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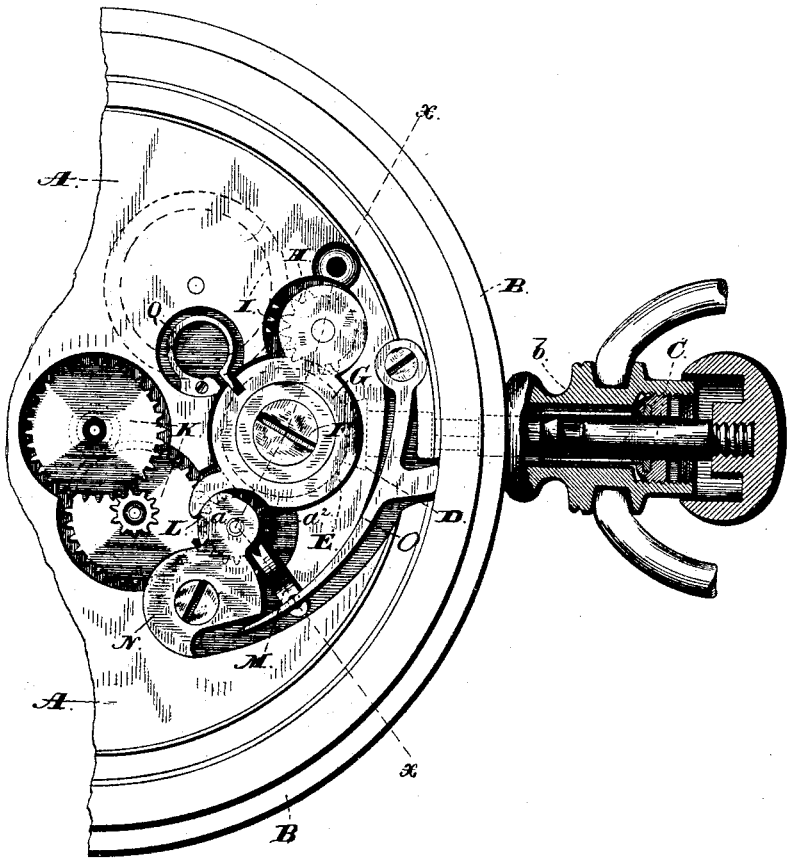
C. P. CORLISS.

STEM WINDING AND SETTING WATCH.

No. 345,619. Patented July 13, 1886.

Fig. 1.



Witnesses:
Jas. E. Hutchinson
Henry C. Hazard

Inventor.
Chas. P. Corliss, by
Prindle & Russell, his Attys

(No Model.) 5 Sheets—Sheet 2.

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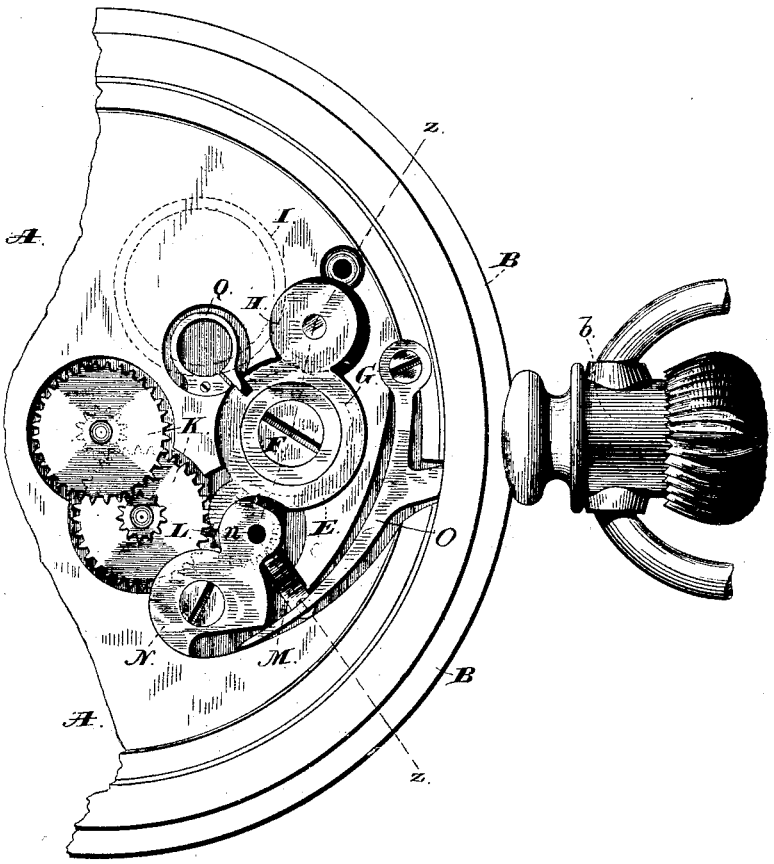
Fig. 2.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
Chas. P. Corliss. by
Brindley & Russell. his Attys.

