is depressed and on the second depression of the same pedal, or, rather, on the succeeding re-
20 lease thereof, to produce the throwing out of action of the damper-rail again with equal certainty, and this in a perfectly noiseless manner. For this object the push-rod serving for alternately raising and lowering the
25 damper-rail is so arranged as to bear with its lower end against a pawl pivotally mounted on a link and provided with a spring projection or prolongation, which pawl when released bears against a stop and when the
30 pedal is depressed is moved upward by means of a pusher provided at the upper end with a beveled tooth and is finally brought into engagement with a firmly-mounted stop or lock tooth, the pawl then remaining stationary in
35 such an inclined position that with a renewed lifting of the pusher, which has returned to its initial position on the before-mentioned release of the pedal, the latter then acts upon the pawl, the beveled edge of its tooth striking against the spring extension thereof, and
40 thus imparting a certain rotation to the latter, and thereby effecting the release of the pawl, so that it again leaves the fixed stop on the release of the pedal, and thus allows the
45 damper-rail to again descend.

This improved arrangement is shown in the accompanying drawings, in which—

Figures 1 to 6 show the different relative positions of the bars produced by the engaging
50 and releasing of the damper-rail, while Fig. 7 shows the arrangement of the mechanism

inside the piano and the connection with the pedal.

On a board A, which is fixed on one of the side walls inside the piano, a pawl *b* is mounted by means of a link *c*. The pawl *b* is pivotally mounted on the link *c* and has at its lower end a strip-spring *f*. Beneath the pawl a support-rail *g* is fixed on the board A. On this rail the pawl *b* rests when released, and it is also pressed by the action of a spring *d*, so that the strip-spring *f* bears against the front face of the support-rail *g*. The strip-spring *f* is so calculated that it projects more or less beyond the end of the supporting-rail *g*, according as the pawl is released, Figs. 1 and 6, or is in an engaged position.

Above the pawl *b* a stop-tooth *e* is arranged on the board A, which tooth is adapted to be adjusted more or less into the track of the pawl. This tooth and the pawl are provided with beveled engaging surfaces. The push-rod *a* bears on the pawl *b* and is connected with the damper-rail of the piano in any usual known manner.

Beneath the support-rail *g* a pusher *h* is suitably guided on the board A. It is made broader at its upper end and provided with a notch and with a tooth beveled off to the outside, as shown.

The board A is fixed on one of the two side walls of the piano, Fig. 7, and the lower end of the slide or of the pusher *h* is connected with a lever *k* of the pedal.

The mode of action of this improved damper mechanism is as follows: Assuming the damper-rail to be lowered, the pawl *b* will be disengaged and resting on the support-rail *g*, Fig. 1. If the pedal of the lever *k*, Fig. 7, be then depressed, the pusher *h* is moved upward and its notch engages beneath the strip-spring *f* of the pawl *b*, Fig. 1, and presses the latter also upward. As soon as the beveled head of the pawl encounters the similarly-beveled stop-tooth *e* the pawl *b* in consequence of the wedge action of the beveled surfaces is turned, together with the link *c*, on its bolt, bending the strip-spring *f* to a certain extent and also pressing back the spring *d*, Fig. 2. The pawl slides upward over the face of the stop-tooth *e* until it passes the edge of the latter, and then en-

gages over the tooth under the pressure of the spring *d*. By this means the pawl remains standing in a somewhat-inclined position. This inclined position is produced by
 5 a beveled surface formed beneath the tooth of the pawl, which bears on the beveled surface of the stop-tooth. When the pressure exerted on the pedal ceases, the lever *k* swings back under the influence of its spring *i*, the
 10 pusher *h* sinks downward and releases the strip-spring *f*, which immediately assumes an inclined position corresponding to the inclined position of the pawl *b*, Fig. 3. If a fresh pressure be exerted on the pedal, and
 15 thereby the pusher *h* again lifted by means of the lever *k*, the upper beveled edge of the pusher then engages beneath the strip-spring *f* of the pawl, Fig. 4, and causes the swinging back of the pawl *b*, compressing the spring *d*.
 20 The pawl thus quits the stop-tooth *e* and is then pressed downward by the weight of the damper-rail resting on the push-rod *a* until it again rests on the rail *g*, Fig. 5. If then

the pedal be released, the pusher *h* slips back into its lower position, and the pawl *b* under 25 the influence of its spring *d* is pressed forward, so that the strip-spring again bears against the side of the supporting-rail *g*. The strip-spring now again stands behind the tooth of the pusher *h*, Fig. 6. 30

I declare that what I claim is—

In a damper-action for pianos for the purpose set forth, the combination with a push-rod *a* for raising and lowering the damper-rail, of a pawl *b*, a link *c* on which said pawl 35 is mounted, a strip-spring *f* attached to said pawl, a stop-tooth *e*, a fixed supporting-rail *g*, a pusher *h* provided with a beveled tooth, and means for pushing up the said pusher, substantially as set forth. 40

In witness whereof I have hereunto set my hand in presence of two witnesses.

CARL OTTO.

Witnesses:

HENRY HASPER,
 WOLDEMAR HAUPT.