

C. S. BUCKLEY.
ELECTROMAGNETIC ANNUNCIATOR.

No. 10,226.

Patented Nov. 15, 1853.

Fig. 1.

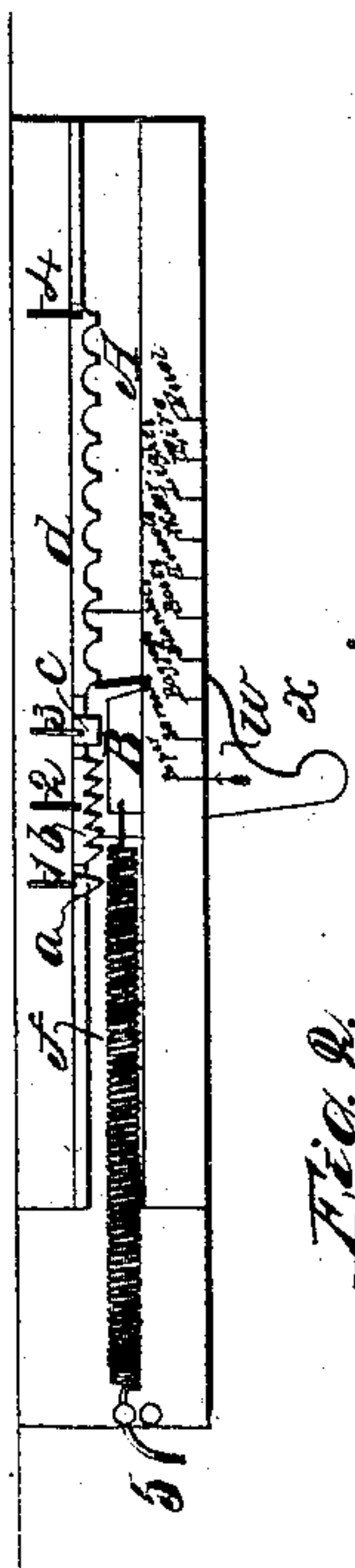


Fig. 2.

