A. H. POTTER.

Barrel-Arbor for Watches.

No. 168,581. Patented Oct. 11, 1875.

Fig: 1.

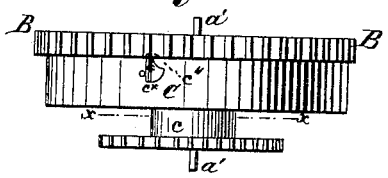


Fig: 2.

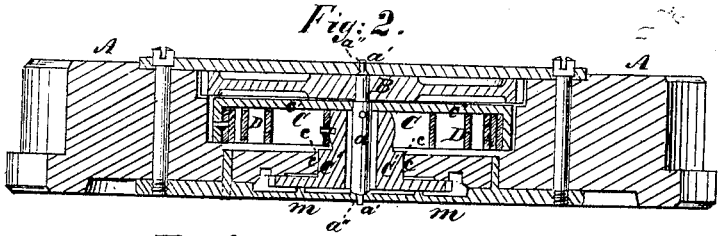


Fig: 3.

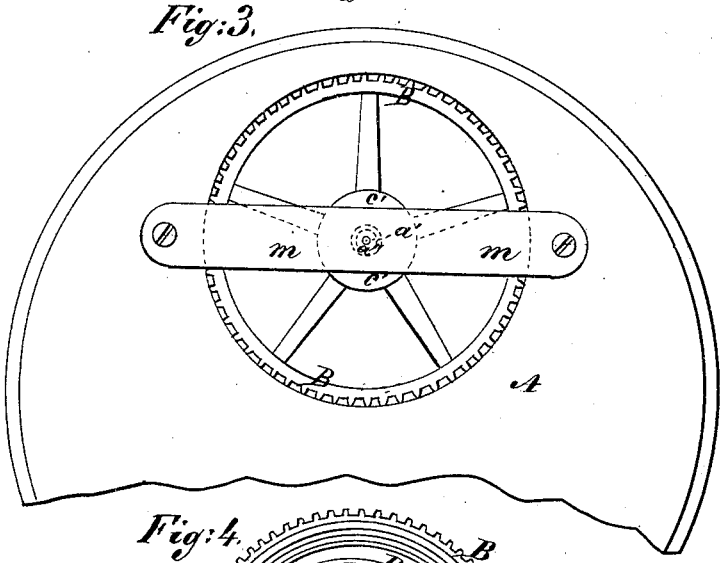


Fig: 4.

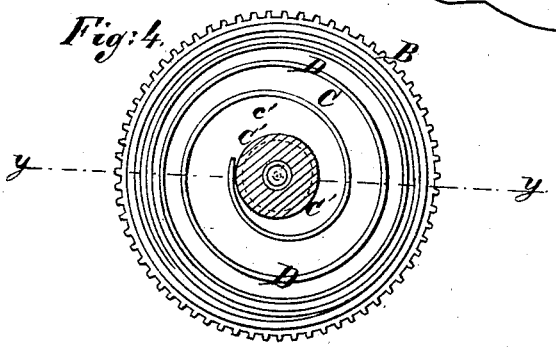
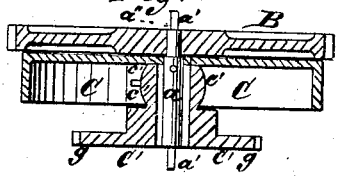


Fig: 5.



Witnesses:
Henry Eichling
H Wells Jr

Inventor:
Albert H. Potter
per James A Whitney
Att'ney.

UNITED STATES PATENT OFFICE

ALBERT H. POTTER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN H. McMILLAN, OF SAME PLACE.

IMPROVEMENT IN BARREL-ARBORS FOR WATCHES.

Specification forming part of Letters Patent No. **168,581**, dated October 11, 1875; application filed August 11, 1875.

CASE C.

To all whom it may concern:

Be it known that I, ALBERT H. POTTER, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Watches or Time-Keepers, of which the following is a specification:

This invention relates to that portion of a watch or time-piece comprising the winding devices, barrel, and main wheel; and it consists in a hollow hub, provided in a bearing distinct from that of the main wheel, constructed with a wheel whereby it may be geared with any suitable wheel and winding-stem, and arranged around, but loose from, the axle of the main wheel, in combination with the mainspring and barrel, whereby the mainspring may be wound up to exert its tension upon the barrel without friction, strain, or other harmful effect upon the axle of the main wheel, or in any wise interfering with the perfect accuracy and adjustment of the latter.

The invention further consists in a main wheel constructed with an axle rigid thereon, and provided at the ends with "pivots," (so termed,) in combination with the mainspring actuating said main wheel, the whole being so arranged as to provide for greater stability and steadiness in the normal operation of said wheel than has hitherto been obtained, and also for the jeweling of the pivots thereof.

