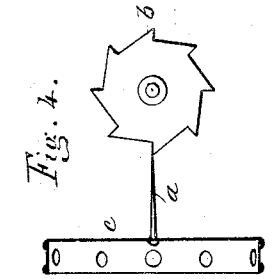
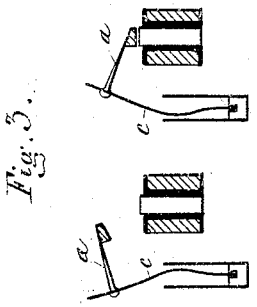
(No Model.) 3 Sheets—Sheet 1.

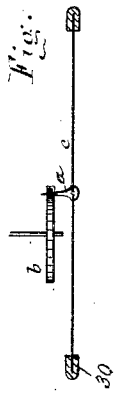
G. BAPST & L. FALIZE, FILS.

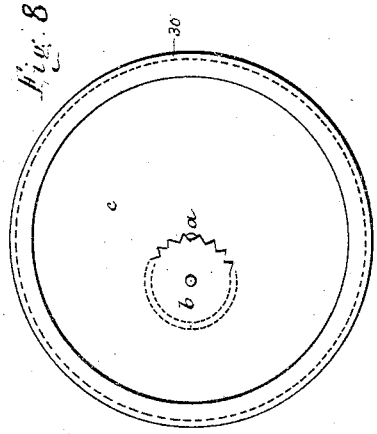
TIME ALARM.

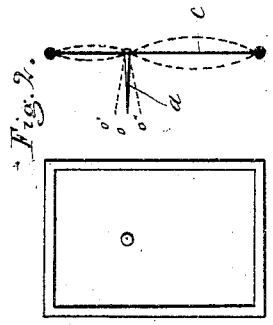
No. 384,412. Patented June 12, 1888.

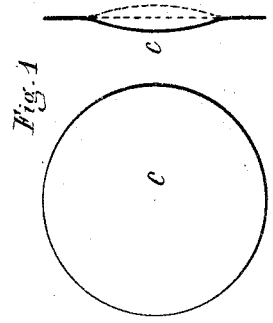


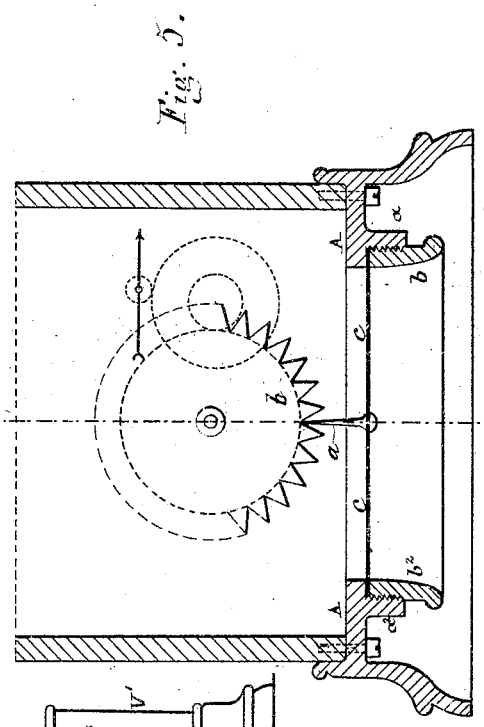


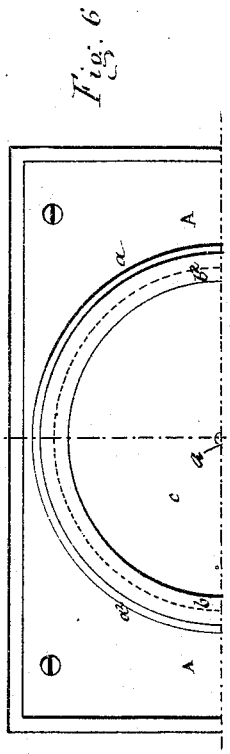


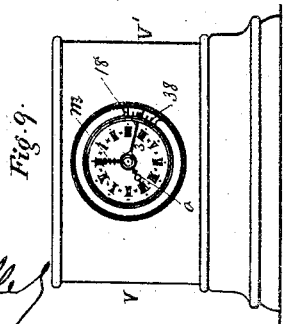












Witnesses:

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(No Model.) 3 Sheets—Sheet 2.

