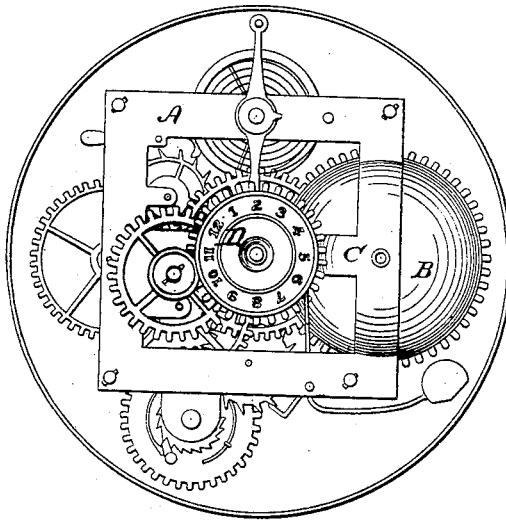


I. B. WOODRUFF.

ALARM-CLOCK.

No. 193,391.

Patented July 24, 1877.



WITNESSES:

Clarence Poole  
A. S. Smith

INVENTOR:

Isaac B. Woodruff  
By J. B. Woodruff  
Attorney

# UNITED STATES PATENT OFFICE.

ISAAC B. WOODRUFF, OF WINSTED, CONNECTICUT.

## IMPROVEMENT IN ALARM-CLOCKS.

Specification forming part of Letters Patent No. **193,391**, dated July 24, 1877; application filed June 20, 1877.

*To all whom it may concern:*

Be it known that I, ISAAC B. WOODRUFF, of Winsted, in the county of Litchfield and State of Connecticut, have invented a certain new and useful Improvement in Utilizing Space in Alarm-Clocks, for portable and traveling purposes; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, in which the figure represents a front or face view of the complete clock, showing the time, the alarm, and the bell mechanism, all complete, to operate in a small space, and securely protected from dust in a close-fitting case.

The object of my invention is to supply the demand for alarm-clocks that can be put in a satchel, or small traveling-bag, to enable travelers to awake at any time, so as not to miss the trains, &c.

My invention consists in utilizing the space by a new arrangement of the alarm-bell—*i. e.*, securing it over the arbor of the winding mechanism within the frame of the time or clock movement, thereby enabling me to use the same size movement in the space of three and one-half inches that requires nearly six inches when the bell is outside.

In the drawings, A represents a small-size patent-lever clock and alarm-movement. B, the alarm-bell, is placed over the arbor C of the alarm mechanism, and comes within the circumference of all the mechanism radiating from the center shaft D, which must necessarily be placed in the center of the dial, when a circular or octagonal case is used. The arrangement of placing the bell B over the arbor C of the alarm mechanism virtually utilizes the only space there is left within the clock-movement in which a bell of sufficient size could be placed to come within the diameter of the circle of the case.

Alarm-watches have generally gone out of use from the fact that the jar produced by giving the alarm (if sufficient to awaken a person from sound sleep) injures the delicate movement, so that in a very short time they became unreliable for time-pieces, and consequently deceived their owners, and were worse than nothing to travelers to awaken them at a set time.

The alarm-clock, as now constructed, possesses sufficient strength and durability to stand the jar without injury to the time-movement, and it is desirable that the parts should be arranged in as small a compass as possible, and having all the parts inclosed and covered within the case, so that it can be closely packed for carrying, and placed, if need be, under the pillow of a sound sleeper, without the alarm-bell touching anything to prevent it ringing.

Another quite important feature is, that the cases may be made water-tight, there being no opening for bell-hammer or other purpose, so that no dust or anything else can get in to obstruct the movement.

Having thus fully described my invention, what I claim as my improvement in alarm-clocks for portable and traveling purposes is—

The alarm bell B, secured upon the winding-arbor of the clock alarm, the whole being arranged upon, and operating within, the frame of the time mechanism, substantially as and for the purpose specified.

In testimony whereof I have subscribed my name to the above specification for improvement in utilizing space in alarm-clocks for portable and traveling purposes.

ISAAC B. WOODRUFF.

Witnesses:

ELIAS E. GILMAN,  
ROLAND C. JEWELL.