

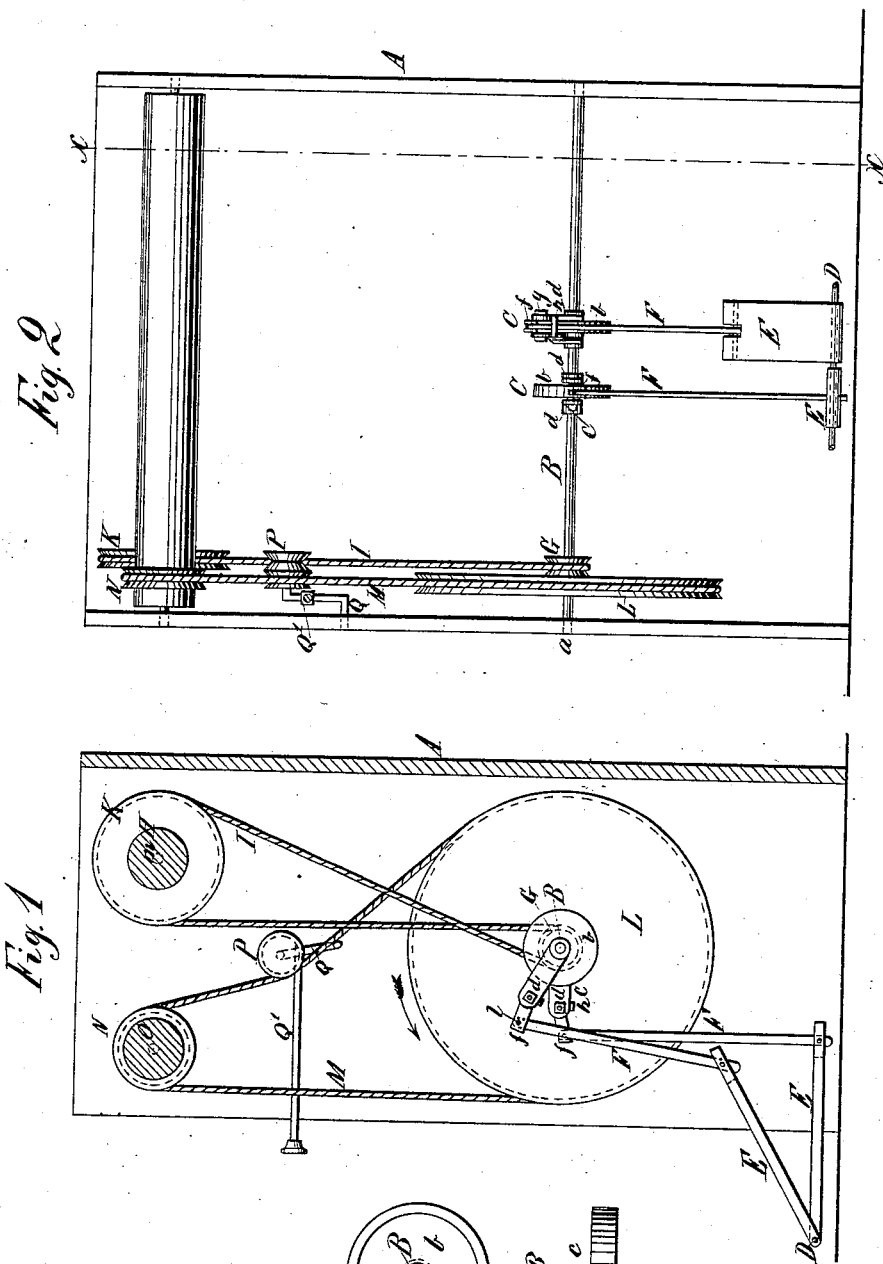
(No Model.)

R. W. PAIN.

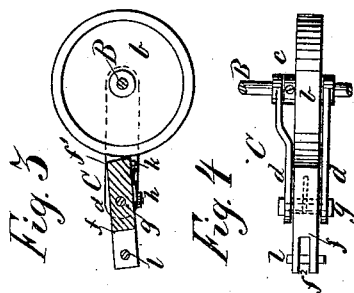
FEED AND REWINDING APPARATUS FOR PERFORATED MUSIC SHEETS.

No. 267,364.

Patented Nov. 14, 1882.



Witnesses:
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Jacob J. Storck



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UNITED STATES PATENT OFFICE.

ROBERT W. PAIN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE NATIONAL AUTOMATIC PIANO AND ORGAN MANUFACTURING
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FEED AND REWINDING APPARATUS FOR PERFORATED MUSIC-SHEETS.

SPECIFICATION forming part of Letters Patent No. 267,364, dated November 14, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. PAIN, of the city, county, and State of New York, have invented a new and useful Improvement in Feed and Rewinding Apparatus for Perforated Music-Sheets, of which the following is a specification.

The object of this invention is to provide a device by means of which the rolls carrying the perforated music-sheets of automatic or mechanical musical instruments can be revolved with perfect regularity and precision, and without having their motions accidentally reversed.

