(No Model.)

S. M. TERRY.

CLOCK STRIKING MECHANISM.

No. 304,580. Patented Sept. 2, 1884.

Fig. 1

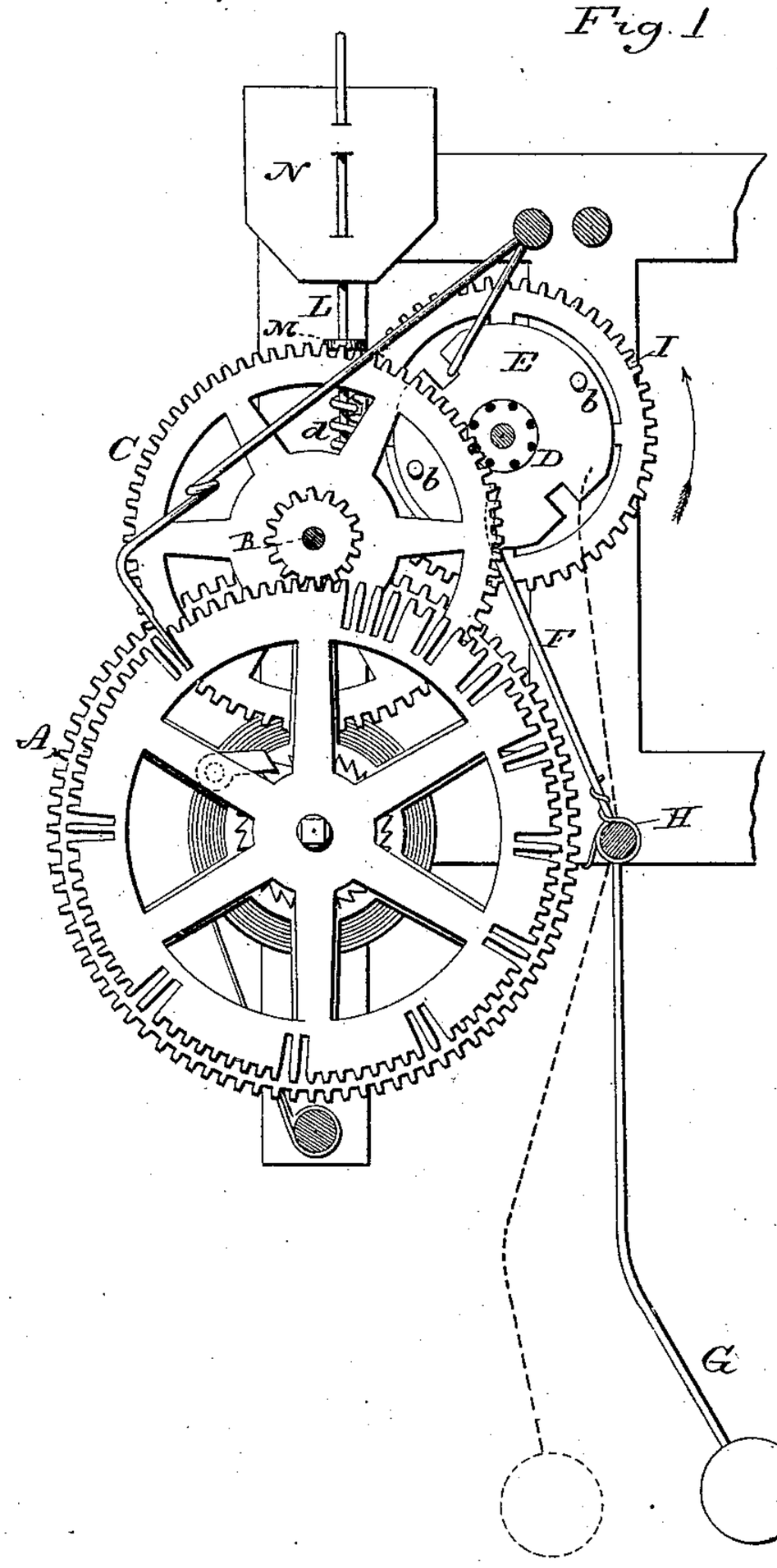
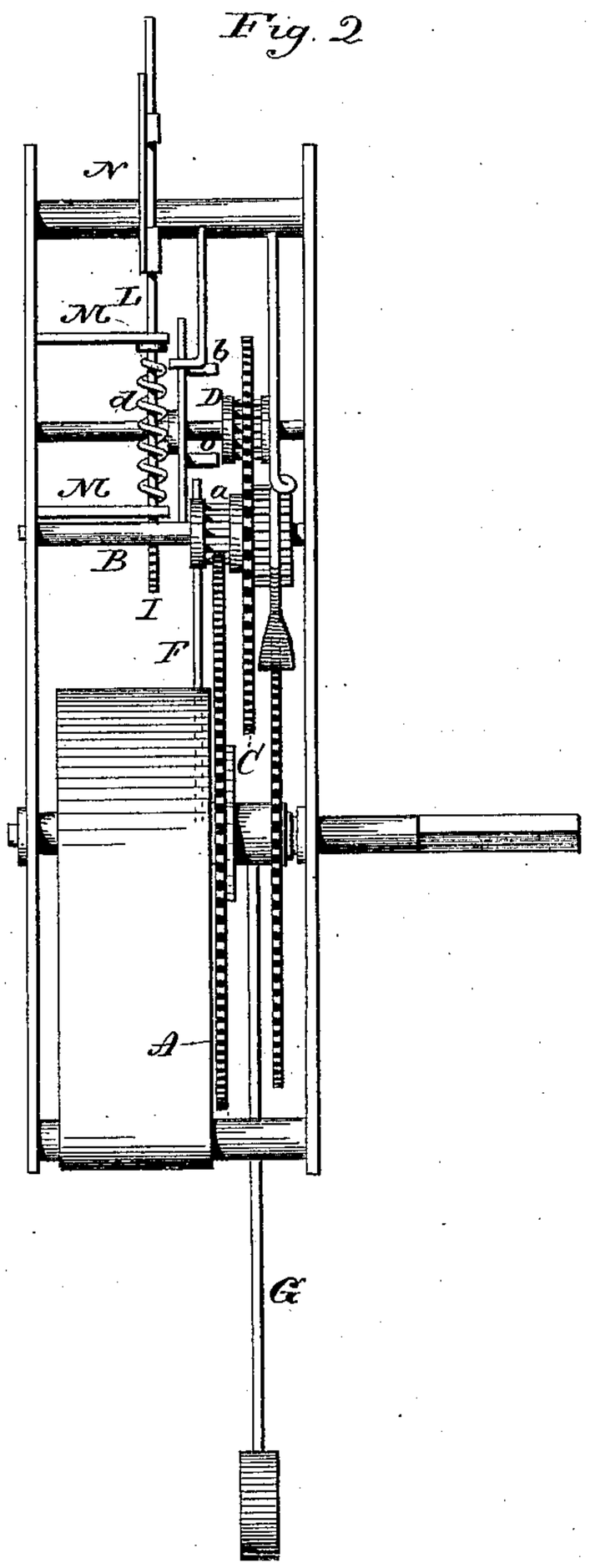


