(No Model.)

E. A. NELSON.

POINT INDICATOR FOR TIME PIECES.

No. 315,322. Patented Apr. 7, 1885.

Fig. 1.

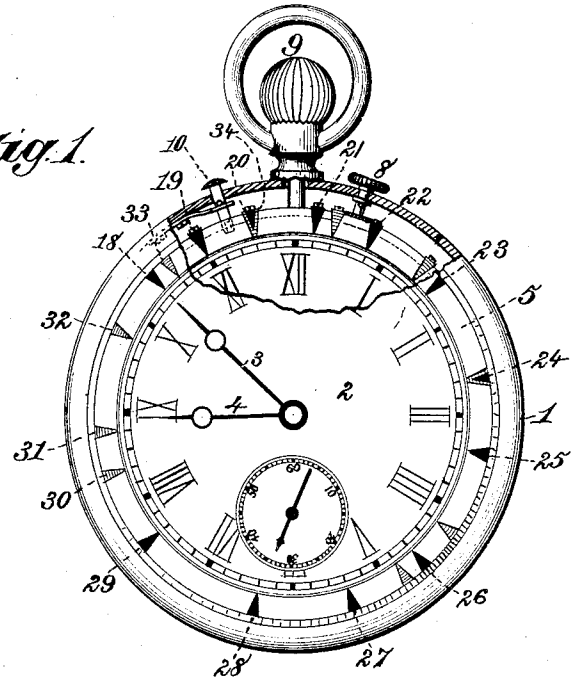


Fig. 2.

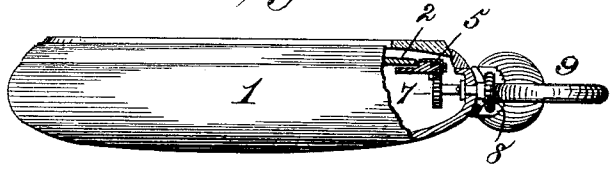


Fig. 3.

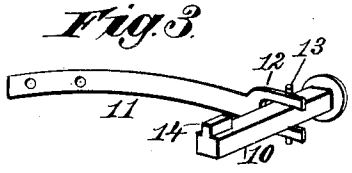


Fig. 5.



Fig. 4.

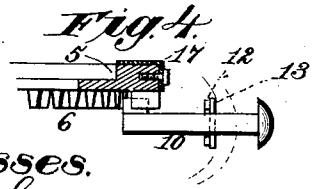
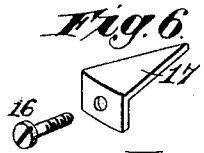


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDGAR A. NELSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

POINT-INDICATOR FOR TIME-PIECES.

SPECIFICATION forming part of Letters Patent No. 315,322, dated April 7, 1885.

Application filed October 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDGAR A. NELSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Point-Indicators for Time-Pieces, of which the following is a specification.

My invention relates to watches for the use of drivers or conductors, or both, upon street-railways or other public conveyances, and the purpose thereof is to provide means for indicating what are known as the "time-points," and the several varying periods of time allowed by the schedule for traversing the distances between consecutive points. It is the purpose of my invention, also, to indicate the time-points in both directions in such a manner that they will read upon the dial in the direction the minute-hand travels, and to so construct the device that it may be easily and quickly adapted to the schedule of any line having any number of such time-points, the attachment constituting my invention being simple and comparatively inexpensive.

The invention consists in the several novel features of construction and combinations of parts hereinafter fully set forth, and definitely pointed out in the claims.

Referring to the drawings forming part of this specification, Figure 1 is a front elevation of a watch embodying my invention. Fig. 2 is an edge elevation, partly in section. Fig. 3 is a detail perspective of the spring-latch locking the annulus. Fig. 4 is a detail section of part of the annulus with the locking devices. Fig. 5 is an edge elevation of the annulus with the adjustable time-point indicators attached. Fig. 6 is a perspective, upon an enlarged scale, of one of the time-point indicators detached.

In the said drawings, the reference-numeral 1 denotes the case of a watch of ordinary construction, having a dial, 2, and minute and hour hands 3 and 4, respectively. Within the case and surrounding the dial 2 is mounted an annulus, 5, having upon its lower face a series of equidistant teeth or cogs, 6, equal in number to the minutes indicated upon the dial. Gearing with these teeth is a pinion, 7, carried by a shaft journaled in the case of the watch, and having a button, 8, by which the shaft may be rotated to give adjustment to the annulus. This button and the shaft carrying it may be conveniently placed near the pendant 9, and upon the opposite side thereof is mounted a latch-post, 10, normally thrown outward by a spring, 11, having a fork, 12, upon its end, which engages a pin, 13, set in the post. Upon the latter is formed a single tooth, 14, which engages with the teeth 6 upon the annulus 5, and locks the latter at any point to which it may be adjusted. In the outer vertical edge of the toothed annulus 5 are formed a series of perforations, 15, adapted to receive a screw, 16, for securing to the annulus 5 one or more pointed plates, 17. These plates have a perforated depending flange, 17, provided with an aperture to receive the attaching-screw 16, whereby the pointed end of the plate is directed inward, its point being contiguous to the perimeter of the watch-dial. These plates, or, as they may more conveniently be termed, "points," are readily adjustable upon the annulus 5 by removing the attaching-screw and shifting the position. As the distance between any two adjacent teeth 6 of the annulus represents one minute's space, as indicated upon the dial, the several points may be easily arranged to represent consecutive periods of equal or unequal times corresponding with the times between successive points, as indicated upon the schedule.

