(No Model.)

3 Sheets—Sheet 1.

W. AKIN.

Automatic Advertising Device.

No. 239,593. Patented April 5, 1881.

Fig. 2.

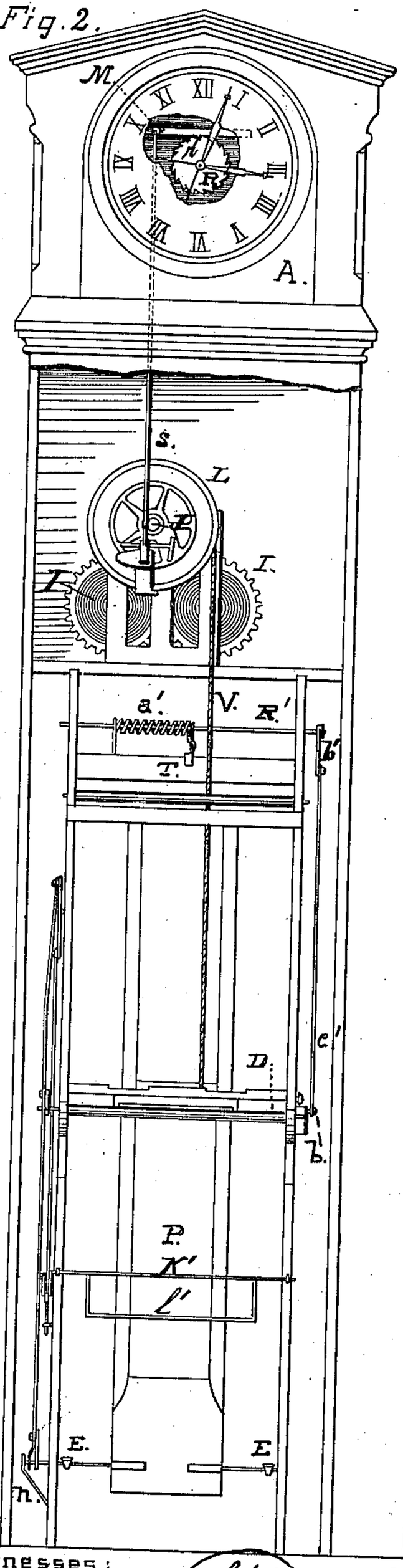


Fig. 1.

