

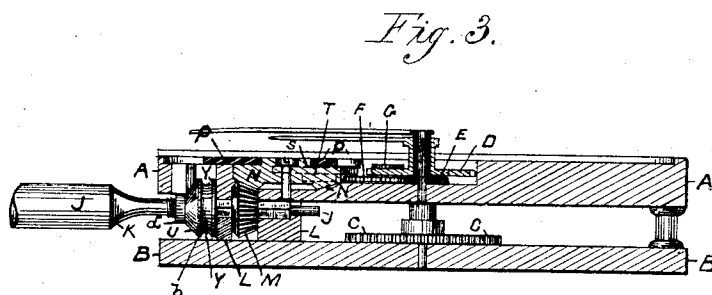
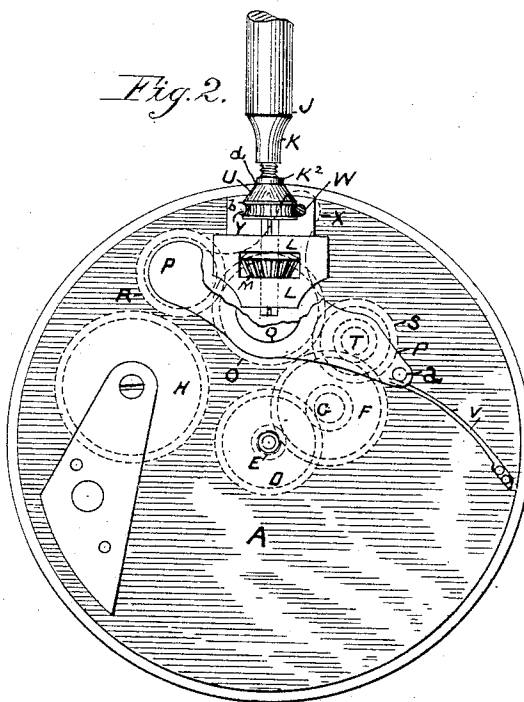
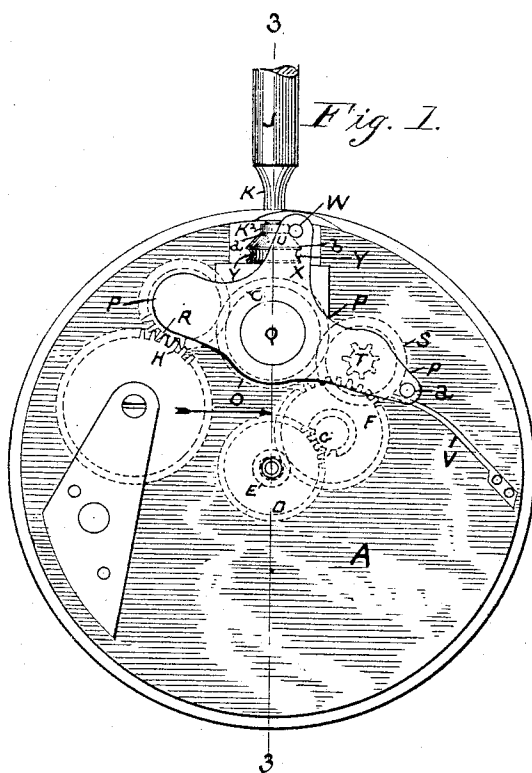
(No Model.)

C. V. WOERD.

STEM WINDING AND SETTING WATCH.

No. 341,786.

Patented May 11, 1886.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES V. WOERD, OF WALTHAM, MASSACHUSETTS.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 341,786, dated May 11, 1886.

Application filed December 28, 1885. Serial No. 186,900. (No model.)

To all whom it may concern:

Be it known that I, CHARLES V. WOERD, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stem-Winding Watches, of which the following is a full, clear, and exact description.

This invention relates to that class of stem winding and setting mechanisms of watch-movements in which, in combination with a rotating arbor or stem, preferably located in the pendant-knob of the watch-case, is employed a train of gearing in constant connection with said rotating pendant-arbor and carried by and arranged on a swinging or otherwise movable or shifting yoke, and all in such relation to the winding and hand arbors or wheels of the watch-movement that the swing or movement of said yoke in one direction places said train of gearing into connection with the winding arbor or wheel, and out of connection with the hand arbor or wheel, and its swing in the other direction places said train of gearing into connection with the hand arbor or wheel and out of connection with the winding arbor or wheel of the movement, maintaining at all times its connection with the rotating pendant-arbor, and all otherwise substantially as well known.

