

2 Sheets—Sheet 1.

A. C. & A. H. PALMER.
Telegraph and Fire-Alarm Signal Apparatus.
No. 220,727. Patented Oct. 21, 1879.

FIG. I.

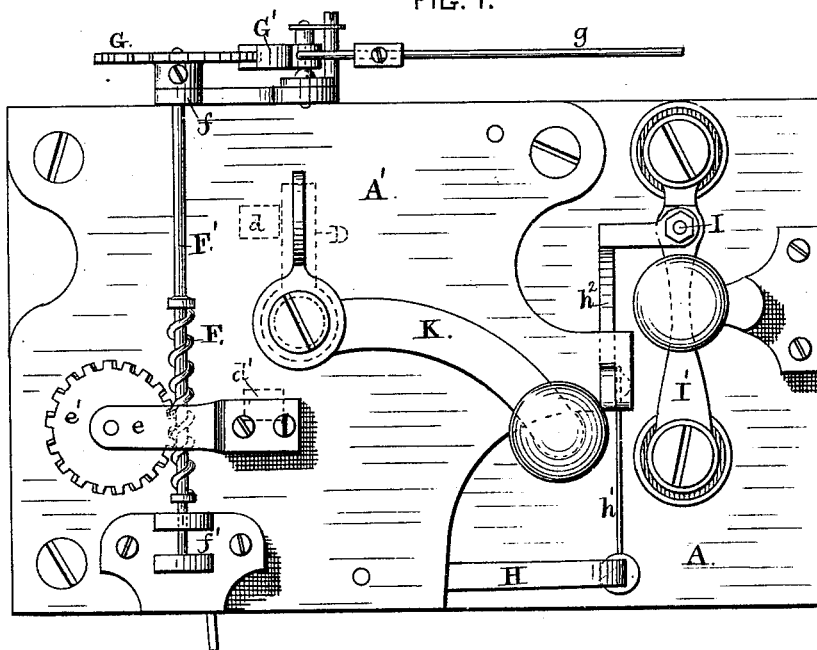
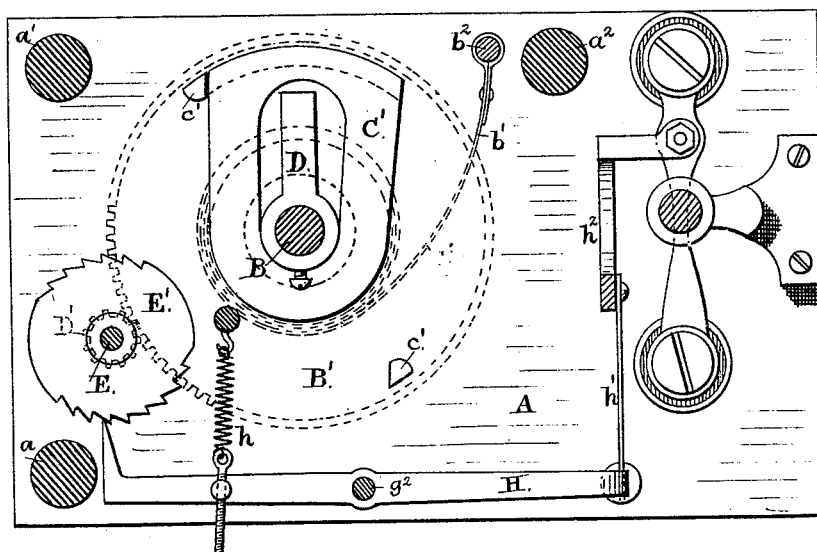


FIG. II.



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FIG. III.