The invention further consists in a novel combination of the herebefore-specified parts, whereby is provided a main wheel and winding apparatus, in which the greatest stability in the position and operation of the main wheel is combined with a minimum of friction both in the winding up of the mainspring and in the normal running of the main wheel, and with due provision for the safety of the main wheel in case of the reverse movement of the barrel, from the breaking of the main wheel or other causes.

Figure 1 is a detached view, on an enlarged scale, of the main portion of the mechanism embraced in my invention. Fig. 2 is a central sectional view of the same, taken in a plane transverse to the flat sides of the watch or time-piece. Fig. 3 is a side view of one portion of the same. Fig. 4 is a sectional view taken in the line *x* of Fig. 1; and Fig. 5, a sectional view taken at right angles to Fig. 4, in the line *y* thereof.

The supporting-frame A of the "works" or "movement" may be of any suitable construction, but, as represented in the drawings, is that described and claimed in my application (A) for Letters Patent filed of even date with this. B is the main wheel, from which, in the usual or in any suitable manner, motion is communicated to the train of the movement. This wheel, instead of being in one with the barrel, and formed with axial bearings placed upon a winding-arbor, as is the ordinary practice, is constructed with an axle, *a*, rigid thereon, and terminating at each end in a pivot, *a'*, the pivots fitting into bearings *a''* in the frame A. It will be seen that, whereas in the axial support of the common main wheel and barrel the width of the two bearings is limited to the thickness of the barrel, the main wheel made with the rigid axle, as in my invention, may have a width of bearing limited only by the frame A; and, moreover, the axle being formed with the pivots *a'*, the same may be jeweled with as great facility as any other of the pivots of a watch, this obviating the extreme difficulty hitherto experienced of jeweling the axial supports of the main wheel and barrel. C is the barrel, the solid side *c'* of which has an axial bearing on the axle *a*, the perimeter of the barrel being concentric or coincident with that of the main wheel B, as indicated more plainly in Figs. 1, 2, and 4. In the edge of the main wheel is a notch, *c''*, which forms a shoulder for a pawl, *c**, upon the circumference of the barrel. Upon the barrel is a stud, *e''*, which, when the barrel turns in its normal direction in the operation of the movement, bears against the flat side of the projecting end of the pawl aforesaid, and consequently enables the latter to rotate the main wheel from the motion of the barrel. When, from the breaking of the mainspring or other cause, the motion of the barrel is reversed, the pawl turns and permits the backward or reverse movement of the barrel without strain on the

main wheel. At the inner side of the barrel, around the axle *a*, is placed a sleeve or hollow hub, C′. This hub, having its support wholly in a bearing, *c*, in the frame A, and although surrounding the axle *a*, is intended to be out of contact therewith. Upon the outer end of this hub is a wheel, *g*. A bridge, *m*, attached to the adjacent face of the frame A, may be used to keep the hub, with its wheel *g*, in place in its position just hereinbefore described. D is the mainspring, one end of which is attached to the hub C′, and the other to the inner periphery of the barrel, so that by turning the hub the mainspring may be wound up to provide motive power to the barrel, and from it through the main wheel to the train. The wheel *g* is to be turned by the usual stem-winding gear, well understood by, and within the skill of, any watchmaker, and therefore needing no further explanation here.

The construction of the apparatus being as hereinbefore described, it is manifest that not only is a wide and stable bearing afforded to the main wheel, together with facilities for jeweling the pivots thereof, but that, also, the winding of the mainspring does not bring the slightest friction upon the axle *a*, the friction being borne entirely by the hollow hub, as it works in its bearing, and that great stability and permanence is secured to the main wheel, and consequently to the train or other working parts dependent upon the said wheel. This result would, of course, be secured if the main wheel were in one piece with the barrel; but it is much preferred to have the said two parts made and connected as shown in the drawings, in order that a reversed movement of the barrel may not strip the teeth from the main wheel, or otherwise injure the same.

What I claim as my invention is—

1. The hollow hub C′, having an independent bearing, *c*, constructed with the wheel *g*, and arranged around the axle *a* of the main wheel B, in combination with the mainspring D and barrel C, substantially as and for the purpose set forth.

2. The main wheel B, having the axle *a* formed rigidly thereon, and constructed with the pivots *a′*, in combination with the mainspring actuating said wheel, whereby increased stability and steadiness is given to the wheel, and provision is made for jeweling the pivots *a′*, substantially as set forth.

3. The combined main wheel and winding device, comprising the hollow hub C′, having an independent bearing, *c*, and constructed with the wheel *g*, the main wheel B, having the axle *a* formed rigidly thereon, and constructed with the pivots *a′*, the mainspring D, and the barrel C, locking with the main wheel by a pawl or click, *c**, the whole arranged for use and operation substantially as and for the purpose set forth.

ALBERT H. POTTER.

Witnesses:
JAMES A. WHITNEY,
ELBERT DEARBORN.