

(No Model.)

2 Sheets—Sheet 1.

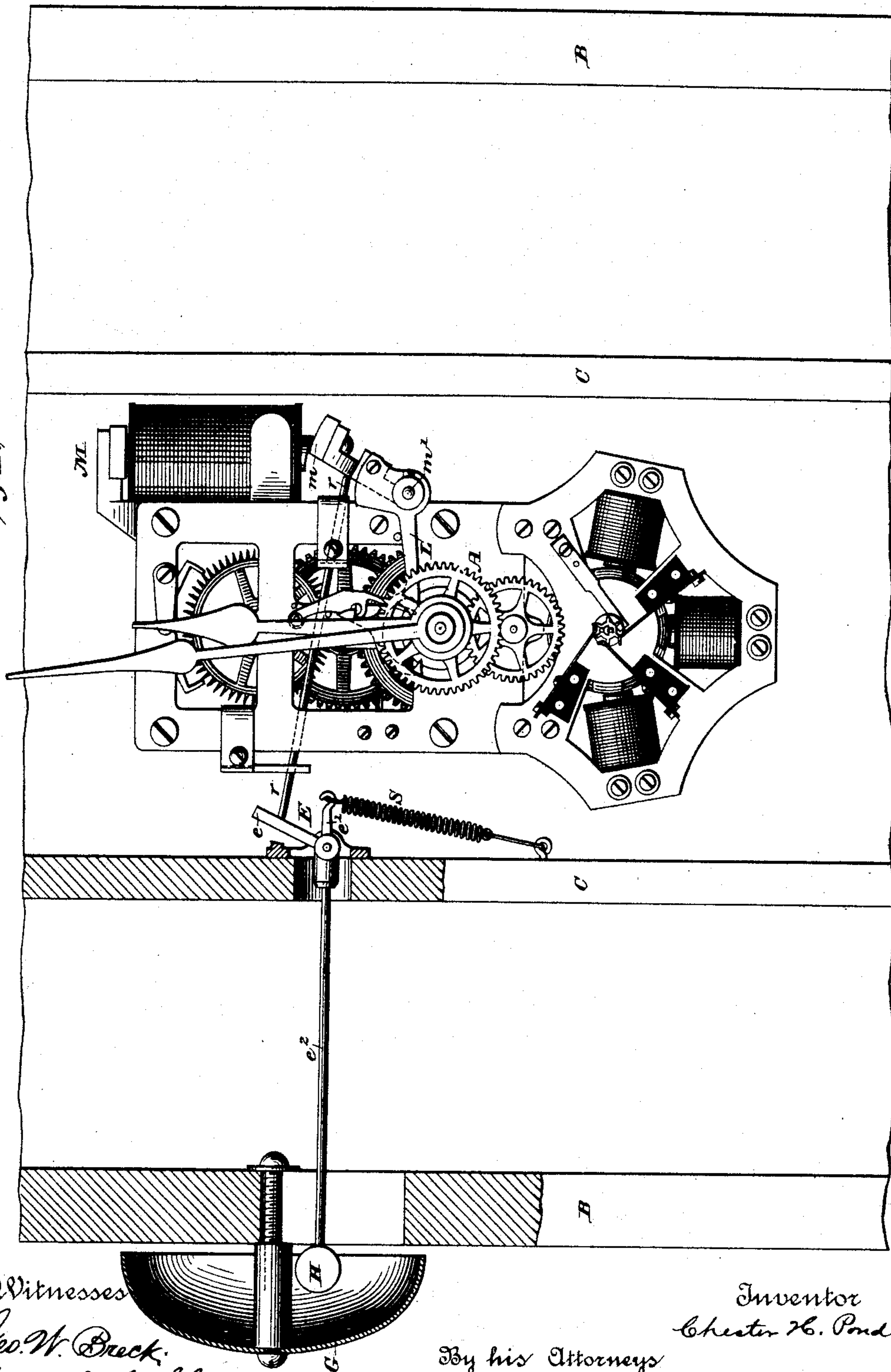
C. H. POND.

GONG STRIKING MECHANISM FOR SYNCHRONIZED CLOCKS.

No. 411,168.

Patented Sept. 17, 1889.

Fig. 1.



