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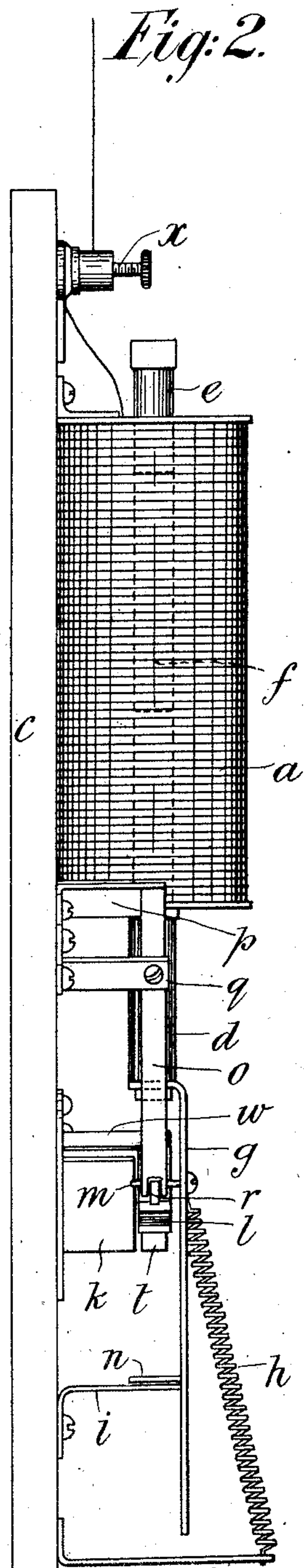
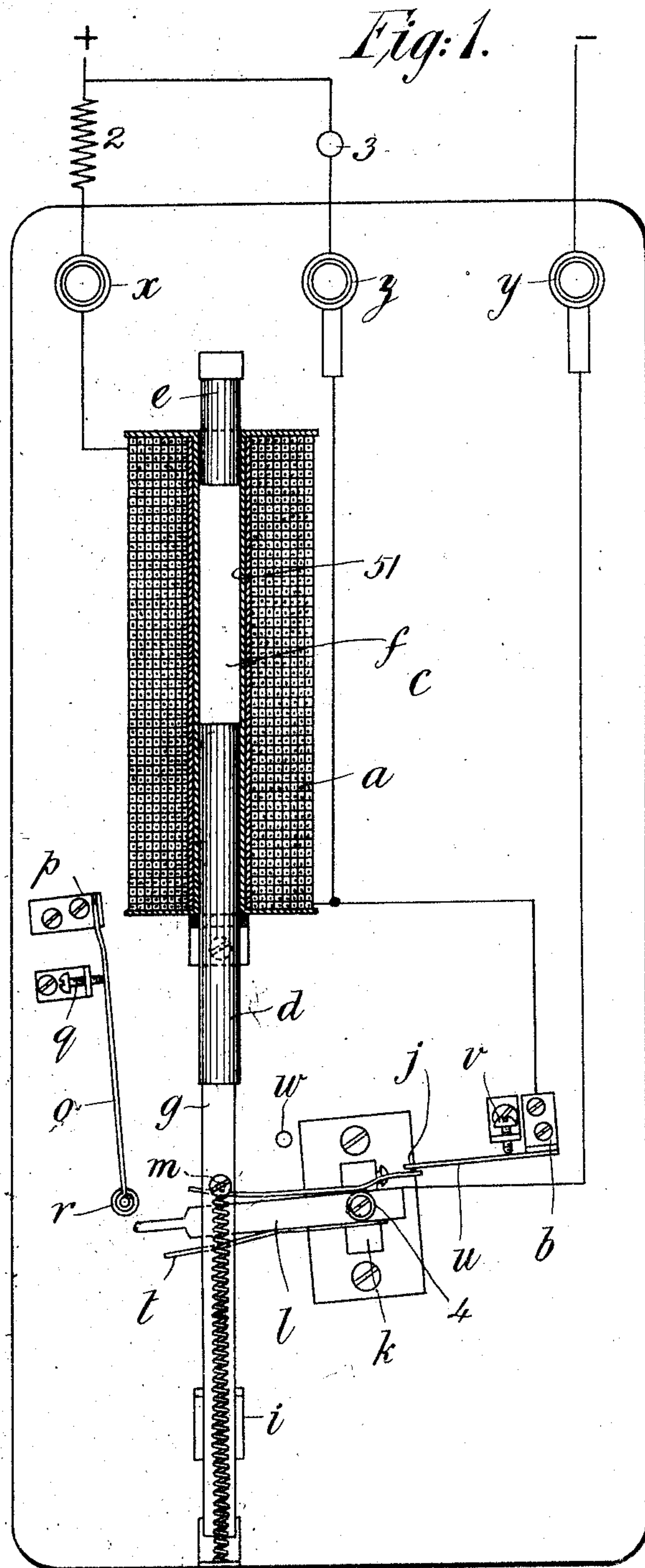
PATENTED JAN. 14, 1908.

