No. 708,769. Patented Sept. 9, 1902.

F. W. INDEN.

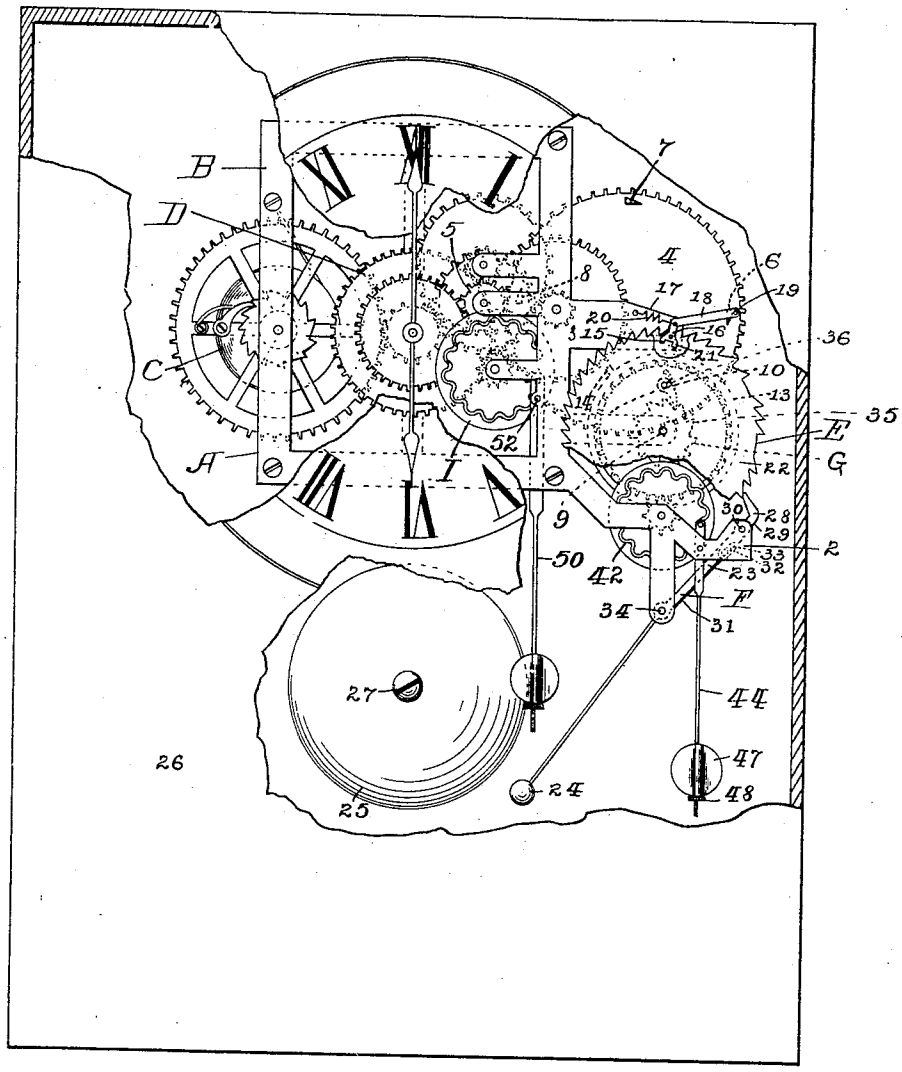
CLOCK STRIKING MECHANISM.

(Application filed Mar. 30, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.




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CLOCK STRIKING MECHANISM.

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3 Sheets—Sheet 2.

