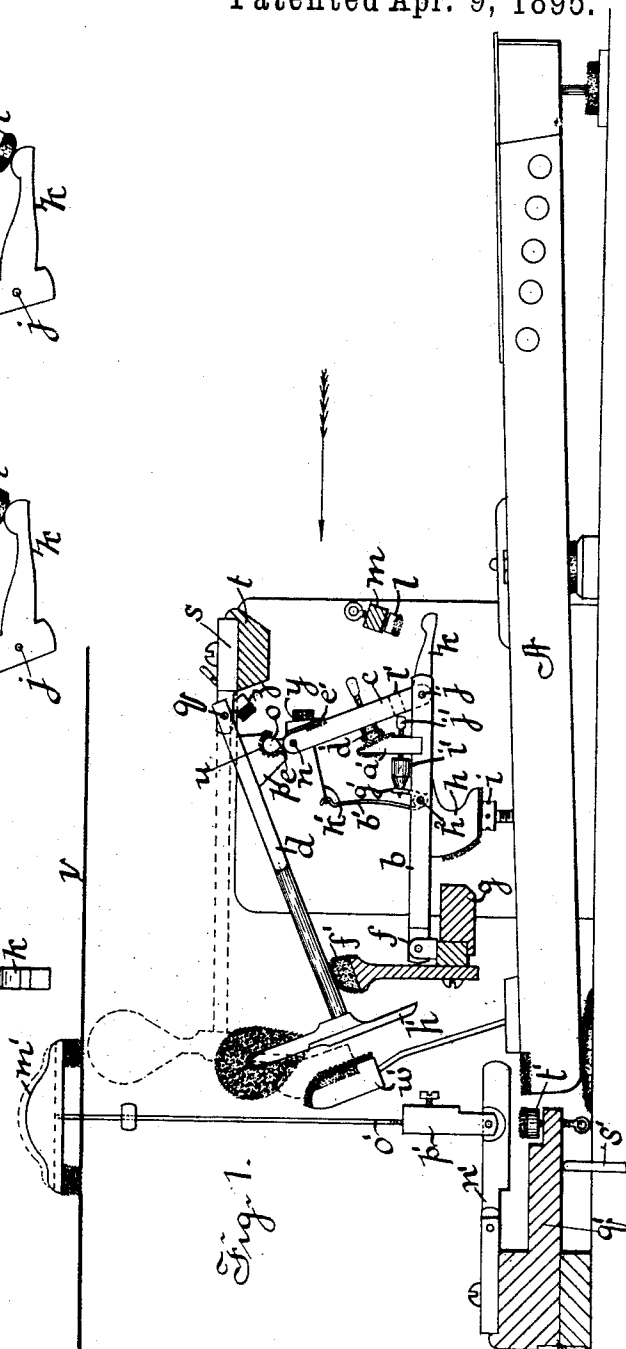
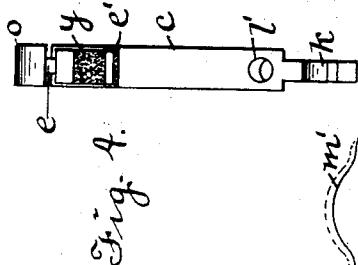
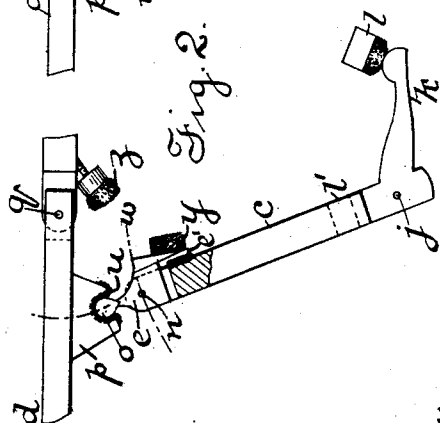
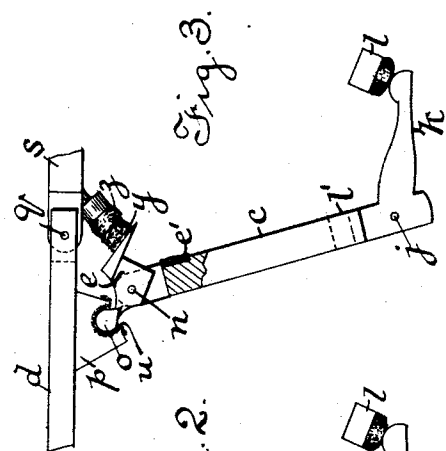


(No Model.)

A. FELLDIN.
PIANO ACTION.

No. 537,145.

Patented Apr. 9, 1895.



Witnesses.

J. Morgan
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Inventor.

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UNITED STATES PATENT OFFICE.

ABRAHAM FELLIDIN, OF AUBURN, NEW YORK.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 537,145, dated April 9, 1895.

Application filed June 29, 1894. Serial No. 516,047. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM FELLIDIN, a citizen of the United States, and a resident of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification.

