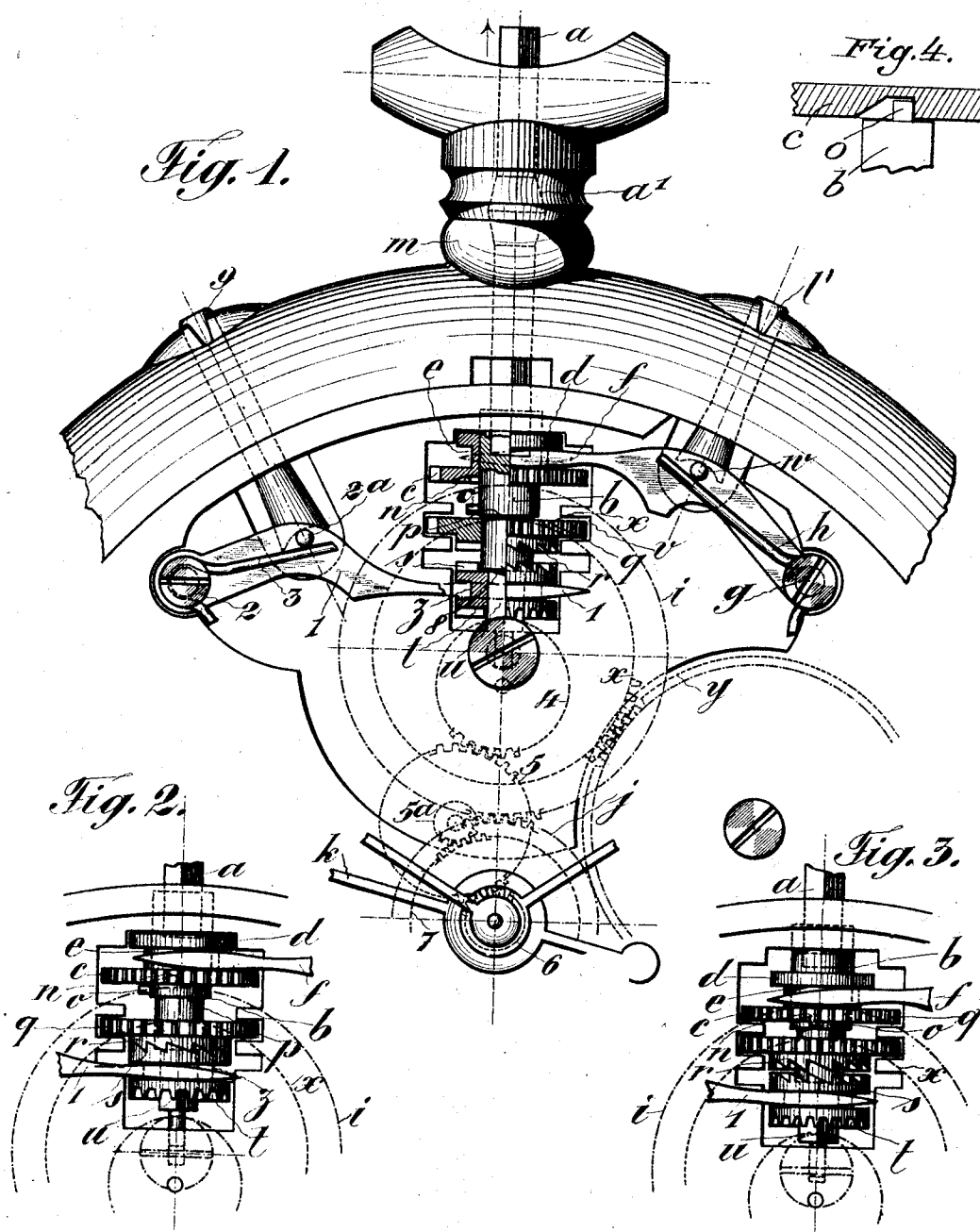


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C. R. STUCKY.
STEM WINDING MECHANISM FOR TIMEPIECES.

APPLICATION FILED MAY 24, 1905.



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CHARLES RODÉ STUCKY, OF LA CHAUX-DE-FONDS, SWITZERLAND.

STEM-WINDING MECHANISM FOR TIMEPIECES.

No. 812,963.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed May 24, 1905. Serial No. 262,054.

To all whom it may concern:

Be it known that I, CHARLES RODÉ STUCKY, a citizen of the Republic of Switzerland, residing at La Chaux-de-Fonds, in the Republic of Switzerland, have invented certain new and useful Improvements in Clock-Winding, Time, and Alarm Setting Mechanisms, of which the following is a specification.

My invention relates to clock-winding, time, and alarm setting mechanisms, and has to do more particularly with a peculiar combination of said mechanisms whereby either may be actuated from a single winding-stem.

My invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out in the appended claim.

In the drawings, Figure 1 is a fragmentary and partially-diagrammatic view of an alarm-clock, showing a unitary actuating device operated by a single winding-stem whereby the time-setting, alarm-setting, and winding mechanisms may be severally actuated, the device being shown in said figure in a position to actuate the time-setting mechanism. Fig. 2 is a view of the unitary actuating device with the parts thereof adjusted to operate the winding mechanism. Fig. 3 is a view similar to Fig. 2 with the actuating device in a position to operate the alarm-setting mechanism.

Like characters of reference designate similar parts throughout the different figures of the drawings.

As shown in the drawings, my invention consists of a longitudinally-movable spindle *b*, carrying on its upper end a pinion *c* and on its lower end a pinion *t* and intermediate of the same a pinion *q* and comprising what I will hereinafter term an "actuating" device. Said pinion *c* is rotatively mounted and longitudinally movable upon the spindle *b* and is adapted to operate the alarm-setting mechanism. The pinion *t* is rotatively and slidably mounted on the spindle *b* and is adapted to operate the time-setting mechanism. The pinion *q* is rotatively mounted on the spindle *b* and is held at all times in mesh with the winding mechanism. Said pinions *t* and *q* have facing clutch members adapted for engagement when it is desired to operate the winding mechanism.

I desirably employ separate devices for adjusting the actuating device in a manner to severally operate the winding, time-setting,

and alarm-setting mechanisms. Said adjusting devices consist in part of push-rods 9 and *l'*, as shown in Fig. 1, which are located on either side of the pendant *m*. After the actuating device is adjusted in mesh with one of the several mechanisms it is itself operated by a single winding-stem *a*. The winding-stem *a* is rotatively mounted in a pendant *m*, wherein it is provided with a centrally-disposed enlargement *a'*, designed to prevent longitudinal movement. Said stem, which extends in either direction from said enlargement, is shown square in cross-section, adapted for engagement at its upper end with a crown (not shown) and at its lower end with the spindle *b*. The spindle *b* is provided with a recess complemental in form to the stem *a*, which is of sufficient depth to permit longitudinal movement of the spindle without at any time disconnecting the same with said stem.

First describing the time-setting mechanism and referring to Fig. 1 and means whereby the same is operated, the parts, as shown, are as follows: The pinion *t* meshes with a setting-wheel 4, which in turn operates the pinion 5. Said pinion 5 meshes with the minute-wheel 6, carrying the minute-hand, and is provided with a pinion 5^a, which meshes with the hour-pinion 7, carrying the hour-hand. It will be seen that as the pinion *t* is non-rotatively fixed upon the spindle *b* the setting mechanism will be operated by rotation of the winding-stem *a*. In this adjustment of the parts the pinion *c* is out of mesh with the pinion *i*, and the pinion *q* being rotatively mounted the spindle *b* operates freely, so that as the stem is being rotated the time-setting mechanism only is operated. Next describing the means whereby the winding mechanism may be operated, the parts are adjusted in the following manner, reference being had to Fig. 2. The pinion *t* is raised until its clutch member *s* engages the clutch member *r*, whereupon the pinion *t* will be thrown out of mesh with the pinion 4 and the pinion *q* will, through the medium of the clutch members, be rotated by the spindle *b*. The pinion *q*, being prevented from moving vertically by engagement with the walls of a recess *v*, is utilized as a stop for limiting upward movement of the pinion *t*. When the clutch members *r* and *s* of the pinions *q* and *t* are engaged and the stem *a* is rotated, motion is communicated to the wheel

x , with which the pinion q is at all times in mesh. Said wheel x meshes with the pinion y , with which the winding-barrel of the clock is connected.

I will next refer to Fig. 3 and the manner in which the parts are adjusted to operate the alarm-setting mechanism. The pinion t is forced downwardly a sufficient distance to disengage the clutch members s and r and not a sufficient distance to engage the pinion t with the setting-pinion 4, the said pinion t being in an intermediate position and operating as an idler when the stem a is rotated. The pinion c is next forced downwardly until it is in mesh with the wheel i , which in turn operates the alarm-hand wheel j . The spindle of the wheel j carries the alarm-hand k . The spindle b is provided with a cam-engaging pin o , Figs. 1, 2, and 3, which registers with a recess n , formed in the lower faces of the pinion c , which acts as a cam. The recess n , as shown in Fig. 3, inclines downwardly toward the left, forming a shoulder against which the pin o acts, whereby rotation of the pinion c may be effected when the winding-stem and spindle b are rotated toward the right. It will thus be seen that if the operator turns the stem a to the left motion will be communicated, through the medium of the pinions c and i , to the alarm-hand wheel j , whereby the hand k may be set at any desired position upon the clock-dial. By the arrangement of the recess-cam n should the operator by mistake turn the winding-stem toward the left the pin o would merely slide out of the recess and ride on the lower face of the pinion c , the alarm-hand remaining stationary. This is a great advantage, inasmuch as it is desirable that the alarm-hand should rotate in only one direction.