G. BAPST & L. FALIZE, FILS.

TIME ALARM.

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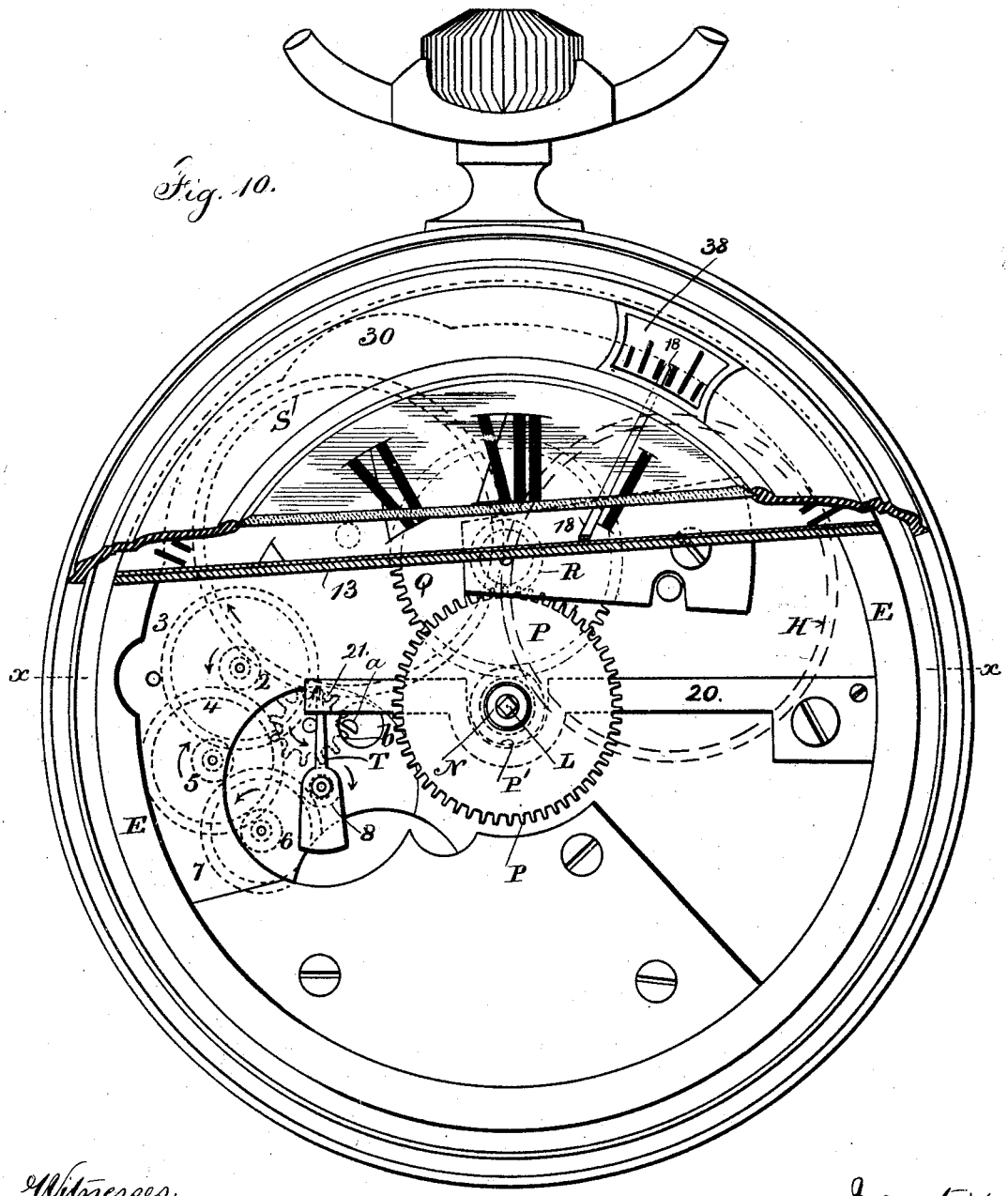
Fig. 10.