This invention in stem winding and setting mechanisms for watch-movements of substantially the character above described consists of a rotating and longitudinally-sliding arbor or stem, preferably located in the pendant-knob of the watch-case, and suitably adapted to communicate its rotary movement to mechanism suitably connected thereto, and which is constructed with a peripheral beveling or cam-face, in combination with a swinging or otherwise suitable moving or shifting yoke or plate carrying a train of gearing or other mechanism in constant connection with said rotating and sliding arbor, and suitable to secure, when placed in connection with either the winding or the hand arbor or wheel, and suitably operated, a rotation thereof from the rotation of said arbor, and which is provided with an abutment in position to make direct bearing and rest on said arbor and its said peripheral beveling or cam-face, and all in such manner as to secure in the movement of said rotating arbor lengthwise in one direc-

tion, preferably an outward direction relative to the watch-movement, a movement of the yoke to place the train of gearing or other mechanism carried by it, as aforesaid, into connection with the hand arbor or wheel and out of connection with the winding arbor or wheel of the watch-movement, and in the movement of said rotating arbor lengthwise in the other and opposite direction, preferably an inward direction relative to the watch-movement, a movement of the yoke to place the train of gearing or other mechanism carried by it, as aforesaid, into connection with the winding arbor or wheel and out of connection with the hand arbor or wheel of the watch-movement, and all otherwise substantially as hereinafter described.

Again, this invention consists in constructing the rotating and sliding arbor or stem having a peripheral beveling or cam-face, substantially as has been above described, with a peripheral depression or groove suitably located to make a seat for said abutment of the yoke when the train of gearing or other suitable mechanism carried by it, as aforesaid, is in connection with the hand arbor or wheel, and thus secure the retention and against accidental escape of said mechanism in such connection, all substantially as hereinafter described.

In the drawings forming a part of this specification, Figure 1 is a plan or face view of the mechanism of this invention, and of a train of gearing suitable for its practical employment in connection with a watch-movement, and in position for winding the watch. Fig. 2 is a similar view to Fig. 1, but illustrating the parts as in position for setting the hands of the watch, and with some parts broken out and in section. Fig. 3 is a section on line 33, Fig. 1.

In the drawings, A represents the pillar-plate; B, the top plate; C, the center wheel; D, the hour-wheel; E, the cannon-pinion; F, the minute-wheel; and G its pinion, made preferably in one piece therewith; and H a gear-wheel of the winding barrel or arbor, all as usual in watch-movements, and therefore needing no particular description herein.

J is the rotating and sliding stem or arbor of the contrivances of this invention, and preferably it is to be located within the pend-

ant-knob (not shown) of the watch-case and capable of turning in and sliding lengthwise through it, all as well known. This stem or arbor J is made in two parts or sections, K K², screwing the one into the other, all as shown, and so that they can be separated, leaving one, K², in its bearings of stationary parallel blocks L of the pillar-plate A, and said part K² is made square-sided, and thereon it carries a bevel-pinion gear-wheel, M, which thus can turn with the arbor when it is rotated, while at the same time the arbor can be moved longitudinally or lengthwise through it, the bevel-gear being confined against movement lengthwise of the arbor by and between said bearing-blocks L therefor.

The bevel-gear M meshes with a crown bevel gear-wheel, N, concentric and either in one piece with or rigidly attached to a gear-wheel, O, and the two as one turning on and carried by a yoke or plate, P, centrally pivoted, as at Q, to the pillar-plate A. The gear-wheel O meshes with gear-wheels R S, on opposite sides thereof, and the gear R is in position to be meshed with the gear-wheel H of the winding barrel or arbor when said yoke is swung in one and the proper direction therefor, and the gear S is in position for a concentric pinion-wheel T thereof to be meshed with the minute-wheel F when the yoke is swung in the other and proper direction therefor.

The minute-wheel F meshes directly with the cannon-pinion E, and its concentric pinion G meshes with the hour-wheel D of the watch-movement. The yoke P in its normal position has its gear-wheel R in engagement with the gear-wheel H of the winding arbor or barrel, and the pinion-wheel T of its gear-wheel S out of engagement with the minute-wheel F in connection with the hour-wheel D and cannon-pinion E, as has been described, and the yoke is held in its said position by the action of a bent spring, V. The spring V at one end is rigidly secured to the pillar-plate A, and at its other and free end it has bearing against a pin, a, of the yoke P, located at the opposite end of the yoke to that at which the gear-wheel R is located. The swing of the yoke P to connect the train of gearing which it carries, as has been described with the minute-wheel F, is against the action of the spring V bearing on the yoke.

In all positions of the yoke its train of gearing is always in connection with the bevel gear-wheel M of the pendant arbor or stem J; but in one position thereof, (preferably its normal position,) Fig. 1, only in connection with the winding-wheel H, and in the other position thereof, Fig. 2, only in connection with the minute-wheel F.