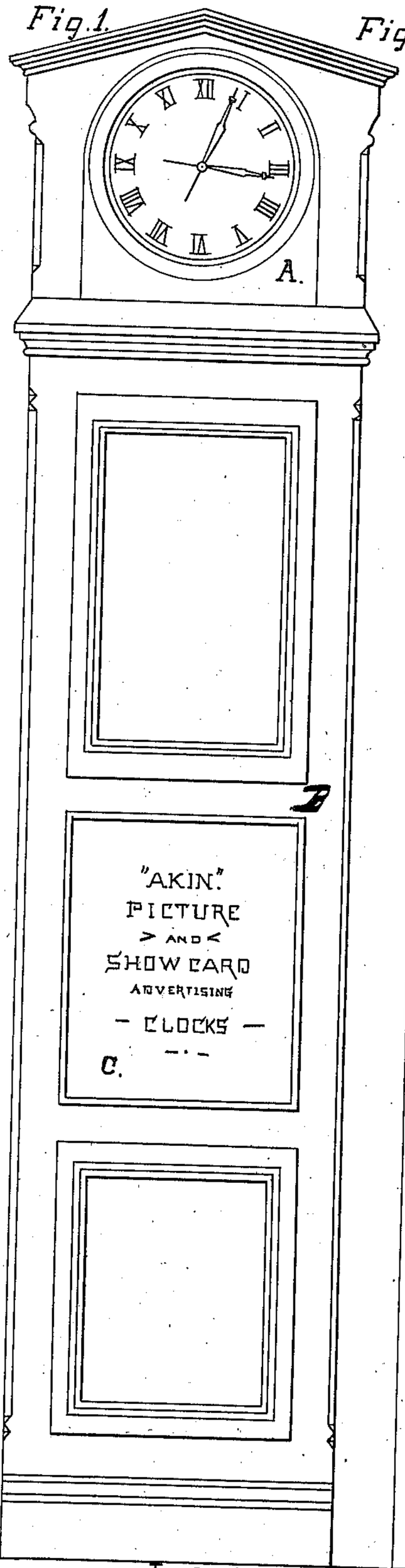
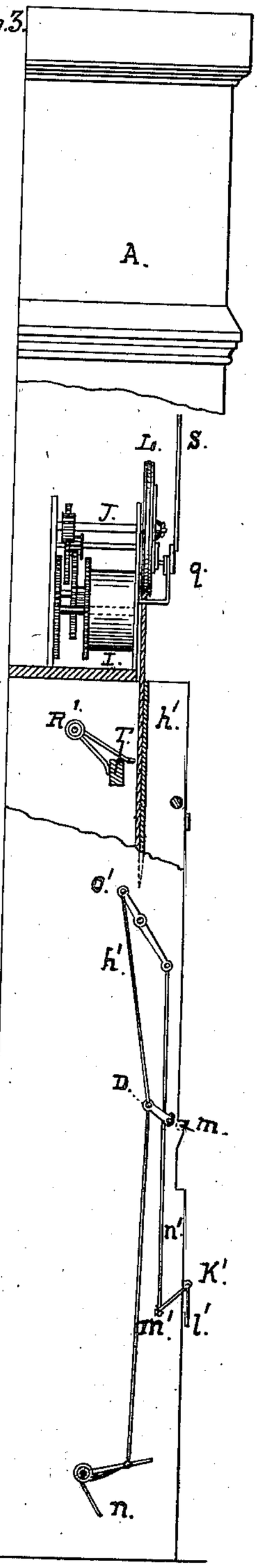


Fig. 3.



Witnesses:
W. Voit
Wm. G. Clark

Inventor:
William Akin
by their Attys. Boone & Co.

(No Model.) 3 Sheets—Sheet 2.

W. AKIN.

Automatic Advertising Device.

No. 239,593. Patented April 5, 1881.

Fig. 3.

