

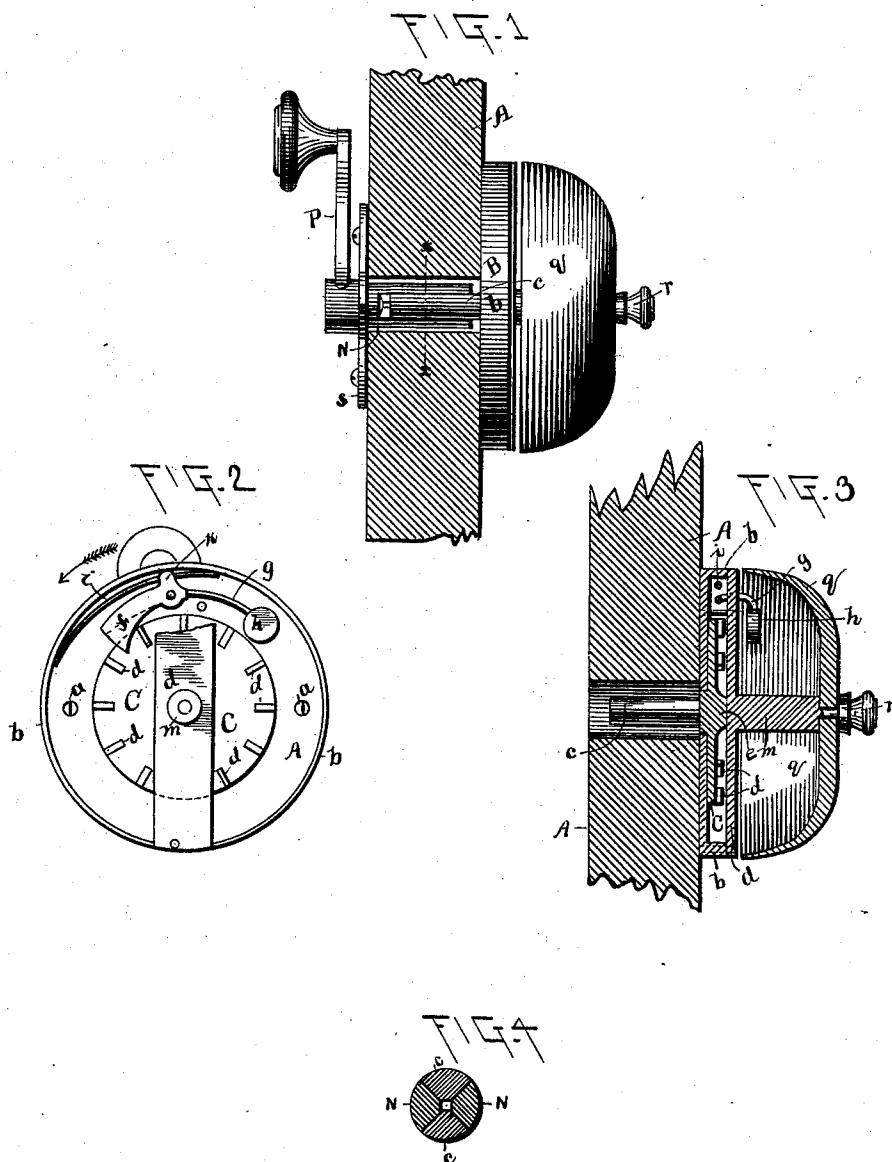
(No Model.)

J. W. CLARK.

DOOR BELL.

No. 393,818.

Patented Dec. 4, 1888.



WITNESSES:

Geo. B. Frawel
Geo. C. Koehn.

INVENTOR,

James W. Clark,
BY C. C. Shepherd,
HIS ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES W. CLARK, OF ETNA, OHIO.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 393,818, dated December 4, 1888.

Application filed June 13, 1888. Serial No. 276,978. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. CLARK, a citizen of the United States, residing at Etna, in the county of Licking and State of Ohio, have invented a certain new and useful Improvement in Door-Bells, of which the following is a specification.

My invention relates to the improvement of door-bells; and the objects of my invention are to provide a simple and inexpensive door-bell-operating mechanism by means of which a repeated tapping or ringing of the bell may be had by rotating the handle; to provide a spring-actuated hammer or tapper, its spring being so constructed and arranged as to normally hold the tapper away from the bell and other parts, and to so construct the crank-stem and inner bell-plate stem as to admit of their being readily and securely connected through doors of different degrees of thickness. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved door-bell. Fig. 2 is an inner face view of the bell-plate and operating mechanism with the bell removed. Fig. 3 is a sectional view taken through the bell and on line *xx* of Fig. 2, and Fig. 4 is a transverse section of the bell-plate stem and handle-stem, when connected.

Similar letters refer to similar parts throughout the several views.