So far as has been described, the two-part pendant arbor or stem J, the swinging yoke P, and train of gearing Q R S T carried by it and the gearing to make connection between said train of gearing and either the gear-wheel H of the winding barrel or arbor or the min-

ute-wheel F differ in construction and arrangement in no material respect from that shown and described in the schedule annexed to the Letters Patent of the United States issued to me, dated November 17, 1885, No. 330,537, and of themselves, either singly or in combination, they constitute no part of this invention, and have only been illustrated and described as a construction and arrangement of such parts which is most preferable, and by and through the means of which the real elements or contrivances of this invention, consisting in one part of a rotating and sliding arbor or stem, substantially such as already described, and a construction thereof, and of the shifting yoke, to be now described in detail, can be most successfully and efficiently utilized for the purpose designed.

U is a face surrounding the pendant-arbor J. This face bevels or inclines toward the axis of the arbor, and its greater diameter or end b is toward the bevel-wheel M of the arbor, and its smaller diameter or end d toward the outer edge or periphery of the pillar-plate.

W is a pin or abutment carried by a side projection or arm, X, of the yoke P, and with the yoke in its normal position, Fig. 1, said abutment is at rest upon the arbor at the smaller end, d, of the beveling or cam-face U of the arbor. This abutment W of the yoke is held to its bearing on the beveling or cam-face U of the pendant-arbor by the tension of the spring V of the yoke, and in pulling the stem or arbor outward, said beveling bearing-face of the arbor riding upon the abutment W of the yoke causes the yoke to be swung upon its center at Q, and thus the connection of its train of gearing with the gear-wheel H of the winding arbor or barrel to be broken and a connection made between said train and the minute-wheel F of the watch-movement, said abutment of the yoke finally coming to a seat or rest in a peripheral groove, Y, of the arbor at and inside of the larger end, b, of its beveling or cam-face U, and which is of suitable shape therefor and of sufficient depth to secure a hold of the abutment W of the yoke therein against accidental escape as the pendant-arbor is turned to set the hands, while at the same time, with a slight inward push on the pendant-arbor, it can escape therefrom and set the yoke free to the action of its spring to return the yoke and pendant-arbor to their normal position, and to place the train of gearing carried by the yoke out of connection with the minute-wheel F and into connection with the wheel H of the winding arbor or barrel.

The mechanism of this invention plainly is most simple, direct, positive, and efficient in operation, and, as is obvious, susceptible of most ready adaptation to varying arrangement of winding and hand-setting mechanism for watch-movements. Again, by reversing the direction of the cam-face U of the arbor or stem J the arbor may be adapted to pro-

duce a swing of the yoke P, on an inward slide thereof, instead of an outward slide, as has been particularly described.

While the contrivances constituting this invention have been herein described in connection with one construction and arrangement of a shifting yoke and a train of gearing thereon, it is to be understood that the invention is in no way to be limited thereto, said invention consisting, in substance, of a bearing cam-face upon a rotating and sliding arbor or stem, preferably located in the pendant-knob of the watch-case, and of an abutment on a swinging or otherwise suitably moving or shifting yoke directly bearing on said cam-face, and which yoke carries mechanism by and through which, on a longitudinal movement of the pendant-arbor in the proper direction therefor, to establish connection between said arbor or stem and either the winding or the hand train of the watch-movement, as the case may be.

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

1. In a watch-movement of otherwise suitable construction, in combination, a rotatory longitudinally-sliding stem or arbor, J K, made in attachable and detachable parts to permit, detached, the then removal of the movement from the case, a cam-periphery, U, and pinion-wheel, M, of said arbor, the pinion turning with the arbor, but otherwise confined against movement, a swinging plate or yoke, P, with spring V pressing against it, an abut-

ment, W, of said yoke bearing on the cam of said arbor, and meshing gear-wheels O R S carried by the yoke, the one, O, driven from the pinion M of arbor, and the others, R S, arranged to connect, respectively, with the winding and setting trains of the watch-movement, substantially as described, for the purposes specified.

2. In a watch-movement of otherwise suitable construction, in combination, a rotatory longitudinally-sliding stem or arbor, J K, made in attachable and detachable parts to permit, detached, the then removal of the movement from the case, a cam-periphery, U, peripheral groove Y, and pinion-wheel M of said arbor, the pinion turning with the arbor, but otherwise confined against movement, a swinging plate or yoke, P, with a spring, V, pressing against it, an abutment, W, of said yoke bearing on the cam U, and to seat in the peripheral groove Y of said arbor, and meshing gear-wheels O R S carried by the yoke, the one, O, driven from the pinion M of arbor, and the others, R S, arranged to connect, respectively, with the winding and setting trains of the watch-movement, substantially as described, for the purposes specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHAS. V. WOERD.

Witnesses:

WM. S. BELLOWS,
ALBERT W. BROWN.