(No Model.) 3 Sheets—Sheet 1.

P. MENGES.

REPEATING ACTION FOR UPRIGHT PIANOS.

No. 326,576. Patented Sept. 22, 1885.

Fig. 1

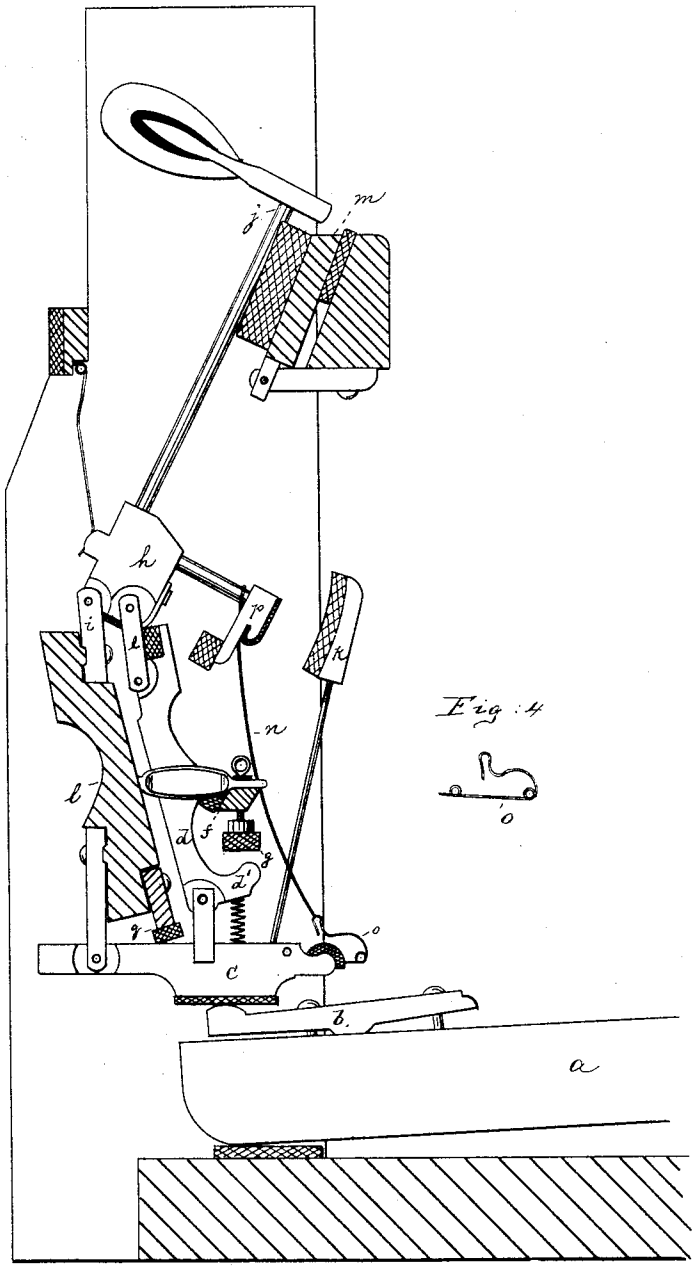


Fig. 4

Witnesses:
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M. E. McHugh

Inventor:
Philipp Menges
by his attorneys
