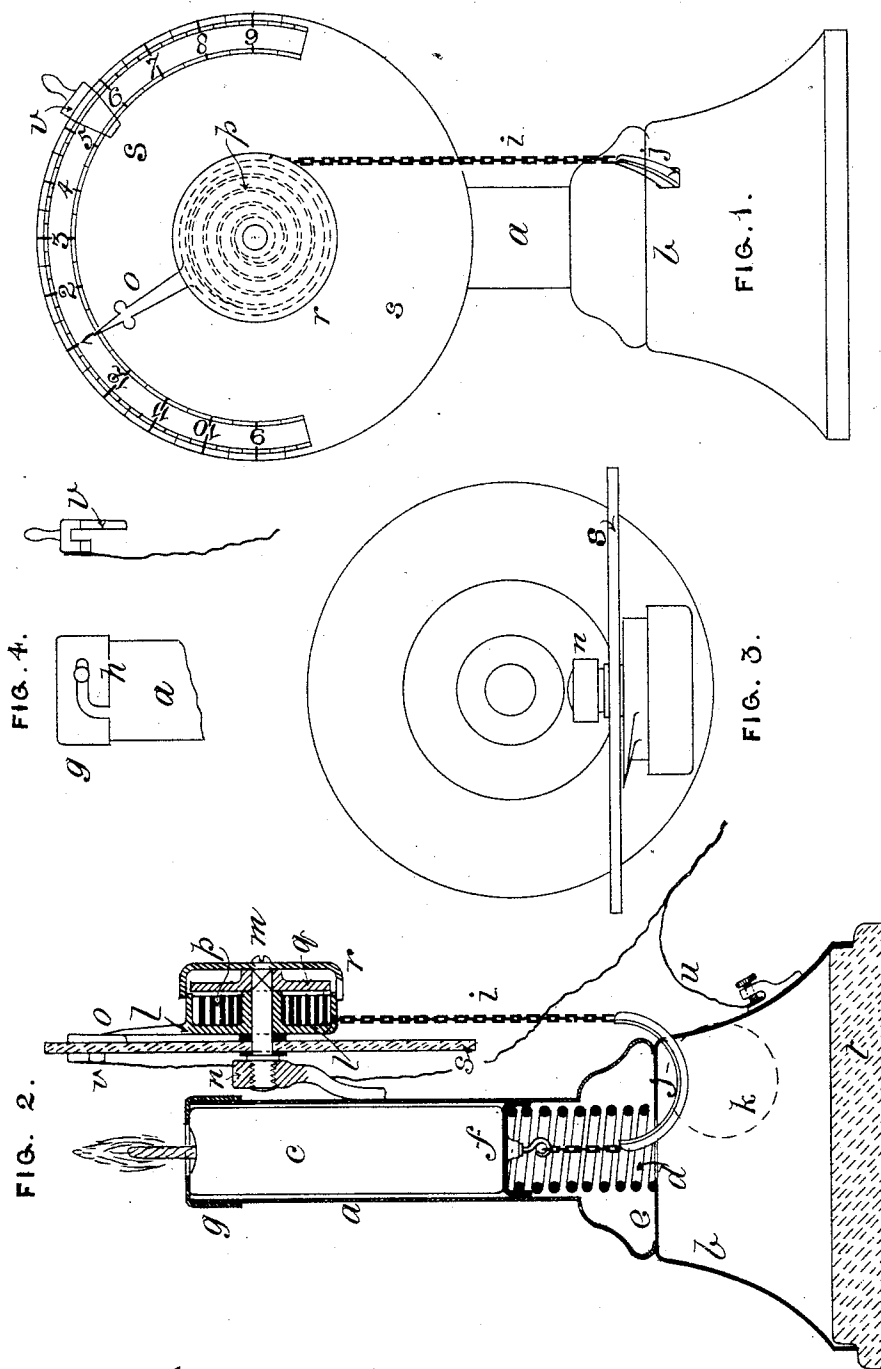


(No Model.)