A represents in section a portion of a door, to the inner side of which is adapted to be secured, by means of screws *a*, a circular metallic bell-plate, B, having an inwardly-extending shallow peripheral flange, *b*. Made to bear loosely against the inner face of the plate B, and having a central rearwardly-projecting stem, *c*, extending loosely through a central hole in the plate B, is a metallic disk, C. This disk C is provided, as shown, on its inner face adjoining its periphery with a number of projecting teeth, *d*, arranged at equal distances apart. As shown, and for the purpose hereinafter specified, that portion of the disk-stem *c* which projects outwardly from the plate B is split or divided horizontally, and the sides of each of its halves preferably beveled inwardly.

The toothed face of the disk C is provided

at its center with a short projecting boss, *e*, which is adapted to bear loosely against the surface of a metallic cross-bar, *d*, extending diametrically from edge to edge of the flange *b*, thus limiting the movement of the disk and serving to hold it in the position above described.

Pivotally supported between the plate B and cross-piece *d*, between the flange *b* and disk C, is one end of a curved pawl, *f*. This pawl extends a short distance in the direction of the circumference of the disk C, and has its remaining end so formed as to slightly overlap the outer edge of the disk, and thus cause the teeth of the latter to come into contact with the pawl when the disk is rotated, as herein-after described. Secured in the pivoted end of the pawl is one end of a wire, *g*, which, extending outwardly and forwardly approximately in line with the edge of the disk C, has secured to its outer end a suitable hammer or tapper, *h*. Formed on the outer side of the pawl *f*, at a point opposite the pivot-point of the latter, is a lug, *k*, to which is soldered or otherwise secured on one side of the center of its length a spring strip or wire, *i*. This spring is so curved as to cause its ends to normally bear against the inner surface of the plate-flange *b*. Projecting from the center of the length of the cross-bar *d*, with which it is preferably formed, is a post, *m*, having its surface cut away at and adjoining its outer end to form a shoulder thereon, and having its smaller portion thus formed screw-threaded, as shown.

N represents the stem of a crank-handle, P, said stem being formed, as described for the stem *c*, in two parts.

The inner bell-plate having been first secured to the inner side of the door, its stem *c*, extending into a hole formed therein, a bell, *g*, having a central hole therein, is then fitted over the screw-threaded portion of the post *m* and clamped against the shoulder thereof by means of a nut, *r*, secured upon the outer screw-threaded end of the post.

The handle-stem N has pivotally held thereon near its head in the usual manner an outer plate, *s*. A connection is formed between the stems *c* and N by inserting the latter into the stem-hole of the door from the

outer side in such position as to cause the beveled halves of the stem *c* to be inserted horizontally between the correspondingly-shaped halves of the stem *N*, thus causing the divided portions of the stems to engage one with the other to form a rigid connection between the same. The plate *s* may then be screwed in place against the door in the usual manner.

10 The operation of my device is as follows: Turning the handle *P*, will operate, through the connection of the stems *c* and *N*, to rotate the toothed disk *C*, causing the teeth *d* of the latter to come into contact successively with the curved edge of the pawl *f*. Each tooth as it meets the edge of the pawl forces the loose end of the latter outward until the tooth has cleared the pawl, when the tension of the spring *i*, acquired by the pressure thereon of the outwardly-moving pawl, will cause the pawl to drop back into its former position until met by the next tooth. It will be seen that this outward and inward movement of the free end of the pawl will operate through the tapper-wire *g* to cause said tapper *h* to move inward and outward and to strike the inner side of the bell at each of said outward movements.

It will be seen that the short end of the spring-wire *i*, bearing against the inner side of the plate-flange *b*, will serve to limit the movement of the tapper and hold it in the desired position for operation. It will also be observed that by the construction of the stems *c* and *N* and the method of connecting the same a firm connection may be had between said parts through doors of different degrees of thickness.

It is obvious that the connection and formation of the handle-stem and inner-plate stem is also applicable to door-knobs having similarly-shaped stems.

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

1. In a door-bell-operating mechanism, the combination, with the plate *B*, adapted to be secured to the inner side of a door, of the disk *C*, pivotally supported against the plate *B*, and having projecting from its face teeth or lugs *d*, and having stem *c*, projecting through a hole in plate *B* and connecting with handle-stem *N*, as described, spring-actuated pawl *f*, carrying tapper *h*, said pawl being pivoted to said plate and adapted to be brought into contact successively with the teeth *d* of the disk *C* when the latter is rotated, and a bell, *g*, supported, as described, on the plate *B*, substantially as and for the purpose specified.

2. The combination, with the plate *B*, toothed disk *C*, pivotally supported against said plate, and the above-described combined pawl and tapper pivoted to said plate, said pawl having a lug, *k*, of the spring-wire *i*, secured to said lug on one side of the center of its length, and having its ends bearing against the flange of the plate *B*, said wire operating to hold the pawl *f* in the path of the teeth *d* of the disk *C* when the latter is revolved, substantially as described.

JAMES W. CLARK.

In presence of—

J. M. TIBBETTS,
C. C. SHEPHERD.