(No Model.) 3 Sheets—Sheet 1.

W. W. HASTINGS.

PLATE FOR STEM WINDING WATCHES.

No. 520,483. Patented May 29, 1894.

Fig. 1.

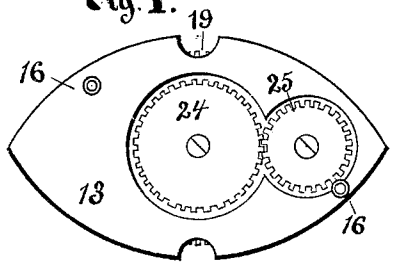


Fig. 2.

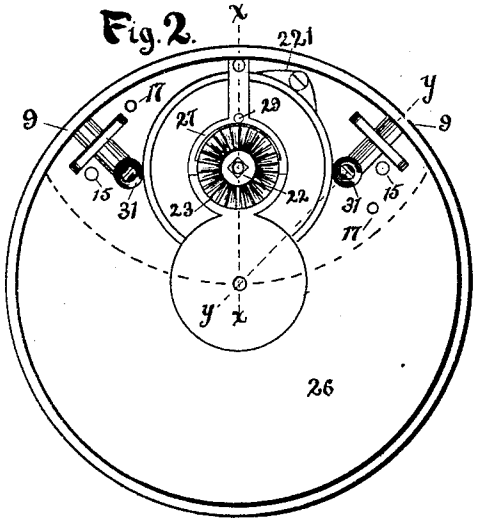


Fig. 4.

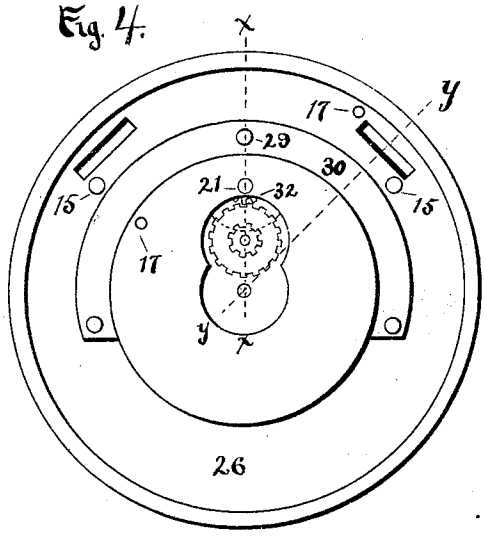


Fig. 5.

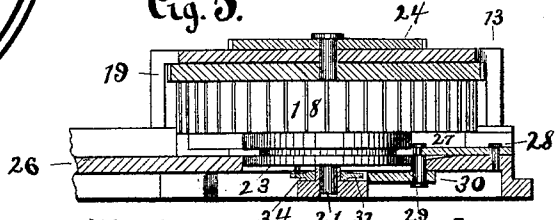


Fig. 3.

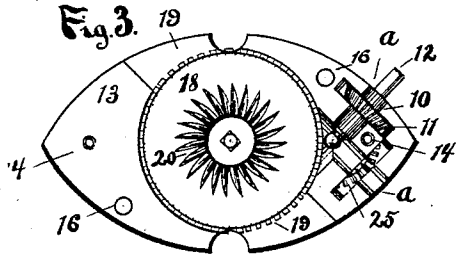
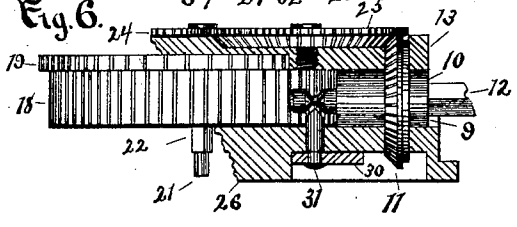


Fig. 6.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 7.