Witnesses
Geo. W. Breck
Carrie E. Ashley

Inventor
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By his Attorneys
Pope Esquicombe & Ferry

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2,

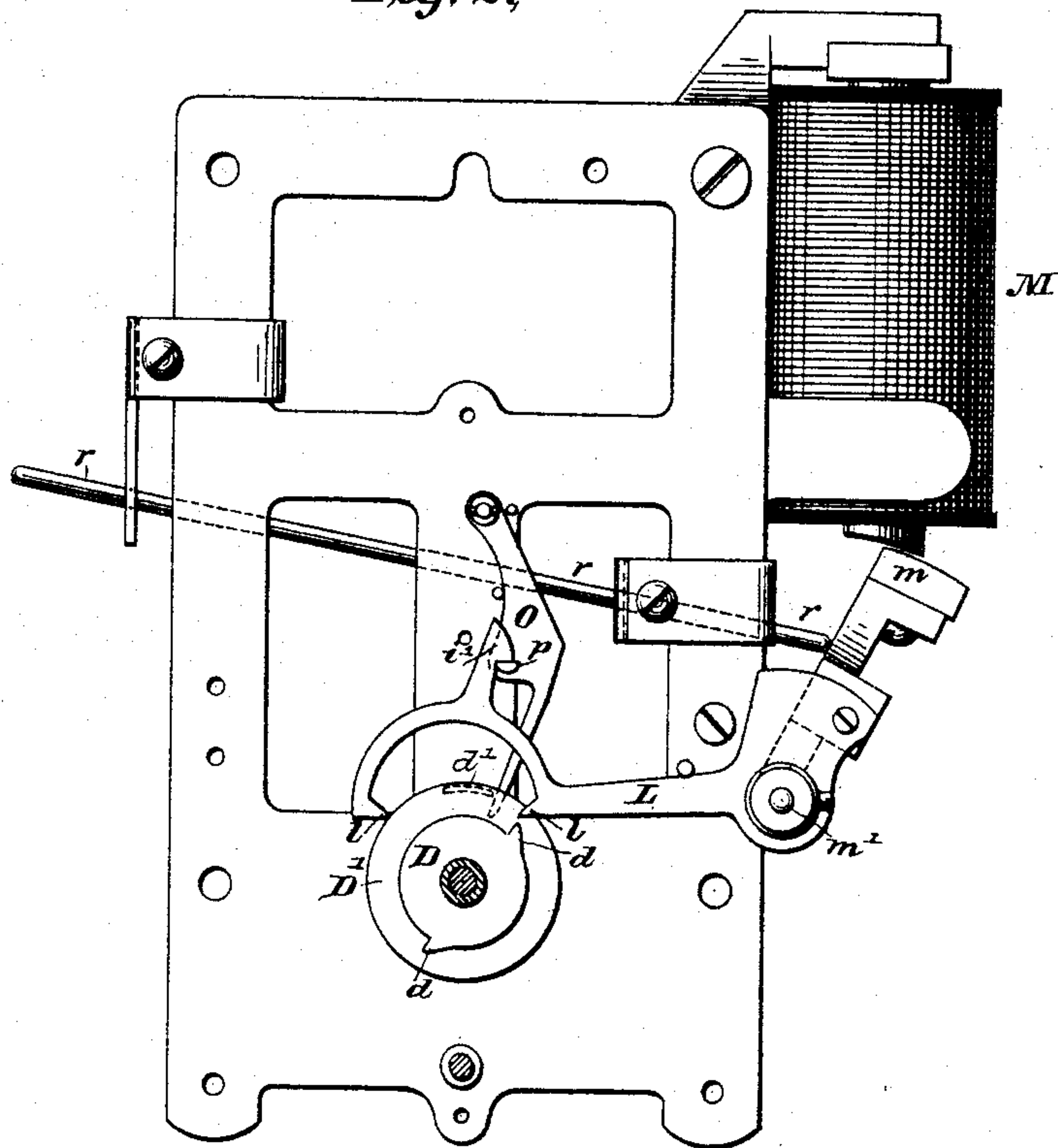
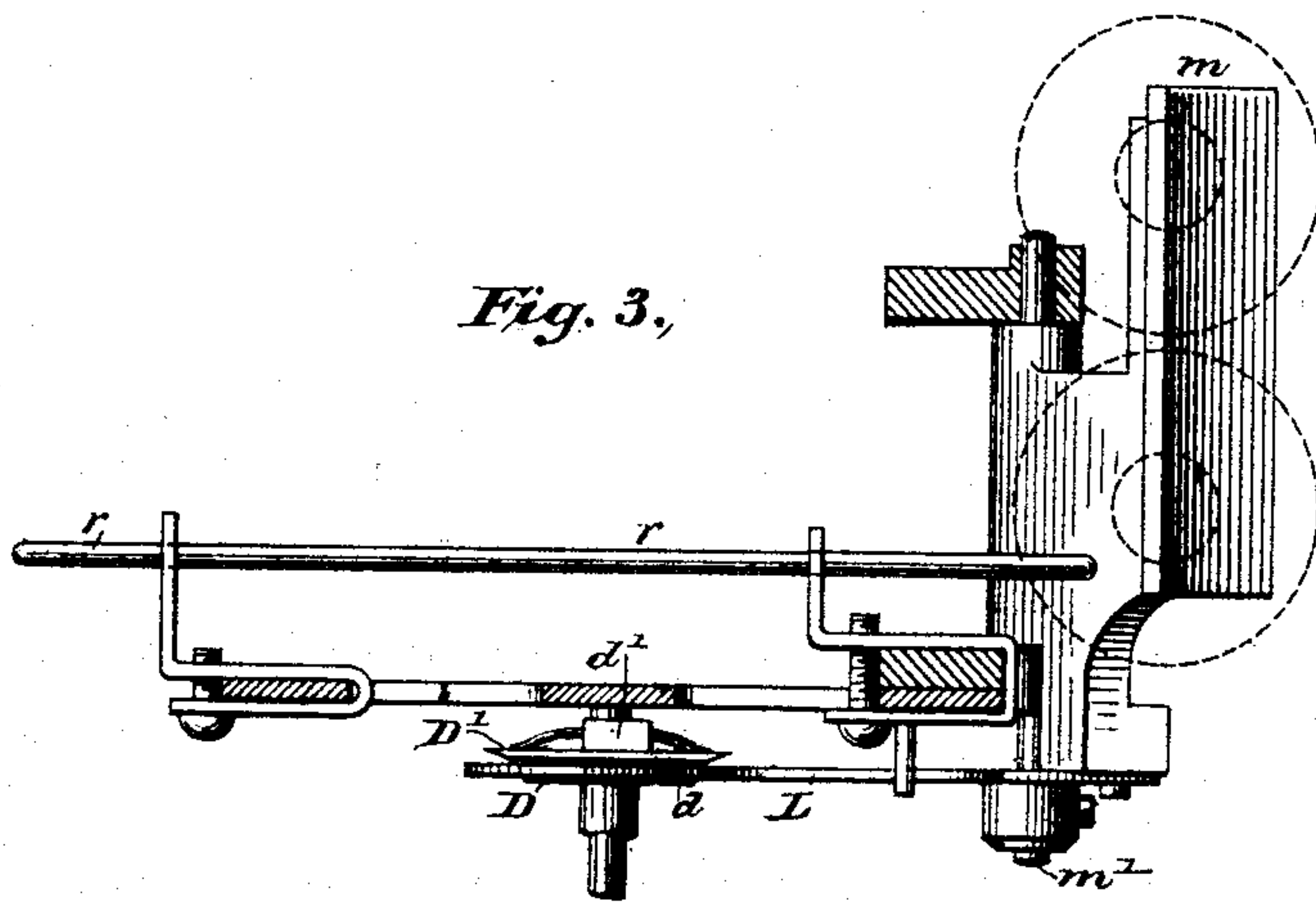