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C. P. CORLISS.

STEM WINDING AND SETTING WATCH.

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Fig. 3.

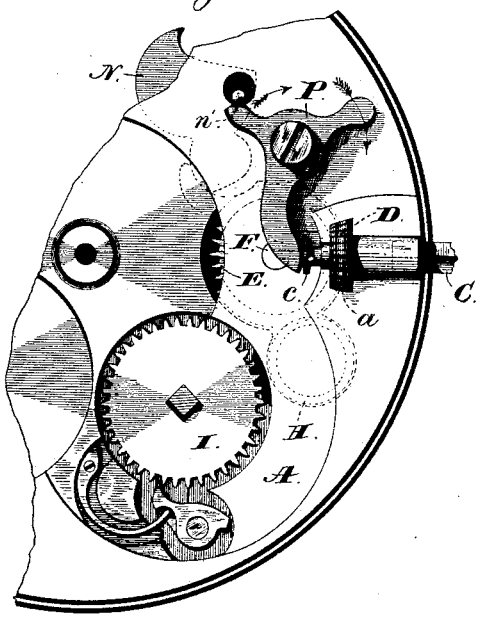
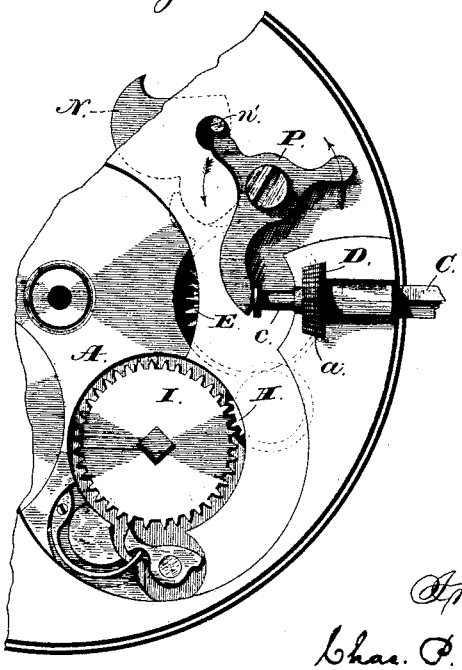


Fig. 4.



Witnesses.
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
Chas. P. Corliss. by
Brindley & Russell, his Attys.

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C. P. CORLISS.

STEM WINDING AND SETTING WATCH.

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Fig. 5

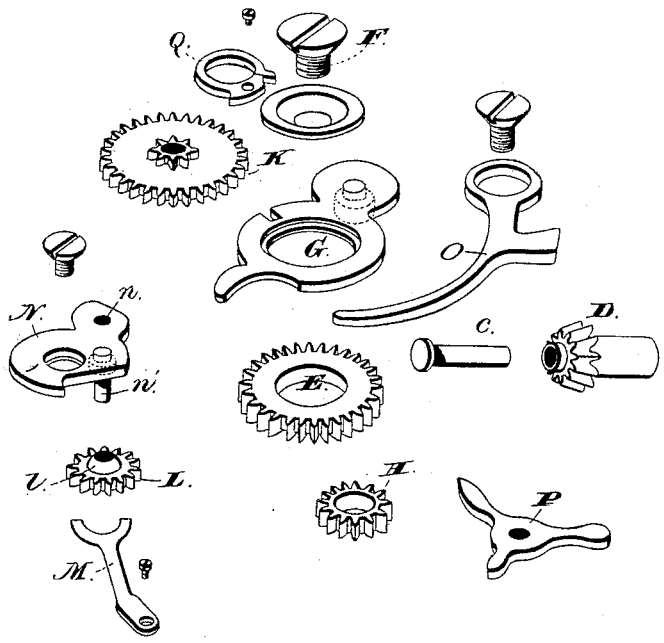
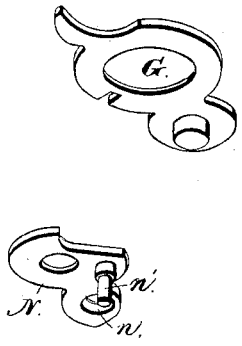


Fig. 6.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
Chas. P. Corliss. by
Cindlers Russell, his attys

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C. P. CORLISS.