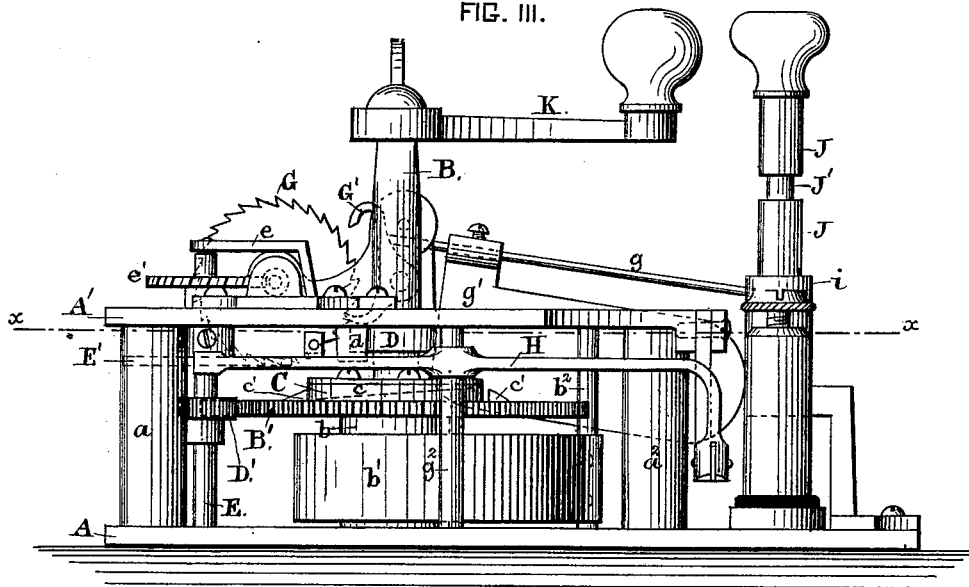


FIG. V.

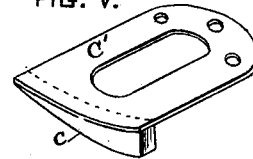
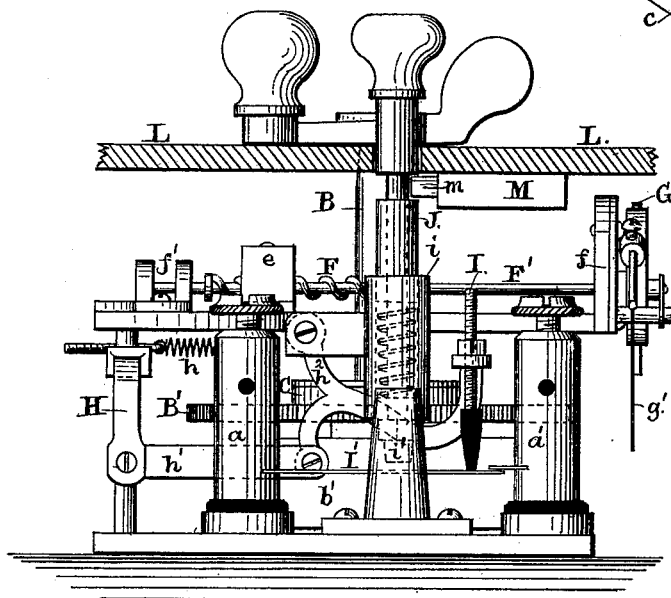


FIG. IV.



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UNITED STATES PATENT OFFICE.

AUGUSTUS C. PALMER AND AUGUSTUS H. PALMER, OF UTICA, NEW YORK,
ASSIGNORS TO UTICA FIRE ALARM TELEGRAPH COMPANY.

IMPROVEMENT IN TELEGRAPH AND FIRE-ALARM SIGNAL APPARATUS.

Specification forming part of Letters Patent No. **220,727**, dated October 21, 1879; application filed June 2, 1879.

To all whom it may concern:

Be it known that we, AUGUSTUS C. PALMER and AUGUSTUS H. PALMER, of Utica, in the county of Oneida and State of New York, have invented a new and useful Improvement in Telegraph Fire-Alarm Signal Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part of this specification.

Figure I is a plan or face view. Fig. II is a horizontal section on line *x x* of Fig. III. Fig. III is a side elevation. Fig. IV is an end elevation, showing a portion of the door and lock. Fig. V is a perspective view of the latch-spring.

The object of this invention is to provide a cheap and reliable fire-alarm signal apparatus which will give the greatest reliable number of alarms for the least possible amount of winding or time and force expended to produce said number of alarms; and it consists in certain details of construction, hereinafter described, and pointed out in the claims.

A and A' are two metallic plates, secured together by three posts or standards, *a a' a''*. The plate A is somewhat longer than the plate A', and is provided with holes, through which the screws pass for securing the device in its case.

A shaft, B, is mounted in the plates A and A', on the inner end of which is secured a collar, *b*, the length of which is slightly longer than the width of the strap-spring *b'*. One end of said strap-spring is secured to said collar, while the other end is secured to a standard or stud, *b''*. On the shaft B, against the collar *b*, is loosely placed a gear or driving wheel, B'. A thin collar, C, is secured to the shaft B, and fits against the front side of the driving-wheel B'. To the collar C is secured a latch-spring, C', the inside of which is provided with an inclined projection, *c*. The latch-spring, by means of the inclined projection, is free to ride over the projections or studs *c'* on the driving-wheel B' as the shaft B is turned in the proper direction for winding up the spring; but so soon as it has passed over the studs the latch-spring, with its inclined projection, comes against the face of the wheel B' and its studs *c'*, thus bringing said wheel under the influence of the main or driving spring *b'*. The

studs or pins *c'* are so located on the side of the wheel B' as to divide it into two equal parts, so that by turning the shaft B one-half of a revolution the latch-spring C' will be brought into engagement with said wheel.

