No. 637,366. Patented Nov. 21, 1899.

H. BAETHIG.

ALARM WATCH.

(Application filed July 11, 1898.)

(No Model.)

Fig. 1.

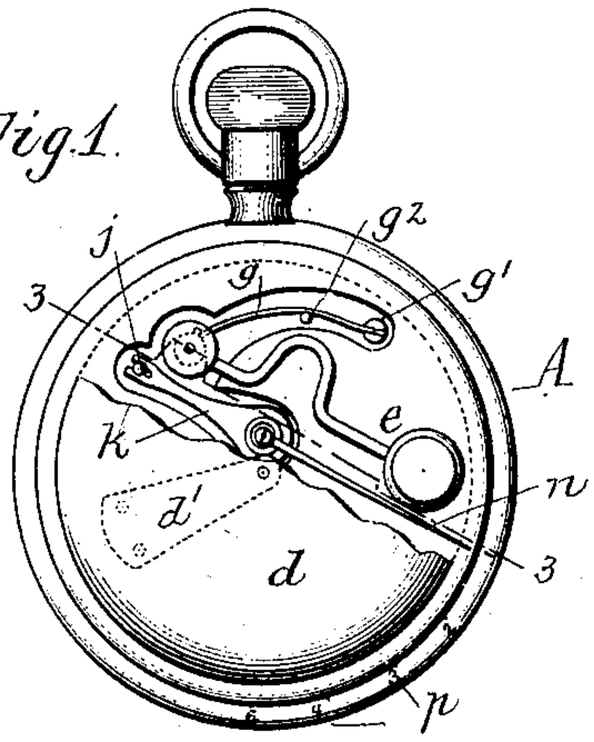


Fig. 2.

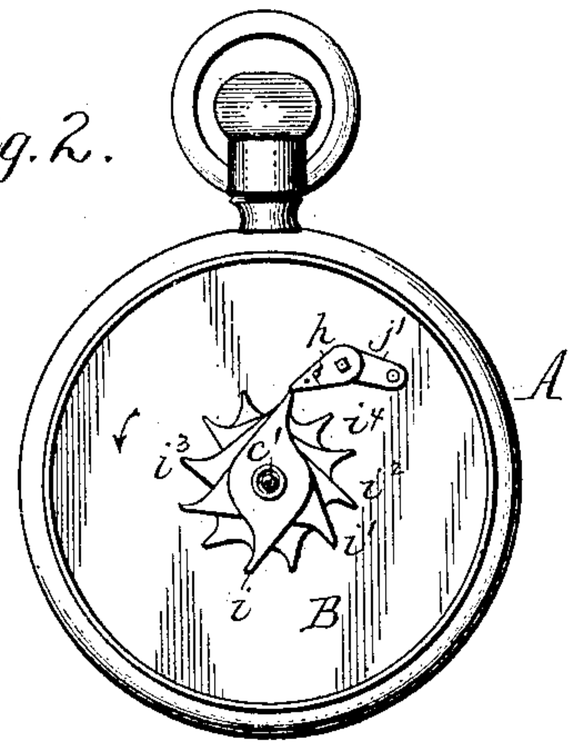


Fig. 3.

