No. 620,138. Patented Feb. 28, 1899.

W. F. HUNTER & C. W. STORM.

BELL.

(Application filed Jan. 7, 1898.)

(No Model.)

Fig. 2.

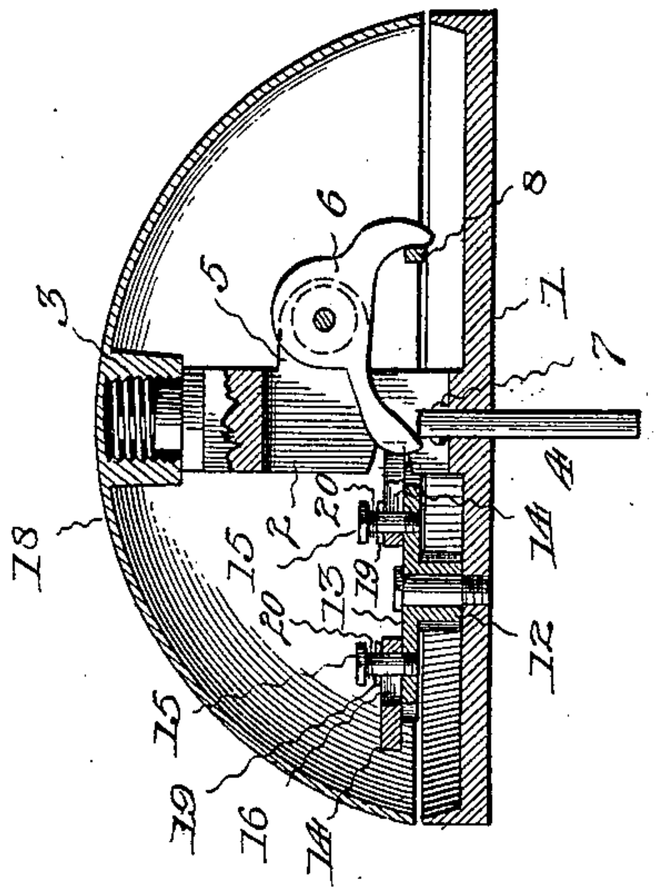


Fig. 4.

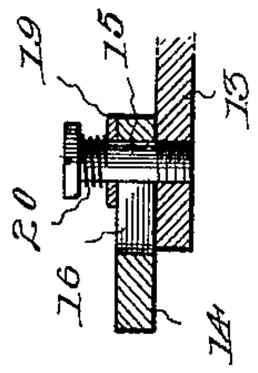


Fig. 5.

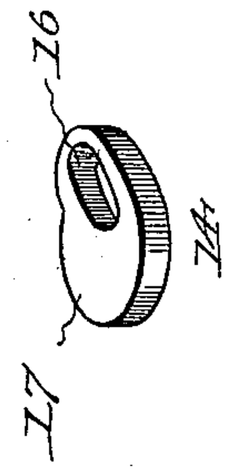
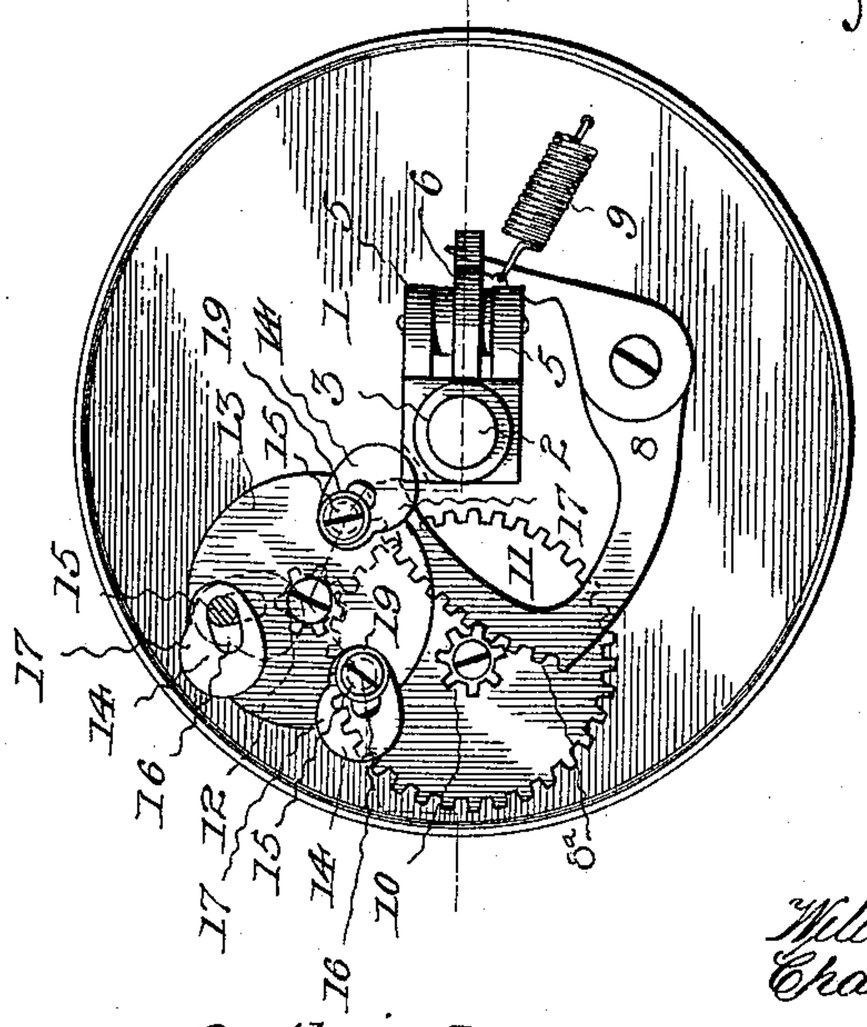


Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM F. HUNTER AND CHARLES W. STORM, OF ELGIN, ILLINOIS.