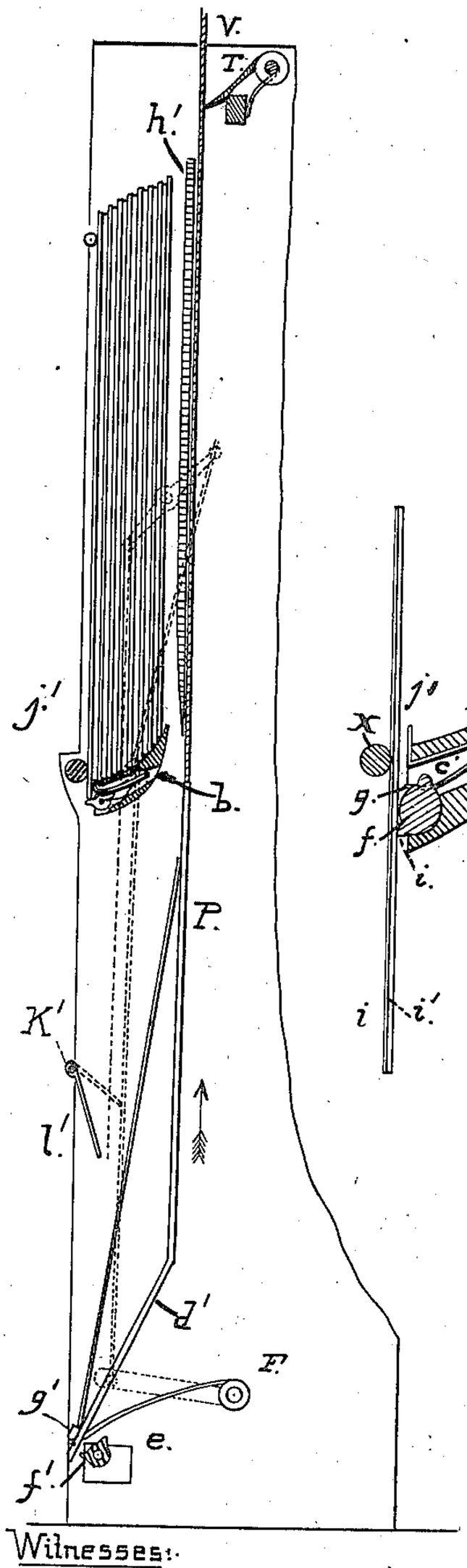
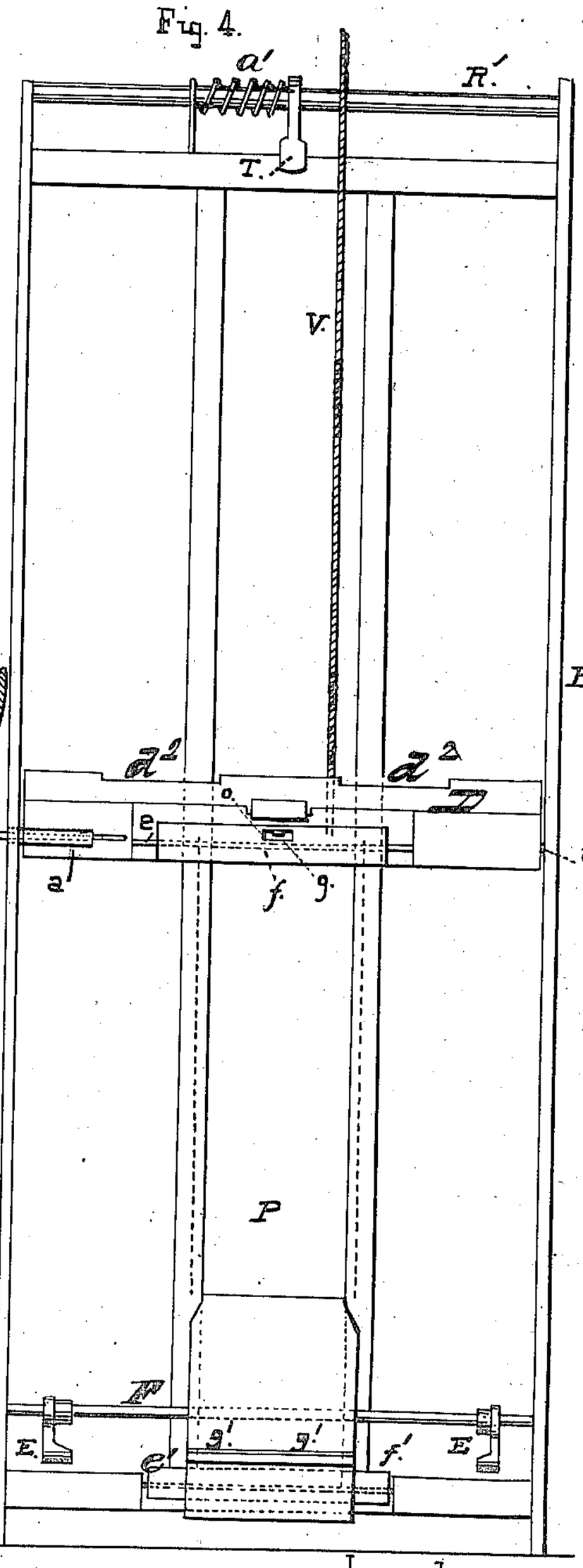


Fig. 4.



Witnesses:

W. Tait

Wm. A. Clark

Inventor.

William Akin,

by his attys. Boone & Osborn.

(No Model.)

3 Sheets—Sheet 3.

W. AKIN.

Automatic Advertising Device.

No. 239,593. Patented April 5, 1881.