In order to more fully represent the invention and the manner of using the same, let it be supposed that the watch is adjusted for use upon the Herdic line running from Tenth and C streets southeast. The starting-time upon this line for a given vehicle is fifty-two minutes after eight, and therefore the initial point 18 is so placed as to register with the fifty-second minute upon the dial. The next succeeding time-point is the corner of Eleventh and East Capitol streets, the time allowed between the said points being three minutes, and the second point, 19, is arranged accordingly three minutes in advance of the initial point, or at the fifty-fifth minute-line. The next succeeding time-points require, respectively, three minutes of time each, and the points 20, 21, and 22 are arranged accordingly,

the first at the fifty-eighth minute-line, the second at the first minute-line beyond the noon-mark, and the third at the fourth minute-line. The succeeding points are arranged in a similar manner, the final one, 29, which represents the end of the trip at Fifteenth and W streets northwest, being placed at the thirty-eighth minute-line, the entire running time thus represented amounting to forty-six minutes.

Upon the return-trip the time-points are not necessarily arranged in a reverse order of times. In the case supposed the first time-point upon the return is at the corner of Fifteenth and Q streets, with a running time of four minutes. The points for the return-trip are distinguished from those used upon the trip up by being of any suitable distinctive character—as, for example, of a different color or form. The initial point for the down-trip being the final point of the up-trip, the first return-point, 30, which denotes the time-point named above, is placed four minutes in advance of the point 29, or at the forty-second minute-line. The second point, with an interval of two minutes, follows upon the forty-fourth minute-line. This arrangement continues until one of the return-points happens to coincide with a point used upon the trip up, in which case the colors or other distinguishing characteristics may be combined, as shown, at the fifty-eighth minute-line, where the third point, 20, upon the up-trip falls upon the same point with the fifth point, 34, upon the down-trip. When this occurs, the two distinctive symbols are so arranged that both are visible upon the annulus.

In this description it is taken for granted that there is no time allowed for delay at the final station or end of the route. In cases where an interval of rest is provided, this may be indicated by placing the initial return-point or the starting-point at the proper distance upon the dial from the final point 29, the moment of starting being shown by the arrival at said point of the minute-hand; or the driver may, upon arrival, turn forward the annulus until the initial point is advanced beyond the minute-hand a space representing the period of rest.

It will be seen that by cutting the spaces between the teeth 6 equal, or substantially so, to each other, and making the whole number of teeth equal to the minute-spaces on the dial and attaching the points 17 above the teeth, the engagement of the latch 14 will always cause the points to register with the minute lines or divisions of the dial without special pains or effort on the part of the operator. Moreover, as the latch is released by pressing the post inward, and locked by the outward pressure of the spring, the device is adjusted with great ease.

It is evident that a modification of this invention may be made, in which a disk is inserted within a watch, having the points or other symbols denoting the time-points indicated thereon in any manner, the disk being so arranged as to lie within the time-divisions of the watch-dial, leaving the same visible, and being adjusted relatively thereto. Such a modification is clearly within the scope of my invention.

Having thus described my invention, what I claim is—

1. In a time-point indicator for public conveyances, the combination, with a dial containing the usual time-divisions, of an annulus having removably secured thereto markers indicating the varying periods of time allotted to distances between successive stations or points and the time of proper arrival at such stations or points, the annulus being adjustable relatively to the dial, substantially as described.

2. In a time-point indicator for public vehicles, the combination, with a watch-dial, of an adjustable annulus having movable symbols of distinct characters mounted thereon and registering with the divisions of the dial, the one class of symbols indicating the successive times upon the up-trip and the others the times upon the down-trip, and both showing the time allotted for the passage from one point to another, substantially as described.

3. In a time-point indicator for public vehicles, the combination, with a watch-dial having the ordinary hour and minute hand, of an annulus surrounding said dial and adjustable relatively thereto, symbols of distinct characters adjustable upon said annulus and registering with a series of the time-divisions of the dial, and means for locking and adjusting said annulus, substantially as described.

4. In a time-point indicator for public vehicles, the combination, with a watch-dial having the ordinary hour and minute hand, of an annulus surrounding said dial and having adjustable marks or symbols of distinct character, whereby the successive times upon both the up and the down trip are indicated and read in the same direction, substantially as described.

5. The combination, with a watch-dial, of a surrounding annulus having a series of teeth upon its lower face equal in number to the time-divisions of the dial, a spring-actuated latch-post having a lug which is normally thrown into engagement with the teeth of said annulus and released by pushing said post inward, and a pinion engaging with said teeth and rotated by a button outside the case, substantially as described.

6. The combination, with a watch having a dial, 2, and hour and minute hands 3 and 4, of an annulus, 5, having teeth 6, and a spring-actuated latch-post, 10, having a lug, 14, substantially as described.

7. The combination, with a watch-dial, 2, of an annulus, 5, adjustable relatively thereto, and pointers 17, adapted to be secured at any desired points of the annulus, substantially as described.

8. The combination, with a watch-dial, 2,

having a minute-hand, 3, and hour-hand 4, of an annulus, 5, having teeth 6, a spring-actuated latch locking said annulus, and points 17, adjustably mounted thereon to represent varying intervals of time and having distinguishing colors, substantially as described.

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

EDGAR A. NELSON.

Witnesses:
JAS. L. NORRIS,
JAMES A. RUTHERFORD.