On the shaft B, and immediately in front of the collar C, is secured an arm, D. On the inside of the plate A are two projections, *d d'*, against which the arm D impinges, and the motion of the shaft B limited to a half-revolution.

The driving-wheel B' meshes with a pinion-wheel, D', on the shaft or axle E, the pinion being made so as to make any desired number of revolutions to the half-revolution of the wheel B', thus repeating any desired number of alarms, as will be more fully explained hereinafter. Secured to the shaft E is a signal-wheel, E', with notches cut therein for giving the required number of signals, said signal-wheel being capable of adjustment on the shaft E by means of a set-screw. The shaft E extends through the front plate, A', and is supported at its outer end by means of an arm or bracket, *e*. On this extension of the shaft E is secured a pinion-wheel, *e'*, which meshes with a worm-gear, F, on the shaft F', said shaft being secured and held by the brackets *f f'*. To the outer end of the shaft F' is secured an escapement-wheel, G, and the verge G', which meshes with the escapement-wheel, is pivoted to the bracket *f* in any desired manner. To a bar, *g*, extending upward from the verge G', is adjustably secured, by a set-screw, the balance or regulator *g'*. Pivoted at its center to a standard or other support, *g''*, is a rectangle-bar, H, the lower end of which is bent at right angles and adapted to engage the notches of the signal-wheel, said rectangle-bar being held forward in engagement with the signal-wheel by a spring, *h*, or other suitable device. The upper end of the rectangle-bar is bent down or back at right angles and slotted at its end to receive another bar, *h'*. This bar *h'* is an extension of the rectangle-bar H, and is pivoted at its center to a bar or hanger, *h''*, which in turn is pivoted to the upper edge of the plate A'. Through the extreme bent end of the bar *h'* is secured a screw bolt or stud, I, which is provided at its inner end with a rubber point,

which impinges on a Morse key, I', and opens it when the lower point of the rectangle-bar is drawn into the notches on the signal-wheel, thus opening and closing the circuit.

In addition to the alarm apparatus, a thimble, *i*, is placed over the Morse key, into which a spiral spring is inserted. To the lower end of a wire which is passed through the spiral spring and thimble a rubber tip, *i'*, is attached. To the upper end of the wire is attached a shaft or standard, J, which fits the bore of the thimble and extends out through the inner door of the box or case L. By pressing on the shaft or standard J it opens the Morse key and breaks the circuit, and by this means dispatches can be sent when desired. The shaft J is provided with a peripheral groove, J', into which the bolt *m* of a lock, M, secured on the inside of the inner door, enters, thus preventing any one except those holding a key to tamper with the telegraphing apparatus.

The operation of our device is as follows: By turning the crank K the shaft B is rotated until the latch-spring, with its inclined projection, has passed over one of the studs, *c'*, on the driving-wheel B'. The latch-spring then drops forward and engages with the stud on the driving-wheel. By the operation of turning the crank the tension of the spring *b'* is intensified, so that when the arm D on the shaft B has been arrested by the stud *c'* on the inside of the plate A' and the driving-wheel brought into action, the force exerted

by the driving-spring now rotates the shaft and the main driving-wheel in a reverse direction, and through the chain of gearing the rectangle-bar is operated and the proper alarm sounded. By this arrangement almost any number of alarms may be given in quick succession by simply giving the crank K a half-turn.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The studs *d d'*, in combination with the latch-spring C' and studs *c'*, whereby the motion of the main driving-wheel is limited in its motion in one operation to a half-revolution, and two or more full alarms sounded, as set forth.

2. The combination of the main driving-wheel B' and pinion D' with the signal-wheel E, rectangle-bar H, bar *h'*, and screw-bolt I and bell-crank lever *h''*, whereby the Morse key and electric current are opened and closed, and definite signals given, as determined by the number of notches on the signal-wheel.

3. The standard J and groove J', in combination with the bolt of the lock, whereby the Morse key cannot be operated except by the unlocking of the same.

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Witnesses:

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