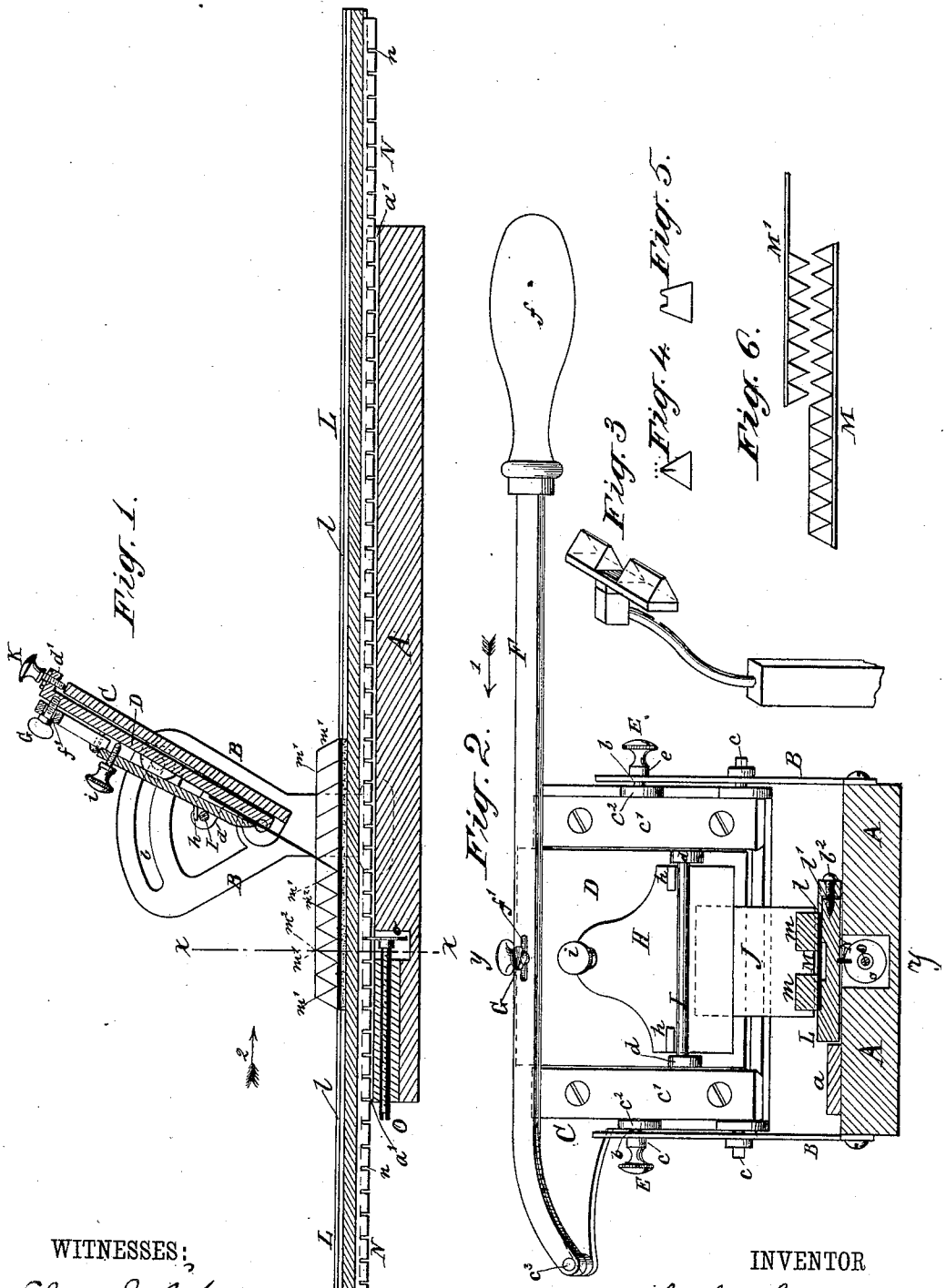
(No Model.)

J. SWENSON.

DEVICE FOR CUTTING DAMPER FELT FOR PIANOS.

No. 298,040. Patented May 6, 1884.



WITNESSES:

Edward Rupelt

Robt. W. Mathews

INVENTOR

John Swenson

BY A. W. Almqvist

ATTORNEY

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

UNITED STATES PATENT OFFICE.

JOHN SWENSON, OF NEW YORK, N. Y.