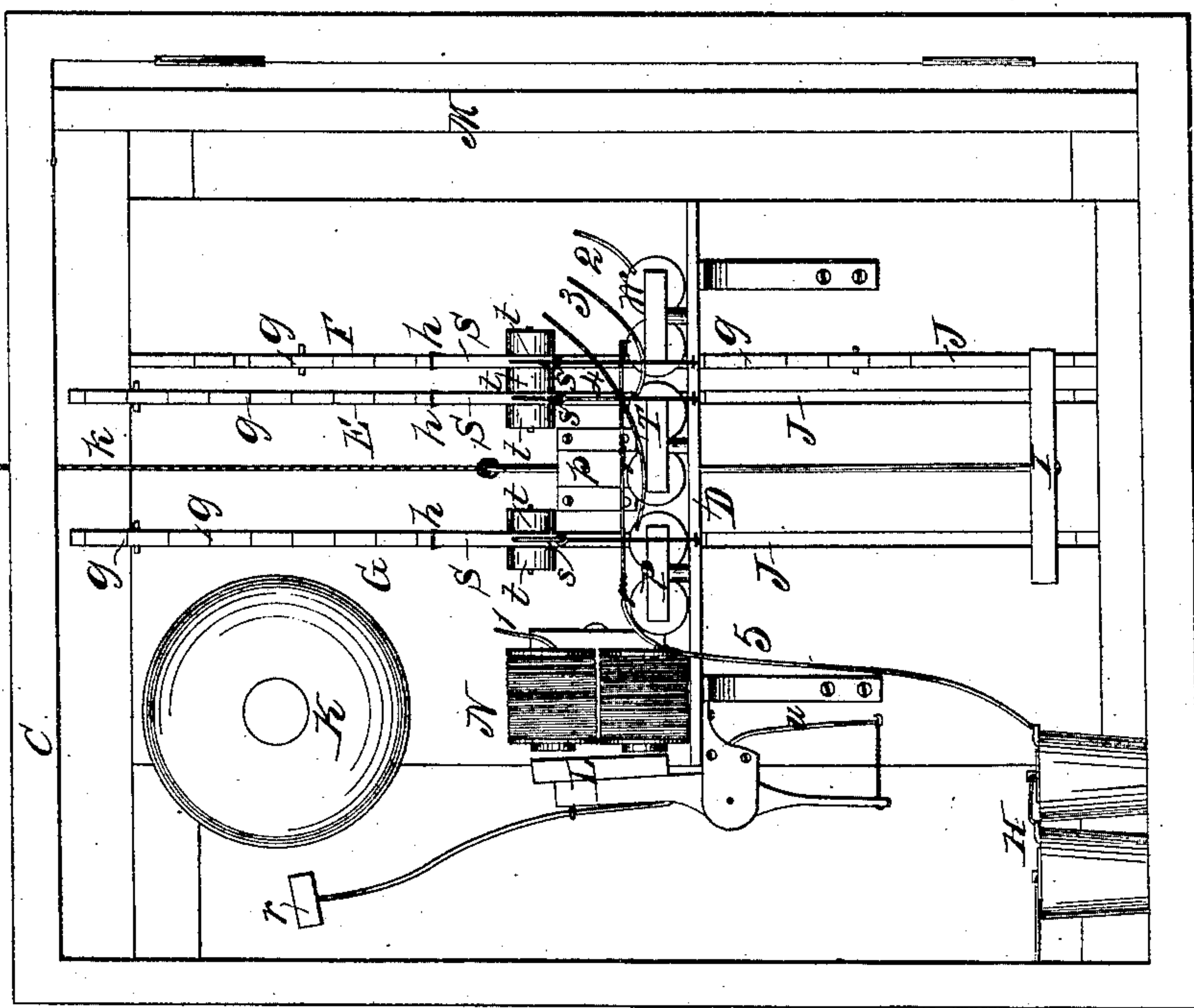


Fig. 3.

