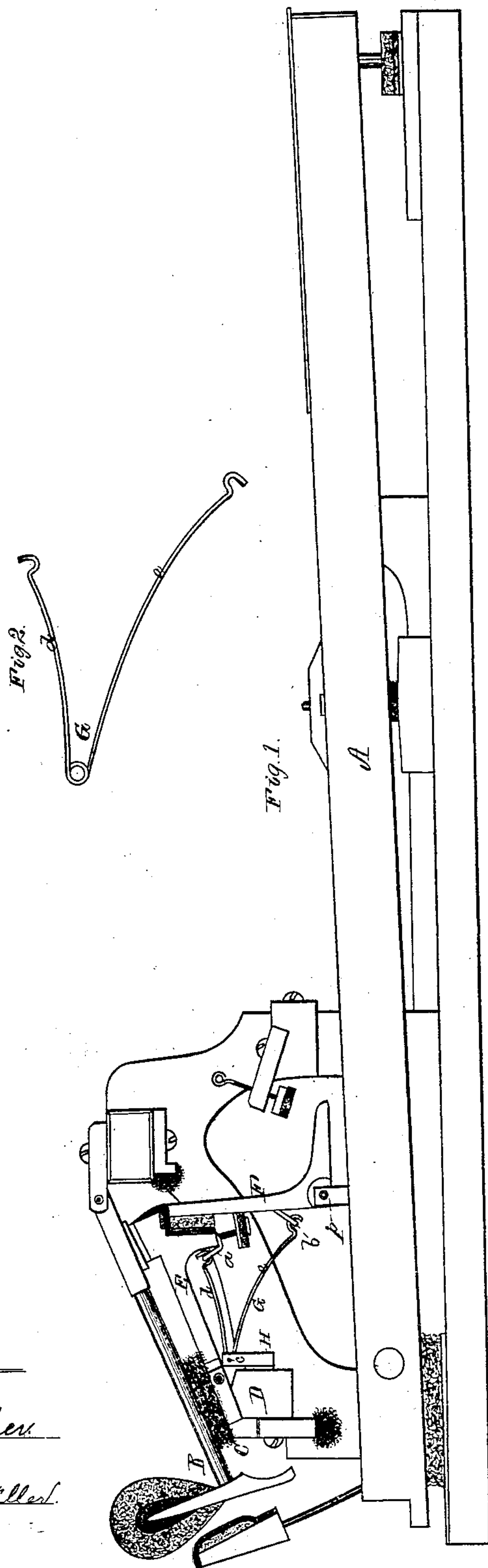


F. St. AMANT.
Piano Forte Action.

No. 201,461.

Patented March 19, 1878.



Witnesses.

S. W. Piper.

L. N. Möller.

Inventon
Francis St. Amant.

by his attorney:

R. H. Eddy

UNITED STATES PATENT OFFICE.

FRANCIS ST. AMANT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. **201,461**, dated March 19, 1878; application filed January 2, 1878.

To all whom it may concern:

Be it known that I, FRANCIS ST. AMANT, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Grand or Square Piano-Forte Actions; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a side elevation of an action embracing my invention, in the carrying out of which I arrange between the fly and the rear end of the key, and directly underneath and close to the hammer-elevator, and in front of the hammer-rest rail, or between such rail and the fly, the supporting-pivot of the duplex spring of the jack or fly and the hammer-elevator, such enabling a much lighter spring to be used, and requiring very much less counterbalancing of the key, than under the construction and arrangement of the said spring in practice prior to my invention.

In the old plan of arranging the spring it was extended underneath the rail, and had its pivotal post affixed to the rear side thereof, whereby the rail was brought between the post and the fly. As a consequence, the two arms of the spring had to be equal, or about equal, in length, and very much longer than those of the spring required under my invention.

With my improvement the upper arm of the spring becomes only about half the length of the lower one. As a consequence, it has double, or about double, the leverage, and effects the upward movement of the hammer-elevator with about half the pressure or power on the key that is required under the old form and arrangement.

In the drawings, A denotes the key; B, the hammer; C, the hammer-rest; D, the hammer-rest rail, and E the hammer-elevator, or "under hammer," as it is sometimes or generally termed.

The fly or jack is shown at F, it being pivoted to the key or a short post, *p*, projecting up therefrom.

The duplex spring connected with the fly or jack and the hammer-elevator is shown at G, a side view of it being represented in Fig. 2. Its ends are hooked, and engage with loops *a b* extending from the fly and the elevator in manner as shown.

The pivotal standard or post H of the spring is fastened to the front side of the hammer-rest rail D, so as to bring the pivot *c* of the spring between the rail and the fly and underneath and close to the hammer-elevator E when in its lowest position.

The upper arm *d* of the spring, as hereinbefore mentioned, is thus rendered about half the length of the lower one, *e*, and, besides, the spring is required, by my improvement, to be very much less in length and diameter than it would be were it extended under and across the rail D to a pivotal post fixed to the rear side thereof, whereby the rail would be between such post and the fly.

By arranging the spring between the fly and the rear end of the key, and in other respects as described, the fly becomes disposed between the spring and the pivot of the key and in front of the hammer-elevator, and consequently the pressure of the spring, the fly, the elevator, and the hammer is much less on the key than would be the case when the fly is near or close to the rear end of the key and the elevator and hammer are arranged between such fly and the pivot of the key, as shown in the United States Patent No. 14,383.

By my arrangement very much less lead is required in the front part of the key, little, if any, being necessary to counteract the back pressure on the key. Thus, in such respect, I am enabled to effect an important reduction in the expense of construction of the action.

The change effected by my improvement, besides materially diminishing the cost of the action, enables it to operate and to be operated to very much better advantage, comparatively to what follows with the old arrangement of the duplex springs.

I claim—

In combination with the key A, hammer-rest rail D, elevator E, and fly F, arranged as set forth, the duplex spring G, connected with the said fly, elevator, and rail, and disposed underneath the elevator and between the fly and the rear end of the key, and having its pivot in close contiguity with the elevator, essentially as represented.

FRANCIS ST. AMANT.

Witnesses:

R. H. EDDY,
JOHN R. SNOW.