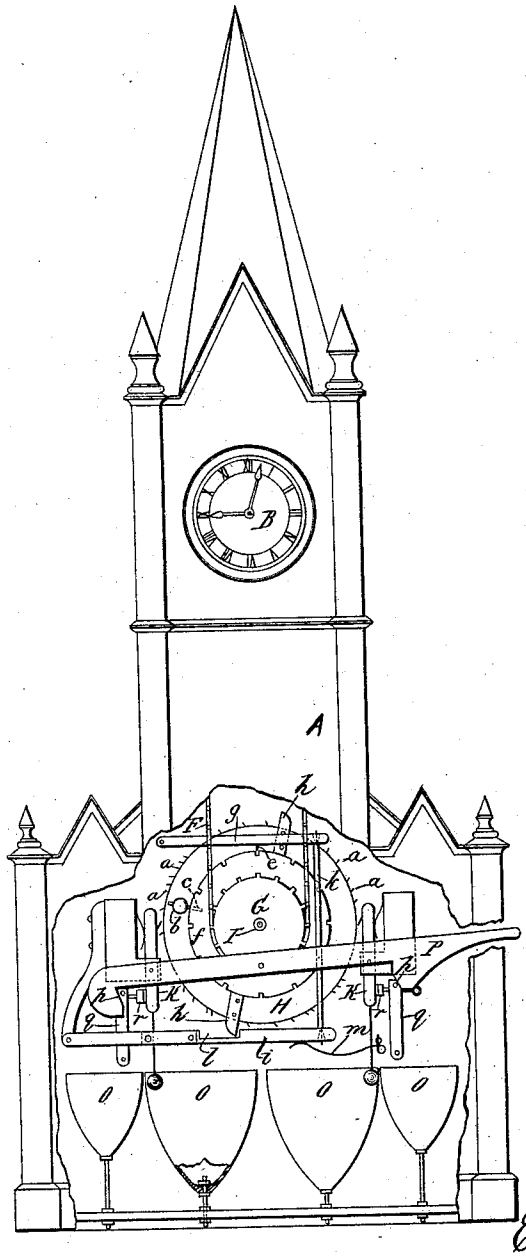
(No Model.) 2 Sheets—Sheet 1.

C. A. KUSTER.

MECHANICAL MUSICAL INSTRUMENT.

No. 363,400. Patented May 24, 1887.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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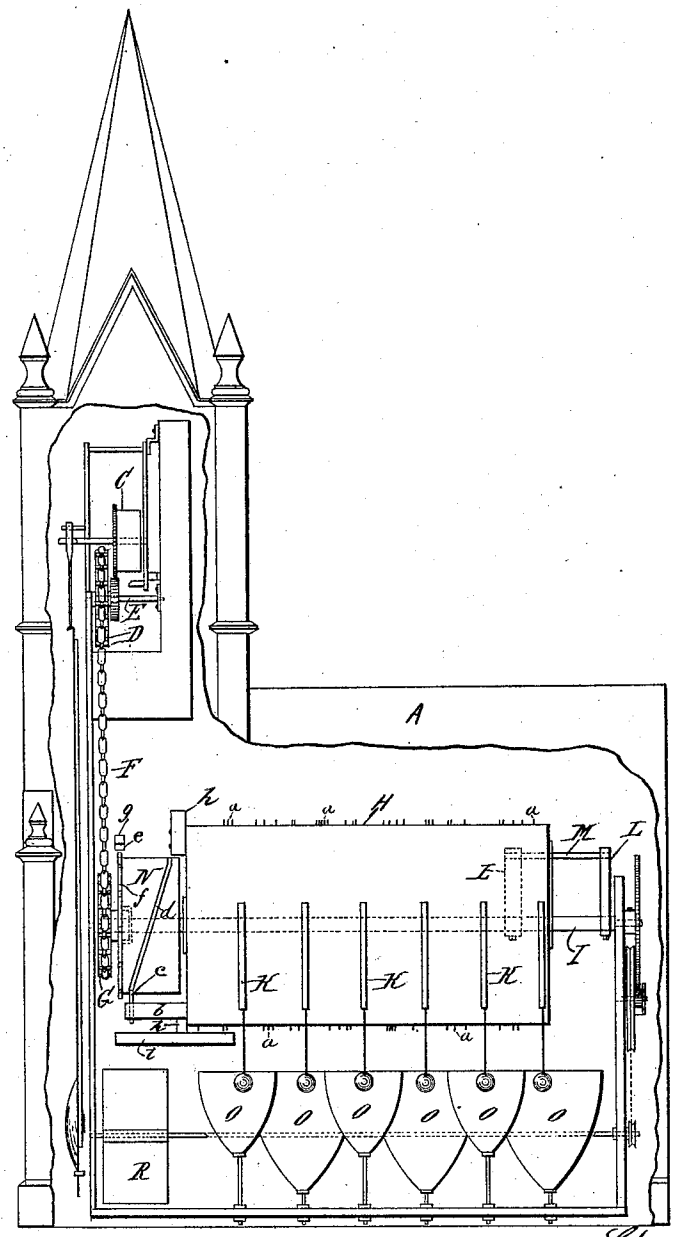
No. 363,400. Patented May 24, 1887.

FIG. 2.



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UNITED STATES PATENT OFFICE.

CHARLES A. KUSTER, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PIANOPHONE COMPANY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 363,400, dated May 24, 1887.

Application filed June 9, 1886. Serial No. 204,572. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. KUSTER, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Mechanical Musical Instruments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to that class of mechanical musical instruments which are employed in connection with clocks or time-pieces, and upon or by which tunes are played at any particular hour or half-hour, &c.