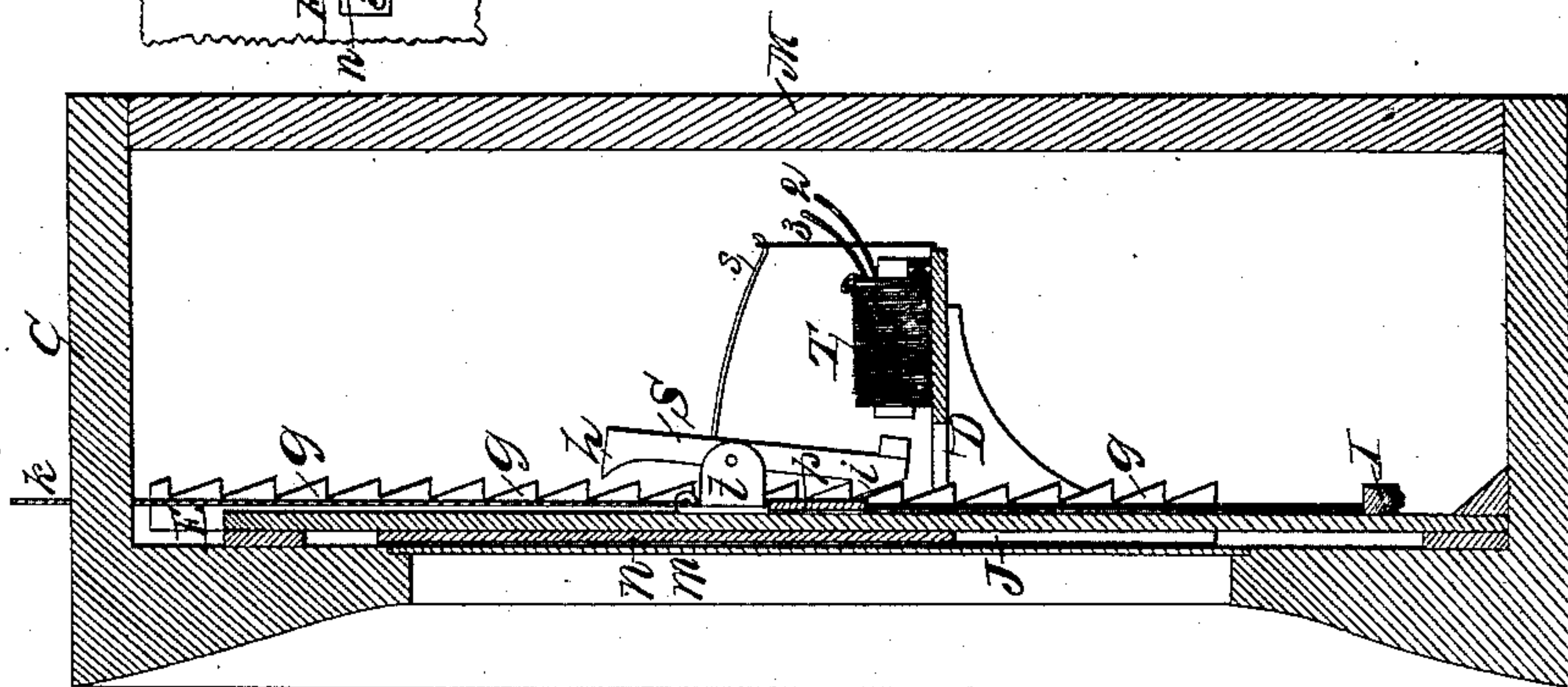


Fig. 4.

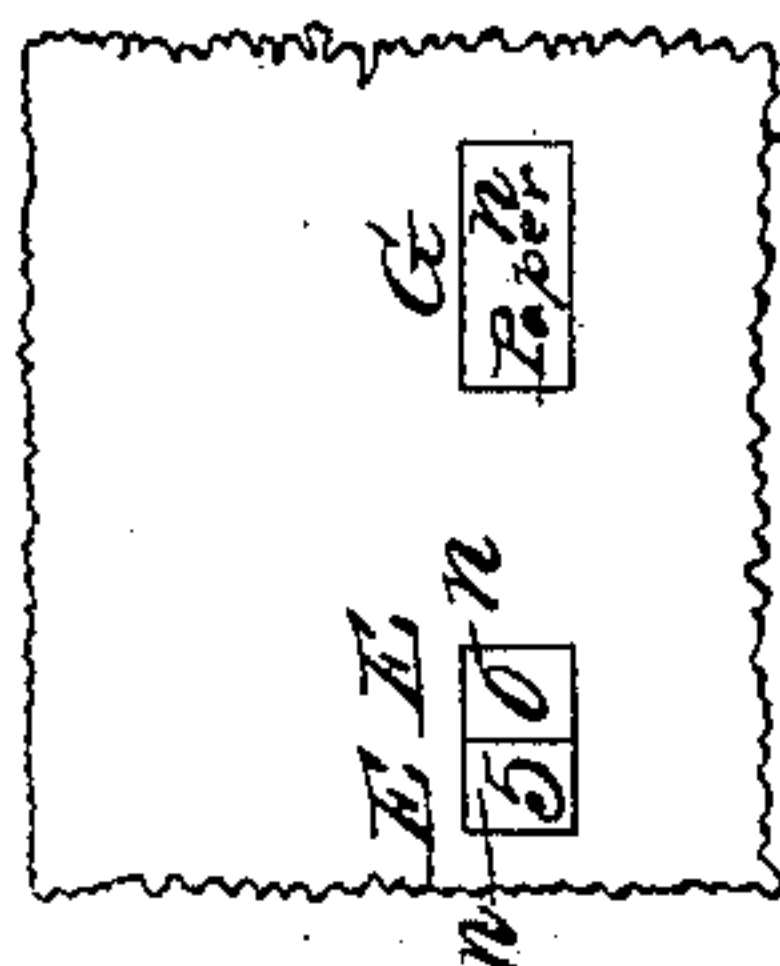
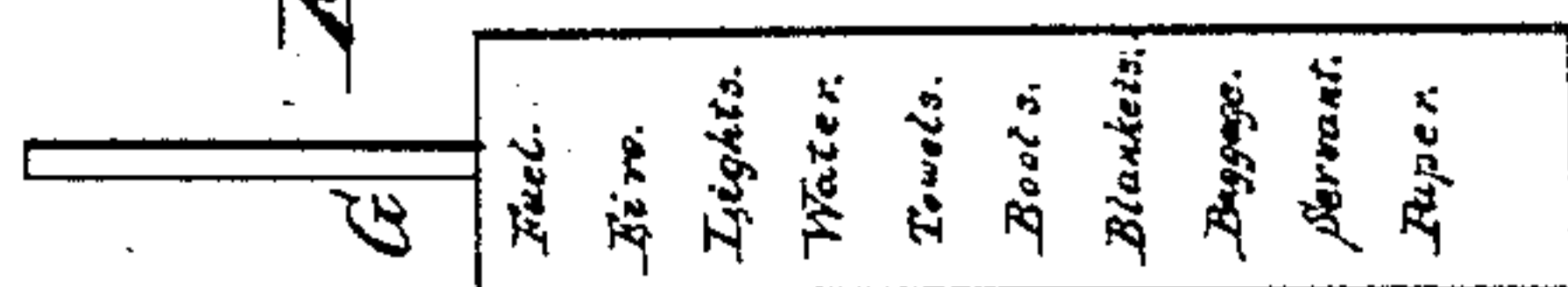


Fig. 5.



