

N^o 15,335



A.D. 1903

Date of Application, 10th July, 1903—Accepted, 27th Aug., 1903

COMPLETE SPECIFICATION.

“Improvements in and relating to Driving Mechanism for Mechanical Musical Instruments”

I, FRIEDRICH ADOLF RICHTER, Doctor of Philosophy, of Rudolstadt, Germany, do hereby declare the nature of my said invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 In mechanical musical instruments having the note disc mounted on a central pivot, great inconvenience has hitherto been experienced both in winding the driving mechanism, which has usually been effected through the central pivot, and also in the case of repairs, in which latter case owing to the frame of the mechanism and the various members of the same being securely rivetted
10 together, it has generally been necessary to take out the whole mechanism, as for instance in the event of a spring breaking, and to send it back to the manufacturers thereby causing great loss of time and considerable expense.

According to the present invention, these disadvantages are obviated, as the whole mechanism is so constructed and put together that it can be easily and
15 conveniently taken apart and put together or a new spring put in or the like, by anyone, not necessarily a skilled mechanic.

In order to render the present specification easily intelligible reference is had to the accompanying drawings in which similar letters of reference denote
20 similar parts throughout the several views:

Figure 1 is a plan of the driving mechanism:

Figure 2 a side elevation partly in section:

Figure 3 a part plan of the driving wheel:

Figure 4 a sectional elevation of the same:

Figure 5 detail elevation of the ratchet mechanism for the winding up
25 spindle:

Figure 6 detail of the ratchet gear:

Figure 7 elevation partly in section of a modified form of winding up mechanism, in which case the spindle is turned from right to left in winding up:

Figure 8 a detail sectional elevation showing the connection of the spring
30 casing and its cover:

Figure 9 similar view showing the connection of the cover in the mechanism according to Figure 7:

Figure 10 elevation showing the parts detached: and

Figure 11 detail elevation showing the manner of detaching the ratchet
35 mechanism:

Figure 12 shows a modified form of crown tooth wheel for the spring casing.

Referring first to Figures 1 to 6:—The driving wheel *a* is mounted on the central spindle *c* and coupled thereto by means of recesses *b*, *b* formed in the face of the gear and a key or pin *d* (Figure 10) which passes through the
40 spindle and engages in the recesses *b*. The latter are advantageously closed

[Price 8d.]

Improvements in Driving Mechanism for Mechanical Musical Instruments.

on the under face by means of a plate b^1 secured to the under face of the wheel, or the wheel may be provided with a boss at the lower side, in which the recesses may be formed or a bushing may be let into the wheel. In the drawing a plate b^1 is shewn which prevents the pin d from becoming disengaged from the wheel by passing through it and also forms a suitable boss 5 on which the gear is supported on the lower plate m of the frame. The drum f of the spring e is fitted on the spindle c and provided with the bottom cover g which may be fixed to the drum in any suitable manner. The top cover of the drum carries the crown teeth in which the pinion l^1 of the winding up spindle s engages. In order to obviate the necessity of employing 10 bevel gearing to wind up the spring, the crown teeth h are formed on the cover a short distance from the edge or flange of the cover as will be clearly seen from Figures 2 and 10. The cover of the drum f is first flanged downwardly to engage over the walls of the drum and then turned upwardly forming a ring of crown teeth h with an annular space between them and the top 15 of the cover. Thus the pinion l^1 may conveniently engage in the teeth h owing to the space between these latter and the drum. A further advantage of this arrangement is that the height of the mechanism may be reduced, as the top of the teeth may lie below the top of the drum, as shown in Figure 2 or they may be still lower, as shown in Figure 12, so that the top plate i 20 of the mechanism fits quite closely down on to the top of the drum. The top edge of the drum is provided with upwardly extending lugs q which fit into corresponding orifices in the top cover of the same. The spindle s of the pinion l^1 is mounted in bearings formed in the horizontal arm extending from the upright k which is attached to the bottom plate m of the frame. This 25 horizontal arm is bent downwardly at l so as to engage under the teeth h and thus prevent the pinion l^1 from becoming disengaged from the said teeth owing to the tipping of the cover on the drum or other reasons. The ratchet mechanism for the winding up mechanism is also very easily detachable owing to the peculiar construction of the ratchet pawl o which is provided with a 30 flange n , extending over the ratchet wheel p and retaining the same in proper position on the spindle s . The ratchet wheel p is coupled to the spindle s in a similar manner to the gear a with its spindle c , a cross pin s^1 engaging corresponding recesses in the gear (Figure 6), the said gear being held on the pin by the flange n of the pawl o . This flange n , however, engages over 35 the spindle s by means of a slot n^1 which is so formed, that when the pawl is moved back by hand (Figure 11) against the action of its spring t the spindle s with its pin s^1 may be passed through the said slot and thus the spindle and gear drawn back from the position shewn in Figure 2 to that of Figure 10, out of engagement with the crown teeth h . The cover may then 40 be raised from the drum f and the crown wheel with the drum removed from the spindle c or the latter taken out. In doing this the nuts m^1 must first be removed to release the top plate i , as will be readily understood.