Fig. 2



Witnesses.
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UNITED STATES PATENT OFFICE.

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CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 304,580, dated September 2, 1884.

Application filed April 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, SOLON M. TERRY, of Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new Improvement in Clock-Movements; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view of the train of gearing composing the strike-movement of a clock, showing the hammer, the front plate of the frame being removed; Fig. 2, a side view of the same, looking from the left.

This invention relates to an improvement in clock-movements, with special reference to the striking part, and to such as are adapted to the bell commonly known as "cathedral bell"—that is to say, a heavy wire bell in which slow strokes are necessary. In the usual construction of the striking part of the clock a continuous series of spur-gears and pinions are arranged between the main wheel and the flier. For the cathedral bell, in order that the blows shall be sufficiently slow, the movement of the hammer-lever is necessarily retarded to a much greater extent than in common bells. To do this additional gears are introduced, usually one additional shaft carrying wheel and pinions. The shaft of the last wheel and pinion, as well as the shaft of the flier and its pinion, necessarily revolve with great rapidity, and if the gear be as in the usual construction of spur-gears and pinions, there is unavoidably an unpleasant rattling noise accompanying the striking operation, due to the rapid revolutions of the two last shafts and the gears and pinions working together.

The object of my invention is to avoid this unpleasant noise in this class of strike-movements; and it consists in arranging the flier on a shaft at right angles to the shaft of the wheel which drives it, the shaft provided with a worm into which the spur-gear on the next shaft back of it works, and whereby the rotation of that spur will impart rapid rotation to the flier while running at a much less velocity than must the next wheel to the flier in the usual construction, all as more fully hereinafter described.

A represents the main wheel, which works into a pinion, *a*, on the shaft B. On this shaft B is a gear, C, which works into a pinion, D, on the hammer-wheel shaft. On this shaft the hammer-wheel E is arranged in the usual manner. The striking is produced by pins *b* on this wheel, which, as the wheel revolves in the direction indicated by the arrow, strike the hammer-arm F and turn the hammer G back, as seen in broken lines, until the pin passes from the arm F to allow the hammer to escape. Then the hammer gives its blow by the reaction of the spring H on its shaft. On the hammer-wheel shaft is a gear, I.

L is the flier-shaft, arranged vertically in bearings M M, and so as to stand in the plane of the gear I. On this shaft is a worm, *d*, corresponding to the teeth of the gear I, and so that as the wheel I revolves it will, through the worm *d*, impart rotation to the shaft L. On this shaft is the flier N. Each tooth of the gear I imparts a full rotation to the flier-shaft L. The worm offers much greater resistance to the revolution of the gear I than would a pinion into which the same wheel might work. This greater resistance, therefore, very greatly reduces the revolution of the gear I from what it would be were the gear I working into a pinion in the usual manner. The flier N offers a resistance to the rotation of the shaft L in the usual manner; but, owing to the resistance produced by the worm *d*, the flier may be of small area, and so as to readily stand between the plates of the case. This flier still further retards the rotation of the hammer-wheel, and to the extent necessary or desirable in a cathedral strike. To produce the same resistance to or retarding of the hammer-wheel by the employment of parallel shafts, spur-gears, and pinions, as in the usual construction, an additional shaft carrying gear and pinion would be necessary between the hammer-wheel and the then parallel flier-shaft carrying its pinion, and in that case the flier would necessarily revolve much more rapidly than does the flier in my improved construction. The slower revolution of the flier-shaft in this construction, and the employment of the worm as the means of com-

municating revolution thereto, avoids entirely the rattling noise accompanying this class of strike in the usual construction, and not only is this objection overcome, but the cost of construction is greatly reduced, as at least one shaft, with its gear and pinion, is dispensed with. In some cases the gear I is the hammer-wheel, the pins *b* being arranged therein. It will be understood by "hammer-wheel" that I refer to the pin or pins by which the hammer is caused to draw back from the bell.

While I prefer to arrange the flier-shaft vertically, as shown, it may be arranged at any convenient position, but at substantially right angles to the shaft of the hammer-wheel.

I claim—

In a strike-movement for clocks, the combination of the hammer-wheel, the main wheel A, and intermediate gearing, whereby rotation is imparted to the shaft of said hammer-wheel, the hammer G, the gear I on the hammer-wheel shaft, the shaft L at right angles to the shaft of the hammer-wheel, and carrying a worm, into which the gear I works, and also carrying the flier N, substantially as described.

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Witnesses:

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