Fig. 3,



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UNITED STATES PATENT OFFICE.

CHESTER HENRY POND, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SELF WINDING CLOCK COMPANY, OF NEW YORK, N. Y.

GONG-STRIKING MECHANISM FOR SYNCHRONIZED CLOCKS.

SPECIFICATION forming part of Letters Patent No. 411,168, dated September 17, 1889.

Application filed May 3, 1889. Serial No. 309,430. (No model.)

To all whom it may concern:

Be it known that I, CHESTER HENRY POND, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gong-Striking Devices for Synchronized Clocks, of which the following is a specification.

In systems of time distribution where a part of the service performed is the synchronizing of a series of clocks from a central station, and which is generally done at the hour of noon, it is desirable that a signal should be given both to indicate that the synchronizing has been effected and that the precise instant of noon has arrived.

The object of the invention is to provide a device for this purpose.

The invention will be readily understood by inspection of the accompanying drawings, in which—

Figure 1 is a front view of a time-piece movement provided with synchronizing and signaling devices, and showing their positions within and upon the clock-case. Figs. 2 and 3 illustrate details.

The movement shown in Fig. 1 is practically as that shown in Patent No. 308,521, dated November 25, 1884, issued to me, and is a self-winding clock, and the synchronizing device is practically the same as that shown and described in patent to Hunter and Gerry, No. 349,650, issued September 21, 1886.

The movement A is placed in the center of the clock-case, the sides of which are shown at B B, while the strips C C, on each side of the movement and of the same depth as the latter, serve to support the dial. The electro-magnet M is in circuit with the master-clock and is vitalized thereby at the precise instant—say at twelve noon—when the synchronizing is to be effected.

The pole-piece of the electro-magnet is preferably curved, as shown, and the face of the armature *m* is similarly curved and is supported upon the axis *m'*. The rod *r*, which is loosely held in bearings supported from the plate of the movement, presses against the armature and normally holds it away from the poles of the magnet, as shown in Fig. 1. The pressure is caused by the device shown

at E, which consists of a pivoted lever having one arm *e* in contact with the end of the rod *r*. Another arm *e'* has attached to it the spring S, and still another arm *e²* extends through the clock-case and carries the hammer H for the gong G, which latter is attached to the outside of the case. It will readily be seen that the tension of the spring S holds all parts in the position shown in the figure.

The synchronizing is effected as follows: The forked lever L is rigidly attached to the axis *m'*, upon which the armature of the electro-magnet turns. The disk D upon the main shaft of the train turns with the minute-hand. The disk D has two projections *d d* on opposite sides. When the electro-magnet M is vitalized and the armature *m* is brought opposite the pole-piece, the lever L is thrown downward. The points *ll* of the fork strike the projections *d d* upon the disk D, turning the latter until *ll* and *d d* are all in contact. The minute-hand is turned with the disk D, and so the clock is synchronized, for if the hand is on either side of the 12-mark it will be brought to that point by this operation. The synchronizing device is locked and cannot be operated except at the proper time, as it is held by the swinging lever O, which carries a small pin *p*, engaging the catch *i'* upon the lever L. The disk D' also turns with the minute-hand. This has a projection *d'* at the periphery upon the back side. The end *o* of the lever O hangs in the pathway of this projection *d'*. The parts are so arranged that as the hand approaches 12 the projection *d'* comes in contact with the end of the lever O, and carries it on until the pin *p* is carried out of the path of the catch *i'*. The lever L is then free to be moved, and when the magnet M is vitalized, as has been described, the operation of synchronizing is effected. It will now be readily seen that as the armature *m* moves into its position opposite the pole-piece of the magnet, thus effecting the synchronizing, the rod *r* is forcibly driven against the arm *e* of the device E and the hammer H is struck against the gong G. As soon as the electric impulse ceases, the spring S instantly returns all parts to their former position, and as the projection *d'* upon the disk D' soon passes beyond the end *o* of the lever O the latter

drops into its place, the pin *p* is carried under the catch *V'*, and the device is locked until the end of the next hour.

I claim as my invention—

5 1. The combination, with a clock-train, a synchronizing mechanism, and an electro-magnet and armature for operating the same, of a gong *G*, a spring-retracted hammer, and
10 a rod *r*, independent of the clock mechanism and extending from the hammer into the path of the said armature, as herein set forth.

2. The combination of a clock-train, the electro-magnet *M*, its armature *m*, the synchroniz-

ing device, as described, operated by said armature, the gong *G*, and the striking device 15 therefor, consisting of the rod *r*, the pivoted lever *E*, carrying the hammer *H*, and the spring *S*.

In testimony whereof I have hereunto subscribed my name this 20th day of April, A. D. 20 1889.

CHESTER HENRY POND.

Witnesses:

H. J. LANG,
GEO. T. KNOX.