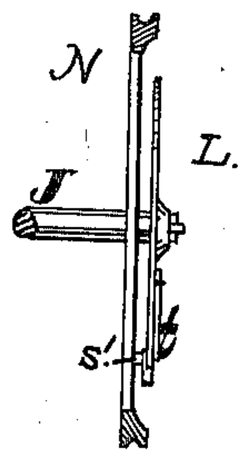
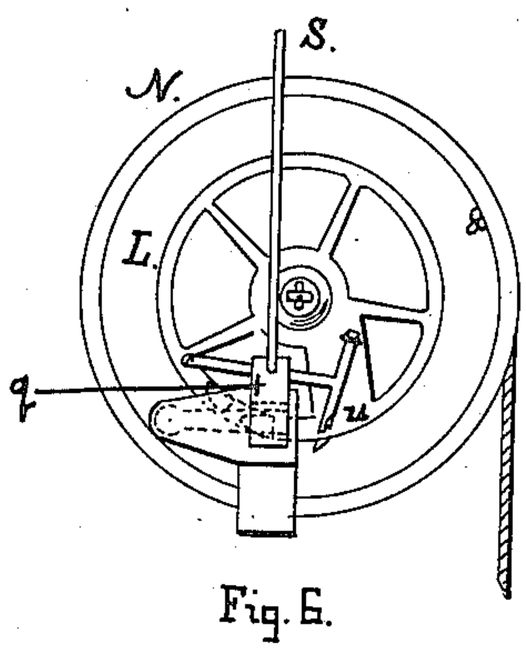


Fig. 7.



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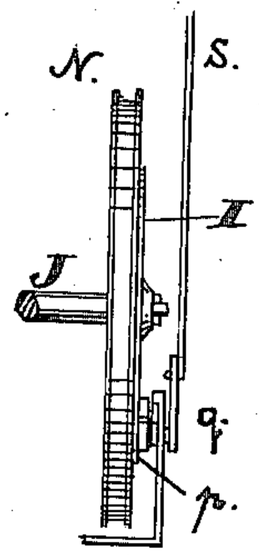

Fig. 8.

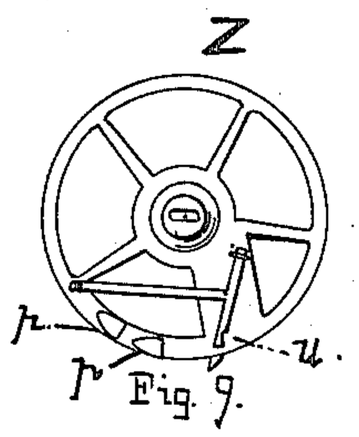

Fig. 9.

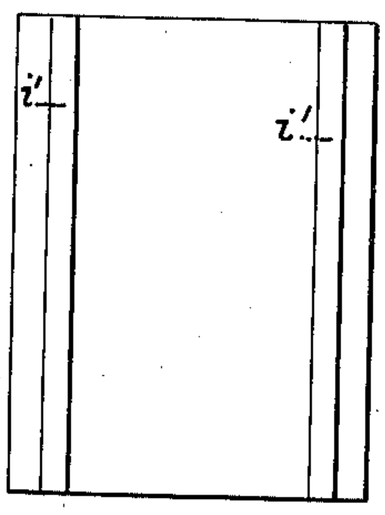

Fig. 10.

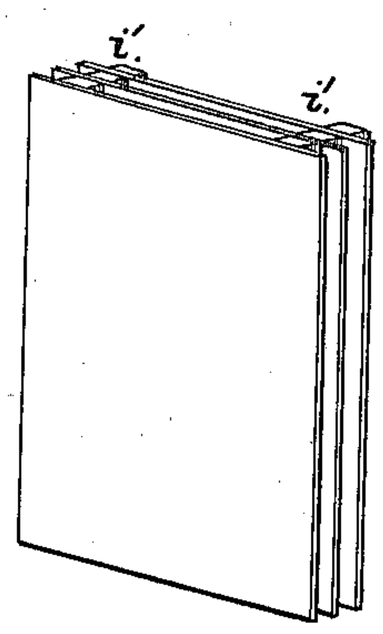

Fig. 11

Witnesses:

H. C. Foit

Wm. G. Baker

Inventor:

William Akin

by his atty's

Bond & Osborn

UNITED STATES PATENT OFFICE.