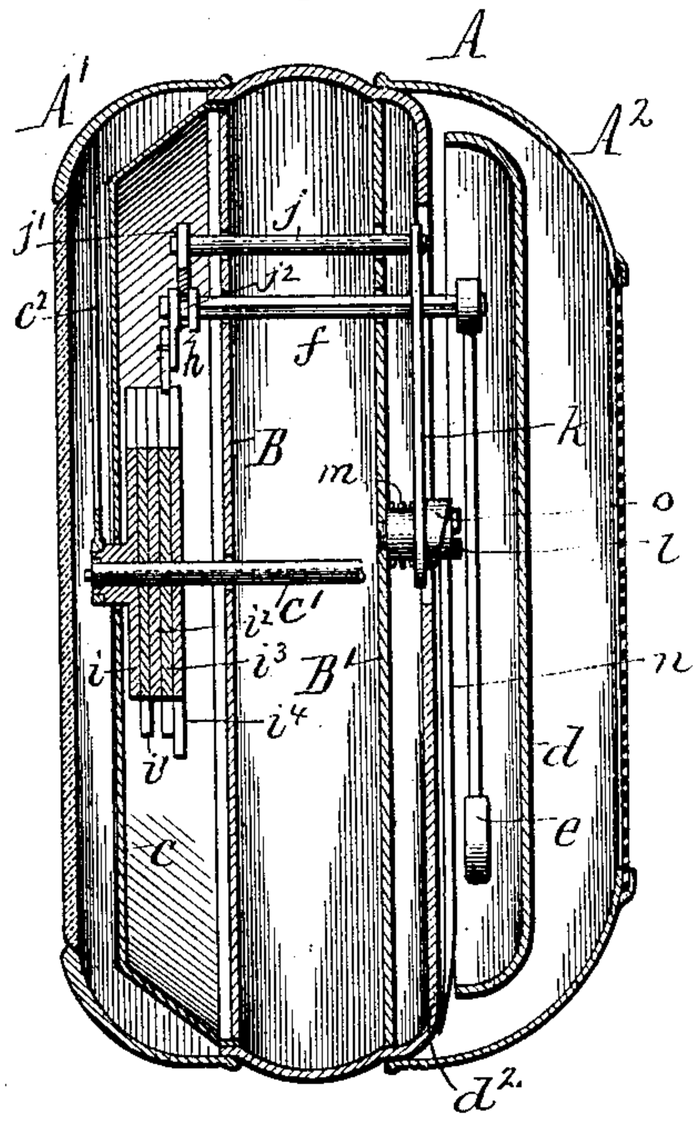


Fig. 4.

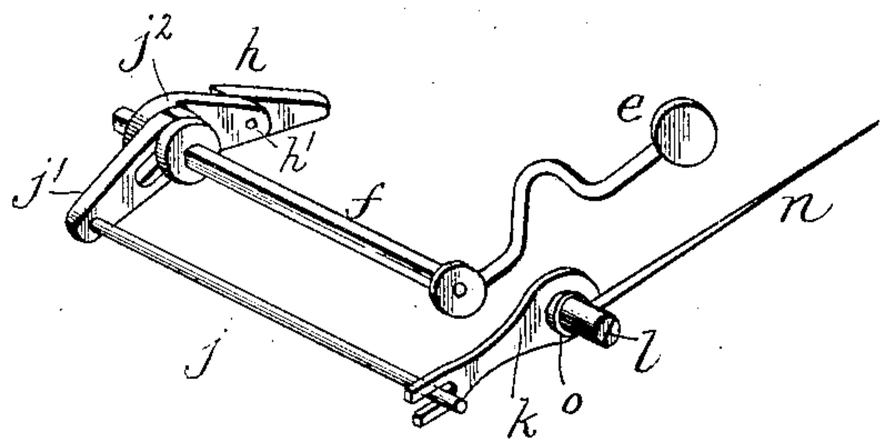


Fig. 5.

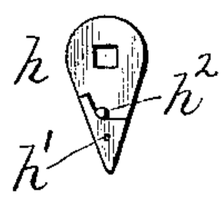
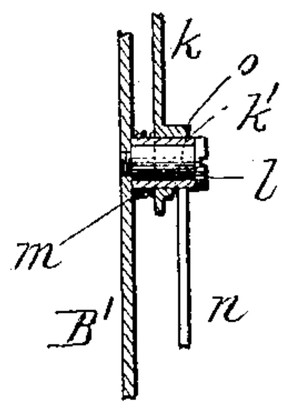


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY BAETHIG, OF BUFFALO, NEW YORK.

ALARM-WATCH.

SPECIFICATION forming part of Letters Patent No. 637,366, dated November 21, 1899.

Application filed July 11, 1898. Serial No. 685,608. (No model.)

To all whom it may concern:

Be it known that I, HENRY BAETHIG, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Alarm-Watches, of which the following is a specification.

This invention relates to an alarm or striking watch intended more especially for the use of patients and nurses for calling attention to the time when medicine is to be taken or administered.

