No. 671,216. Patented Apr. 2, 1901.

E. KLABER.

AUTOMATIC LOUD OR SOFT PEDAL MECHANISM FOR SELF PLAYING MUSICAL INSTRUMENTS.

(Application filed Mar. 6, 1900.)

(No Model.)

Fig. 2.

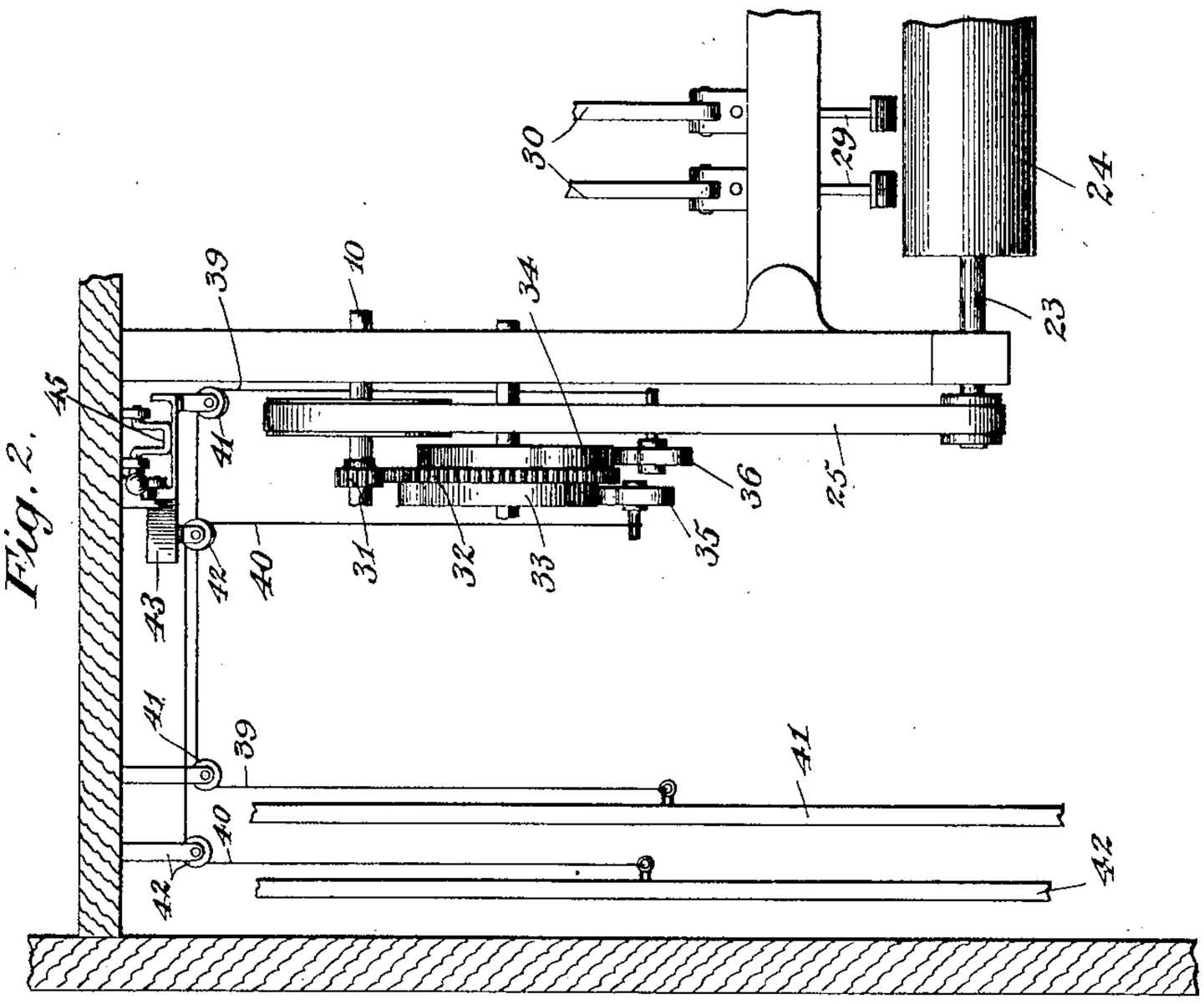
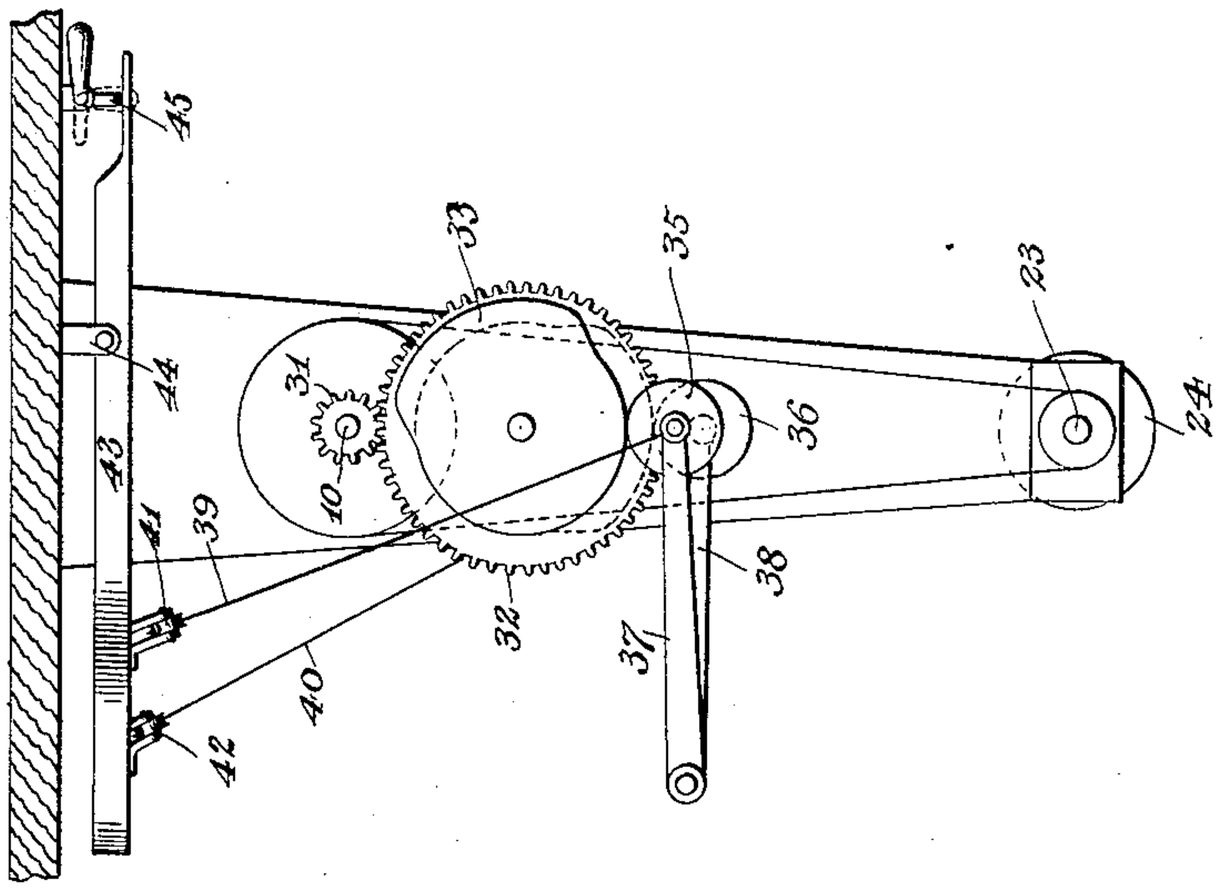


