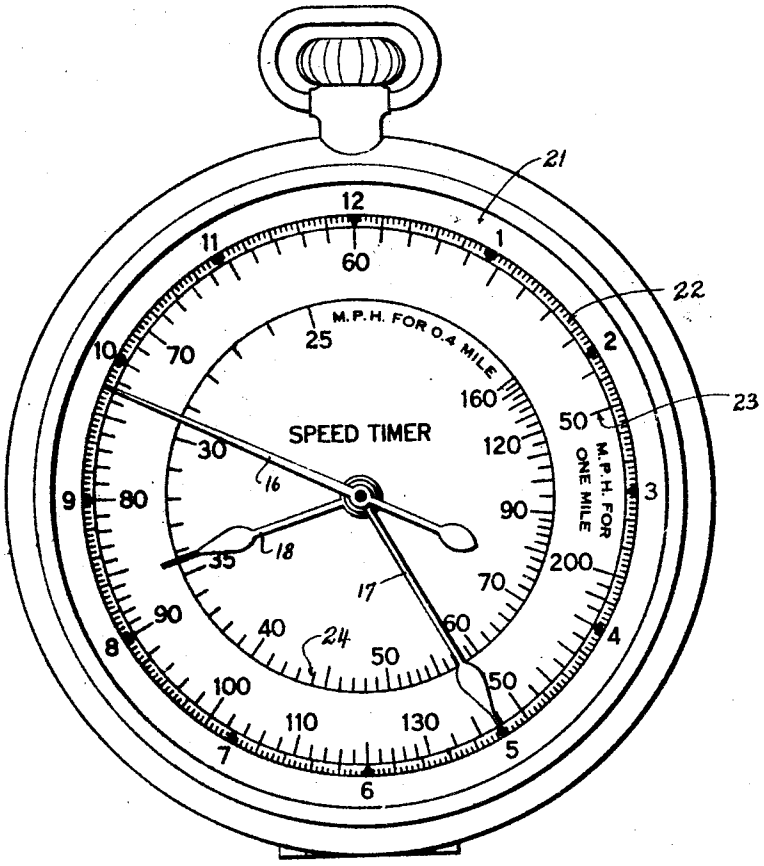
Feb. 16, 1926. 1,572,884

C. H. COLVIN

STOP WATCH AND DIAL

Filed Feb. 10, 1923




INVENTOR

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# UNITED STATES PATENT OFFICE.

CHARLES H. COLVIN, OF BROOKLYN, NEW YORK.

## STOP WATCH AND DIAL.

Application filed February 10, 1923. Serial No. 618,347.

*To all whom it may concern:*

Be it known that I, CHARLES H. COLVIN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Stop Watches and Dials, of which the following is a specification.

My invention relates to stop watches, and more particularly to improvements in the indicating means or dials thereof.

An object of my invention is to provide in stop-watch dials improved index means for making direct readings in terms of speed, such as miles per hour, instead of in time, thereby eliminating the necessity of using conversion tables or the making of calculations to determine the speed. Other objects and advantages will appear as the invention is disclosed.

The drawing shows a face view of a watch employing my improved dial illustrating how the watch hands cooperate therewith.

Referring to the drawing, an outer scale 21 comprises ordinary numbered graduations, which in this instance runs from 1 to 12; and this scale is for use with an hour watch hand 18 and minute hand 17 of the watch if such hands are employed. The next scale 22 is preferably divided into fifth-seconds, as on an ordinary stop-watch dial; and may consist of the uniformly spaced dashes as shown. This scale 22 and the other scales to be described are for use with the sweep second hand 16 of the watch.

Another scale 23 is graduated in such a way that the mark and figure at any point denotes the speed, in units of distance per hour, such as miles per hour, which corresponds to the time in seconds per unit of distance. That is, if

$1 = 1$ unit of distance
$t =$ time in seconds
and $v =$ speed in units of distance per hour

$$v = \frac{1}{t} x 3600.$$

For example, the mark and figure at the point reached by the hand is seconds is

$$v = \frac{1}{24} x 3600 = 150.$$

In other words, if the time required for the passage of one unit of distance is 24 seconds, the speed is 150 units per hour, as for example 150 miles per hour (M. P. H.).

Another scale 24 is graduated in such a way that the mark and figure at any point denote the speed, in units of distance per hour, which corresponds to the time in seconds for a certain fraction of a unit of distance. As shown, this fraction is four-tenths. That is, if

$.4 = .4$ unit of distance
$t =$ time in seconds
and $v =$ speed in units of distance per hour

$$v = \frac{.4}{24} x 3600 = 60.$$

In other words, if the time required for the passage of four-tenths unit of distance is 24 seconds, the speed is 60 units per hour.

An example of the practical use of a stop watch with such a dial will reveal its advantages over a watch with a dial indicating in time only. Suppose the user of the watch is traveling in a railroad train and desires to determine the speed at which the train is running. He starts the watch as a mile-post is passed, and stops it as the next mile-post is reached. Referring to scale 24 he will read his speed directly in distance units per hour, in this case in miles per hour. Without my improved dial with this special scale, he would read the time in seconds, and then either would have to perform a mathematical calculation or refer to a specially prepared conversion chart, to determine the speed.

Particularly for use on fast moving vehicles, such as aircraft, where it is difficult, if not impossible to make auxiliary calculations, a watch with such a dial is found to provide great advantges.

What I claim is:—

In a stop watch, in combination, a sweep second hand scale graduated to indicate time per unit of distance; another scale concentric therewith and graduated to read directly in distance per unit of time corresponding to the indicated time for a fraction of a unit of distance, and a sweep second hand cooperating with either of said scales.

In testimony whereof I affix my signature this 6th day of February 1923; in the State of New York, city of Brooklyn, and county of Kings.

CHARLES H. COLVIN.