My invention relates to grand actions for horizontal pianos and it consists in the hereinafter described and claimed improvements in the hammer lifting or thrusting and escaping devices, reference being made to the accompanying drawings, in which—

Figure 1, is a side elevation of my improved action with the supporting rails in cross section. Fig. 2, is a detail in side view with part in section showing the position of the hammer-lifter and hammer-staff just prior to the escapement of the lifter preparatory to the falling back of the hammer after striking the string. Fig. 3, is a similar detail showing the positions of the lifter and hammer-staff after the escapement. Fig. 4, is a front elevation of the lifter as seen looking in the direction of the arrow at Fig. 1.

A represents the key; *b*, the hammer-lifter carrying lever; *c*, the hammer-lifter; *d*, the hammer-staff, and *e* the fly-jack or escapement device connecting the upper end of the hammer-lifter and the hammer-staff.

The lever *b* is pivoted at *f* to its support on the rail *g*, and rests by the foot *h* on the adjusting button *i* of the key in the usual manner, and also has the hammer-lifter *c*, pivoted to it at *j*, in the usual manner, said hammer-lifter having the rigid arm *k* reaching outward beyond the free end of lever *b*, under the button *l* supported on the rail *m* for effecting the escapement of the fly-jack at the proper time. The fly-jack is a short link pivoted in the upper end of the hammer-lifter *c* at *n*, and having a T-head *o*, at the upper end lodged in the cushioned notch *u* in the under side of the block *p*, attached to the under side of the butt of the hammer-staff, said staff being pivoted at *q* to the block *s* attached to the upper side of the rail *t*.

The notch *u* in the block *p* bears such relation to the lifter *c* and the pivot *q*, of the hammer-staff, and the length of the fly-jack is such that when in the rise of the hammer it reaches the point indicated by dotted lines in Fig. 1,

and the full lines in Fig. 2, where the escape of the hammer-lifter should occur to allow the hammer to fall away from the string *v*, the free end of the arm *k* comes in contact with the button *l* and effects the escapement by swinging the fly-jack on the line *w*, from the position shown in Fig. 2, to that shown in Fig. 3, the first however, giving a slight rise to the hammer for striking the string, this being effected by the further rise of the lifter after arm *k* strikes button *l*, and before the fly-jack swings off far enough for the hammer to fall.

The limit of the fall of the hammer for clearance of the string is governed by the arm *y* of the fly-jack coming in contact with the button *z*, its position being then about the same as prior to the beginning of the escapement, but with the back or lower end *h'* of the head resting on the back-check *w'* as shown in dotted lines in Fig. 1.

When the key is released and the parts return to the normal positions the lifter *c* is pulled back to its resting place against the post *a'* carried on the lever *b* by the spring *b'* pivoted on said lever at *h²*, the adjustable button *d'* on the lifter forming the bearing of said lifter on said post. The arm *y* of the fly-jack then comes to rest against the cushion *e'* on the lifter and the hammer-staff falls onto the hammer rest *f'*.

It is to be noted that the fly-jack forms a kind of toggle jointed connection between the upper end of the lifter and the block of the hammer-staff, which instead of being pivoted to the block has the T-head *o*, lodged in the notch of the block so that the connection is formed by merely dropping the hammer-staff block on the T-head and may be disconnected by lifting it off, and the head and notch form ample bearing surface for substantial durability in the matter of wear. This improved escapement device is found in practice to have special high merit for rapid repeating, and is believed to be superior in all other respects as well.

To provide a simple and effective contrivance for regulating the tension of the lifter retracting spring, I make an eye at *g'* in the upper end of the short arm of the spring, and fit therein the cone pointed block *i'* carried on the adjusting screw *j'* in the post *a'*, this being a very simple device which makes auto-

matic connection when the spring is hooked on to the cord or wire *k'* connecting it with the lifter and allowing the screw *j'* to turn freely for altering the tension. A hole *l'* is bored through the lifter *c* through which to apply a wrench or key to adjust the screw.

As pianos are now constructed, the dampers *m'* are connected to the damper levers *n'* by rods *o'* fixed extensibly in the socket piece *p'* as here shown for adjusting the dampers relatively to the strings, which is very satisfactory so far as the action of the dampers individually by the keys is concerned, but when it is wanted to control the dampers collectively by the pedals through lifting the hinged plate *q'* as by the rod *s'* actuated by a pedal, it is found that the dampers individually adjusted relatively to the keys will not be so that any fixed rail or other device applied to plate *q'* for actuating them collectively, will actuate them alike, which is very desirable, wherefore, I provide an adjustable button *t'* on the hinged plate *q'* to each damper lever *n'* which being adjusted relatively to the dam-

per levers enables uniform action of the dampers collectively by the pedals.

I claim—

1. The combination with the hammer-lifter and the hammer-staff, of the notched block on the under side of the said hammer-staff, the T-headed fly-jack pivoted in the upper end of the hammer-lifter, said fly-jack having its T-head lodged in the notch and also having the stop arm and the stop limiting the escapement of the fly-jack substantially as described.

2. The combination with the short arm of the hammer-lifter retracting spring formed with an eye in the end, of the cone pointed head of the adjusting screw for said spring engaging the eye of said short arm of the spring substantially as described.

Signed at Auburn, in the county of Cayuga and State of New York, this 28th day of May, A. D. 1894.

ABRAHAM FELLDIN.

Witnesses:

FRED B. CATTON,
BREDO HERMANSON.