

(No Model.)

2 Sheets—Sheet 1.

W. A. BARNES.
BELL.

No. 495,129.

Patented Apr. 11, 1893.

Fig 1

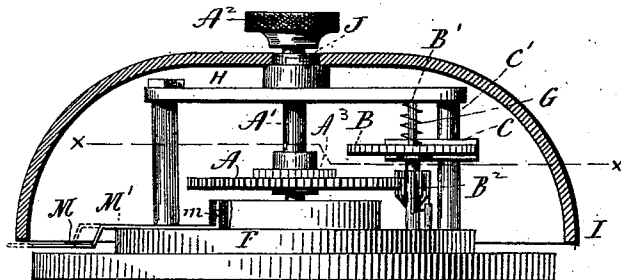
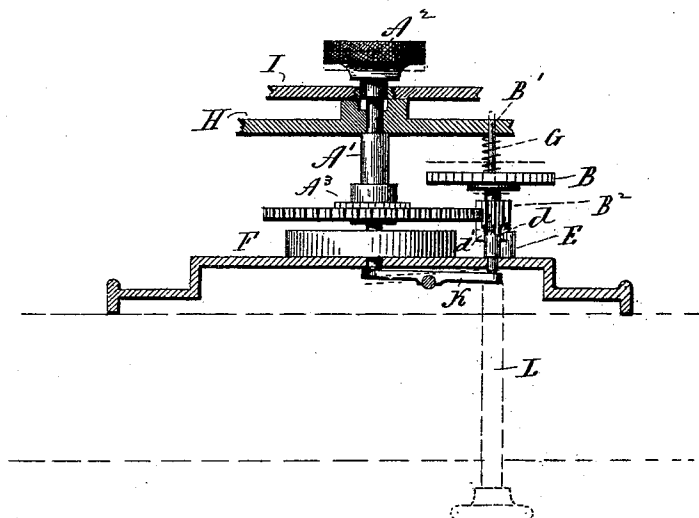


Fig. 2



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Inventor
By attys
Earle Seymour

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2 Sheets—Sheet 2.

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Fig. 3

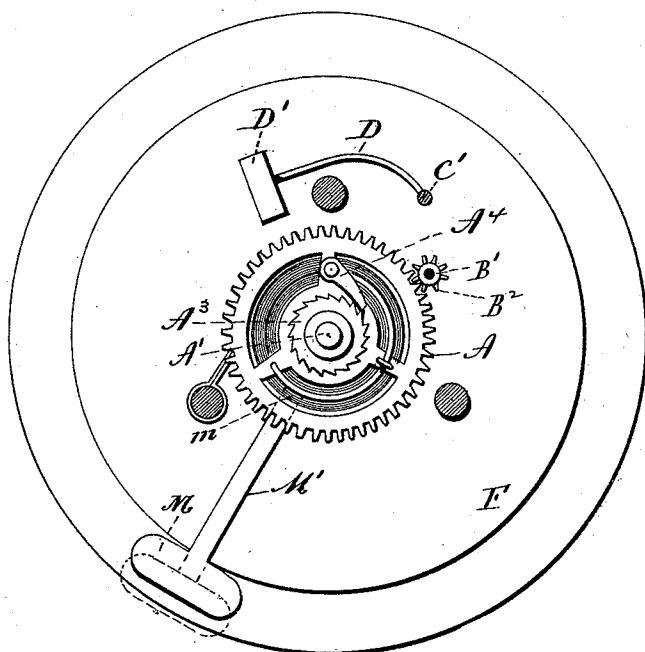
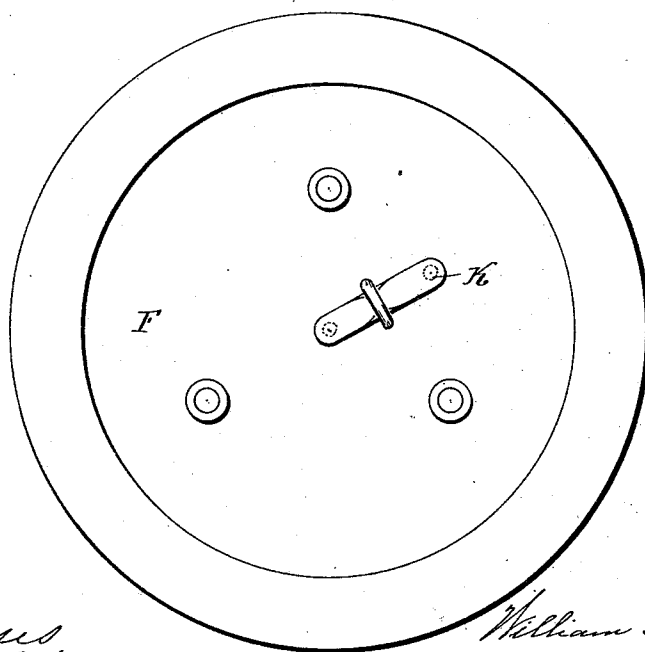