L. K. JOB.

AUTOMATIC SWITCHING DEVICE FOR USE IN FLASH ADVERTISING.

APPLICATION FILED DEC. 27, 1905.

4 SHEETS—SHEET 1.



Witnesses  
Edwin. D. Bartlett  
Halter. Ed. D. D.

Inventor  
Leonard Kingwill Job.  
per Heibert Lepton Jones  
Attorney

No. 876,555.

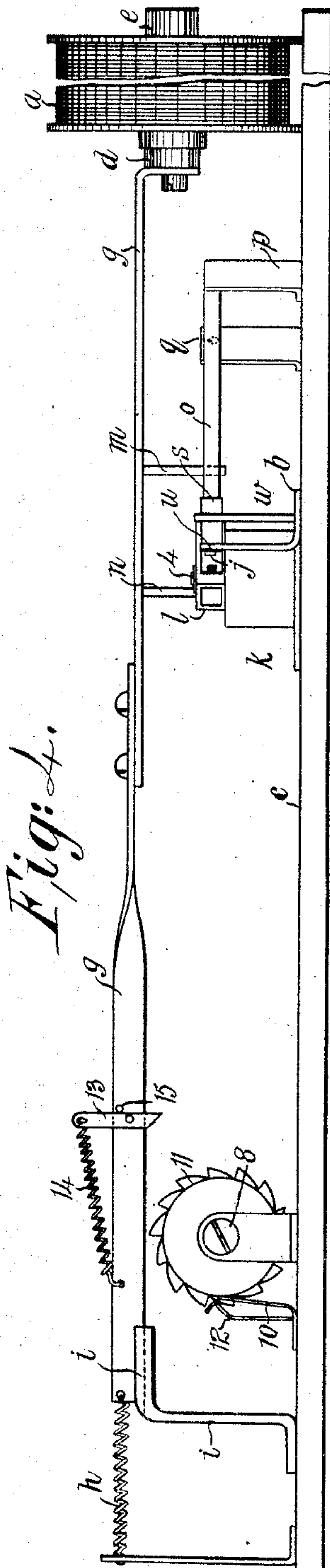
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4 SHEETS—SHEET 2.



Witnesses

*E. D. Bartlett*

*Albert V. Deale*

Inventor

*Leonard Kingwill Job*

*per Herbert Leffman Jones*  
Attorney.

No. 876,555.

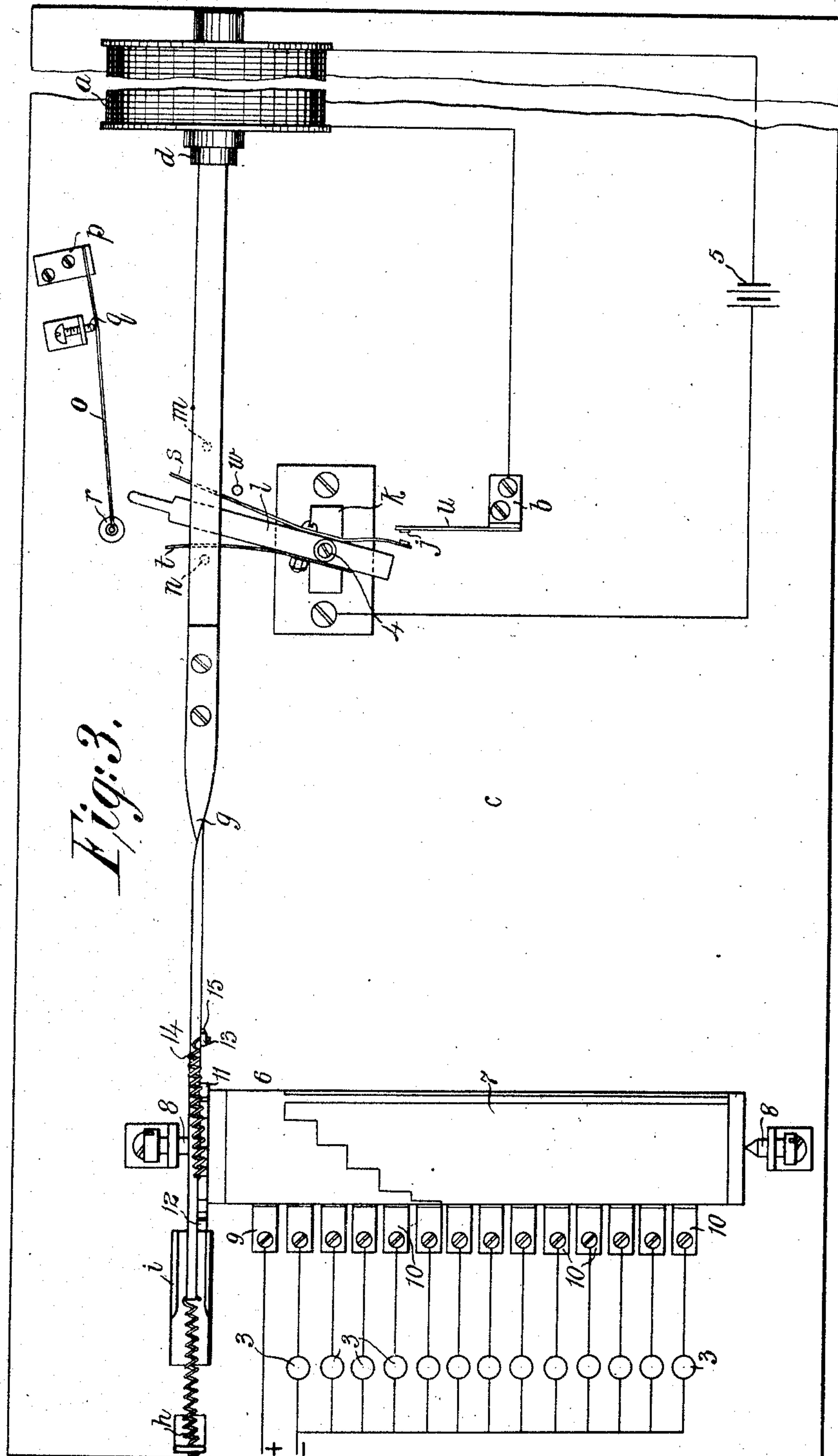
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4 SHEETS—SHEET 3