In Figures 7 and 9 the arrangements of the parts are shown when the spindle is to be wound up in a direction from right to left. In this case the crown 45 of teeth h^1 is turned downwardly, the cover being made rather larger in diameter than the drum f and the latter engaging through the cover orifices with hooks q^1 (Figure 9) so as to prevent the cover from rising off the drum owing to the pressure of the driving pinion l^1 which engages the teeth in this case from the under side. The arm l is also turned in the opposite direction, so as to 50 engage over the top of the cover instead of underneath the same.

The cover of the spring casing and the crown teeth are easily made of iron, steel or other sheet metal by stamping the same, after the teeth have been cut around the edge. The winding up mechanism constructed according to the present invention is very inexpensive, as no bevel gearing is required, and 55 the crown wheel is easily pressed. In addition to these advantages, the height of the mechanism between the frame plates is considerably decreased as the

Improvements in Driving Mechanism for Mechanical Musical Instruments.

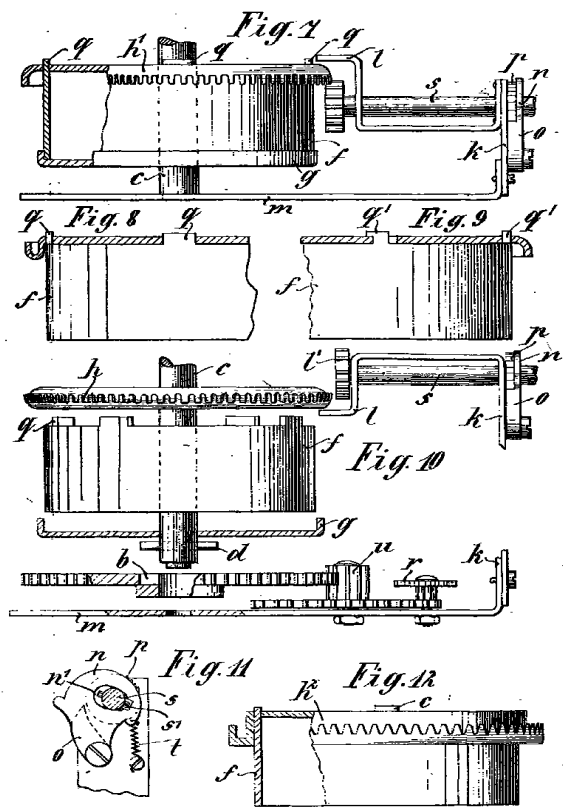
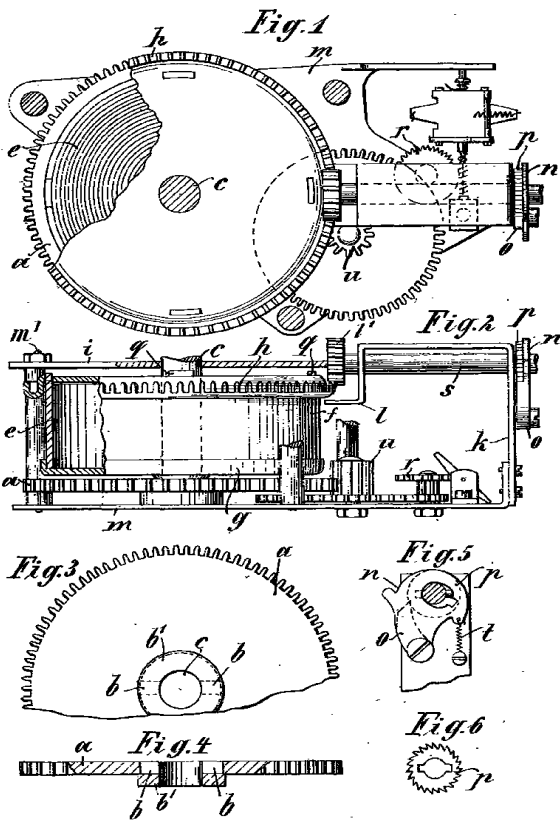
crown of teeth lies at a lower level than the top of the drum. The driving wheel *a* engages the pinion *u* driving the worm wheel *r* by a suitable train, in the known manner, the said gears being mounted on studs.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

