

(Model.)

S. N. BEHRMAN.
ALARM CLOCK.

No. 469,644.

Patented Feb. 23, 1892.

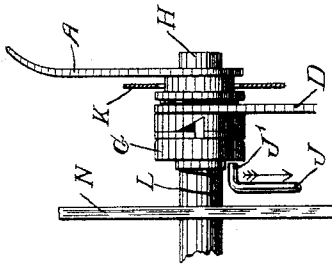


Fig. 1.

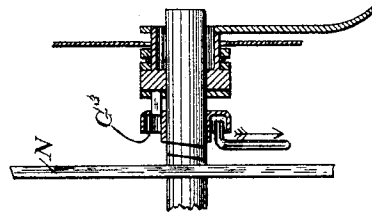


Fig. 2.

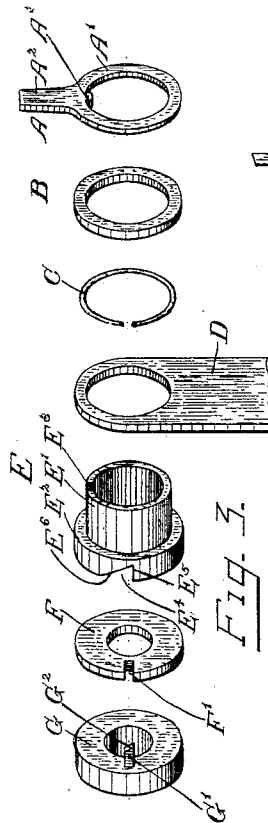


Fig. 3.

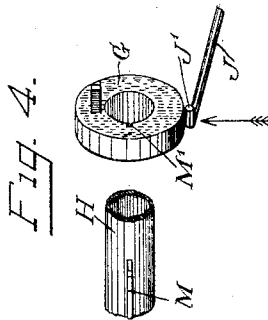


Fig. 4.

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ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 469,644, dated February 23, 1892.

Application filed May 11, 1891. Serial No. 392,307. (Model)

To all whom it may concern:

Be it known that I, SAMUEL N. BEHRMAN, a citizen of the United States of America, and a resident of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Alarm-Clocks, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this specification, and to which reference is hereby made, Figure 1 is a side elevation of the devices illustrating my invention. In this figure there are also shown the following parts, viz: a portion of the lever whereby the said devices illustrating my invention are connected with the mechanism for ringing the alarm-clock and the arm for supporting the said devices and a portion of the framework of the clock. Fig. 2 is a vertical section taken through the axial plane of the devices shown in Fig. 1, with this exception, that the lever whereby the said devices are connected to the mechanism for ringing the bell and a sleeve-arbor whereby the hour-hand is turned and a spiral spring thereon and the framework of the clock are shown in elevation. Fig. 3 is a perspective view of the various parts of my device, the parts being shown in the order in which they are arranged when combined together. In this figure the outer or free end of the setting-hand is broken off to economize space. Fig. 4 is a view in perspective of a portion of the sleeve-arbor and cap and showing a construction thereof whereby the cap may be turned by the sleeve-arbor without the aid of a disk.

II indicates a sleeve-arbor, which carries the hour-hand of the clock. The hour-hand is attached in any of the well-known ways to that portion of the arbor which extends to the right in Fig. 1 beyond the setting-hand A. The hour-hand, not being essential to the comprehension of my device, is omitted from the drawings.

Upon the arbor II is located the sleeve E, consisting of a cylindrical portion E' of some width and a flange E² of greater diameter than the cylinder E'. The end of the brace

D embraces a portion of the cylinder E' next to the flange E² of the said cylinder E'. The other end of the brace D is attached to the clock-frame or other suitable support. The brace D thus supports the sleeve E and all that the sleeve carries.