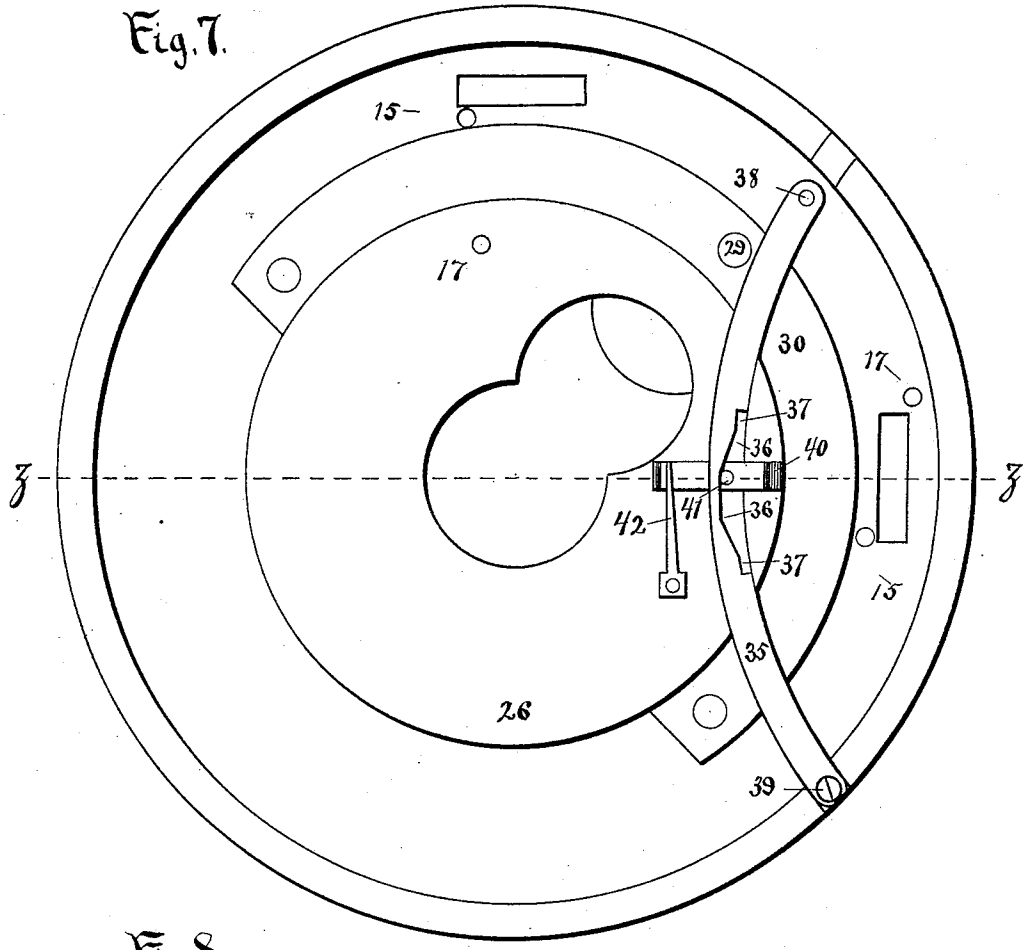

Fig. 8.

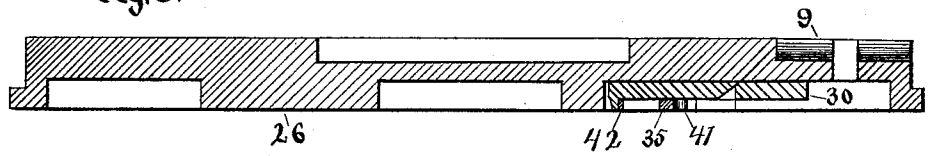

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Fig. 9.