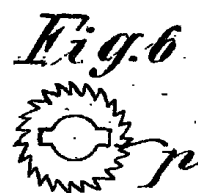
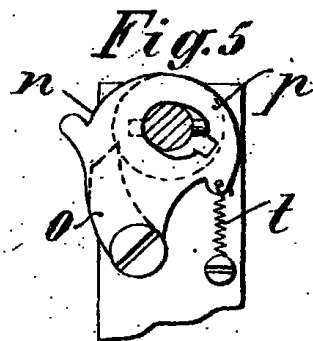
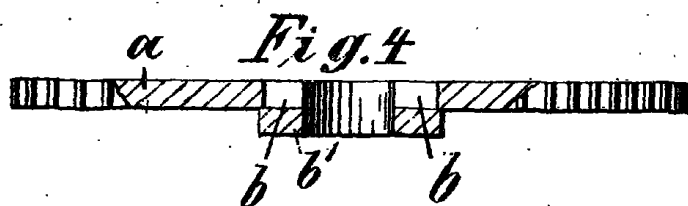
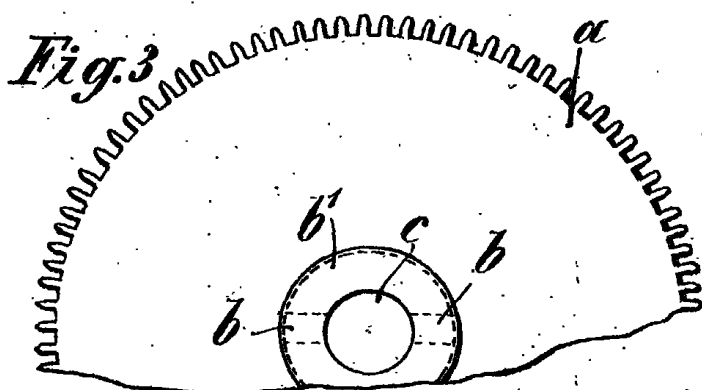
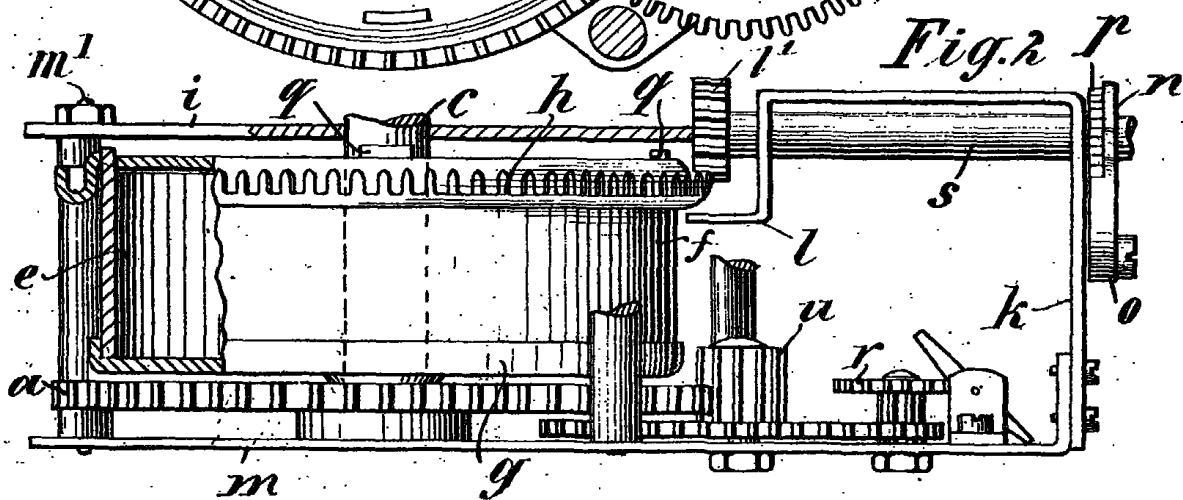
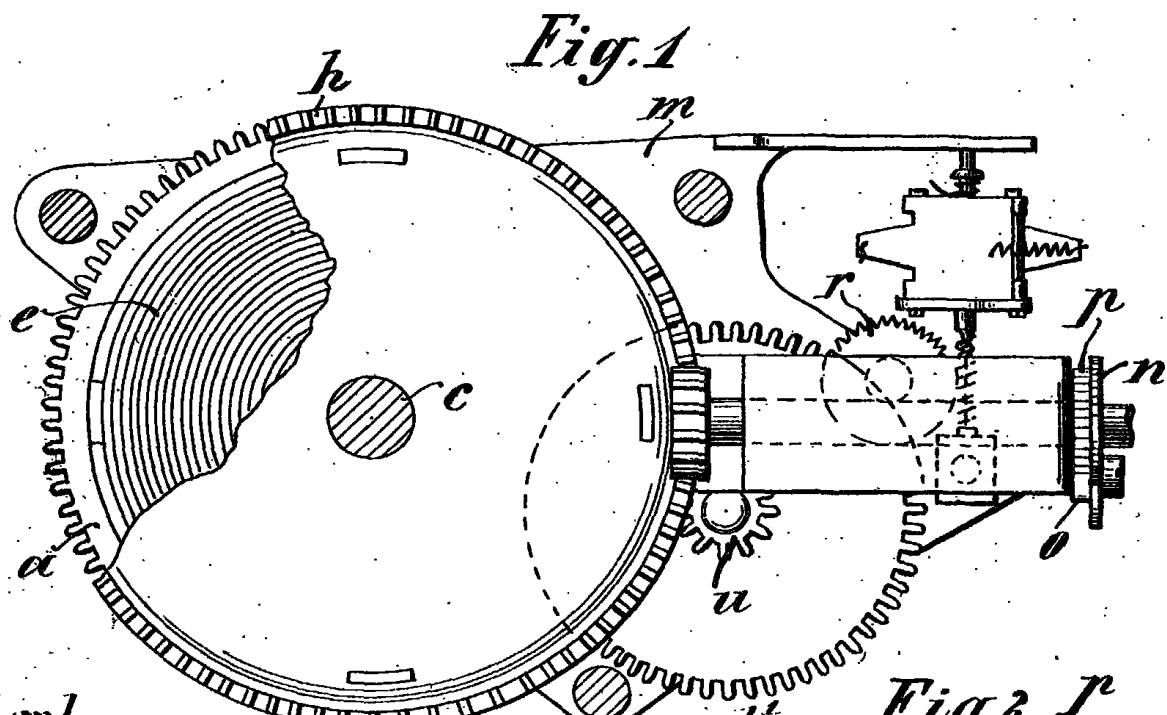
1. Driving mechanism for mechanical musical instruments in which the spindle for winding up the main spring is mounted in a horizontal arm carried by an upright attached to the lower frame plate, the pinion of the said spindle being held in engagement with the teeth of the spring drum or casing by means of a bent portion of the said horizontal arm, which engages under or over the ring of crown teeth, substantially as described.
2. Driving mechanism for mechanical musical instruments in which the driving gear comprising the driving wheel (*a*), the spring drum or casing (*f*), and the pinion for winding up the spring, are fitted together loosely or detachably, so that the parts may be taken apart after the upper plate (*i*) of the frame has been removed, substantially as described.
3. Driving mechanism for mechanical musical instruments in which the ratchet gear for the winding up mechanism consists of a ratchet pawl (*o*) having a flange (*n*) to retain the ratchet wheel (*p*) in place on the winding up spindle, the said ratchet wheel (*p*) being coupled to the spindle by means of a cross pin engaging suitable recesses in the same and the said flange being provided with a suitable orifice to allow the said pin free access through the same when the said ratchet is raised on its pivot against the action of its spring, substantially as described.
4. Driving mechanism for mechanical musical instruments having a crown wheel for the spring casing or drum, pressed or stamped out of sheet or other metal and having an annular space between the periphery of the drum and the crown of teeth in the manner and for the purpose, substantially as described.
5. Driving mechanism for mechanical musical instruments having a crown wheel for the spring casing or drum in which an annular space is left between the periphery of the drum and the crown of teeth, the said teeth being on a level with or below the top of the drum in the manner, and for the purpose, substantially as described.
6. The improved driving mechanism for mechanical musical instruments constructed, arranged, and operating, substantially as hereinbefore described and as illustrated in the accompanying drawings.