The object of my invention is the production of a simple and inexpensive timepiece of this kind which can be readily set for giving an alarm at the prescribed intervals.

In the accompanying drawings, Figure 1 is a rear view of my improved alarm-watch, the gong being partly broken away and the rear lid removed. Fig. 2 is a front or face view of the watch with the dial and hands removed. Fig. 3 is an enlarged cross-section of the watch in line 3 3, Fig. 1. Fig. 4 is a perspective view of the rock-shaft carrying the hammer and the device for shifting the actuating-pawl of the shaft. Fig. 5 is a detached side view of said actuating-pawl. Fig. 6 is an enlarged sectional elevation of the pointer, its arbor, and the sliding arm for shifting the actuating-pawl.

Like letters of reference refer to like parts in the several figures.

A is the circular body of the watch, having the front and rear lids A′ A^2.

B B′ are the front and rear plates or diaphragms of the watch-movement.

c is the dial, and *c′* the spindle of the hour-hand c^2.

The construction of the watch-movement forms no part of my invention and is not shown in the drawings. While it may be of any ordinary and well-known construction, it is preferably of the usual type which produces one complete turn of the hour-hand spindle once every twelve hours, the dial being graduated accordingly.

d is a bell or gong arranged on the rear side of the watch and mounted on a bracket *d′*, secured to a plate or diaphragm d^2, which is arranged between the rear lid A^2 and the rear plate B′ of the watch-movement and which forms part of the watchcase, as shown in Fig. 3.

e is a swinging hammer adapted to strike the gong *d* and arranged between the latter and the diaphragm d^2. The arm of this hammer is secured to the rear end of a short rock-shaft *f*, which extends through the plates of the watch-movement.

g is a spring which tends to swing the hammer against the gong and which is secured at one end to a stud *g′* of the plate B′, while its opposite free end engages in a recess in the hub of the hammer-arm, the spring being strained against an intermediate pin or stud g^2, projecting from said plate, as shown in Fig. 1. This spring and the studs *g′* g^2 are arranged in a slot or recess formed in the diaphragm d^2.

h is an actuating pawl or finger mounted on the portion of the rock-shaft *f* which projects beyond the front plate B of the watch-movement, as shown in Fig. 3, and *i* *i′* i^2 i^3 i^4 represent a series of toothed trip-wheels rigidly secured to the spindle *c′* of the hour-hand and adapted to trip said pawl for vibrating the hammer *e* and sounding the gong. These trip-wheels are arranged side by side on the hour-spindle and all make one complete turn during each day or period of twelve hours, like the hour-hand. They are provided with different numbers of equally-spaced teeth, and the actuating-pawl *h* is arranged to move laterally or lengthwise on the rock-shaft *f*, so that it can be shifted into the path of the teeth of any one of the trip-wheels, whereby the pawl is tripped as many times during each day or period of twelve hours as there are teeth on the opposing trip-wheel, causing the watch to give a corresponding number of alarms. For example, the first or innermost trip-wheel may be provided with twelve teeth, the second with six teeth, the third with four teeth, the fourth with three teeth, and the fifth with two teeth, whereby the hammer may be actuated once every hour, or every two, three, four, or six hours, by shifting the actuating-pawl opposite the corresponding trip-wheel. The actuating-pawl is free to slide laterally on the rock-shaft *f*, but is held against turning thereon preferably by making the shaft of square or other angular cross-section and forming the hub of the pawl with a corresponding bore, as shown in Fig. 4. In order to permit the teeth of the trip-wheels to freely pass the pawl in moving the hour-hand backward by the ordinary setting mechanism, the pawl is constructed of two sections, the inner

one of which is held against turning on the rock-shaft, while the outer one is pivoted to the inner section at h', so that it can yield backwardly, but is rendered practically rigid in the opposite direction. In the construction shown in the drawings the pivoted section is provided on the rear side of its pivot with a nose which bears against a stop-pin h^2, arranged on the inner section of the pawl, as shown in Fig. 5.