WILLIAM AKIN, OF SAN FRANCISCO, CALIFORNIA.

AUTOMATIC ADVERTISING DEVICE.

SPECIFICATION forming part of Letters Patent No. 239,593, dated April 5, 1881.

Application filed August 17, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM AKIN, of the city and county of San Francisco, in the State of California, have invented an Improved Automatic Advertising Device; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved mechanism for successively exhibiting a number of cards or advertisements in a clock-case extension by means of the ordinary clock-movement and an auxiliary movement connected therewith. By my improved arrangement each card is handled independently and separately, and the whole number of cards stand one behind the other behind the glass face, through which they are viewed, so that the outside card is always seen. At intervals the front card is dropped out of sight and the card behind it is brought to the front. An elevator which is operated by the auxiliary movement picks up the card which was last dropped and carries it upward, and delivers it in rear of the whole number of cards at the instant the next card drops, thus successively bringing each card to the front, dropping it, and elevating it in rear of the whole number of cards. The whole is controlled by the clock-movement, as hereinafter described.

Referring to the accompanying drawings, Figure 1 is a front elevation of my improved clock. Fig. 2 is a similar view with a portion of the front broken away. Fig. 3 is a side elevation from the left-hand side of Fig. 2. Fig. 4 is a front view, enlarged, showing the shelf or platform for the cards, and the elevator. Fig. 5 is a transverse section through Fig. 4, showing also an enlarged section of the tilting shelf. Figs. 6, 7, and 8 are enlarged detail views of the hoisting-wheel and drum. Fig. 9 shows the hoisting-wheel and the clutch. Figs. 10 and 11 show the manner of constructing the advertising-cards.

Let A represent an ordinary clock-case, having the extension B. The extension B, I divide into an upper and lower compartment. The upper compartment, C, has a glass front, behind which the cards or advertisements are placed and exhibited. The lower compartment receives the cards when they are dropped from the upper compartment, and an elevator, which is operated by the auxiliary clock-movement, picks up the card and carries it up to and delivers it upon the shelf or floor D of the upper compartment, behind all the other cards on the shelf. The lower compartment has an opaque front, so that nothing inside of it can be seen. The front end of this shelf or floor is supported on hollow trunnions or journals *a* *a*, which bear in the walls of the extension-case B, while its rear corners are supported by pins *b*, which bear in the lower end of a curved slot in the walls of the case, so that the rear end can be raised or agitated, as hereinafter described. The upper surface of the shelf is slightly inclined toward the front, to facilitate the movement of the cards to the front when the rear end of the shelf is raised or shaken. The cards stand upon this shelf, as stated, one behind the other, with their faces or printed sides outward, so that the foremost card is always seen through the glass front.

The shelf has a recess cut in its front edge, in which a block, *f*, is fitted. This block is fixed upon a rod, *e*, which passes through the hollow trunnion *a* on one side, and into the hollow trunnion on the opposite side, and it has a lip, *i*, formed on it nearly opposite the lower edge of the shelf, upon which lip the lower edge of the foremost card will always drop and rest when the rear edge of the shelf is raised or agitated. This block also has a recess, *g*, cut in its upper side, near its middle, leaving a thin strip, *o*, connecting the upper edges of the recess. A plate, *j*, the outer edge of which turns up so as to project slightly above the front edge of the shelf, is connected with this thin strip, so that when the rod *e* is turned forward the lip *i* of the block *f* is moved downward, so as to drop the card which rests upon it into the underneath compartment, and at the same time the projecting edge of the plate *j* is projected upward between the foremost card and the one just behind it, allowing the front card only to move forward and drop upon the lip *i*. The card which drops into the underneath compartment falls and rests upon the front ends of two levers, E E, one at each side of the case. The rear ends of these levers are attached to a shaft, F, which extends across the lower part of the lower compart-