DEVICE FOR CUTTING DAMPER-FELT FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 298,040, dated May 6, 1884.

Application filed August 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN SWENSON, a citizen of Sweden, and a resident of New York, in the county and State of New York, have invented a new and useful Improvement in Devices for Cutting Damper-Felt for Pianos, of which the following is a specification.

The object of my invention is to provide an improved manner and device for cutting damper-felts for pianos. Heretofore the little blocks of felt used for damping the sound of piano-strings have been cut one at a time from the felt, and glued one at a time upon the thinly-felted strip of wood which constitutes the damper-head plate. This work is very slow and tedious, particularly as the felt blocks have to be cut with great nicety, so as to leave the edges of contact parallel, as well as the entire shape of the block even and regular. In consequence of the difficulty of accomplishing this entirely by hand a great many blocks are discarded, thus causing a considerable waste of felt, which, as manufactured for this purpose, is very expensive.

My present invention is designed to perform the work much more rapidly and produce a much better result than by the old method, besides preventing almost entirely the waste of felt.

The invention will be hereinafter described and claimed with reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section of a damper-felt-cutting machine constructed according to my invention, the section being taken on line *y y* of Fig. 2, and seen in the direction of arrow 1. Fig. 2 is a vertical cross-section of the same, taken on line *x x* of Fig. 1, and seen in the direction of arrow 2. Fig. 3 is a perspective view of one of the dampers. Fig. 4 is an end view of a triangular felt block partly slitted in the center, such as is used for damping three strings (unison-strings) at the same time. Fig. 5 is an end view of a felt block having a small groove in its face, such as is used for damping one of the bass-strings. Fig. 6 is a view explanatory of how the felt blocks are glued onto the damper-head plates according to my invention.

Like letters of reference indicate like parts in the several figures.

Between uprights or brackets B, arranged opposite to each other, upon a bed-plate, A, is pivoted at *c* a plate, C, provided with guide-cleats *c'*, between which is fitted to move up and down the slide D. At a distance above the pivots *c* the uprights B are provided with segmental slots *b*, curved on the pivots *c* as centers. The plate C is provided at opposite sides, adjacent to the said slots *b*, with lugs c^2, and the threaded shank of a thumb-screw, E, shouldered at *e*, passes through each of the said slots *b*, the thread of the shank fitting into a threaded hole in each lug c^2. By this construction the plate C may be oscillated on its pivots *c*, and secured by the thumb-screws E into any position in the slot *b* to retain the said plate C in a position at right angles to the bed-plate A, or at any desired inclination on either side of the vertical.

To a projection on the plate C is pivoted at c^3 one end of a lever, F, which lever passes across the machine at the upper end of the slide D, and is provided at the side nearest to the operator with a handle, *f*, wherewith it may be oscillated upon its pivot c^3. The said lever F is provided opposite the vertical center line of the slide D with a small slot, *f'*, through which passes a screw or pin, G, which is threaded or otherwise secured to the slide D in such a manner that by oscillating the lever F the slide D may be reciprocated vertically in its guides *c'*. A clamping-plate, H, pivoted by projections or lugs *h* upon a rod, I, secured between lugs *d* on the slide D, serves to clamp and hold to the said slide D a thin cutting-blade or knife, J, the opposite upper end of the clamp H being provided with the usual adjusting-screw, *i*, which, when tightened against the pivoted plate C, also tightens the lower end of the clamping-plate H, to hold the cutting-blade in a manner similar to that of holding the plane-iron of an ordinary plane. The throw of the slide-plate D is regulated, and consequently the depth of the cut limited, by a set-screw, K, which passes through the threaded hole in a lug, *d'*, on the upper end of the slide D, and which screw K acts as a stop against the upper end of the stationary plate C, as shown in Fig. 1.

L is the feed-plate, on which the work is held while operated upon, and is guided, when slid upon the bed-plate A, by a cleat or cleats, *a*, or a groove, *a'*, or both. All along the surface of the feed-plate L is formed a recess, *l*, just deep and wide enough to receive the thickness and the width of the strip of wood M,

upon which strips *m* of felt are glued, to be cut into damper-blocks. One wall of the recess *l* is formed by a separate piece or strip, *l'*, which is secured to the edge of the feed-plate L by means of screws *l²* in such a manner that by tightening up the side screws the opposite edges of the aforesaid strip may be clamped to hold the work firmly in position. (See Fig. 2.)