The pawl is shifted on the rock-shaft f by the following mechanism:

j is a sliding rod arranged on one side of the rock-shaft and parallel therewith and guided in openings formed in the front and rear plates B B' of the watch-movement. This rod is provided at its front end with a rigid arm j'', which engages in a groove or recess j^3, formed in the hub of the sliding pawl concentrically with the rock-shaft, so that the pawl, while free to vibrate for turning the rock-shaft, is compelled to move lengthwise with said rod.

k is a radial shifting arm or bar arranged on the rear side of the plate B' and provided at its inner end with a hub which is mounted loosely on a sleeve k', which in turn is journaled on a stud or arbor l, projecting rearwardly from said plate, as shown in Fig. 6, so that the arm is capable of sliding bodily toward and from said plate. The outer end of this arm is secured to or engages with the rear end of the sliding rod j, so that the latter is compelled to move with the arm. This connection may be effected, for instance, by a fork formed at the free end of the shifting arm k and engaging in a groove or recess formed in the rod j, as shown in Figs. 1 and 4.

m is a spring which surrounds the arbor l between the plate B' and the sliding arm k and which tends to move the arm away from said plate, so as to shift the pawl to the inner extremity of its movement. The arm k is shifted in the opposite direction against the pressure of said spring by a radial finger or pointer n, secured at its inner end to the rotary sleeve k' and bearing against a circular cam or incline o, formed at the rear edge of the hub of said arm, so that upon turning the pointer in the direction in which the cam or incline rises it forces the arm k inwardly or toward the plate B', thereby shifting the pawl in the same direction through the medium of the rod j', while upon turning the pointer in the reverse direction it rides down the incline or cam of the arm and allows the spring m to press the same outwardly or away from said plate, thereby shifting the pawl toward the front plate B. By means of this shifting mechanism the pawl h can be brought opposite any one of the trip-wheels for producing an alarm at the desired intervals.

The diaphragm d^2 is provided opposite the free end of the pointer n with a series of graduations p, designating different intervals of time for taking medicines—such as one, two, three, four, and six hours—and these graduations are so spaced relatively to the pitch of the cam o that upon setting the pointer n in line with a given graduation the actuating-pawl is shifted opposite that trip-wheel which actuates it the number of times per hour indicated by said graduation. For instance, if the watch is to be set for giving an alarm once every hour the pointer is brought opposite the graduation "1," which movement shifts the pawl h opposite the trip-wheel having twelve teeth, and if the watch is to give an alarm every three hours the pointer is moved opposite the graduation "3," which movement shifts the pawl opposite the trip-wheel having four teeth, and so on throughout the remaining intervals.

In order to freely emit the sound of the gong the rear lid may be provided with an opening covered with wire-gauze or other suitable open material.

My improvement is simple in construction, it does not materially increase the cost of the watch, and its application does not require any alteration or rearrangement of the parts of the watch-movement.

I claim as my invention—

1. The combination with the spindle operated by the watch-movement, a series of trip-wheels mounted side by side on said spindle and having different numbers of teeth, and the alarm device, of a rock-shaft carrying the hammer and arranged parallel with said spindle, an actuating-pawl capable of sliding lengthwise on said hammer rock-shaft but held against turning thereon, a shifting arm capable of movement parallel with said rock-shaft, and a rod connecting said arm with said pawl and arranged parallel with said rock-shaft, whereby the movement of said shifting arm is transmitted to the actuating-pawl and the latter is shifted on the hammer rock-shaft to face either of said trip-wheels, substantially as set forth.

2. The combination with the spindle operated by the watch-movement, a series of trip-wheels mounted side by side on said spindle and having different numbers of teeth, and the alarm device, of a rock-shaft carrying the hammer and arranged parallel with said spindle, an actuating-pawl capable of sliding lengthwise on said hammer rock-shaft but held against turning thereon, a shifting arm mounted to slide upon a stud which is arranged parallel with said rock-shaft and having its hub provided with a cam, a rod connecting said arm with said pawl and arranged parallel with said rock-shaft, and a rotary pointer which is journaled upon said stud and operates against the cam on the shifting arm, substantially as set forth.

Witness my hand this 29th day of June, 1898.

HENRY BAETHIG.

Witnesses:
CARL F. GEYER,
KATHRYN ELMORE.