Next to the brace D an elastic ring C is located on the cylinder E' of sleeve E. Next to the right of said annular ring C is the ring B, also located on the cylinder E'. The right-hand edge of the flange E² and the brace D, elastic ring C, and ring B are all located in juxtaposition, and the ring B is securely fixed upon the cylinder E' in any suitable manner, as by being driven tightly upon the cylinder E' or by being soldered or riveted thereto. The ring B thus constitutes an annular flange of the cylinder E', and the object of having the flange E², brace D, and ring B in juxtaposition is in order that the elasticity of the spring-ring C shall operate to make the bearing of the cylinder E' against the brace D frictionally resistive, so that the ring B shall not turn, except as moved by human agency or by the rotation of the sleeve G when positively interlocked therewith. The right-hand end of the cylinder E' extends beyond the ring B, substantially as shown in Fig. 1, and it is that portion of the cylinder E' which thus extends beyond the ring B which ordinarily will extend through and beyond the clock-face K. That part of the cylinder E' which extends to the right beyond the clock-face, as shown in Fig. 1, is provided with the notch or slot extending lengthwise through the sleeve in the plane of one of its diameters. The hand A, employed to set the alarm-clock, is provided with the annular portion A' and the hand A² and also with the lug A³, projecting into the discal space E³, inclosed by the ring portion A' of said hand. When the ring portion A' of the hand is located on the right-hand end of sleeve E, the projection A³ of said hand enters the slot E³ of the cylinder E' and interlocks therewith. The annular flange E² of the sleeve E is provided with the notch E⁴, having one side E⁵ straight—that is to say, the plane of this side of the notch coincides with the plane of the diameter of the said sleeve. The other side E⁶ is inclined substantially as shown. Thus a projection pressing against the left-hand side of the

flange E² will readily enter or leave the notch E⁴ on that side E⁶ of the notch E⁴ which is beveled and is prevented from thus doing at the straight side E⁵ of the said notch.

- 5 Fixed on the sleeve-arbor H to the left of the flange E² is an annular disk F, which rotates with the said sleeve-arbor. This sleeve-disk F is in juxtaposition with the left-hand side of the flange E² of the sleeve E. The
10 disk F is provided with a radial recess or opening F', substantially as shown in Fig. 3. To the left of the disk F is another disk or sleeve G, located on the sleeve-arbor H, concentric therewith, but turning loosely thereon.
15 This sleeve G is provided on its right side with a projection or lug G', having a beveled end G², the inclination of the said beveled end being parallel to the face of the beveled side E⁶ when the latter is directly opposite to the former. This projection or lug G' is of
20 such a length as that it projects through the slot F' of the annular disk F and also extends to the right of said disk F a sufficient distance to fully engage the flat side E⁵ of the notch E⁴ of the sleeve E as the disk G is
25 rotated by the sleeve-arbor of the hour-hand. The discal sleeve G is pressed to the right by suitable elastic mechanism. In the present instance this mechanism consists of the spiral
30 spring L, whose left-hand end rests against the frame-piece N on the opposite side of the sleeve-arbor H from that seen in Fig. 1 or is fastened to the sleeve-arbor itself.

That portion of the mechanism of the
35 alarm-clock which consists of the bell and devices more nearly connected with it for ringing it are of any of the well-known forms and, not constituting any portion of my invention, are omitted from the drawings, and
40 further description thereof is deemed unnecessary.

A lever J connects the devices for ringing the bell with my invention illustrated in the drawings. The free end J' of this lever is in
45 proximity to the left-hand edge of the discal sleeve G, and when the end J' of the lever J is by any means moved to the right the bell will immediately be rung. The discal sleeve G is preferably provided with an annular
50 recess G³ to allow the bent end J' of the lever J to enter therein, and thus keeps the lever from vibrating.

In Fig. 4 a slight modification of a portion of my device is shown, as follows: The sleeve-arbor H of the hour-hand is provided with a
55 longitudinal feather M, and the discal sleeve G is provided with a recess M', located on the inner surface of the discal sleeve and parallel to the axis thereof. When the discal
60 sleeve G is located on the sleeve-arbor, the feather M enters the recess M', and the sleeve G is thereby forced to rotate with the sleeve-arbor H. When such a construction is employed, the disk F may be omitted.