Roeder & Briesen

N. PETERS. Photo-Lithographer, Washington, D. C.

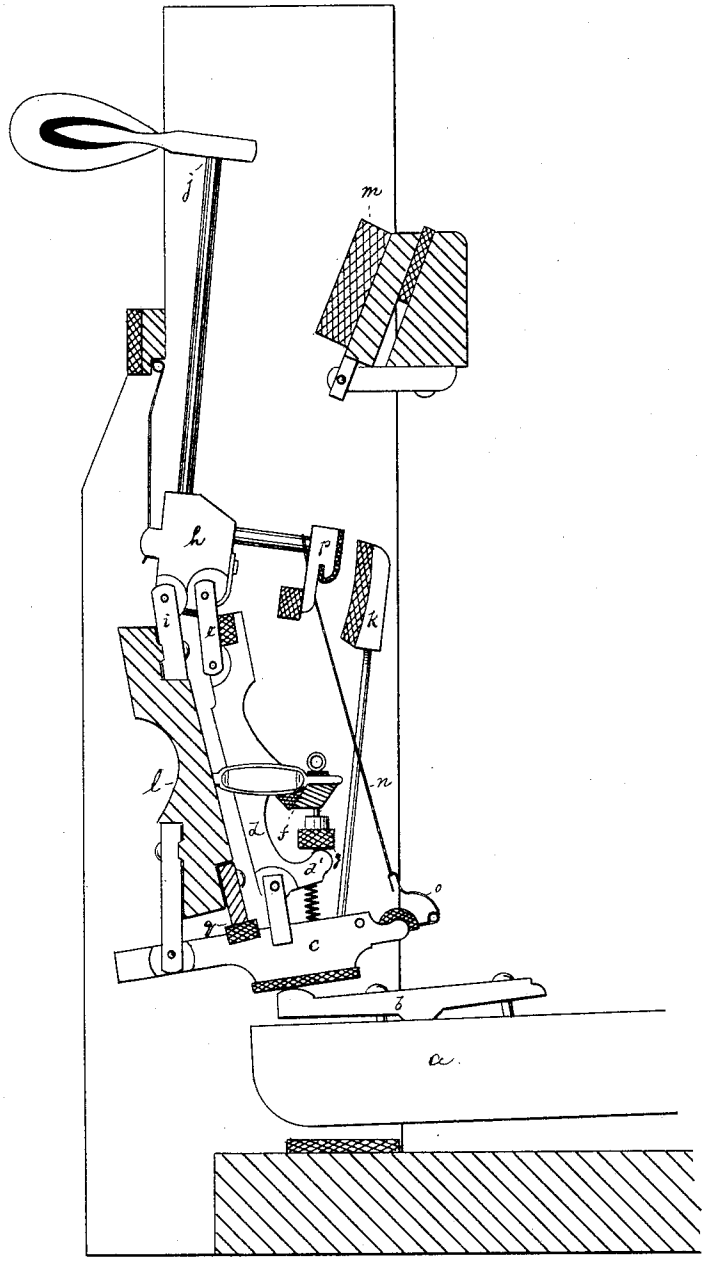
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Fig. 2.



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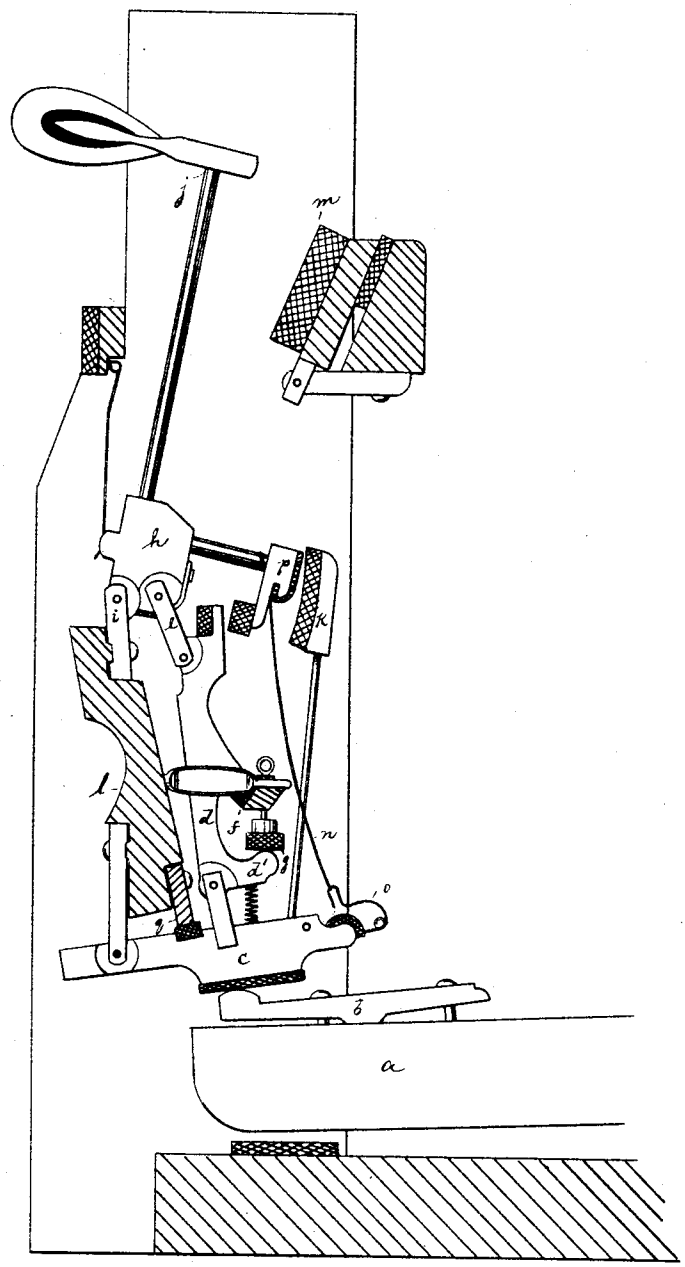
(No Model.) 3 Sheets—Sheet 3.

