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H. KOCH.

BELL HAMMER.

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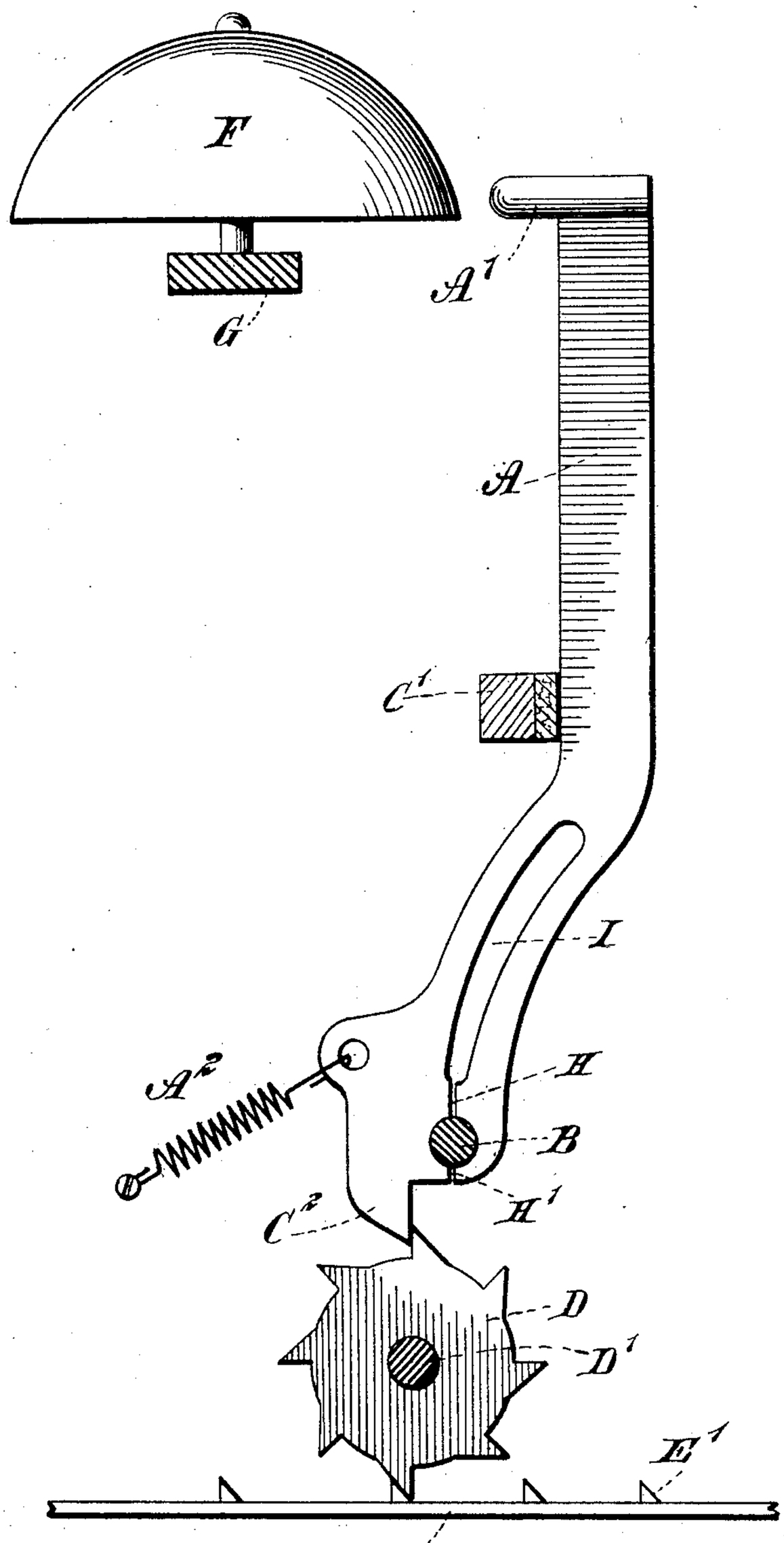

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BELL-HAMMER.

No. 859,231. Specification of Letters Patent. Patented July 9, 1907.

Application filed February 1, 1906. Serial No. 298,930.

To all whom it may concern:

Be it known that I, HENRY KOCH, a citizen of the United States, and a resident of Rahway, Union county, State of New Jersey, have invented certain new and useful Improvements in Bell-Hammers, of which the following is a specification.

My invention relates to bell hammers such as are used in chime clocks and which are operated mechanically.

The objects of the invention will be clearly brought out hereinafter, and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawing showing one of my improved hammers in elevation, with such of the surrounding parts of a chime clock as are necessary to clearly illustrate my invention.

