(No Model.)

T. F. BURGDORFF.

COMPASS WATCH.

No. 460,097. Patented Sept. 22, 1891.

Fig. 1

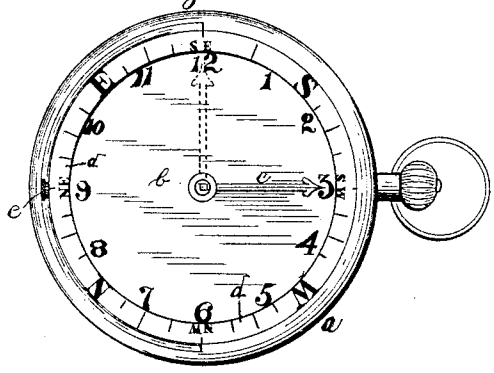


Fig. 6.

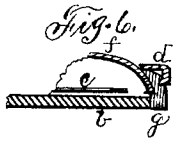


Fig. 2.

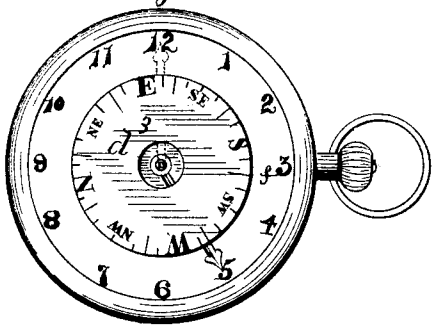


Fig. 5

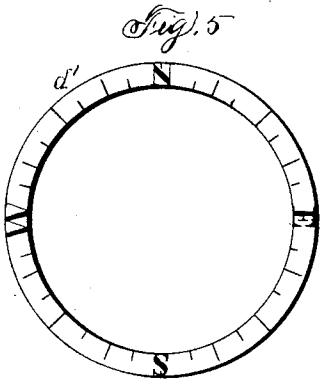


Fig. 4.

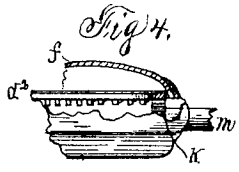
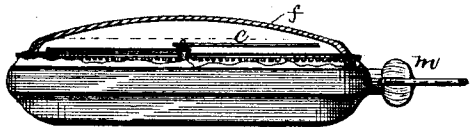


Fig. 3.



WITNESSES

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THEODORE F. BURGDORFF, OF THE UNITED STATES NAVY.

COMPASS-WATCH.

SPECIFICATION forming part of Letters Patent No. 460,097, dated September 22, 1891.

Application filed January 12, 1891. Serial No. 377,494. (No model.)

To all whom it may concern:

Be it known that I, THEODORE F. BURGDORFF, of the United States Navy, temporarily residing at Knoxville, Tennessee, have invented certain new and useful Improvements in Direction-Indicators or Mechanical Compasses, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to direction-indicators or non-magnetic compasses.

The object of the invention is to produce an instrument from which all points of the compass can be ascertained when the sun is visible without the aid of a magnetic needle. If a watch keeps proper time and the sun is visible, the watch may be placed with the dial upward and lying in about a horizontal position, and when the watch is moved until the hour-hand points to or directly under the sun that part of the periphery of the dial which is half-way between the hour-hand and the numeral 12 will be toward the south. I avail myself of this fact to construct an attachment for a watch in which all the points of the compass can be readily ascertained.

Several modifications of the device are shown in the drawings.

Figure 1 is a plan or face view of a watch with a movable ring above the dial on which the points or rhumbs of the compass are marked. Fig. 2 is a similar view of a watch with a card or plate applied to the central part thereof having the points of the compass marked thereon. Fig. 3 is a side view, partly sectioned, of a watch with direction-indicator attachment. Fig. 4 is an enlarged broken detail of Fig. 3. Fig. 5 is a plan of a detachable ring with the points of the compass marked thereon. Fig. 6 is an enlarged detail section.

The letter *a* indicates the casing of a watch, clock, or other small time-piece, on which the dial *b* bears the numerals as usual for a twelve-hour dial. The hour-hand is indicated at *c*.

Around the rim of the dial just inside the bezel a ring *d* is placed. This ring may be inside or outside the crystal but must be movable, so that it can rotate for about a half-revolution about its own center. On the face of the ring the points of the compass are marked. The rhumb or point ring *d* is preferably of thin metal, with the points or rhumbs of the compass marked thereon. As shown in Figs. 1 and 6, the ring *d* may be an attachment to the bezel of a watch and may be rotated on its center by means of a pin *e*, projecting slightly from one side.

The crystal is denoted by *f*, Fig. 6, and the bezel *g* has a groove therein, into which the inturned lower edge of the rhumb-ring extends.

In Fig. 5 a detachable ring *d'* is shown with the points thereon. This ring may be of thin metal or pasteboard, and may be adjusted to position by simply laying it on the bezel of the watch and turning the point S to the half-way position between the hour-hand and the figure 12 on a watch or clock dial.

In Figs. 3 and 4 the rhumb-ring d^2 is shown under the crystal *f*. The back of the ring has a series of cog-teeth *i*, which are engaged by a pinion *k* on the stem-pin *m*. The ring d^2 may thus be turned to position for indicating by the turning of the stem-pin *m*. Of course it will be understood that the pinion *k* moves independently of the stem-winding or stem-setting attachment, but this may be readily done by constructions such as are used in stem-winding or stem-setting watches.

With these examples it will be apparent that many modifications of construction can be made whereby a rhumb-ring may be attached to a watch or clock and moved to proper position for indicating direction in connection with the hour-hand.

In Fig. 2 the ring or plate d^3 is marked with the rhumbs or points near its periphery and is placed on top of the crystal by hand whenever desired to be used. A convenient construction for this purpose is a paper disk, sheet, or ring of such size as to fit within the cover of a hunting-cased watch. When used, the paper disk or ring can be readily applied to the crystal. The compass-points may be printed or otherwise marked on the sheet or disk.

Other modifications will suggest themselves to the intelligent mechanic.

I am informed that a watch or time-piece has been known with a magnetic needle and with the points of the compass marked on or near the dial. My invention differs from this. The very essence of the invention is that the

piece bearing the points or rhumbs of the compass shall be movable with reference to the numerals on the watch-dial, since the rhumb-piece must be moved with the changes in the position of the sun.

What I claim is—

1. An attachment for watches, consisting of a movable sheet or ring having the rhumbs or points of the compass marked thereon, the ring being of size for convenient application to a watch-face, substantially as described.

2. The combination, with the face of a watch having the usual time-indicating hands or similar time-piece, of a movable piece near the numerals on said face, said piece having the rhumbs or points of the compass marked thereon.

3. The combination, with the face of a watch and substantially concentric therewith, of a movable ring in proximity to the numerals thereof, said piece having the figures or points of the compass marked thereon, and means for turning said ring about its center.

4. The combination, with the face of a watch, of a ring near the numerals thereof and marked with the points of the compass, teeth on said ring, and a pinion connected to the stem-pin and engaging said ring to rotate the same, substantially as described.

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

THEODORE F. BURGDORFF.

Witnesses:
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LEON JOUROLMON.