P. MENGES.

REPEATING ACTION FOR UPRIGHT PIANOS.

No. 326,576. Patented Sept. 22, 1885.

Fig. 3



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UNITED STATES PATENT OFFICE.

PHILIPP MENGES, OF NEW YORK, N. Y.

REPEATING ACTION FOR UPRIGHT PIANOS.

SPECIFICATION forming part of Letters Patent No. 326,576, dated September 22, 1885.

Application filed April 30, 1885. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP MENGES, of the city of New York, county and State of New York, have invented a new and Improved Repeating Action for Upright Pianos, of which the following specification is a full, clear, and exact description.

This invention relates to a repeating action for upright pianos, and has for its object more particularly to prevent the hammer from automatically striking the string on a slight release of the key after the key has been fully depressed.

To this effect the invention consists, principally, in the combination of a jointed jack with an elastic connection between the lever and the butt-check.

The invention also relates to the features of improvement hereinafter more fully pointed out.

In the accompanying three sheets of drawings, Figure 1 is a side view of my improved piano-action, showing the key raised and the parts at rest. Fig. 2 is a similar view when the key has been partly depressed and immediately before the hammer strikes the string. Fig. 3 is a similar view showing the position of the parts when the key is depressed and after the hammer has receded from the string. Fig. 4 is a detail view of the spring attached to the string that connects the lever with the butt-check.

The letter *a* represents the key of an upright piano. *b* is the hopper or bottom piece; *c*, the lever. *d e* are the lower and upper arms of a jointed jack. *f* is the regulating-rail. This rail is provided with an inclined face to bear against an inclined face of lower jack-arm, *d*, as more particularly described in an application for a patent filed by me July 11, 1884, and allowed April 20, 1885. *g* is the regulating-screw passing through rail *f*. *h* is the hammer-butt, pivoted to hammer-flange *i*, and also pivotally connected to arm *e* of the jack. *j* is the hammer; *k*, the back-check; *l*, the action-rail, and *m* the hammer-rail, all of known construction.