The objects of my invention are to provide a simple and easily-operating mechanism which may be driven by the ordinary striking mechanism of the time-piece, to arrange the same in compact and convenient manner, so that the axis of the barrel or cylinder may be located below the time-piece at a distance therefrom, be driven by a simple chain-connection, and so that provision may be made for playing a different tune for every hour or half-hour indicated by the clock, and to provide simple and convenient means for throwing the playing mechanism out of gear at any time.

To accomplish all of this my improvements involve certain new and useful peculiarities of construction and relative arrangements or combinations of parts, as will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a view of my improved device in side elevation, a portion of the exterior casing being removed to show the location and arrangement of the interior parts. Fig. 2 is an end elevation showing the dial or face of the time-piece and some of the interior working parts.

In both the figures like letters of reference, wherever they occur, indicate corresponding parts.

A is the exterior casing of the instrument. This is made of any suitable material and in the general form of a church with a steeple. The time-piece is located in the steeple and the playing mechanism within the main body of the casing, which body is amply large to accommodate the works. Of course the casing may be ornamented in any desired manner.

B is the dial of the time-piece or clock. The clock is of any pattern or style having a striking mechanism, the spring-drum of which is represented at C. It has not been deemed necessary to illustrate the clock-train more in detail. I remove the ordinary bell of the clock and the striking-hammer and apply a chain-wheel, as D, upon the end of shaft E, which shaft is revolved by the spring of the striking mechanism.

F is the drive-chain, which connects chain-wheel D with a similar wheel, G, mounted upon the end of the shaft I of barrel or cylinder H.

Whenever the striking mechanism of the clock is started, the shaft I and barrel H will be caused to revolve and a tune will be played, as will be hereinafter explained.

The barrel H contains a number of pins, as *a a*, properly located. These pins move the hammers or strikers K K at the proper instant. The barrel is of ample diameter and length so that pins may be located therein for twelve or twenty-four or other number of tunes; and it is so mounted upon its shaft that it may move longitudinally thereon while it is compelled to turn or revolve as the shaft revolves. The connection between the drum and its shaft is made by two arms, as L L, one outside and one inside the barrel, both keyed to the shaft and connected by a cross-piece, M, which passes through a perforation in the head of the barrel. This permits the barrel to move in the direction of its length, but compels it to turn with the shaft. The longitudinal movement is for the purpose of changing the tune, as is well understood, and this movement is effected by a bar, *b*, connected with the barrel and carrying a pin or projection, *c*, which enters a cam slot or groove, *d*, in a drum, N, the latter being loosely mounted upon the shaft, but compelled by the entering pin *c* to turn with the shaft until it (the drum N) is arrested by a dog or catch, *e*, which is fitted to engage with the notches in wheel or

flange *f*, applied upon the drum. The dog *e* is mounted upon a hinged bar, *g*. This bar being elevated releases *f* and N, so that the drum and barrel may travel together, but being depressed it arrests the drum, and the barrel, with its arm *b* and pin *c*, continuing to revolve, is forced by the cam-groove in the drum to move in a longitudinal direction upon its shaft, and thus the required shifting of the barrel is accomplished. In the arrangement shown the barrel is supposed to play one tune at each half-revolution. Two trippers, as *h h*, are applied upon the barrel, and these operate at proper times to depress a hinged lever, *i*, which is connected with *g* by an arm, as *k*. In the lever *i* is a notch, as at *l*. As soon as tripper *h* arrives at this notch the lever *i* is elevated by a spring, as at *m*, and then elevates arm *g* and dog *e*, permitting the drum N to turn. The lever *i* is wide enough so that it will be struck by the trippers in whatever position the barrel may be upon its shaft. The trippers are so set that they will arrest the drum immediately after the tune is played and before the striking mechanism of the clock is arrested, so that the barrel shall be shifted and ready for playing the next tune when the clock striking train moves again.

O O are the bells, which are struck by the hammers K K.

P is a lever hinged at or near its middle point and carrying two inclined faces, as at *p p*, the end of the lever projecting through the casing so as to be within convenient reach. The inclined faces bear upon pins projecting from hinged arms *q q*, carrying bars, as *r r*, which may be brought into contact with the strikers or hammers below their hinges. Upon depressing the outer end of lever P the hammers are carried out of contact with the bells and out of reach of the pins upon the barrel, so that though the barrel revolves no sound will be produced.

R is a fan arranged to revolve with the shaft I, and calculated to regulate the speed of the playing mechanism.

The general arrangement above described is simple and compact, and the construction is such as to require but little power for operating the barrel.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a musical instrument of the character herein set forth, the barrel or cylinder, the drum for shifting the same, mounted upon the same axis, the clock or time-piece, and the driving-chain connecting the axis of the barrel with the striking mechanism of the clock, combined and arranged substantially as shown and described.

2. In a mechanical musical instrument, the combination, with the barrel, of the drum mounted upon the same shaft and arranged to shift the barrel, the trippers applied upon the barrel, and the connected arm and lever for arresting the movement of the drum, substantially as shown and described.

3. In a mechanical musical instrument having a barrel driven by chain-connection with the striking mechanism of a clock, the combination, with the hammers and the barrel for operating the same, of the hinged levers and bars for moving and holding the hammers out of position for striking the bells, substantially as shown and described.

4. In a mechanical musical instrument, the time-piece or clock, the barrel, and the drive-chain connecting the axis of the barrel with the striking mechanism of the clock, the barrel being located below the clock and parallel with the axis of the striking mechanism thereof, and arranged to be moved back and forth by the drum mounted upon the barrel-axis, substantially as shown, and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

CHARLES A. KUSTER.

Witnesses:
JOHN BUCKLER,
WORTH OSGOOD.