UNITED STATES PATENT OFFICE.

CHAS. S. BULKLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRO-MAGNETIC ANNUNCIATORS.

Specification forming part of Letters Patent No. 10,226, dated November 15, 1853.

To all whom it may concern:

Be it known that I, CHARLES S. BULKLEY, of the city and county of New York, in the State of New York, have invented a new and Improved Electro-Magnetic Annunciator for Hotels, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a circuit-closer; Fig. 2, a back elevation of the portion of the apparatus which registers the communications; Fig. 3, a transverse vertical section of the same in the line *x x* of Fig. 2; Fig. 4, view of a detached portion of the front of the same, and Fig. 5 view of a part detached.

Like letters designate corresponding parts in all the figures.

My annunciator consists of circuit-closers placed in the several rooms of the hotel, &c., a register situated in the office of the hotel, a branched circuit of insulated wires connecting the several circuit-closers with the register, and a galvanic battery, combined and arranged as hereinafter described.

The register is arranged within a suitable box or case, C, provided with a door, M, in its back side, and situated in a convenient position in the office of the hotel. Its face is screened by painting or paper or other means, except at the apertures, as seen at E, F, and G, Fig. 4, where the communications are read. Immediately behind the face are situated several oblong plates, *n n n*, upon one of which are written, in horizontal lines, one above another, words expressing the several wants which the lodger may have, such as "Fuel," "Water," "Servant," &c., in the manner shown in Fig. 5, and upon each of two or three other similar plates, according as the number of rooms is less or more than a hundred, the several arithmetical figures, one above another, beginning with the cipher at the bottom and ascending in order to nine at the top, by the combination of which the number of the room whence the want is communicated is designated in each instance, as hereinafter described. Said register-plates are attached to the front edges of thin bars or strips E F G, which slide up and down in grooves J J J of the box, and by the vertical movements of which with their

register-plates the several numbers and communications on the respective plates are brought in view at the openings in the face of the register to be read. Upon the back edge of each of said strips is a series of ratch-teeth, *g g*, &c., exactly corresponding in number and distance apart with the respective numbers and words on the register-plates. An escapement-lever, S, is pivoted between bearings *t t*, near its center, behind each of said racks E F G, and is so arranged that when its lower claw, *i*, holds a tooth of the rack its upper claw, *h*, is free from the same, and vice versa, whereby at each double vibration of the lever a single tooth of the rack is allowed to pass down. The upper arm of each lever is drawn back by a spring, *s*, and to the lower arm thereof is attached the armature of an electro-magnet, which, when magnetized by an electric current, draws said armature and lower arm of the lever to it in opposition to the spring *s*, which, however, forces the lever back when the electric current is again interrupted. After each partial or entire descent of the racks and register-plates, a bar, I, which is drawn up by the clerk of the office pulling the line *k*, lifts all the racks at once, and then falls back by its own weight, so as not to obstruct the descent of said racks.

The several electro-magnets P T W, which operate the levers S S S, are fixed firmly in proper positions opposite them upon a shelf, D. One end of the wire coiled around each magnet is joined to the main return-wire 5, and the other end of each wire is joined to one of the several wires, 2 3 4, which extend separately through or near the several rooms of the hotel, where a branch from each goes to the insulated plates *b c d* of the circuit-closers in the order of the numbers 2 3 4 in Figs. 1 and 2.

A single return-wire, 5, passing by all the rooms, with short branches leading from each circuit-closer, is sufficient for all the communicating wire, and the battery H is to be placed in its circuit in any convenient place where the gases arising from it will discommode no one, but not in the register-box C, where it is shown in the drawings only for convenience in representing its connection with the rest of the device.