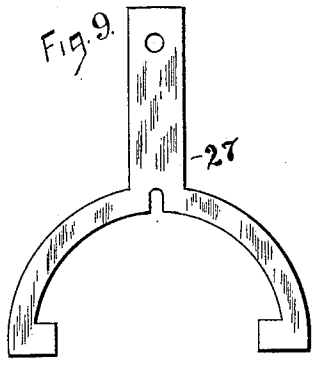
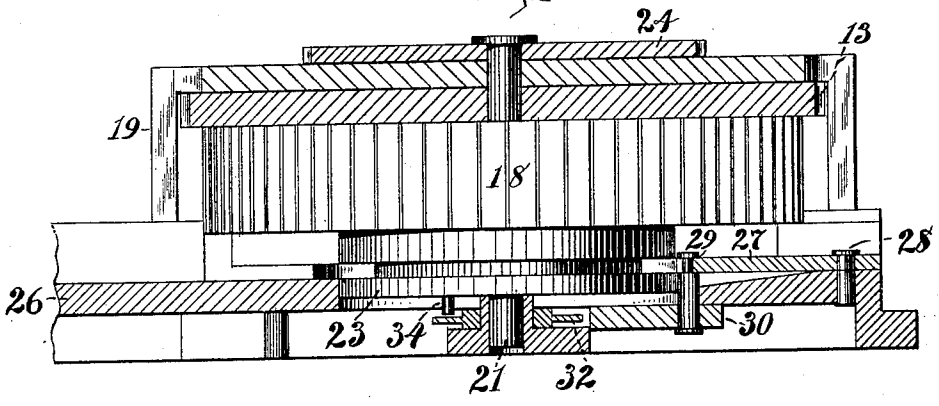


Fig. 10.



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UNITED STATES PATENT OFFICE.

WALTER W. HASTINGS, OF JERSEY CITY, NEW JERSEY.

PLATE FOR STEM-WINDING WATCHES.

SPECIFICATION forming part of Letters Patent No. 520,483, dated May 29, 1894.

Application filed March 28, 1892. Renewed January 29, 1894. Serial No. 498,400. (No model.)

To all whom it may concern:

Be it known that I, WALTER W. HASTINGS, a citizen of the United States, residing at Jersey City, in the county of Hudson, in the State of New Jersey, have invented certain new and useful Improvements in Stem Winding and Setting Watches, of which the following is a specification.

My invention relates to improvements in plates for stem winding watches and devices for use therewith in setting the hands, and the objects of my improvements are simplicity of construction and general efficiency and convenience in use, whereby the stem winding and hand setting devices are adapted for either an open face or hunting case.

In the accompanying drawings Figure 1 is a detached rear elevation of the bridge in which the main spring and spring barrel are mounted. Fig. 2 is a rear elevation of the front movement plate with said bridge removed. Fig. 3 is a detached front elevation of said bridge. Fig. 4 is a front elevation of the front movement plate. Fig. 5 is an enlarged sectional view on the line $x x$ in Figs. 2 and 4. Fig. 6 is a sectional view on the line $y y$ of Figs. 2 and 4. Fig. 7 is a front elevation of the front movement plate with a different form of lifting devices for shifting the ratchet disk for setting the hands. Fig. 8 is a sectional view of the same on the line $z z$ of Fig. 7. Fig. 9 is an enlarged detached view of the spring fork or shipper, and Fig. 10 is a sectional view corresponding with Fig. 5 but on a larger scale.

The first four figures in the original drawings are on a scale twice the size of the watch from which they were made, and the remaining four are on a scale twice the size of said first four figures.