To the under side of the feed-plate L is secured a bar, N, provided at suitable intervals, proportioned to the size of blocks to be cut, with notches *n*. The bar N is preferably fitted to slide in the groove *a'* in the bed-plate A, so as to serve as a guide or assist in guiding the plate L firmly, preventing any side play.

Underneath and parallel with the bar N is arranged, in a threaded socket, sleeve, or other bearing in the bed-plate A, a threaded rod, O, which at its outer end has a slot, so that it may be turned by a screw-driver, (or it may be provided with a handle,) and upon its inner end is provided with a circular disk, *o*, the edge of which latter enters into and is of the exact width to fill either of the aforesaid notches *n* of the bar N, which are all of the same size. The feed-plate L, when resting in its longitudinal guides, with its notched bar engaging the disk *o*, is thus kept firmly from the slightest movement either longitudinally or laterally, while the knife J descends and cuts through the felt. The object of the threaded rod O and the disk *o* is to adjust the starting-point for the work, particularly when all the cuts *m'* (see Fig. 1) have been made in one direction, and the felted strip M is reversed to make the oppositely-inclined cuts *m²* in such a manner that the blocks may run out to a true edge of any desired degree of thinness.

It is evident that the adjustment O *o* may be made in various ways; but the one shown is preferred, as it is simple, and the stop-disk *o*, while revolved, is always in working-contact, and thus the plate L may be adjusted longitudinally a distance amounting to merely a small portion of the pitch of the thread by a corresponding fractional turn of the screw O. As the blocks have to be cut to different widths, to adapt them to different strings of the piano, a separate slide, L, with notches in its bar N, at proper distances apart to suit each desired size, should be used; or, if preferred, a slide L may be made long enough to hold a strip of felt sufficient for an entire set, in which case the distance successively between the notches *n* should be gradually increasing.

It is evident that the feed-plate N may be connected with the cutting-lever F by suitable mechanism, so as to be moved automatically; but the rapidity in working gained by my present improvement, even without automatic feed, is so great that I prefer, in order to avoid complication in construction, to feed the plate L by hand, simply lifting it to disengage the disk *o* from one notch *n*, and then sliding it forward until the disk engages the subsequent notch, and so on successively. The blocks, having been all cut, are allowed to remain in the position in which they were left by the cut, as shown in the left half of Fig. 6; and in order to mount them on the damper-head plate, a strip, M', similar to the strip M, is glued and pressed down upon the cut felt strip, all the inverted felt blocks adhering simultaneously to the said strip M' on its being raised from the opposite strip M', as shown at the right in Fig. 6. The strips M' are then cut off at the junction between every two adjacent blocks, each such cut thus forming the working portion of a damper-head such as shown in Fig. 3; but the mode or process of stripping and mounting the felt and mounting the cut blocks I reserve as the subject of a separate patent application.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A piano-damper-felt-cutting machine consisting of a bed-plate and uprights, A B, a feed-plate, L, arranged to slide upon the said bed-plate, and provided with means for holding a felted strip, M, and a knife-holding slide, D, and means for moving said slide up and down at an angle to the said feed-plate L, substantially as and for the purpose set forth.

2. The combination of the bed-plate A, provided with the stop *o*, the feed-plate L, provided with the notched bar N, and with means for holding a felted strip, M, and the knife-holding slide D, and means for moving the same up and down at an angle to the said feed-plate L, substantially as and for the purpose set forth.

3. The combination of the bed-plate A, provided with the adjustable stop O *o*, the feed-plate L, provided with the notched bar N, and with means, *l l' l²*, substantially as described, for holding the felted strip M, the uprights B, provided with the slots *b*, the plate C, pivoted between the said uprights, and provided with guides *c'* and adjusting-screws E, the knife-holding slide D, movable in the said guides, and provided with the lug *d'* and adjusting-screw K, and the lever F, pivoted to the said plate and slide C D, substantially as and for the purpose hereinbefore set forth.

4. In a machine for cutting damper-felt for pianos, the feed-plate L, provided with a recess, *l*, suitable to receive the felted strip M, and having along one side an adjustable strip, *l'*, arranged to clamp the said strip edgewise, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of August, 1883.

JOHN SWENSON.

Witnesses:
A. W. ALMQVIST,
W. H. DE VOE.