An extra magnet, N, with an extra wire, 1,

extending to the insulated plate *a* in each circuit-closer, is usually added for the purpose of striking the bell *K* in the register by means of a hammer, *r*, attached to the upper arm of a vibratory lever, which has also the armature *L* of said magnet attached to it, and to its other arm a spring, *u*, which holds the hammer from the bell, but which the magnet *N* overpowers when magnetized and brings the hammer against the bell. This additional magnet, though convenient, is not necessary, since the bell may be rung by one of the other magnets.

The circuit-closer, Fig. 1, is arranged upon a narrow shelf or ledge, *A*, placed in any convenient situation in each room of the hotel. Upon the back part of the ledge are placed several insulated metallic plates, *a b c d*, equal in number to the magnets used in the register, with which they are respectively connected by the wires 1 2 3 4, as before described. A metallic key, *B*, slides horizontally in a groove in front of, but not in contact with, said insulated plates, and parallel with the range of their points. To this key is attached one end of a coiled metallic spring, *f*, the other end of which is connected with the return-wire 5. It serves both to draw back the key *B* and to complete the connection between it and the said wire for the electricity to pass on. A small elastic metallic pin, *e*, projects from said key, so that it will just come in contact with the points of the insulated plates as the key *B* is moved forward in front of them.

The number of points on the insulated plates varies according to the use of the magnets connected therewith. The plate *a*, for striking the bell, requires but one point, which causes the hammer to strike once. The plates *b c*, for showing the number of the room, have respectively the proper number of points to obtain that number. Thus the plate *b* in the drawings has six points, which will produce the number 5 on the register, and the plate *c*, having one point, will produce the cipher, the two combined making the number 50, which in this instance is the number of the room, as shown in Fig. 4. The plate *d*, being the one by which the wants of the lodger are communicated to the office, has as many connecting-points as there are communications written upon the register-plate—ten in the present example.

A mark, as at *w*, Fig. 1, on the key *B* is used to show when the key is brought to the proper point for closing the circuits in each case. Above it the words "Fuel," "Water," "Servant," &c., being the same as and corresponding with those on the register-plate, are written opposite the point to which the mark *w* on the key is to be brought in order to close the circuit that number of times, which will bring the same word in sight on the face of the register.

The operation of the annunciator is in the following manner: When a lodger wishes any-

thing at the office he grasps the key *B*, which is situated in his room, and is always kept drawn back by the spring *f*, except when thus in use, and draws it forward directly under the word which expresses his desire. By this action the pin *e* first closes the circuit with the plate *a*, which causes the bell *K* to strike. It then comes in contact successively with all the points of the plate *b*, whereby the circuit, with its wire, is closed six times, by which the magnet *W* is magnetized that number of times, and consequently six teeth of the rack *F* are allowed to pass down by its escapement-lever *S*, and the figure 5 is brought in sight on the face of the register, as seen in Fig. 4. It then closes the circuit once with the plate *c*, whereby the magnet *T* is once magnetized, and a single tooth of the rack *E* allowed to escape, exposing the cipher on the face of the register, as seen in Fig. 4; and thus the number 50 of the room is communicated at the office. It then closes and breaks the circuit with plate *d* a certain number of times, according to the order in which the word he desires to communicate is arranged over the key, whereby the rack *G* is brought down that number of notches by the magnet *P* and exhibits the corresponding word on the face of the register, as at *G*, Fig. 4, where the word "Paper" agrees with the word over the key in Fig. 1. In like manner a communication is sent from any other room of the hotel. As soon as any one makes a communication at the office the register-plates are to be raised with the cord *k* by the clerk, and thus are placed in order for another communication.

What I claim as my invention, and desire to secure by Letters Patent, is—

The circuit-closer, Fig. 1, constructed in such a manner, in combination with the permanent arrangement of the several numeral characters and words or sentences necessary to designate the number of each room and the ordinary desires of the lodgers upon concealed register-plates which are connected with and operated by electro-magnets through suitable escapement or other equivalent devices, that by a single sweep of the key to the point denoting the particular communication the lodger wishes to make the circuits of the said magnets will be closed and broken the required number of times to strike the bell and exhibit through apertures in the face of the register that number and word or sentence of the said register-plates which respectively designate the number of the lodger's room and the communication made by him, substantially as herein set forth.

The above specification of my improved electro-magnetic annunciator for hotels, &c., signed this 23d day of June, 1852.

CHAS. S. BULKLEY.

Witnesses:

Z. C. ROBBINS,
E. VALENTINE.