STEM WINDING AND SETTING WATCH.

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Fig. 7.

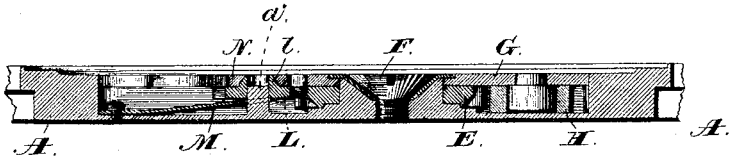
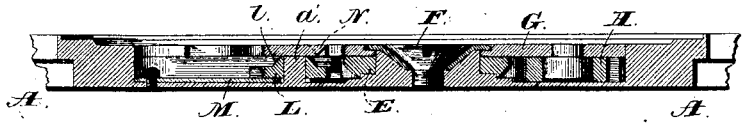


Fig. 8.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
Chas. P. Corliss. by
Crindle & Russell, his Attys

UNITED STATES PATENT OFFICE.

CHARLES P. CORLISS, OF ELGIN, ASSIGNOR TO THE ELGIN NATIONAL WATCH COMPANY, OF CHICAGO, ILLINOIS.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 345,619, dated July 13, 1886.

Application filed March 4, 1886. Serial No. 194,026. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. CORLISS, of Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Stem Winding and Setting Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a front plan view of a watch containing my improvements, the dial being removed and the stem-driven mechanism in position for setting the hands. Fig. 2 is a like view of the same with the stem-driven mechanism in position for winding the mainspring. Figs. 3 and 4 are plan views of the opposite side of the pillar-plate, and show, respectively, the stem-driven mechanism in the positions shown in Figs. 1 and 2. Fig. 5 is a perspective view from the upper side of the stem-driven train separated from the adjacent parts. Fig. 6 is a like view of the same from the lower side, and Figs. 7 and 8 are sections upon line *x x* and *z z* of Figs. 1 and 2.

Letters of like name and kind refer to like parts in each of the figures.

The invention relates to stem winding and setting watches in which the winding and setting train is driven by and manipulated wholly through the stem-arbor, and connection is made and broken between said train and the dial-wheels by means of an intermediate wheel that is shifted into or out of engagement therewith by a movement in a line perpendicular to its plane of rotation, and said invention has for its object an improvement in the means employed for thus shifting said intermediate wheel; to which end my said invention consists, principally, as an improvement in stem winding and setting watches, in combining with the dial-wheels and with a stem-driven train which is in part journaled upon a pivoted yoke an intermediate wheel that is adapted to connect or to disconnect said dial-wheels and train, and by the movement of a supplemental pivoted plate is shifted, in a line perpendicular to its plane of rotation, out of engagement with said dial-wheels, substantially as and for the purpose hereinafter specified.

It consists, further, as an improvement in stem winding and setting watches, in combining with the dial-wheels and with a stem-driven train which is in part journaled upon a pivoted yoke an intermediate wheel that is shiftable, in a line perpendicular to its plane of rotation, into or out of engagement with said dial-wheels and stem-driven train, and by the movement of a supplemental pivoted plate is permitted to be thus moved into engagement, substantially as and for the purpose hereinafter shown.

It consists, further, as an improvement in stem winding and setting watches, in combining with the dial-wheels and with a stem-driven train which is in part journaled upon a pivoted yoke an intermediate wheel that by the action of a spring is moved, in a line perpendicular to its plane of rotation, into engagement with said dial-wheels, and by the action of a supplemental pivoted plate is moved, in the same line, out of engagement with said wheels, substantially as and for the purpose hereinafter set forth.

It consists, further, as an improvement in stem winding and setting watches, in the combination, with the dial-wheels and the winding-wheel, of a stem-driven train which is partly journaled upon a pivoted yoke, an intermediate wheel that is adapted to be engaged with or disengaged from said dial-wheels by a movement in a line perpendicular to its plane of rotation, and a pivoted plate which by a longitudinal movement of the stem-arbor will shift said intermediate wheel out of engagement with said dial-wheels and permit said yoke to turn upon its axis, so as to cause said stem-driven train to engage with said winding-wheel, substantially as and for the purpose hereinafter shown and described.