As thus far described the action of the parts is as follows: On the depression of the key the jack (the arms of which are in a straight line) is raised to cause the hammer-butt *h* to swing around its pivotal connection with hammer-flange. The hammer is thus thrown backward and strikes the string. Then, and while the key is still depressed, the screw *g* comes in contact with a projection, *d'*, on arm *d*, and causes the two arms of the jack to be placed at an obtuse angle to each other, as in Fig. 3. This will shorten the jack, and the hammer thus falls forward away from the string. On a release of the key the inclined face on lower arm, *d*, with glide along inclined face of stop *f*, and in this way the jack is again straightened, ready for the next depression of the key. Now, if the key after having been depressed is but very slightly released it can happen that the jack is straightened out too soon, and that thus the hammer is automatically thrown against the string before it is desired. To obviate this difficulty, I have connected the lever *c* with the butt-check *p* by a string or cord, *n*. This string, as will be seen from the drawings, is connected to the end of lever *c* by an intermediate spring, *o*. At the other end the string *n* passes through a slot within the butt-check *p*, and is thence wound around the shank of the butt-check; but the string may be attached to the butt-check in other manner, and, if desired, the spring *o* may be secured to the butt-check in place of being secured to the lever, or a wire spring may be substituted for the cord *n*, in which case the spring *o* may of course be dispensed with.

The spring *o*, I prefer to make of the form shown more in detail in Fig. 4—that is to say, it first coils around a pin secured transversely within a slot at one end of lever *c;* thence passes forward, forms a second coil; then passes up and terminates in a hook, which receives cord *n*.

The operation of the invention will now be explained.

The parts being in the position shown in Fig. 1, and the cord being slack, the key is depressed. This, as has been already stated, causes the hammer-butt and hammer to swing backward—viz., toward the string. During this motion the butt-check *p* also swings backward, and, carrying the string *n* with it, will cause the string to be stretched. (Fig. 2.) The string thus remains stretched at the moment the hammer strikes the string, and it will thus aid to pull the hammer away from the string. After the hammer has struck the

string, and after the regulating-screw *g* has thrown the two arms of the jack out of line and caused the hammer to fly forward, (away from the string,) the string *n* is again slackened, (Fig. 3,) for the reason that the end of lever *c* has risen. Now, when the key is released very slightly, the jack has a tendency to be straightened out; but the string is again becoming stretched (owing to the descent of the end of lever *c*) and prevents the jack from being straightened so far as to permit the hammer to strike, although it permits a small motion of the hammer. On a greater release of the key—to wit: about one-half—the string is again slackened, owing to rapid descent of butt-check *p*, the jack is permitted to straighten, and the parts are in proper position for the next depression of the key.

I prefer to use, in addition to my invention, a stop or downwardly-extending ledge, *q*, projecting beyond the lower edge of action-rail *l*, and properly cushioned at its lower or working face. This stop I propose to make adjustable upward and downward, so as to change the elevation of such face. After the key has been depressed, and when the hammer strikes the string, the lever *c* is thrown into contact with the stop *q*, and the cushion upon the same will now act as a spring to throw lever *c* down. Thus the stop *q* serves the double purpose of preventing the lever *c* from being thrown up too far and also for throwing it down at the release of the key.

Of course I am well aware that bridles have been used which were connected to bridle-wires at one end and to the butt-check at the other end. These bridle-wires were used in connection with straight jacks, and had for their object merely to pull the hammer away from the string after striking the same. These bridle-wires operated directly in a manner contrary to my string *n*, inasmuch as they slackened on a depression of the key.

If desired, the lower end of string *n* may be fastened to rail *f*, in place of being fastened to lever *c*.

I claim as my invention—

1. The combination, in an upright-piano action, of a jointed jack, butt-check, and lever with an elastic connection between the butt-check and lever, substantially as and for the purpose specified.

2. The combination, in an upright-piano action, of lever *c*, jointed jack *d e*, and butt-check *p* with string *n* and spring *o*, substantially as specified.

3. The combination of key *a*, lever *c*, jointed jack *d e*, stop *f*, regulating-screw *g*, hammer-butt *h*, hammer *j*, and butt-check *p* with string *n* and spring *o*, the string connecting the end of lever *c* with the butt check *p*, substantially as specified.

4. The combination of key *a*, lever *c*, jointed jack *d e*, hammer-butt *h*, regulating-screw *g*, hammer *j*, and action-rail *l* with the cushioned stop *q*, projecting beneath the lower edge of action-rail and bearing upon lever *c*, substantially as specified.

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