H. BENNETT.
TIME INDICATOR AND ALARM.

No. 470,816.

Patented Mar. 15, 1892.



Stephen Alderson
Blank Jefferson

Witnesses.

Inventor.

Harry Bennett

UNITED STATES PATENT OFFICE.

HENRY BENNETT, OF MIDDLETON, ST. GEORGE, ASSIGNOR TO STEPHEN ALDERSON, OF LEEDS, ENGLAND.

TIME INDICATOR AND ALARM.

SPECIFICATION forming part of Letters Patent No. 470,816, dated March 15, 1892.

Application filed September 1, 1891. Serial No. 404,436. (No model.) Patented in England April 13, 1891, No. 6,273.

To all whom it may concern:

Be it known that I, HENRY BENNETT, a subject of the Queen of Great Britain and Ireland, residing at Middleton, St. George, in the county of Durham, England, have invented an Improved Night-Light and Time-Indicator, (for which I have obtained Letters Patent in Great Britain, No. 6,273, bearing date April 13, 1891,) of which the following is a specification.

My invention relates to the employment of a night-light candle as a time-indicator generally; but it is also capable of being arranged as an alarm time-indicator. It comprises means for regulating the motion of a spring by the gradual shortening of a burning candle or night-light and of transmitting such motion to a wheel carrying a pointer moving over the graduated face of a time-dial.

The manner in which the above objects are attained is illustrated by the accompanying drawings, in which—

Figure 1 is a front elevation, and Fig. 2 a vertical section at right angles to Fig. 1, while Fig. 3 is a plan looking down upon the top of a combined night-light and time-indicator constructed in accordance with my invention. Fig. 4 is a detail view in side elevation of a part of the tube *a*, the cap-piece *g*, and the connecting-piece *v*, hereinafter described with the wire attached to the latter.

Similar letters refer to similar parts throughout the views.

a is a smooth tube supported on the stand *b* and carrying within it the candle *c*.

d is a spiral or coiled spring resting upon the ledge *e*, formed within the stand *b* and attached at its upper end to the candle-carrier *f*, which latter is capable of sliding freely up and down within the tube *a*.

g is a cap-piece fitting over the top and outside of the tube *a*, and which can be secured in place by means of the inverted-L slots in the cap-piece *g* and the pins *h* near the upper end of the tube *a*. (See Fig. 4.)

i is a light chain, (or wire,) which is attached to the under side of the candle-carrier *f* and passes round the semicircular guide *j*. This guide *j* is preferably also semicircular in cross-section. If preferred, a guide-wheel (indicated by the dotted circle *k*) may be employed

instead of the guide *j* to lessen the friction. The other end of the chain *i* is attached to the barrel or pulley *l*, mounted loosely on the fixed shaft *m*. This shaft *m* is screwed and riveted or otherwise securely fixed to the bracket *n*, attached to or forming part of the stand *b*.

o is a pointer attached to or formed in one piece with the barrel *l*.

p is a spirally-coiled spring, one end being attached to the barrel *l* and the other end to the flanged disk *q*, fixed to the shaft *m*. This spring *p* is of such a strength that, while readily yielding to the spring *d*, it keeps the chain *i* constantly tight, so as to prevent any slackness, which would render the time-indication incorrect.

r is merely a cover for the sake of appearance.

s is a disk, preferably of frosted glass or other translucent or transparent material, and is fitted loosely upon the shaft *m*. It is held between two disks, (shown black in section in Fig. 2,) one (or both) of which is (or are) formed of rubber or some other elastic material in order to obtain sufficient friction to prevent any accidental or inadvertent rotation of the disk, but not sufficient to prevent it being intentionally rotated or adjusted in position by hand. If the fixed axis *m* be reversed in position end for end, so that the pointer is between the light and the disk, then the disk may be opaque or non-translucent.