65 The mode in which my invention operates is as follows: In attaching this invention to a clock already constructed the hour-hand is

turned exactly to an hour on the face. The whole attachment is then placed over the
hour-sleeve, the sleeve G being in the closed
position, as shown in Fig. 1, the lug G' being
70 within the slot E⁴, the hand A pointing to the same hour, and the sleeve E being secured through brace D or to the face. The disk F is then securely fastened to the hour-sleeve.
75 When the clock-hand moves away from the hour, the sleeve G is turned with it and is depressed through the lug G' by the inclined face E⁶ of the sleeve E. This downward
80 movement of the lug G' incloses the end of the alarm-lever J, keeping it from vibrating. The object of the annular recess—viz., to keep the lever from vibrating—is subserved. The lower plain surface of sleeve E holds the
85 sleeve G over the lever until the aforementioned hour is reached, when the spring L forces the projection G' into the slot E⁴, thereby releasing the lever J and permitting the alarm mechanism to operate. It can be readily
90 seen that after once setting the attachment, when the hand A is placed at any hour, the sleeve E being carried with it, the alarm will be released at that hour. When the form shown in Fig. 4 is used, the operation will not
95 be altered.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. In combination with the sleeve H for the hour-hand, and the sleeve E and the setting-hand A' A², connected together and located
100 around the sleeve-arbor H, the ring B and the elastic ring C, located between abutment D and said ring B, the sleeve being provided with the notch E⁴ and the discal sleeve G, provided with the sleeve G' for engagement with
105 the notch E⁴, and the elastic mechanism for pressing ring B toward sleeve E and lever J in proximity to sleeve G, substantially as and for the purposes specified.

2. In combination with the sleeve H for the
110 hour-hand, and the sleeve E and the setting-hand A' A², connected together and located around the sleeve-arbor H and frictionally connected to the stationary piece or abutment D, the sleeve being provided with the
115 notch E⁴ and the discal sleeve G, provided with the projection G' for engagement with the notch E⁴ and elastic mechanism for pressing the sleeve G toward sleeve E and lever J in proximity to sleeve G, the abutment D also
120 serving as a brace for supporting the hands and spindles and alarm mechanism therewith independently of the clock-face, substantially as and for the purposes specified.

3. In combination with the sleeve H for the
125 hour-hand, and the sleeve E and the setting-hand A' A², connected together and located around the sleeve-arbor H, the ring B and the elastic ring C, located between abutments D and said ring B, the sleeve being provided
130 with the notch E⁴ and the elastic mechanism for pressing ring B toward sleeve E, lever J in proximity to sleeve G, and the abutment D, connected to the clock-frame and supporting

the hands and spindles and alarm mechanism therewith independently of the clock-face, substantially as and for the purposes specified.

- 5 4. The sleeve E, provided with the annular flange E² and main cylindrical portion E', the latter in part embraced by the stationary piece D and the frictional piece C, located on the cylinder, an annular ring B, fixed on the
10 said cylinder, setting-hand A² A', located on the end of the cylinder and provided with the lug A³, the cylinder E' being provided with the recess E³, into which lug A³ is received, the annular flange E² of the cylinder
15 E' being provided with the notch E⁴ and discal sleeve G, provided with the projecting lug G', fixed to sleeve-arbor H so as to rotate therewith, and lever J, substantially as and for the purposes specified.
- 20 5. The sleeve E, provided with the annular flange E² and main cylindrical portion E', the latter in part embraced by the stationary piece D and the frictional piece C, located on the cylinder, an annular ring B, fixed on the
25 said cylinder, setting-hand A² A', located on the end of the cylinder and provided with the lug A³, the cylinder E' being provided with the recess E³, into which the lug A³ is received, the annular flange E² of the cylinder

E' being provided with the notch E⁴ and discal sleeve G, provided with the projecting lug G', 30 fixed to sleeve-arbor H so as to rotate therewith, and lever J, compelled to rotate with the sleeve-arbor H by means of the sleeve F, the sleeve F being provided with the notch 35 F', through which the lug G' extends, and elastic spring L, substantially as and for the purposes specified.

6. The sleeve E, provided with the annular flange E² and main cylindrical portion E', the 40 latter in part embraced by the stationary piece D and the frictional piece C, located on the cylinder, an annular ring B, fixed on the said cylinder, setting-hand A² A', located on the end of the cylinder and provided with 45 the lug A³, the cylinder E' being provided with the recess E³, into which the lug A³ is received, the annular flange E² of the cylinder E' being provided with the notch E⁴ and discal sleeve G, fixed to the sleeve-arbor H and pro- 50 vided with the lug G' and having rear annular recess G³ for the reception of the lever J, and spring L, substantially as and for the purposes specified.

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Attest:

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