The invention consists of an improved friction-clutch, two of which, connected with the pedals of the instrument, are fixed on one side of the shaft which drives the feed and rewinding-roll shafts at such relative angles that the regular intermittent motion of the pedals will cause the said shaft to continuously and regularly revolve in one direction, the clutches being so constructed, with fixed sheaves, movable forks, and spring-actuated dogs, and so arranged, that they cannot check nor reverse the motion of the shaft; and it further consists in the combination of an idler or shifter designed and specially arranged to throw either of the roll-belts at will into action, all of which will be hereinafter described, and pointed out in the claims.

Figure 1 is a vertical sectional elevation on line *x x*, Fig. 2, showing my improved device applied. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged party-sectional side elevation of the clutch. Fig. 4 is a plan of the same.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the frame or case of a mechanical musical instrument.

B is the horizontal driving-shaft, journaled at *a* in the sides of the case A. On this shaft B are set the clutches C C, each of which consists of a sheave or pulley, *b*, rigidly fixed on the shaft B by set-screw *c* or other device, of a fork, *d*, straddling the sheave *b*, and having its collared or annular ends loosely fitting about the shaft B, and of a dog, *f*, pivoted between

the free ends of the fork *d* on a transverse pin, *g*, that passes through them; and across the under side of the fork *d* is fixed a bar, *h*, on which is riveted or otherwise secured a spring, *k*, whose free end bears against the dog *f* and forces and holds the nose of the latter in contact with the face of the sheave *b*. The dog *f* has preferably a flat nose, as shown at *f'*, and has preferably a forked tail, as shown at *f*².

D represents the pedal-shaft, and E E the pedals, fixed at different angles thereon, and having their other ends jointed respectively to pitmen F F, the upper ends of which are pivoted on pins *l* in the forked tails of the respective clutch-dogs *f*.

In operating the mechanism the downward motion of a pedal E and its connected pitman F tightens the bite of the dog's nose *f* on the sheave *b*, and, pulling said dog *f* and fork *d* down, causes the sheave *b* and shaft B to partially revolve, when the alternate downward motion of the other pedal E produces the same effects, so that the shaft B is continuously revolved as the said pedals are operated. On the alternate upward motions of the pedals E the tails of the dogs *f* are thrown upward with the effect of disengaging their noses *f'* from the sheaves *b*, so that the correct motion of the shaft B is not interfered with. The springs *k* operate alternately on the instant that the upward motion of their respective pedals E ceases to again force the dogs *f* in operative contact with their respective sheaves *b*, so that there shall be no motion of the said pedals lost.

Keyed on the shaft B is a small grooved pulley, G, designed for driving the feed-roll H, whose axle *m* is journaled in the sides of the case A, and a loose crossed belt, I, connects the pulley G with the feed-roll and grooved pulley K. On the same shaft, B, is a larger grooved pulley, L, connected by a loose straight belt, M, with the small grooved pulley N on the rewinding-roll O, the axle of which latter is journaled in the sides of the case A. Hence it will be seen that with a given speed of the driving-shaft B the roll H will revolve more slowly than the roll O and in a contrary direction.

The idler or shifter P is a doubly-grooved

sheave set loosely on an end of a crank, Q, whose other end is fixed in a side of the case A, and to this crank Q is connected a handle, Q', that extends out through the front of the case A within convenient reach of the operator.

When the mechanism is in operation the operator, by pulling the handle Q', will draw the idler P against the rewinding-belt M and tighten the latter so that it shall cause the roll O to revolve to rewind a perforated music-sheet (not shown) from the feed-roll H; and when it is desired to feed the music-sheet the idler P will be pushed against the belt I to tighten the same, and thereby revolve the roll H, one groove of the said idler P being designed to accommodate the belt I and the other to accommodate the belt H.

It will be seen that the application and use of the improved clutches will prevent any "dead-points" in the revolutions of the driving-shaft B, and that the pedals and clutches are always in position for revolving the said shaft in the desired direction, hence that there can be no "back action" to the same and no false starting.

I do not claim broadly either two pawls operating alternately and by a single pedal nor two pawls operating alternately upon opposite sides of the same wheel; nor do I claim broadly a single pawl operating upon the periphery of a wheel nor two V-pointed pawls operating on opposite faces of a V-grooved wheel; but,

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

1. An improved feed and rewinding apparatus for perforated music-sheets, constructed substantially as herein shown and described, consisting of driving-shaft B, spring-clutches C, pedals E, pitmen F, pulleys G L, rolls H O, belts I M, pulleys K N, and idler P, all arranged and operated as set forth.

2. The combination, with the driving-shaft B, of clutches C, having flat-faced sheaves b, forks d, and spring-actuated dogs f, and alternately-acting pitmen and pedals F E, respectively, all arranged at or on one side of the driving-shaft, substantially as herein shown and described, whereby said shaft may be continuously revolved in one direction, as set forth.

3. As a means for tightening the belts of the feed and rewinding rolls of perforated music-sheets, the combination of the doubly-grooved sheave or idler P, crank Q, and handle Q', all arranged and operated substantially as herein shown and described.

4. In a mechanical musical instrument, as a means for revolving the driving-shaft always in one direction, two pedal-actuated alternately-acting spring-clutches fixed at different angles on the same side of said shaft, substantially as herein shown and described.

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