The disk *s* is graduated with figures and marks to indicate hours and parts of hours, so that the pointer in passing over these indicates the corresponding time occupied by the candle in burning and allowing the coiled spring to move the pointer. The hours are preferably marked, as shown in the drawings, so as to indicate the night-hours—say from eight or nine p. m. to eight or nine a. m.

My invention operates as follows: The cap-piece *g* is removed from the top of the tube *a* and the candle *c* inserted in the tube *a*, pushing down the candle-carrier *f* and compressing the spring *d*. At the same time the spring *p* draws up the slack of the chain *i* and rotates the barrel *l* and the pointer *o* to the left-hand side of the disk *s*, as viewed in Fig. 1. The cap-piece *g* is then replaced and rotated, so

that the pins *h* engage in the horizontal parts of the L-slots in the cap-piece *g*, and thereby retain the latter in position against the thrust of the spring *d* transmitted through the candle *c*. The candle is then lighted and the disk *s* moved round until the pointer *o* points to the correct time. As the candle burns and consumes the material (of which the candle is made) at its upper end the pressure of the spring *d* pushes up the candle, keeping its upper end continually in contact with the under side of the cap-piece *g*, at the same time drawing up the end of the chain *i* within the tube *a* and rotating the loose pulley or barrel *i* and the pointer *o*, which points to the correct time on the disk *s*.

To apply the apparatus as an alarm time-indicator, I mount the stand *b* on a base *t* of porcelain or other insulating material and solder or otherwise connect one of the wires *u* from the battery of an electric bell to the stand *b* or to any other convenient part of the apparatus in electrical—i. e., metallic—contact or connection with the pointer *o*. The other wire from the battery is attached to the connecting (metal) piece *v*, which may be fitted in any desired position on the edge of the disk *s*. The connecting-piece *v* projects sufficiently far beyond the face of the disk *s* that the pointer *o* cannot pass over it without coming in metallic contact with it, whereby the electric circuit is closed and the electric bell set ringing. Such an arrangement is specially suited for hotels. The visitor, after the candle is lighted and the disk adjusted, as previously described, requires merely to adjust the connecting-piece *v* in position on the edge of the disk *s* over the mark indicating the time at which he desires to be called.

I am aware that tubes with cap-pieces at the upper ends and coiled springs beneath the candle have been previously used—as, for example, for railway-carriage reading-lamps. I do not, therefore, claim such combination, broadly; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of a candle *c*, inclosed in a tube *a* and movable upward as it is consumed by a spring *d*, with a time-dial *s* and pointer *o*, the latter being caused to move over the graduated face of the dial by the movement of the free end of the spring *d*, substantially as set forth.

2. The combination of a tube *a*, carrying a candle *c*, arranged to illuminate a time-dial *s*, a coiled spring *d*, raising the candle *c* as it is burned, a flexible connection *i* between the upper end of the spring *d* and the loose barrel *l*, with the pointer *o* attached thereto and mounted on the fixed shaft *m*, and the spring *p*, connecting the loose barrel *l* with the fixed shaft *m*, all substantially as herein set forth and shown.

3. The combination of a tube *a*, carrying a candle *c*, with a time-dial *s* arranged to be illuminated thereby, a spring *d*, arranged to raise the candle as it is burned, a flexible connection *i* between the spring *d* and the loose barrel *l*, having the pointer *o* attached thereto, the fixed shaft *m*, on which the said barrel is mounted, the spring *p*, connecting the said barrel with the said shaft, and an adjustable metallic connecting-piece *v* and the pointer *o* being respectively in electrical contact with the conducting-wires from the battery of an electric bell, substantially as and for the purpose set forth.

4. In combination with a candle-supporting spring and a pointer and intermediate connections whereby the burning of the candle and consequent movement of the spring impart motion to said pointer, a fixed dial over which the said pointer travels, and a metallic connecting-piece arranged for contact with the said pointer to close an electric circuit, the said pointer and connecting-piece being in electrical connection with the wires from the battery of an electric bell, substantially as set forth.

HENRY BENNETT.

Witnesses:

STEPHEN ALDERSON,
J. CLARK JEFFERSON.