ment and bears in its sides. One end of this shaft projects outside of the case, and has an arm, G, secured upon it. A rod, *l*, connects the end of this arm with an arm, *m*, on the end of the rod *e*, so that when the weight of the card rests upon the ends of the levers E E the levers are depressed so as to turn the shaft F slightly, and, through the arms G *m* and connecting-rod *l*, turn the shaft *e*, so as to raise the lip *i* into position to receive and support the next card. The same movement also projects this plate *j* upward between the front card and the one next behind it, so as to keep them from pressing forward against it. A spring, *n*, acting upon the arm G, turns the two shafts F and *e* so as to raise the levers E E and depress the lip *i* and plate *j* when no card is resting upon the levers. It will thus be seen that I utilize the weight of the card which drops from the upper to the lower compartment for supporting the next card on the lip *i*, and keep in the rear cards from pressing upon the one in front, and that the instant the weight of the card is removed from the levers another card will be dropped from the upper compartment to take its place.

The device which I use for picking up the cards in the lower compartment and carrying them up and depositing them on the shelf in the upper compartment I call an "elevator." This elevator is operated intermittingly by an auxiliary movement or engine, which is placed below and connected with the clock-movement, so that at regular intervals the elevator is made to pick up and carry the card from the lower to the upper compartment.

The auxiliary power consists of two strong springs, I I, which are mounted in a frame, and connected with a train of gears, so that the power of the two springs is transmitted to a common shaft, J, on the front end of which is secured a plain wheel, L. On the rim of this wheel is a projection, *p*, which engages with a spring-latch, *q*, that projects from the frame of the engine or auxiliary power, so that when the springs are wound up the latch will prevent the wheel from moving and the strain of the springs is thrown on the wheel; but when the latch is drawn upward to a certain point the projection *p* slips past it, and the wheel makes a single revolution until the projection comes around and strikes the latch again.

On the minute-shaft of the clock-movement I secure a wheel, R, the rim of which is formed into ratchet-teeth of any desired number. A lever, M, has one end pivoted to the frame of the movement so that the lever passes directly across the frame, so that it rests upon the rim of the wheel R. On the under side of this lever I form a raking-tooth, *r*, which corresponds with the ratchet-teeth, only it inclines in the opposite direction. This tooth rides upon the ratchet-teeth, so that the lever M is raised by each ratchet-tooth in succession as it passes underneath it and dropped from its point to the base of the next tooth, the time of its movement being regulated by the length of the ratchet-teeth. The outer end of the lever M is connected, by a rod, *s*, with the spring-latch *q* on the engine-frame, so that every time the lever M is raised by a ratchet-tooth the latch *q* is drawn and the wheel L makes one revolution, as before described.

On the shaft J, just behind the wheel L, I place a loose pulley, N. This pulley has a pin, *s'*, projecting from its front side, near its periphery, and this pin strikes a latch, *t*, on the wheel L, so as to carry the wheel L around with the pulley N. The latch *t* is just in front of the spring-latch *q*, and its lower end projects down below the rim of the wheel L, so as to be lifted by an inclined projection, *u*, on the spring-latch frame heretofore mentioned just before the wheel L is stopped by its projection *p*. When the latch *u* is lifted the pin *s'* is permitted to pass by it, thus allowing the loose pulley to rotate backward until its pin *s'* again strikes the latch *t* in its first position.

A slide, P, or elevator is arranged to travel up and down in a groove in the back of the extension-case B, and serves to pick up the cards in the lower compartment and carry and deposit them on the shelf above. A cord, *v*, connects this elevator with the loose pulley N, so that every time the lever M is raised by a ratchet-tooth on the wheel R of the clock-movement the spring-latch *q* is raised and the wheel L makes a rotation, carrying the loose pulley N with it and raising the elevator or slide from the lower to the upper compartment behind the series of cards which stand on the shelf.

A shaft, R', passes across the upper part of the extension-case in rear of the elevator-guides, and an arm or lever, T, projects forward from this shaft directly above the elevator, so that when the elevator has been suddenly drawn upward by the pulley N it will strike the arm just as it reaches its highest point. A spring, *a'*, is coiled around this shaft and has one end fastened to it, while the other end is secured in the cross-beam in front of it, so that when the outer end of the arm T is raised the shaft rotates slightly and winds the spring. The reaction of the spring then forces the elevator down again the instant the latch *t* on the wheel L is lifted, so as to release the loose pulley and allow it to rotate backward, thus sending the elevator down again.