The principal part of the movement may be of any ordinary construction. The front movement plate is provided with half bearings 9, Fig. 2, on its rear face which extend radially inward from the edge at points designed to be immediately back of the figures 12 and 3 on the dial, and in one of these bearings the hub 10 of the bevel driving gear 11 is placed as shown in Fig. 6. This hub is provided with an axial hole within which is the stem 12, the stem and hole being squared for a portion of their length so that if desired, the stem may slide longitudinally in said hole while at the same time the rotation of the stem necessitates a corresponding rotation of the hub and its beveled wheel. Upon this portion of the rear or inner side of the plate 26 I secure a bridge 13 which is preferably in the form of an ellipse as shown in Figs. 1 and 3, and the position of the inner edge of which is indicated by broken lines in Fig. 2. This bridge is provided with steady or dowel pins 14, which enter holes 15 in said plate and is held in place by screws passing through the holes 16 in the bridge into holes 17 in said plate. These screw holes and dowel pins and holes are so related as to properly register no matter in which of its two positions said bridge is placed; in other words the bridge is reversible end for end on said plate. The front side of the bridge has in it two half bearings a a both radiating from a common center near one end as shown in Fig. 3, one of said bearings being filled with the hub 10 of the beveled driving gear 11. These bearings are so related to the bearings 9 9 on the plate 26 that one bearing in the plate will always register with one bearing in the bridge and form a complete bearing for the hub 10, no matter how the bridge may be secured. That is to say, if the bridge is placed with the recessed or hub bearing end at the 3 of the dial, the outer bearing of the bridge will register with the bearing at that point, and if the bridge is reversed end for end the other hub bearing will become the outer bearing, for registering with the hub bearing in the plate at 12. This bridge has mounted in it an ordinary main spring and spring barrel 18 and main wheel 19, said spring barrel being notched at the edge for being engaged with the holding pawl 221 in the ordinary manner, the front face of said spring barrel being provided with ratchet teeth as at 20 Fig. 3. The rear end of the shaft 21 on which the spring barrel revolves in winding up the spring is squared, and on this squared portion 22 is a ratchet disk 23, the teeth on its side face confronting and registering with the ratchet teeth 20 on the front face of the spring barrel so that when said ratchet disk is turned in one direction it will carry the spring barrel with

it. On the other end of the shaft 21 the main winding wheel 24 is rigidly secured, and mounted in the bridge at one side of this wheel is a wheel 25 having a set of edge teeth for engaging the wheel 24 and a set of bevel teeth for engaging the bevel driving gear 11. The axis of this wheel 25 is the point from which the hub bearings of the bridge radiate, and the bridge is slotted transversely to said bearings to let pass the bevel driving gear so that said gear may engage with the set of bevel teeth of this wheel 25, no matter in which of said bearings the hub 10 and wheel 11 may be set. The ratchet disk 23 is grooved at its edge as shown in Fig. 5, and in this groove the arms of the spring fork or shipper 27 rest. The shank of this spring fork is secured to the front plate as at 28 Figs. 2, 5 and 10. A connecting pin 29 connects this fork with a spring plate 30 on the front side of the front plate. In the preferred form I provide this spring plate with a bevel ended stud or cam 31 at points by the inner ends of the bearing recesses 9 as shown in Figs. 2 and 6. The inner end of the stem 12 is grooved as shown in Fig. 6, into which groove or neck one of the cams 31 enters. Loosely rotating on a bushing or stud at the front end of the shaft 21, and concentrically with said shaft is a hand setting pinion 32 which gears with one of the ordinary dial wheels. On the side of the ratchet disk 23 that faces said pinion 32 there is a pin 34 Fig. 5, which does not ordinarily engage with the teeth of said pinion. But when the spring plate 30 is moved by force toward the front it moves the spring fork 27 through the connecting pin and carries said disk with it to disconnect said disk from the ratchet teeth of the spring barrel and connect said disk through the pin 34 with the hand setting pinion 32, so that said pinion will rotate with said disk. When the bridge is reversed or changed end for end the beveled driving gear 11, its hub 10 and the stem 12 will be changed so as to bring the stem at either 12 or 3 as may be desired. Of course it is not necessary to remove the wheel 25 from the bridge as it is changed from one side to the other of the spring barrel and main wheel by changing the position of the bridge. The outer end of the stem 12 may of course be provided with any ordinary devices to facilitate rotating said stem. Rotating the stem will, through the gears 11, 25, 24 and shaft 21, drive the ratchet disk with said shaft. If said disk is in its normal position, and is turned in the proper direction, it will carry with it the spring barrel and wind up the spring while no movement is imparted thereby to the hand setting pinion 32. When it is desired to set the hands, the stem 12 is pulled out a little so that one side of the grooved or neck portion engages with cam 31 and forces the spring plate 30 toward the front, thereby moving with it the spring fork and ratchet disk, disengaging the latter from engagement with the spring barrel, and connecting it through the pins 34 with the hand setting pinion, so that turning the stem in either direction will correspondingly turn the dial wheels and hands as may be desired. Upon sliding the stem in again the parts will return to their normal position.