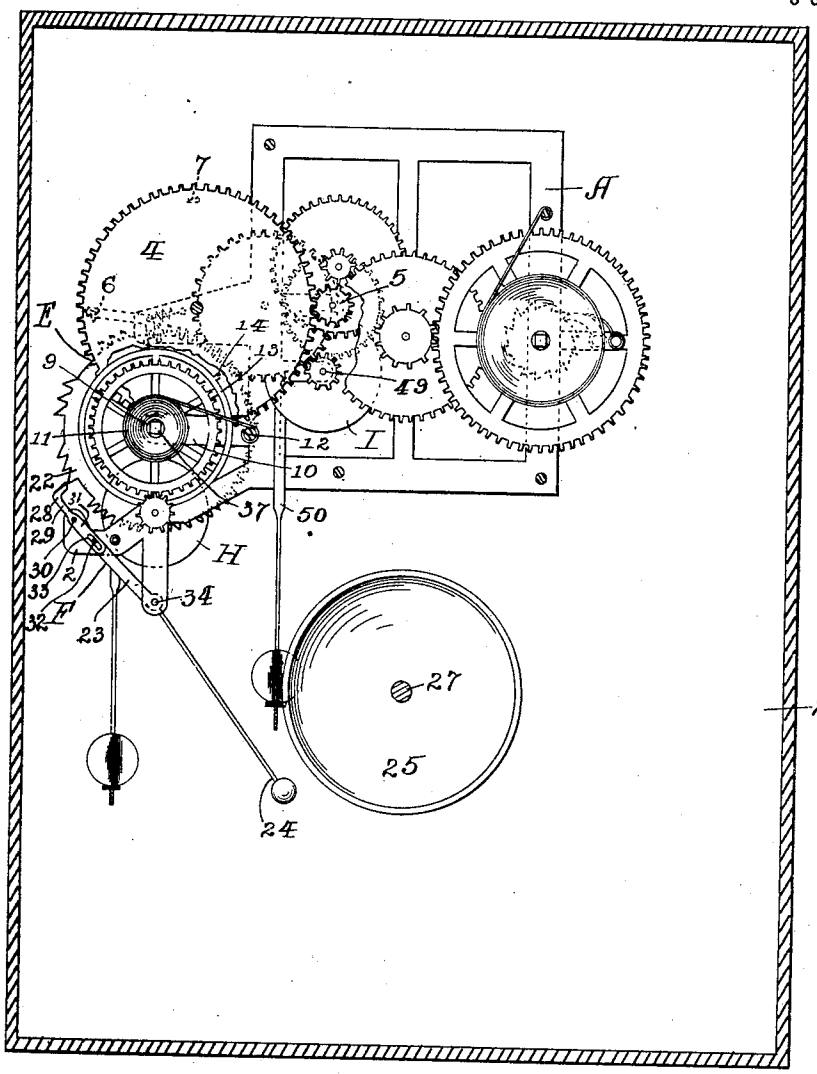



Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

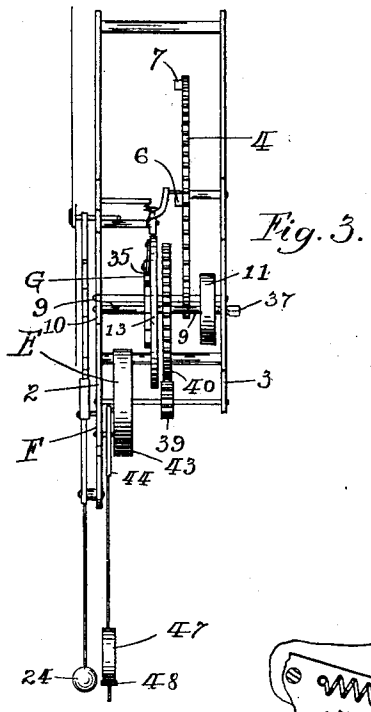



Fig. 3.