A is the hammer arm which carries the usual hammer A′ and which is mounted on an axle B. This hammer arm is adapted to abut against a rail C′ which runs parallel to the axle B and which is provided on the surface engaged by the hammer arm, with a covering of felt or like material. Said hammer arm A is further provided with a projection C^2 arranged to be engaged by the star wheel D mounted on the shaft D′. The star wheel D is arranged to be operated by some of the projections E′ on the disk E.

F is the bell, of which there may be a series mounted in the usual manner on a support G forming part of the chime clock. It is to be understood that the disk E is rotated in the usual manner.

In operation as the disk E is rotated, the proper projections E′ engage the star wheel D which in turn engages the projection C^2 of the hammer arm A, thus swinging the lever A on the axle B. As soon as the tooth of the star wheel passes the projection C^2, the arm A will be pulled back by the spring A^2 and the projection C will strike against the rail C′, which is so placed as to permit the hammer to strike the bell F but does not permit said hammer to rest on the bell after striking.

In chimes of the kind described herein as made hitherto, the axle B has been simply fitted into a circular opening of the hammer arm A, it being understood that said axle does not rotate as the hammer is operated. With this construction, a very tight fit of the hammer arm on the axle is necessary to prevent what is commonly known as back play, and to further prevent the hammer from rattling. In other words, the hammer should strike the bell a quick, decisive blow, and then should not strike the bell again until the star wheel is again operated by the disk. If the hammer arm is fitted tight enough to attain this result, and to do away with the rattling on the shaft, with the old construction the operation of the hammer is so hard that it requires too much power to drive the disk. If, on the contrary, the hammer arm fits the axle loosely, each operation to strike the bell is accompanied by a disagreeable noise and a rattling of the hammer on the axle. To overcome these objections and yet attain the desired result, I provide the hammer arm with a cut H, which extends from the axle opening to a slot I in the hammer arm and with another cut H′ which extends from the axle opening to the edge of the hammer arm A. The hammer arm is thus provided with a forked portion which is made to fit the axle very snugly, the spring of the parts adjacent to the cuts serving to hold said arm with efficient tightness to prevent back play and rattling, yet not tightly enough to create such friction as will require too much power to drive the disk. The slot I serves to make the arm A still more resilient.

It is to be understood that the rail C′ prevents the spring A^2 from pulling the hammer against the bell except after the star wheel tooth has raised the projection C^2 of the arm A and has passed said projection, thus permitting the said spring A^2 to pull the arm back against the rail C′, the elasticity of said arm permitting it to strike the bell. After the hammer has struck the bell, the impact between it and the bell will slightly return the said hammer to about the position shown in the drawing, in which position it is held by the frictional contact with the axle B and the rail C′. In other words, after the hammer has struck the bell, it recoils and does not again strike the bell until the star wheel is again operated by the disk. A sharp decisive blow on the bell is thus secured without the accompaniment of any disagreeable noises such as rattling due to the contacting of the hammer with the bell as the bell is vibrating from the blow and to a loose fit on the axle.

While I have described my invention as applied to chime clocks in which the hammers are operated by a disk and star wheel, I wish it distinctly understood that my invention may be applied wherever it is desired to secure a hammer arm to an axle to prevent back play.

I claim as my invention:

1. The combination of the stationary axle, the hammer arm having an opening to fit the axle and a cut or slit leading from said opening to the edge of the arm, producing elastic portions to clamp the axle, a device adapted to be struck by the hammer, a spring for drawing the hammer toward said device, and mechanism for moving the hammer away from the said device.

2. The combination of the stationary axle, the hammer arm having an opening to fit the axle, and a cut or slit leading from said opening to the edge of the arm, producing elastic portions to clamp the axle, a device adapted to be struck by the hammer, and mechanism for causing the hammer to strike said device.

3. The combination of the stationary axle, the hammer

arm having an opening to fit the axle and a cut or slit leading outward from said opening, producing elastic portions to clamp the axle, a device adapted to be struck by the hammer, and mechanism for causing the hammer to strike said device.

4. The combination of the stationary axle, the hammer arm having an elastic forked portion adapted to frictionally engage said axle, a device arranged to be struck by the hammer, and mechanism for operating the hammer arm.

5. The combination of the stationary axle, the hammer arm having an elastic portion to fit the axle, and also having a longitudinal slot to increase the resiliency of the arm, a device adapted to be struck by the hammer, and mechanism for operating the hammer arm.

6. The combination of the stationary axle, the hammer arm having an opening to fit the axle and provided with cuts or slits extending in opposite directions from said opening, a device adapted to be struck by the hammer, and mechanism for operating the hammer arm.

7. The combination of the stationary axle, the hammer arm having an opening to fit the axle and also having a longitudinal slot and being further provided with cuts or slits, extending in opposite directions from said axle opening, one of said cuts or slits connecting said longitudinal slot with said axle opening, a device adapted to be struck by the hammer, and mechanism for operating the hammer arm.

In witness whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY KOCH.

Witnesses:

MAURICE CHAILLE,

T. J. MACDONALD.