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Inventors.

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per Lemuel W. Serrell
Atty

(No Model.) 3 Sheets—Sheet 3.

G. BAPST & L. FALIZE, FILS.

TIME ALARM.

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Fig. 13.

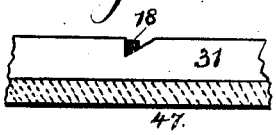


Fig. 14.

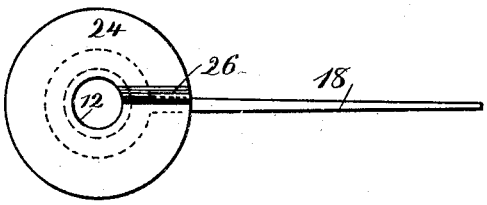


Fig. 11.

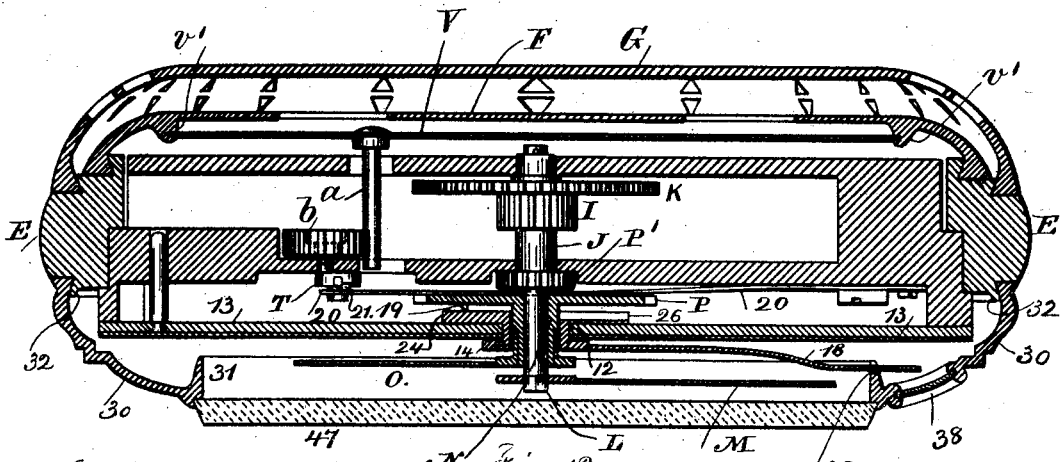
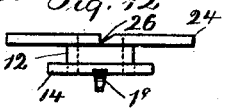


Fig. 12.



Witnesses

Chas. N. Smith

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per Lemuel W. Serrell

atty

UNITED STATES PATENT OFFICE.

GERMAIN BAPST AND LUCIEN FALIZE, FILS, OF PARIS, FRANCE.

TIME-ALARM.

SPECIFICATION forming part of Letters Patent No. 384,412, dated June 12, 1888.

Application filed September 27, 1886. Serial No. 214,629. (No model.) Patented in France December 5, 1885, No. 172,729; in Belgium September 6, 1886, No. 74,462, and in England September 7, 1886, No. 11,390.

To all whom it may concern:

Be it known that we, GERMAIN BAPST and LUCIEN FALIZE, Fils, of Paris, France, have invented an Improved Alarm for Watches and Clocks, of which the following is a specification.