In Figs. 7 and 8 I have shown other devices for lifting or forcing forward the spring plate by means of a slide or "lever" instead of by sliding the stem. Of course the cams 31 and co-acting neck of the stem will not be used and the stem need not slide, but all other parts will, or may be precisely the same as before described.

In the front of the front plate 26 I form a curved groove on the arc of a circle, and in said groove I place a correspondingly shaped slide 35, the middle portion of which at one edge is provided with cams 36 and stops 37. At each end of this slide is a screw hole as at 38 at the upper part of Fig. 7, while the other screw hole is covered by the screw 39 placed therein. Transversely to this slide and back of it at its middle portion, is a sliding wedge 40 in a groove or other proper ways. The beveled end of this wedge is slightly entered between the spring plate and the body of the front plate, the inner corner of the spring plate being slightly beveled to permit this. On the front of this sliding wedge is a projection 41 in a position for being engaged by the cams 36 and the stops 37, when said slide is moved endwise. A spring 42 is also arranged to hold the sliding wedge in the position shown when it is not acted upon by some other force. It will be seen that one end of the slide 35 projects sufficiently to enable one to pull it farther out by engaging the screw 39 placed therein. In thus pulling it out the cam farthest from said screw will, through the projection 41, force the sliding wedge under the spring plate and move it to shift the ratchet disk for setting the hands as before described when said plate was moved by the stem. As the projection rides over the cam to the stop 37, the slide will remain out to hold the ratchet disk in engagement with the hand setting pinion so long as may be desired. By pushing the slide 35 in again the parts will return to their normal position. When the bridge is reversed so as to bring the stem at the other point of the dial, it is only necessary to remove the screw 39, push that end of the slide farther in to force out its opposite end and then put the screw into that end for use in pulling it farther out for setting the hands. Thus it will be seen that the point for the projecting end of the slide may be changed to correspond with the change in the position of the stem.

I am aware that a prior patent shows watch movement plates having a non-reversible but detachable bridge with duplicate sets of cavities and holes on each side of the spring bar-

rel whereby the stem and wheels could be removed and placed in different positions in said bridge and the same is hereby disclaimed.

I claim as my invention—

1. A watch movement plate having half bearings for the stem and wheel 11, and a reversible bridge having two half bearings for said stem both radiating from a common center near one end of said bridge, the main winding wheel and the wheel 25 mounted in that end of said bridge in which said two half bearings are located, substantially as described and for the purpose specified.

2. The combination of the spring barrel having side teeth, the shaft 21 squared for a portion of its length, the ratchet disk on said squared portion and having side teeth for engaging the side teeth of the spring barrel, mechanism for turning said shaft and disk, the spring fork in which said disk is mounted, the spring plate connected with said spring fork and devices for moving said plate for shipping the ratchet disk out of engagement with said spring barrel, substantially as described and for the purpose specified.

3. The combination of the spring barrel having side teeth, the shaft 21, the ratchet disk 23, the sliding stem having a grooved or neck portion, connecting mechanism for turning said shaft and disk through said stem, the spring fork in which said disk is mounted, the spring plate having cam 31 for being engaged by the grooved or neck portion of said stem when it is pulled out, substantially as described and for the purpose specified.

4. The combination of the spring barrel, the shaft 21, the ratchet disk mounted to rotate with said shaft and also to slide thereon, the hand setting pinion 32 mounted concentrically with said disk, mechanism for turning said disk and mechanism for shipping said disk on said shaft to disconnect it from the spring barrel and connect it with said hand setting pinion, substantially as described and for the purpose specified.

5. A watch movement plate having half bearings for the stem and wheel 11, and a two position or reversible bridge having similar half bearings for said stem and wheel, said bridge and plate being fitted together with screws, screw holes, dowel pins and holes arranged to properly register no matter in which of its two positions said bridge is placed, substantially as described and for the purpose specified.

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Witnesses:
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J. F. LUTZ.