BELL.

SPECIFICATION forming part of Letters Patent No. 620,138, dated February 28, 1899.

Application filed January 7, 1898. Serial No. 665,960. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. HUNTER and CHARLES W. STORM, citizens of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented a new and useful Bell, of which the following is a specification.

Our invention relates to bells particularly adapted for use as door-bells, and relates more especially to bells of that type constructed for operation by means of push rods or buttons.

The object in view is to provide a simple construction and arrangement of connections for communicating motion from the operating push rod or button to a rotary hammer-disk; and a further object is to provide a simple and efficient construction of hammer.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of a bell mechanism constructed in accordance with our invention. Fig. 2 is a central sectional view of the same, showing the gong in place. Fig. 3 is a detail view of one of the hammer-heads or knockers. Fig. 4 is a detail sectional view of the same.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Rising from a base-plate 1 is a standard or support 2, terminating in a stud forming a gong-seat 3, said standard being longitudinally slotted for the reception of the inner end of a push rod or stem 4. Furthermore, said standard is provided with parallel ears 5, arranged upon opposite sides of the slot, and between the ears is mounted a bell-crank lever 6 in a plane perpendicular to the base or with its fulcrum-pin parallel therewith. Against one arm of the bell-crank lever bears the inner extremity of the push rod or stem. Movement of the push-rod in a direction to withdraw it from contact with the arm of the bell-crank lever is limited by a stop-pin 7. Mounted upon a pivot which is perpendicular to the plate is a second bell-crank lever 8, to one arm of which is attached a retracting-spring 9, said arm bearing against the inner side of the contiguous arm of the first-named bell-crank lever, and thereby holding the latter in a position to repress the push rod or stem. The other arm of the lever 8 carries a segmental rack 8^a, meshing with a pinion 10, carried by a driving-gear 11, which in turn meshes with a pinion 12 on a rotary hammer-disk 13.

The hammer, in addition to the rotary disk, consists of a plurality of movable hammer-heads or knockers 14, carried by the disk and attached thereto by means of headed pins or screws 15, extending through slots 16, which are disposed longitudinally of the heads or knockers and diagonally or at an angle with the longitudinal centers thereof. The operative or striking extremities of the heads or knockers are weighted or enlarged, the enlargements being disposed out of alinement with the slots, as shown at 17, to prevent the heads when repressed or arranged with their enlarged ends toward the center of rotation from hanging in that position and refusing to be thrown outward to an operative position by centrifugal force. It will be seen that when a hammer-head is arranged in the reversed position (indicated in dotted lines in Fig. 1) the center of gravity of the enlarged end is disposed laterally out of alinement with a radius of the disk passing through the pin upon which said head is mounted, and hence rotary movement of the disk will throw the head out promptly to its operative position.

Obviously the pivotal and sliding movement of the heads is desirable in order to allow the recoil thereof after striking the gong, which is indicated at 18, and in order to allow sufficient recoil or yielding quality without allowing looseness we preferably arrange bearing-disks 19 on the pins between the heads or terminal enlargements thereof and the outer surfaces of the hammer-heads or knockers and interpose coiled springs 20 between the heads of the fulcrum-pins and said bearing-disks to exert a yielding pressure upon the surfaces of the hammer-heads or knockers. There is sufficient interval between the bearing-disks and the inner surfaces of the heads of the fulcrum-pins to allow an axial movement of the hammer-heads or knockers in opposition to the tension of the springs, which immediately return said hammer-heads to

their normal positions parallel with the planes of the hammer-disks.

From the above description it will be seen that the arrangement of operating parts or connections is compact, and by employing a short-armed main bell-crank lever 6, operating upon a short arm of the auxiliary bell-crank lever 8, the latter having a long arm carrying a rack which meshes with a small pinion on the driving-gear and the driving-gear in turn meshing with a pinion on the hammer-disk, a plurality of revolutions of the latter may be attained with each reciprocatory movement of the push rod or stem, thereby delivering blows in rapid succession to the gong.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described our invention, what we claim is—

1. A striking mechanism for bells having a rotary disk carrying hammer-heads or knockers provided with slots fitted upon fulcrum-pins on the disk, said slots being disposed diagonally with relation to the longitudinal centers of the hammer-heads or knockers, substantially as specified.

2. A striking mechanism for bells having a base-plate, a push rod or stem mounted for reciprocation perpendicular with the plane of the plate, a main bell-crank lever mounted for swinging movement in a plane perpendicular to the base-plate and having one arm arranged in the path of said push rod or stem, a second bell-crank lever mounted for swinging movement parallel with the base-plate and having one of its arms arranged in the path of the other arm of the main bell-crank lever and carrying a segmental rack, yielding means for retracting the second bell-crank lever, a hammer having a rotary disk provided with a pinion, and a driving-gear meshing with said pinion and carrying a second pinion engaged by said segmental rack, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

WILLIAM F. HUNTER.
CHARLES W. STORM.

Witnesses:
J. V. MINK,
R. L. MORGAN.