Fig. 4



Witnesses,
J. H. Shumway
H. B. Cole

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UNITED STATES PATENT OFFICE.

WILLIAM A. BARNES, OF PLANTSVILLE, ASSIGNOR TO BENJ. F. BARNES, OF
MERIDEN, CONNECTICUT.

BELL.

SPECIFICATION forming part of Letters Patent No. 495,129, dated April 11, 1893.

Application filed August 15, 1892. Serial No. 443,079. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BARNES, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new Improvement in Bells; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view of the bell in side elevation with the gong in vertical central section; Fig. 2, a similar view of the bell with the gong, the movement-plate and the base in vertical central section, this view also showing by broken lines the use of a push-rod instead of the central arbor and a lever, for releasing the train; Fig. 3, a view of the bell in horizontal section on line $x-x$ of Fig. 1; Fig. 4, a reverse plan view of the bell.

My invention relates to an improvement in that class of call and door-bells in which the bell-hammer is operated by a spring-actuated train which is manually released, and automatically checked after a momentary sounding of the gong, the object of the present invention being to produce a simple, cheap, convenient and durable device having an indicator for showing the condition of the main-spring.

With these ends in view, my invention consists in the combination with a spring-actuated train comprising a longitudinally movable rotatable staff, forming a member of the train, and having one or more radial projections, of a stop to engage with such projection or projections when the staff is moved toward it, and a spring for moving the staff toward the stop.

My invention further consists in certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

As herein shown, the train of the device consists simply of a main-wheel A, mounted on a longitudinally movable main-arbor A', and an escapement-wheel B, mounted on a longitudinally movable staff B', carrying a

pinion B², intermeshed with the main wheel A, the teeth of the escapement-wheel B, being engaged by an anchor-shaped pallet C, mounted on a staff C', to which the tail D, of the bell-hammer D' is attached. The leaves of the pinion B², are not all of the same length, two of them, which I have designated by d and d' , being enough longer than the others to engage, when the staff B', is in its normal position, with a fixed stop E, consisting, as herein shown, of a small pin mounted in the base F, of the device, and extending parallel with the said staff, and located close to the same. The said long leaves of the pinion virtually form radial projections on the staff for co-operation with the stop and thus have a stopping function in addition to their ordinary functions as pinion leaves. It will be apparent that when either of the leaves d or d' , is engaged with the stop, the actuation of the train will be arrested, and that if the staff be moved away from the stop so as to clear the said leaves therefrom, the train will be free to actuate. A small spiral spring G, encircling the outer end of the staff B', and interposed between the movement-plate H and the escapement-wheel B and thus constantly urging the staff toward the stop, is employed to sustain the said staff in its normal position, in which one of the long leaves d or d' is engaged with the stop. Under this construction it is apparent that if the staff B' be longitudinally moved away from the stop against the tension of the said spring G, enough to clear the leaves d or d' from the stop, the train will be free to actuate, whereby the hammer will be vibrated, and the gong I sounded. The said gong is of ordinary construction and provided with a centrally threaded opening adapting it to be screwed over a threaded hub J, projecting outward from the movement-plate H. It will also be apparent that when the staff B' is relieved from pressure, its spring G, will at once operate to move it toward the stop and thus restore it to its normal position in which one of its longer leaves will engage with the stop, whereby the train will be automatically arrested.