Letters Patent have been granted to us for this invention in the following countries: in France, No. 172,729, dated December 5, 1885; in Great Britain, dated September 7, 1886, No. 11,390, and in Belgium, dated September 6, 1886, No. 74,462.

Our alarm consists of a thin plate of metal or other suitable flexible material firmly secured at its edge in a frame, and provided with a projecting pin or finger that is acted upon by suitable means to cause the plate to be vibrated, and thereby produce a rattling or clattering sound of great intensity.

In the drawings, Figure 1 is a section and elevation of the plate in a dishing form. Fig. 2 shows by a section and elevation a flat plate secured in a frame. Fig. 3 shows sectional views representing an electro-magnet as the means for vibrating the plate. Fig. 4 is an elevation showing a toothed wheel as the means for vibrating the plate. Fig. 5 is a sectional view of part of a clock fitted with the sonorous alarm. Fig. 6 is an inverted plan of a portion of the base of said clock. Fig. 7 is a section of the flexible plate and elevation of its actuating-wheel as arranged for a watch. Fig. 8 is a plan of the parts shown in Fig. 7. Fig. 9 is an elevation of the exterior of a clock, showing the movable bezel and the hand for setting the alarm. Fig. 10 is an elevation, partly in section, of a watch fitted with our alarm. Fig. 11 is a section at about the line *x x* of Fig. 10. Fig. 12 is an elevation of the tubular arbor that carries the hand for setting the alarm. Fig. 13 is a view of a portion of the bezel of the watch or clock. Fig. 14 is an elevation of the disk and arbor of the hand for setting the alarm.

In Figs. 10 and 11 only portions of the time-movement are shown, so as to represent the more important parts with greater clearness. These figures are in larger size.

As our invention is especially applicable to time-pieces, we will describe it with reference thereto.

E is the watch-case ring or center, and F the inner and G the outer case at the back of the watch. These two cases are hinged to the ring E, as usual. The spring-barrel of the time-movement is shown by dotted lines at H, Fig. 10, and the teeth upon said spring-barrel gear with the pinion I upon the tubular arbor J, that carries the center wheel, K, and this wheel K gives movement to the usual train of gearing leading to the escapement.

Within the tubular arbor J is the arbor L, carrying the minute-hand M, and loose upon said arbor is a tubular arbor, N, having at its outer end the hour-hand O and at its inner end the wheel P. This hour-hand O and wheel P are revolved once in every twelve hours through the wheels P', Q, and R.

The spring-barrel of the alarm-movement is represented by dotted lines at S, Fig. 10, and said barrel gives movement to the fly T through the pinions and wheels 2, 3, 4, 5, 6, 7, and S.

b is a pinion gearing directly with the spring-barrel S.

c is a plate of thin sheet metal secured at its edge to a circular rib, V' upon the inner back face of the case F, and *a* is a finger projecting from said plate, and with its free end passing in between two teeth of the pinion *b*. If the free end of this pin is moved and then released, a vibration of the pin from *o'* to *o''* is produced, as illustrated in Fig. 2, and this vibration is communicated to the plate *c*, thereby producing sound-waves of great intensity.

We prefer a toothed wheel as the means for vibrating the sonorous plate *c*, and we will now describe the means for releasing the toothed wheel at the proper time for vibrating the sonorous plate and sounding the alarm.

12 is a tubular arbor concentric with the arbors of the hour and minute hands, and this arbor is fitted to turn within an opening in the dial-plate 13, and is held to said dial with a slight friction by a clamping nut or rim, 14. Upon the inner end of said arbor 12 is a disk, 24, having a V-shaped groove, 26, in its face, and at the outer end of said arbor is the hand 18 for setting the alarm.