Fig. 1.



WITNESSES:

Edmund L. Peterman

Roy Pendleton

INVENTOR

E. Klaber

BY Jerome Cortez

ATTORNEY

UNITED STATES PATENT OFFICE.

EMILE KLABER, OF NEW YORK, N. Y.

AUTOMATIC LOUD OR SOFT PEDAL MECHANISM FOR SELF-PLAYING MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 671,216, dated April 2, 1901.

Application filed March 6, 1900. Serial No. 7,508. (No model.)

To all whom it may concern:

Be it known that I, EMILE KLABER, a subject of the Queen of Great Britain, residing in the borough of Manhattan, in the city and State of New York, have invented certain new and useful Improvements in Automatic Loud or Soft Pedal Mechanism for Self-Playing Musical Instruments, of which the following is a specification.

One of the objections to self-playing pianos has been the lack of modulation in tone or the necessity of special manipulation in order to produce such modulation as is required to give expression to the music and relieve it of monotonous and mechanical effect. While it is true that musical compositions usually have signs for modulation of tone provided by the composer, it is also true that pleasing and satisfactory results can be produced by such systematic modulation or production of forte, pianissimo, sustained, or staccato effects in regular or irregular alternation as can be produced by mechanical means.

To this end my invention consists in the provision, in a self-playing musical instrument, of the mechanism hereinafter described and claimed constituting an automatic appliance for producing modulation in strength or continuance of tone at predetermined regular or irregular intervals by mechanical means independent of the playing mechanism.

In the accompanying drawings, Figure 1 is a side view of a mechanical appliance adapted for the production of alternately loud and soft tones in a self-playing piano. Fig. 2 is a front view of the same.

24 may represent the motor-drum of a mechanically-operated piano, 23 the shaft thereof, and 25 the driving mechanism, which may be of any usual or suitable construction.

29 represents two of the friction-toes, of which there is one for each note in the instrument, for communicating movement to the jack-rods 30 when the respective toes are dropped into contact with the motor-drum by the passage of apertures in the tune-sheet in a customary and well-known manner.

On the driving-shaft 10 is keyed a pinion 31, gearing with a cog-wheel 32, which carries any desirable number of cams, as 33 34, of which I have shown, for illustration, two, located on opposite sides of the cog-wheel 33. These cams have diversely arranged or located prominences, as shown in Fig. 2 and in full and dotted lines in Fig. 1. The peripheries form arcs concentric with the axis of rotation of the said cams and are adapted to engage, respectively, with rollers 35 36, journaled on the ends of arms 37 38, having attached to them cords 39 40, which are connected, respectively, to the riser-bars 41 42, which through vertical movement operate the tone-modulating devices of the piano in a customary manner, the vertical riser-bar 41 being, for example, employed to lift the dampers off the strings to produce forte effect or sustained tones and the bar 42 being employed to advance the back rest-bar of the hammers, so as to advance them in proximity to the strings to shorten their stroke, and thus produce a piano effect in a customary manner. It will now be understood that by the continuous rotation of the connected cams 33 34, bringing the prominent faces of said cams into engagement with the rollers 35 36 alternately, the desired modulation will be effected by alternately lifting the dampers and advancing the back rest-bar of the hammers, so as to produce forte and piano effects alternately, and by varying the length of the prominences on the respective cams or changing their position in any manner these effects may be varied as desired. When the prominences of the cams are not in engagement with the respective rollers 35 36, or either of them, the loud and soft pedal connections are left uncontrolled and may be operated by the performer at will either when playing by hand or by the mechanical playing attachments 24 29 and their accessories.

A simple device for instantly disconnecting the automatic loud and soft pedal mechanism is shown in the drawings. The pull-cords 39 40 are carried over pulleys 41 42, mounted in one end of a lever 43, which is fulcrumed at 44 in such position that the end carrying the pulleys 41 42 will tend to descend by gravity. In order to support the lever in elevated position and retain the mechanism above described in operative position, a bell-crank lever 45 is provided, the free end of which when turned to the position shown in full lines in Fig. 1 bears down on the shorter end of the lever 43, so as to raise its long end,

on which the pulleys 41 42, are mounted, and produce the necessary tension of the pull-cords 39 40. The other arm of the bell-crank forms a handle, and by turning it to the position shown in dotted lines the lever 43 is allowed to fall and slacken, the cords 39 40 thereby permitting the rollers to drop out of reach of the cams 33 34 and render them inoperative.

The following is what I claim as new and desire to secure by Letters Patent:

1. In a mechanically-operated musical instrument, the combination with riser-bars 41, 42, for operating the loud and soft tone mechanism of a piano in customary manner, of pull-cords 39, 40 connected thereto and cams 32, 33 operating on said pull-cords to produce varied strength of tone as described.

2. The combination of the loud and soft pedal bars 41, 42, pull-cords 39, 40, levers 37, 38, and cams 33, 34 operating on said levers to produce loud and soft tones as explained.

3. The combination of the riser-bars 41 42, pull-cords 39, 40, levers 37, 38, cams 33, 34 acting on said levers and a variable tension device 41, 42, 43, 45 operating substantially as set forth to tighten or slacken the cords 39, 40 and thus throw the automatic pedal mechanism in and out of action at will.

4. In a mechanically-operated musical instrument, the combination with the tone-modulating connections, of cams and transmitting devices moved thereby arbitrarily, at predetermined periods to produce alternations in volume or continuity of tone, substantially as set forth.

EMILE KLABER.

Witnesses:
JEROME CARTY,
ROY PENDLETON.