It consists, further, as an improvement in stem winding and setting watches, in the combination, with the dial-wheels and the winding-wheel, of a stem-driven train which is partly journaled upon a pivoted yoke, an intermediate wheel that is adapted to be engaged with or disengaged from said dial-wheels by a movement in a line perpendicular to its plane of rotation, and a pivoted plate which

by a longitudinal movement of the stem, arbor, and the action of a spring will permit said intermediate wheel to move into engagement with said dial-wheels, and will simultaneously turn said yoke upon its axis and cause said stem-driven train to be disengaged from said winding-wheel, substantially as and for the purpose hereinafter specified.

It consists, finally, in the special construction and arrangement of parts, substantially as and for the purpose hereinafter shown.

In the annexed drawings, A represents the pillar-plate of a watch-movement, which is fitted to and secured within the center-band B of a watch-case, in the usual manner. Journaled within the pendant *b* is a stem-arbor, C, which at its inner end enters into and engages with a pinion, D, that is journaled in a suitable bearing upon the lower face of the plate A, and has its toothed periphery extending through an opening, *a*, which is provided in said plate, where it meshes with a toothed wheel, E, that is journaled upon the latter, the arrangement being such as to enable said wheel E to be rotated in either direction by the rotation of said stem-arbor.

Upon the pivotal screw F of the wheel E, above the latter, is provided a yoke, G, which has the form shown in Fig. 5, and has pivoted upon its lower face, at one end, a pinion, H, that meshes with said toothed wheel E, and by the movement of said yoke upon its pivotal bearing may be moved into or out of engagement with a winding-wheel, I, that is secured upon the mainspring-arbor, the arrangement being such as to enable the mainspring to be moved by the rotation of the stem-arbor C.

The watch-movement is provided with the usual dial-wheels, K, and between one of the same and the wheel E is pivoted an intermediate wheel, L, that has such diameter as to enable it to mesh with and connect said wheels. Said wheel L is pivoted upon a stud, *a'*, which projects upward from a recess, a^2, that is formed in the plate A, which recess has such diameter and depth as to enable said wheel to be moved upon said stud, in a line perpendicular to its plane of rotation, a distance sufficient to disengage it from said dial-wheel K. Said wheel E has preferably such thickness as to cause said intermediate wheel to remain in engagement therewith, whether in engagement or out of engagement with said dial-wheel. The intermediate wheel, L, is normally held at the upper limit of its motion in engagement with the dial-wheel K by means of a flat spring, M, one end of which is secured to the plate A, while its opposite free end is forked and spans the stud *a'* beneath said wheel.

In order that the intermediate wheel, L, may be moved downward out of engagement with the dial-wheel K when desired, a plate, N, having the form shown in Fig. 5, is pivoted upon the plate A in such position as to cause one end to extend over said wheel, which latter is provided upon its upper side with a concial hub, *l*, that bears against the lower face of said plate and operates to hold said wheel at the lower limit of its motion. The plate N is provided within the portion which extends over the wheel L with an opening, *n*, that corresponds in size to the conical hub *l*, and when, by the movement of said plate upon its pivotal bearing, said opening is placed directly over said hub said wheel will be relieved from its downward pressure, and will be raised to the upper limit of its motion by the action of the spring M. An opposite movement of said pivoted plate will cause said wheel to be pressed downward again to the lower limit of its motion. A spring, O, operates to hold the plate N with a yielding pressure in position to permit the wheel L to engage with the dial-wheel K, as seen in Fig. 1, while said plate is moved to the opposite limit of its motion by means of a stud, *n'*, which projects downward through an opening in the plate A, and a lever, P, that is pivoted upon the lower side of the latter, and has one of its ends in engagement with said stud and its opposite end in engagement with the inner end of the stem-arbor C, or with an intermediate device, *c*, which is placed within the pinion D, and extends between said arbor and stud. As thus arranged, by moving said arbor longitudinally inward said plate N will be moved to the position shown in Fig. 2, while by a movement of said arbor in an opposite direction said plate, by the action of said spring O, will be returned to the position seen in Fig. 1.