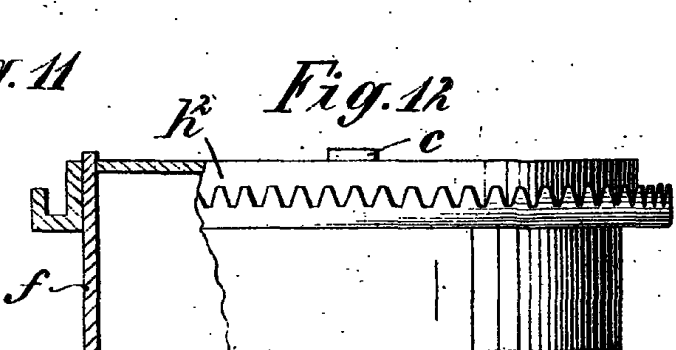
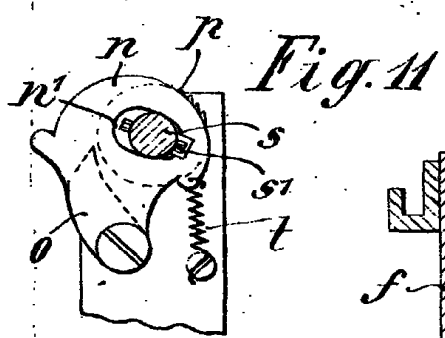
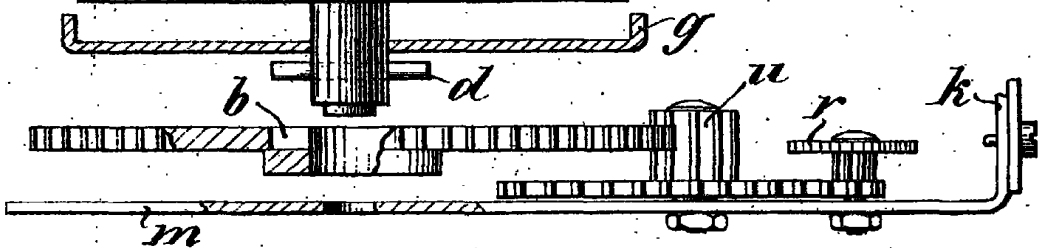
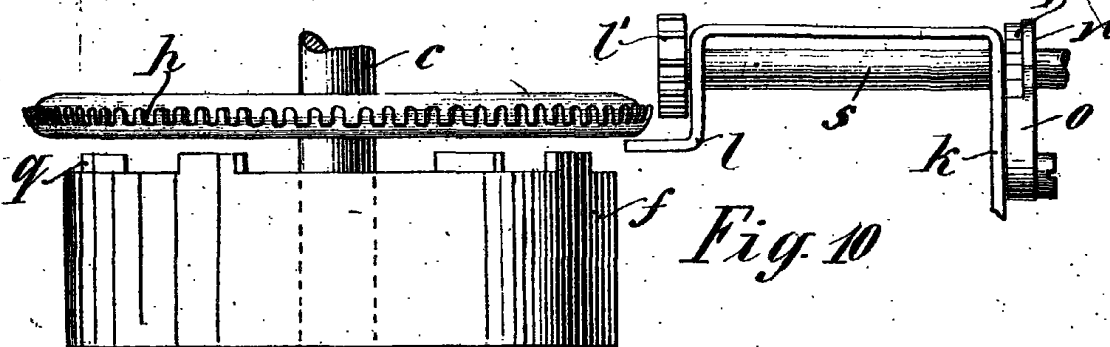
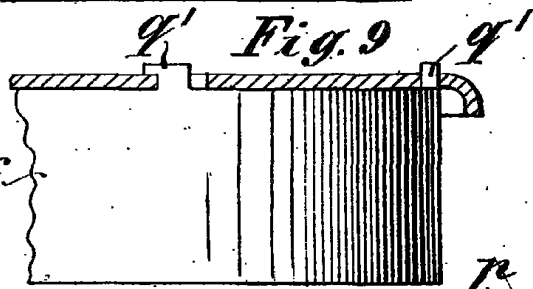
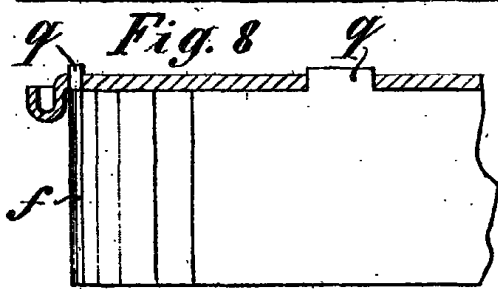
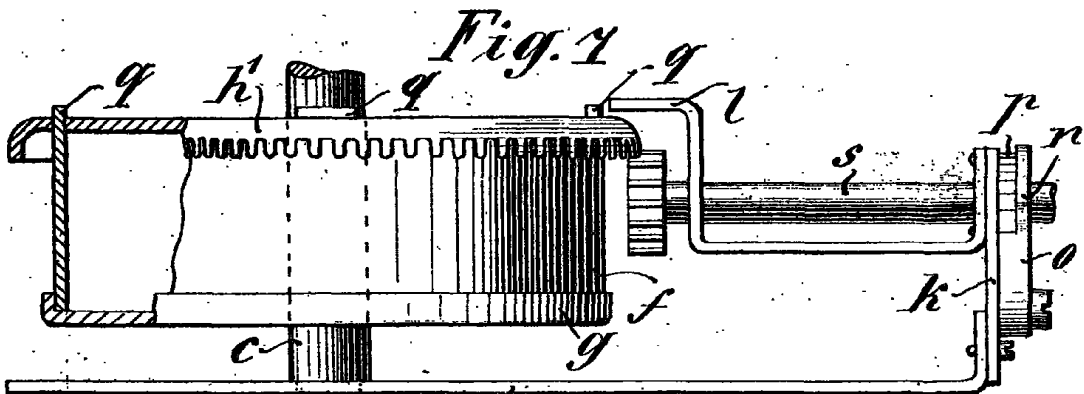
Dated the 10th day of July 1903.

G. F. REDFERN & Co.
4, South Street, Finsbury, London.
Agents for the Applicant.



[This Drawing is a reproduction of the Original on a reduced scale.]





[This Drawing is a reproduction of the Original on a reduced scale.]