An arm, *b'*, is secured to the end of the shaft R' outside of the clock-case, and this arm is connected by a rod, *c'*, with the projecting pin *b*, which supports the rear end of the shelf D, so that every time the elevator strikes the arm T and partially rotates the shaft R' the rear end of the shelf will be raised so as to move the cards which rest upon it down toward the front edge of the shelf.

The lower end of the elevator or slide is made flexible and is bent forward, so that when the elevator falls this lower end will pass under the card which rests upon the levers E E in the lower compartment. To facilitate the pas-

sage of the flexible lower end of the elevator underneath the card I make an incline, d', at the lower end of the elevator ways or guides by which the lower end of the elevator is directed, and I also mount a roller, e', directly under the card, one side of which is heavier than the other, so that it will always hang with its heavy side down. On the upper edge of this weighted roller I make a longitudinal rib, f', against which the lower edge of the card will press when its side edges rest upon the levers E E. When the elevator descends its lower edge, guided by the incline d', will strike the rib f' of this roller and press it down so as to give sufficient space for the curved part of the elevator to pass under the lower edge of the card.

At the lower end of the elevator I secure one or more ledges, hooks, or other projections, g', which will pass below the card, after which the rib on the weighted roller will press the lower end of the elevator outward, so that when the elevator is being drawn up to the top of the case the projections g' will catch under the lower edge of the card and carry it up also.

On each side of the case B, I secure a projecting guide-rail, h', just in front of the elevator-guides, the lower ends of which extend down into the lower compartment and are pointed like a switch, so that when the elevator passes upward with its card, the card will pass in front of the guide-rail, while the elevator passes behind it. This guide-rail carries the card so that it will drop upon the shelf when the elevator has carried it high enough, the rear edge of the shelf being formed so as to catch it when the elevator starts to descend.

On the back of each card I secure thin narrow strips i', which extend from its lower edge upward, and in the front edge of the shelf D, I make a corresponding groove or cut, d^2, so that the strips not only serve as guides for the falling card, but, being interposed between the lower ends of each of the cards on the shelf, keep the cards far enough apart to allow the plate j to pass up between the front card and the one directly behind it as they successively come to the front.

A roller, X, is mounted just in front of the shelf-edge, so as to keep the lower edge of the card on the lip i and facilitate the free movement of the card in falling when the lip is turned down. When the card falls into the lower compartment its lower end will be guided positively, so that it is caught upon the levers E E, but its upper end is liable to stand erect. If this should happen the upper end of the card would strike the shelf above when the elevator started to carry it upward. To prevent this I mount a shaft, K', across the front of the lower compartment, above the middle of the card, and attach a light projecting frame or striker, l', to it. One end of this shaft has an arm, m', secured to it, and this arm is connected by a rod, n', with one end of a walking-beam, o', on the outside of the case. The opposite end of the walking-beam is connected by a rod, h', with the arm D of the rod e, that turns the block f in front of the shelf, so that when the block is turned to drop a card the frame or striker l' is thrown outward; but when the card drops upon the levers E E the block f is turned so as to raise the lip i for the next card, and the same operation causes the striker to strike the upper end of the card and force it back in position to move upward in rear of the shelf when it is drawn up by the elevator.