I will next describe the means whereby the pinion, clutch, and spindle t , s , and b , respectively, are operated by the adjusting mechanism at the left of the pendant m . There is provided in the casing a push-rod 9, which operates a lever 1. Said lever 1 is pivoted at 2 and carries a pin 2^a , adapted for engagement with the lower end of the push-rod 9 and at its outer end is bifurcated to engage a reduced portion z , formed between the clutch s and the pinion t . Said lever 1 is held in an extreme elevated position by means of a spring 3. It will be noted by reference to Fig. 1 that the clutch member r and the pinion 4 constitute stops, limiting movement of the pinion t and clutch s in opposite directions.

There is located at the right of the pendant m an alarm-pinion-operating lever f , which is pivotally mounted at g and is bifurcated at its opposite end to engage a reduced portion e , formed between the pinion c and a flange d . Said lever carries a pin w , which is engaged by the lower end of the push-rod l' . The flange d of the pinion c engages struc-

tural parts of the clock when in an elevated position and is automatically and normally held in said position by a spring h .

The operation of the device is as follows, and the normal position of the parts is shown in Fig. 2, wherein an adjustment is effected whereby the turning of the stem a serves to operate the winding mechanism, the clutch members r and s being engaged and serving to communicate motion from the spindle to the pinion y of the spring-barrel through the medium of the pinions q and x . The pinions t and c are in this position disconnected from the pinion 4 and pin o , respectively. Assuming that the operator has completed the winding of the clock and desires to set the alarm, he will press downwardly on the push-rod l' against the action of the spring h , thereby serving to engage the pin o with the cam n . This downward movement will be continued until the lower face of the pinion c engages the upper shoulders, between which the pinion q is held, which downward movement, as will be seen by comparing Figs. 2 and 3, will cause a downward movement of the clutch s sufficient to disengage the same with the clutch r , leaving the pinion t out of engagement with the pinion 4. In this adjustment of the parts the pinion q is also disconnected from the spindle b , whereupon the operator by turning the stem a to the left will, through the medium of the pinions i and j , operate the alarm-hand k . Assuming that the alarm mechanism of the clock is set for the proper time and that it is desirable to reset the hands, the operator will release pressure on the push-rod l' , permitting the spring h to restore the pinion c to an upward position out of mesh with the pinion i . The spring 3 will simultaneously force the clutch member s into engagement with the member r , whereupon the parts will again be in their normal position. The operator will now press downwardly on the push-rod 9, forcing the clutch members apart and the pinion t into engagement with the pinion 4, which position is shown in Fig. 1, whereupon by turning the stem a the hour and minute hands may be rotated to the desired position upon the dial. To hold the sleeve s t in an intermediate position, the operator will hold the rods 9 and l' with the thumb and finger of one hand and turn the crown with the other hand. Thus it will be seen that the actuating device is normally held in a position for the clock to be wound and that if it is desired to adjust such actuating mechanism for effecting operation of either the time-setting or alarm-setting mechanisms it will only be necessary to hold one of the push-rods 9 or l' in a depressed position.

It will be obvious from the foregoing that the device of my invention wherein only one winding-stem is provided for the operation of three distinct mechanisms that the cost of

manufacture is greatly reduced over the devices now employed wherein a separate stem for each of the three mechanisms is used.

It will further be noted that clocks having 5 ornamental cases can be provided with my improved mechanism without in any way detracting from the appearance of the case, which advantage is made possible by the fact that substantially all of the mechanism is located within the case of the clock.

While I have herein shown and described a single embodiment of my invention, it will be obvious that changes may readily be made therein without departing from the spirit of the invention, and I therefore do not wish to be limited to the precise construction shown; but

What I claim, and desire to secure by Letters Patent, is—

20 A clock winding and setting mechanism comprising a longitudinally-movable spindle,

a winding-stem slidably and non-rotatively connected with said spindle, a winding-pinion rotatively mounted on said spindle and held in a position to mesh with winding mechanism and provided on one side with a clutch member, a setting - pinion non - rotatively mounted on said spindle and provided with a clutch member, means for engaging the clutch members of said pinions and whereby 30 mesh engagement may be effected between said pinion and time-setting mechanism, an alarm-pinion rotatively and slidably mounted on said spindle, and means whereby mesh engagement may be effected between said 35 alarm-pinion and alarm-setting mechanism.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES RODÉ STUCKY.

Witnesses:

ARMAND PERRELET,
PHILIPPE BEGUIN.