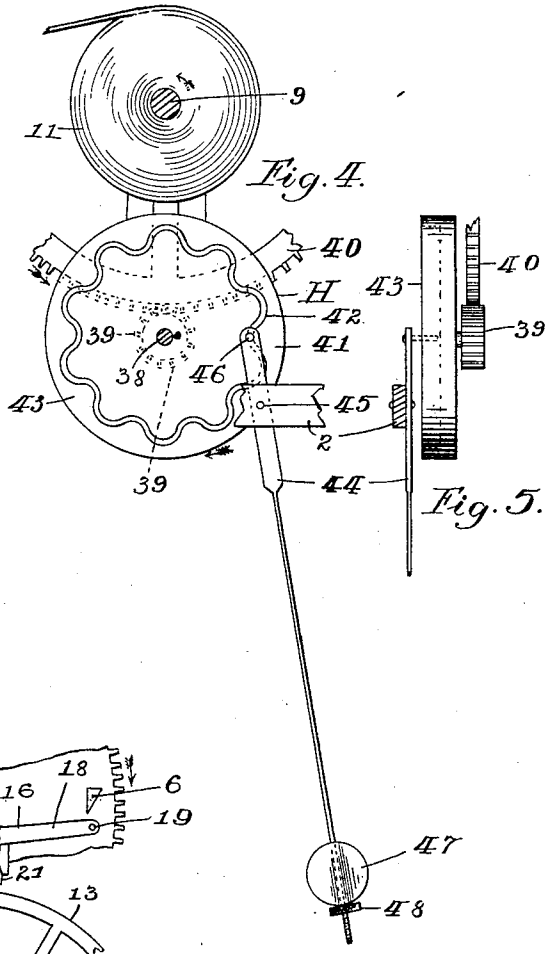



Fig. 4.




Fig. 5.

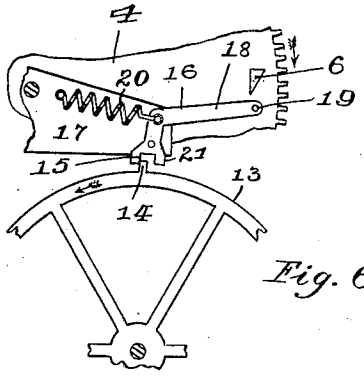



Fig. 6.

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# UNITED STATES PATENT OFFICE.

FRANCIS W. INDEN, OF ST. PAUL, MINNESOTA.

## CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 708,769, dated September 9, 1902.

Application filed March 30, 1900. Serial No. 10,724. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS W. INDEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Clocks, of which the following is a specification.

My invention relates to improvements in clocks, and more particularly to that class for striking the angelus.

The object of this invention is to provide means for indicating by sound certain prearranged hours of the day.

To this end my invention consists of an attachment for ordinary clocks. This attachment is operated automatically and is adapted to strike a bell.

It is customary for the members of certain churches to repeat prayers at stated hours—*e. g.*, at six o'clock in the morning, twelve at noon, and six at night. I have therefore arranged my improvement so that it will strike the angelus at these times of day. The angelus is usually sounded on large bells by hand. With my invention this is done automatically.

In the accompanying drawings, forming part of this specification, Figure 1 is a front elevation of my improved clock, showing portions of the frame and mechanism broken away to more clearly show the working parts of the device. Fig. 2 is a view looking toward the rear of the works, showing the frame and parts of the mechanism in section. Fig. 3 is a side elevation of the striking mechanism, showing the clock mechanism and case removed. Fig. 4 is a detail front view of one of the escapements for controlling the striking or clock mechanism. Fig. 5 is a detail side view of Fig. 4.

In the drawings let A represent a clock of ordinary construction, consisting of the frame B, spring C, and train of gearing D. My improvement E is attached to this mechanism by mounting its parts upon extensions of the frame, such as 2 and 3. This improvement consists of a gear-wheel 4, which meshes with the pinion 5 of the train D and is adapted to revolve once every twenty-four hours. By means of trips 6, 7, and 8 upon its face this gear is adapted to switch the sounding mechanism F into and out of operation at the desired time. A shaft 9 is journaled in the arms 10 of the frame and has the spring 11 attached and anchored by pin 12 to the frame. This shaft carries the ring 13, with stop 14, which is adapted to impinge against the jaw 15 of the dog 16. The dog is pivoted on the arm 17 of the frame and provided with the lever 18, carrying the pin 19, against which the trips on the wheel 4 are adapted to strike and release the dog from the stop. The shaft is then free to make a revolution. The dog is returned to normal position by the spring 20, which is connected to the lever and the frame. The dog is provided with the stop-jaw 21, against which the stop 14 impinges at the end of the revolution and prevents the further revolution of the wheel. As the wheel 4 revolves the trip passes the pin 19 and the dog is automatically reset by the spring 20 in readiness for another operation. While I have shown the trips positioned upon the wheel so as to operate the striking mechanism at six o'clock a. m., twelve m., and six p. m., it is obvious that any number of trips may be used and positioned as desired. The shaft 9 also carries the toothed wheel 22. The teeth are of suitable number and positioned so as to operate the pivoted lever 23, carrying the hammer 24. As this wheel revolves a racking motion is transmitted by its teeth to the lever 23, which rings the bell 25. The bell is mounted on the casing 26 by screw 27. It is obvious that other sounding devices, such as a steel spiral, may be substituted for the bell, and I do not wish to confine myself to a bell.