I do not limit myself to any particular way

of manually moving the staff B', but as herein shown, I have provided for moving it by means of a lever K, pivoted underneath the base F, and engaging with one of its ends, while the opposite end of the said lever is engaged by the inner end of the main-arbor A', which is made longitudinally movable as aforesaid, the outer end of the said arbor A' receiving a knurled thumb-piece A², by means of which the arbor is pressed inward for setting off the bell, and by which the arbor is rotated to wind the spring, for which purpose the arbor is provided with the usual ratchet-wheel A³, which is engaged by the usual spring-actuated pawl A⁴, as shown by Fig. 3 of the drawings. It will be apparent by reference to Fig. 2 of the drawings that when the main-arbor is pushed inward by means of the thumb-piece A², the lever K, will be rocked, with the effect of pushing the staff B' outward, thus clearing the longer leaves of the pinion from the stop E. Then just as soon as the thumb-piece is relieved of pressure, the spring G, will at once operate to move the staff B, back to its normal position, whereby the lever K, will be oppositely rocked, and the main-arbor moved back to its normal position. Here it must be noted that the bell will ring momentarily after the thumb-piece A² has been relieved of pressure, and the parts have been returned to their normal positions, for the train will not be stopped until one of the longer leaves of the pinion has been brought around into position to engage with the stop E. If the pinion has only one long leaf, it is clear that it might often happen that the train might continue to run, and actuate the bell during nearly a complete rotation of the pinion. On the other hand the greater the number of long leaves in the pinion, the shorter the sounding of the gong after the thumb-piece has been relieved of pressure.

The construction that I have shown herein is particularly adapted to call-bells. If the device is to be used as a door-bell it will not be necessary to provide for the longitudinal movement of the main-arbor, nor to provide a lever to co-operate therewith, but it will be sufficient to employ a push-rod L, such as indicated by dotted lines in Fig. 2 of the drawings, to operate directly upon one end of the longitudinally movable rotatable staff, thus dispensing with any intermediate instrumentalities and securing extreme simplicity of construction and operation. Nor is it necessary that the staff of the escapement-wheel be chosen for longitudinal movement, as any other staff of the train might be arranged to so move and effect the same results. Nor is it necessary that the stop pinion on the said movable staff should mesh with any wheel of the train, for if desired it may be a purely supplementary feature of the train, and have no other function than in connection with stopping the same. Nor is it necessary that a

pinion be employed at all for engagement with the stop, for radial projections of other forms might easily be provided. Thus a pin extending transversely through the shaft would answer the purpose and take the place of a pinion, my invention comprehending broadly the use of a longitudinally movable rotatable staff having one or more radial projections to engage with a fixed stop, and a spring combined with the staff to move it toward the stop.

My improved indicator for showing the condition of the spring, that is, how far it is wound up, or how nearly run down, consists simply of a flat piece of sheet-metal having a head M, and a shank M', the inner end of the latter being turned upward to form a hook *m*, which is engaged with one of the outer coils of the spring, so that as the spring unwinds and expands, the indicator will be moved outward, while on the other hand when the spring is wound up, the indicator will be drawn inward.

In view of the suggestions of change herein mentioned, I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention. I am aware, however, that radially movable indicators have before been combined with door-bells of the class described herein, to show when they must be wound. I do not, therefore, claim such indicators broadly.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bell, the combination with the gong and the bell-hammer thereof, of a spring-actuated train for operating the said hammer, comprising a longitudinally movable rotatable staff forming a member of the train, and having one or more radial projections; a stop to engage with such projection or projections when the staff is moved toward it, and a spring for moving the staff toward the stop, substantially as set forth, and whereby by manually moving the said staff away from the stop the train may be released for actuation.

2. In a bell, the combination with the gong and bell-hammer thereof, of a spring-actuated train for operating the said hammer, comprising a longitudinally movable staff forming a member of the train, and carrying a pinion meshing into a wheel thereof, and having leaves of unequal length, a stop to normally engage with a long leaf of the said pinion, and a spring to move the staff toward the stop, substantially as set forth.

3. In a bell, the combination with the base, the gong, and the bell-hammer thereof, of a spring-actuated train for operating the said hammer, comprising a coiled spring; and an indicator having bearing on the said base, extending outward under the edge of the bell

for exposure to view, and positively connected
at its inner end with the coils of the spring,
whereby it invariably shows the condition of
the same, and is not displaced by any jarring
5 to which the bell may be subjected in use,
substantially as set forth.

In testimony whereof I have signed this

specification in the presence of two subscri-
ing witnesses.

WILLIAM A. BARNES.

Witnesses:

LEVERET C. HINMAN,
LESLIE TREDERICH.