The operation will then be as follows: The cards, several in number, are stood upon the shelf, one behind the other, with their advertisements outward. One card is then placed in the lower compartment, so that its lower edge will rest upon the levers E E. This turns the lip i up, so that the front card on the shelf above will be supported by it. The front card in the upper compartment being now placed upon the lip, the clock is started. The lever M is then raised by each ratchet-tooth on the rim of the wheel R, and each time it is raised it pulls the spring-latch q upward and releases the wheel L, which makes a single rotation, carrying the loose pulley with it and raising the elevator. The elevator, as it moves upward, carries the card from the lower compartment with it, and the instant the levers E E are relieved of the weight of this card the spring n, acting on the system of levers in connection with the weight of the card on the lip i above, raises the levers E E, and the card above drops down upon the levers E E, again setting the lip i for the next card. The elevator, as stated, carries the card from the lower compartment up behind the shelf in front of the guide-rail h' and deposits it on the shelf. The elevator then strikes the lever T, by which it is given an impetus downward just as the loose pulley N is freed from the wheel L, and the elevator descends under the card which has just dropped from the shelf. The jar imparted to the shaft R' by the elevator coming in contact with the lever T jars the shelf D, so as to move the cards on the shelf forward, so that the front card drops over the front edge of the shelf on the lip i, so as to take the place of the one that dropped into the lower compartment. This operation continues at intervals, which are regulated by the length of the ratchet-teeth on the wheel, bringing the cards successively forward against the glass face, dropping the front card into the lower compartment and elevating one card from the lower to the upper compartment at each operation. Each card is thus brought in view in succession, and dropped out of sight, the whole operation being regulated, governed, and controlled by the clock-movement.

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

1. In an automatic advertising apparatus, a set of independent detached cards or mounted advertisements, a horizontal tilting platform upon which said cards are held and exposed, and from which they are dropped or discharged,

an automatic elevator or carrier actuated at intervals to catch each card dropped or discharged from the shelf and raise and return it thereon to the rear of the set or series of cards, and mechanism combined and connected with said tilting shelf and elevator or carrier to cause them to work at regular intervals, whereby the first card of the set or series of cards held on the shelf is exposed to notice, then dropped down to expose the next succeeding card, and then caught and raised up to the shelf at the rear of the series by the automatic elevator before the next card is dropped or discharged by the shelf, and all the cards of the series are thereby exposed for exhibition in rotation, all combined and arranged to operate as specified.

2. In an automatic advertising apparatus, the combination, with the tilting shelf or platform, of the card-supporting roller with its lip, the hinged or pivoted catch actuated by the roller, and the rock-shaft levers, connecting-rod, and spring, substantially as described, for the purposes set forth.

3. In an automatic advertising apparatus, a spring-motor, a clutch-wheel, a loose pulley or drum having the elevator-cord attached thereto, and adapted to be caught by or locked to the clutch-wheel and be carried around by it, a means for disconnecting the said drum from the clutch-wheel at a point in its forward revolution or when the elevator reaches its highest position, a tripping mechanism combined with and acting upon said wheel to hold it at rest and permit it to make a revolution at intervals, and the actuating-lever, ratchet-wheel, and connecting-rod combined therewith, and with a clock-work mechanism to cause the said clutch-wheel to be operated intermittently at intervals of time, substantially as described, to operate as set forth.

4. In an automatic advertising apparatus, the combination, with the elevator or carrier and its pulley or drum, of the spring-motor, its clutch-pulley, the stops, the holding and tripping catch, the vibrating latch, and the fixed stop on the drum, constituting the means for raising the elevator, and the spring lever or bar for throwing or impelling the elevator in a downward direction, substantially as described, to operate as set forth.

5. In an automatic advertising apparatus, the combination of the clutch-wheel fixed on the motor-shaft and having the vibrating holding and releasing latch with the loose pulley or drum, and its fixed stop adapted to be caught by and released from the said latch during the forward revolution of the clutch-wheel, substantially as herein described, for the purpose set forth.

6. In an automatic advertising apparatus, the combination, with the automatic elevator or carrier, of the guides, and the fixed switch for throwing off the cards, substantially as described.

7. In an automatic advertising apparatus, the combination, with the tilting shelf and its lipped roller, of the rock-shaft and its levers connected with said shelf, as described, for holding and operating the said roller by the weight of the card dropped down upon the levers, and the spring, all combined as and for the purposes set forth.

8. In an automatic advertising apparatus, the combination, with the elevator or carrier, with its inclined lower end or apron, having its ledges, of the guides, and the roller with its projection, constructed and applied to operate as and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal.

WILLIAM AKIN. [L. S.]

In presence of—
EDWARD E. OSBORN,
WM. F. CLARK.