19 is a V-shaped pin upon the wheel P, and this pin is kept in contact with the face of the disk 24 by a spring, 20, that bears against said wheel P. At the outer and free end of the

spring 20 is a pin, 21, that is in the path of the fly T, and in the normal position of the parts this pin 21 keeps the fly from rotating, while the pin 19 rests against the surface of the disk 24, as shown in Fig. 11; but whenever the pin 19 reaches the groove 26 in the disk 24, (which is at the time the hour-hand is directly over the hand 18,) then said pin 19 passes into said groove 26 by the spring 20, forcing the wheel P and its tubular arbor along upon the arbor L. At the same time the spring 20 carries the pin 21 away from the fly T, releasing the latter, and the pinion *b* is at once set in motion by the spring-barrel S and vibrates the finger *a* and sonorous disk *c*, sounding the alarm. The alarm continues to sound until the wheel P in its revolution has carried the pin 19 out of the groove 26 in the disk 24 and brought the parts back to the position shown in Fig. 11, with the fly held by the pin 21.

At the front of the watch is the bezel 30, with its glass 47; but the bezel, instead of being hinged to the ring E, is fitted to turn upon an undercut circular rib, 32, upon said ring E, and said bezel has an inward flange, 31, provided with a notch at 36 to receive the outer end of the hand 18; hence by turning said bezel the hand 18 is also turned, and can be placed at the hour at which the alarm is to be sounded, and the alarm is sounded, as aforesaid, when the hour-hand comes immediately over said hand 18.

The bezel 30 is made with an opening at 38, so that the minute divisions of the dial can be seen when setting the hand 18, and the notch 36 for said hand 18 is in line with the center of said opening 38.

With watches it is preferable to place the wheel *b* in a plane parallel with that of the sonorous plate *c*, as in Figs. 7, 8, 10, and 11; but in clocks the wheel *b* may be in a plane at right angles to that of the disk *c*, as seen in Fig. 5. In Fig. 5 the sonorous plate is beneath an opening in a plate, A, and is clamped to said plate by a ring, b^2, screwed into a flange, a^2, upon said plate A.

The plate *c* may be slightly dishing, as in Fig. 1, and it may be of wood, metal, glass, or of any material that can be vibrated, and it may be vibrated by an electro-magnet brought into action at the proper time by time mechanism, or by the opening or closing of a circuit, as in burglar or other alarms.

We claim as our invention—

1. The combination, with the watch or clock movement and case, of a sonorous metal plate held securely at its edges within the case, a finger or pin secured to and projecting from said plate, a toothed wheel contiguous to the free end of said finger, and a spring-barrel and train of gearing for rotating the toothed wheel and moving the finger to vibrate the plate, and a movable stop brought into action by the time mechanism for allowing the alarm mechanism to operate, substantially as specified.

2. The combination, with the spring-barrel S, pinion *b*, fly T, and gearing for rotating said fly, of the sonorous plate *c*, finger *a* upon said plate, the wheel P, pin 19, and tubular arbor N, the grooved disk 24, its tubular arbor 12 and hand 18, the spring 20, for pressing the wheel P toward the disk 24, a stop, 21, at the outer end of the spring 20, the wheel P′ of the time-movement, and the gearing between the wheels P′ and P, for rotating the latter once in every twelve hours, substantially as specified.

3. In an alarm for time pieces, the combination, with the spring-barrel S, its train of gearing, and a fly rotated by said gearing, of the wheel P and its tubular arbor fitted to slide upon the minute-arbor L, a pin upon the face of said wheel P, the tubular arbor 12, and grooved disk 24, the hand 18, secured to said arbor 12, the spring 20, bearing upon the wheel P, and a stop, 21, at the moving end of said spring, substantially as and for the purposes specified.

4. The combination, with the tubular arbor 12 and its hand 18, of the ring E and its circular rib 32, the bezel 30, fitted to turn upon said rib, and the flange 31 upon said bezel, having a notch to receive the outer end of said hand 18, substantially as and for the purposes specified.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

GERMAIN BAPST.
LUCIEN FALIZE, FILS.

Witnesses:
JULES FAYOLLE,
AUG. VINCK.