The yoke G is held normally in position to cause its pinion H to engage with the winding-wheel I by means of a spring, Q, and is moved so as to disengage said pinion and wheel by the impingement of the end of the plate N upon the end of said yoke opposite to said pinion at the instant when said plate is turned so as to permit the wheel L to rise into engagement with the dial-wheel K.

When the stem-driven train is in engagement with the winding-wheel, a rearward rotation of the stem-arbor will cause the teeth of the pinion H to slip over the teeth of said winding-wheel, which operation produces a vibration of said yoke, and if the latter extended over and operated to move the intermediate wheel, L, into or out of engagement with the dial-wheel K, such vibration might occasionally cause a partial engagement of said wheels K and L, and a consequent displacement of the hands of the watch; but with the construction used such accident is impossible, for the reason that the plate N is in no manner affected by the vibrations of said yoke, and is stationary, except when moved by the longitudinal movement of said stem-arbor.

Having thus described my invention, what I claim is—

1. As an improvement in stem winding and setting watches, in combination with the dial-wheels and a stem-driven train which is in part journaled upon a pivoted yoke, an intermediate wheel that is adapted to connect or

disconnect said dial-wheels and train, and by the direct action of a supplemental pivoted plate is shifted, in a line perpendicular to its plane of rotation, out of engagement with said dial-wheels, substantially as and for the purpose specified.

2. As an improvement in stem winding and setting watches, in combination with the dial-wheels and with a stem-driven train which is in part journaled upon a pivoted yoke, an intermediate wheel that is shiftable, in a line perpendicular to its plane of rotation, into or out of engagement with said dial-wheels and stem-driven train, and by the direct action of a supplemental pivoted plate is permitted to be thus moved into engagement, substantially as and for the purpose shown.

3. As an improvement in stem winding and setting watches, in combination with the dial-wheels and with a stem-driven train which is in part journaled upon a pivoted yoke, an intermediate wheel that by the action of a spring is moved, in a line perpendicular to its plane of rotation, into engagement with said dial-wheels and by the direct action of a supplemental pivoted plate is moved, in the same line, out of engagement with said wheels, substantially as and for the purpose set forth.

4. As an improvement in stem winding and setting watches, the combination, with the dial-wheels and the winding-wheel, of a stem-driven train which is partly journaled upon a pivoted yoke, an intermediate wheel that is adapted to be engaged with or disengaged from said dial-wheels by a movement in a line perpendicular to its plane of rotation, and a pivoted plate which by a longitudinal movement of the stem-arbor will shift said intermediate wheel out of engagement with said dial-wheels and permit said yoke to turn upon its axis, so as to cause said stem-driven train to engage with said winding-wheel, substantially as and for the purpose shown and described.

5. As an improvement in stem winding and setting watches, the combination, with the dial-wheels and the winding-wheel, of a stem-driven train which is partly journaled upon a pivoted yoke, an intermediate wheel that is adapted to be engaged with or disengaged from said dial-wheels by a movement in a line perpendicular to its plane of rotation, and a pivoted plate which by a longitudinal movement of the stem-arbor and the action of a spring will permit said intermediate wheel to move into engagement with said dial-wheels, and will simultaneously turn said yoke upon its axis and cause said stem-driven train to be disengaged from said winding-wheel, substantially as and for the purpose specified.

6. In combination with the intermediate wheel, L, having the conical hub *l*, and with the spring M, the plate N, pivoted upon the pillar-plate A and provided with the opening *n* and stud *n'*, the spring O, the stem-arbor C, and intermediate mechanism, substantially as shown, whereby the longitudinal movements of said arbor will cause or permit of a movement of said pivoted plate upon its axis, substantially as and for the purpose shown.

7. In combination with the pivoted yoke G and its spring Q, the pivoted plate N, adapted to be moved in opposite directions upon its pivotal bearing by the longitudinal movement of the stem-arbor C and by the action of the spring O, and to engage with and move said yoke, substantially as and for the purpose set forth.

8. As an improvement in stem winding and setting watches, the rotatable longitudinally-movable stem-arbor C, the winding-pinion D, the wheel E, the pivoted yoke G, carrying the pinion H, the intermediate wheel, L, provided with the conical hub *l*, the pivoted plate N, having the opening *n* and stud *n'*, the springs M, O, and Q, and the lever P, in combination with each other, the winding-wheel, and the dial-wheels, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of December, 1885.

CHARLES P. CORLISS.

Witnesses:
W. H. CLOUDMAN,
W. P. HEMMENS.