While I have shown a lever consisting of the dog 28 and arm 29, pivoted at 30, and arm 31, connected to arm 29 by pin 32 working in the slot 33 and pivoted at 34 to the frame, it is obvious that a simple lever may be used for accomplishing the same result.

Suitable winding mechanism G is provided, such as the ratchet-wheel 35, mounted on the shaft 9, and the spring-controlled dog 36, pivoted upon the ring 13. By use of a key (not shown) applied to the square head 37 the spring may be wound.

Mechanism H for controlling the speed of the striking mechanism (shown more clearly in Figs. 4 and 5) consists of the counter-shaft 38, journaled in the arm 2 of the frame. This

shaft carries the pinion 39, which meshes with the gear 40, mounted on shaft 9. The counter-shaft also carries the escapement-wheel 41, having the irregular groove 42 in its face 43. A pendulum 44 is pivoted at 45 to the arm 2 and carries the pin 46, which projects into the groove. As the wheel 41 revolves the pin operates the pendulum. For varying the speed the weight 47 of the pendulum may be adjusted by turning the screw 48. A similar escapement mechanism I may also be used on the time-indicator A. In this construction the escapement-wheel is mounted on the ordinary escapement-shaft 49 and the pendulum 50 pivoted at 52 on the frame B.

For applying the clock and its striking mechanism to large bells the mechanism, as above described, is constructed of suitable size and upon substantially the same lines as indicated.

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

1. In a device of the class described, the combination of a twenty-four-hour gear meshing with a time mechanism and carrying tapering trips, of a switch in the path of said trips having a stop-jaw, a stop adapted to impinge against said jaw, a toothed disk, a drive-spring; said stop, disk and spring connected to a shaft, a pivoted hammer having an arm impinging against said teeth, and a bell adjoining said hammer.

2. A clock, consisting in combination with its time-gearing and a supporting-frame of a twenty-four-hour gear, meshing with said time-gearing and having trips disposed upon its face; a spring-controlled toothed disk, journaled upon said frame and having a stop; a spring-controlled dog, in engagement with said stop and having a lever extending so as to release the stop from the dog as the trips revolve, said dog being adapted to check the disk at each revolution; a pivoted lever-hammer adjoining a sounder and having an operating-arm impinging against the teeth of the disk and adapted to communicate a racking motion to the hammer and strike the sounder as the disk revolves, and an escapement connected to said disk whereby the speed of the striking mechanism is governed.

3. In a device of the class described, the combination with the time mechanism, of tapering trips revolubly connected therewith, and striking mechanism, consisting of a spring, a toothed disk, a spring-controlled pivoted dog with a stop-jaw in the path of the trips, and a stop carried by the striking mechanism with which the dog connects; said dog being operated to engage the stop by the trips as they revolve.

4. In a device of the class described, the combination with the time mechanism, of the auxiliary striking mechanism, means for operating said auxiliary striking mechanism in conjunction with the time mechanism, and the escapement for the striking mechanism consisting of a journaled piece having a continuous groove in the form of a reverse curve around its center and a pivoted lever weighted on one end and carrying a pin near its opposite end, which pin projects into said groove.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS W. INDEN.

Witnesses:

F. G. BRADBURY,

L. E. WICKMAN.