Witnesses  
C. J. Bartlett  
Albert V. Drake

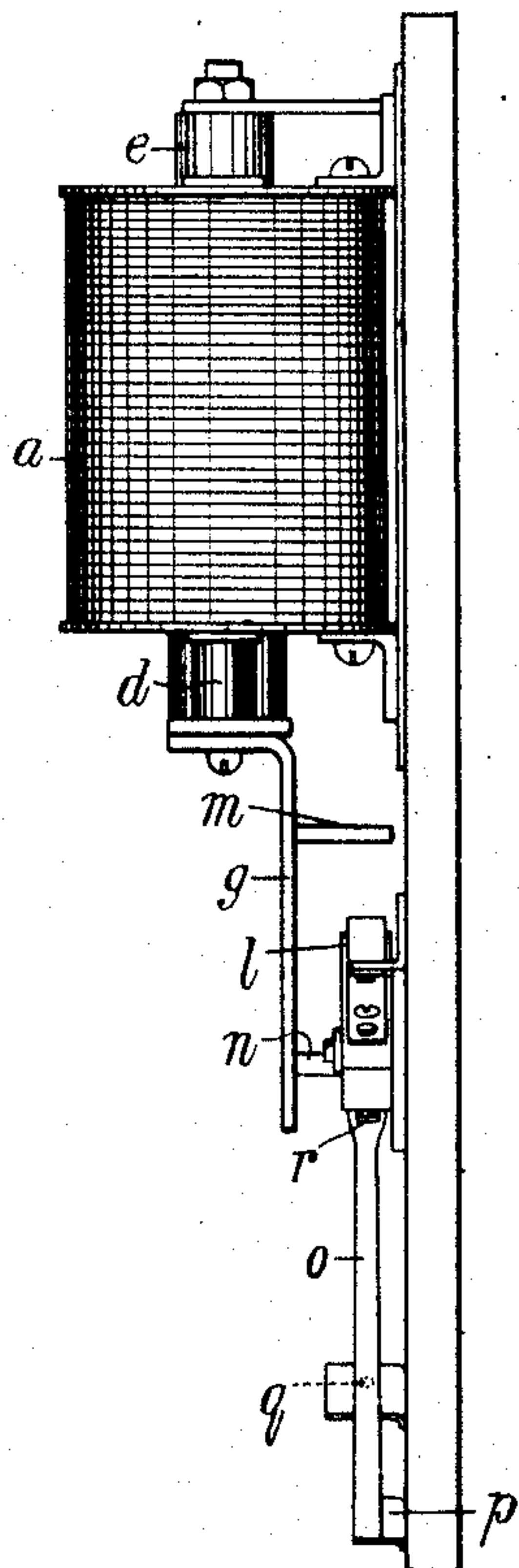
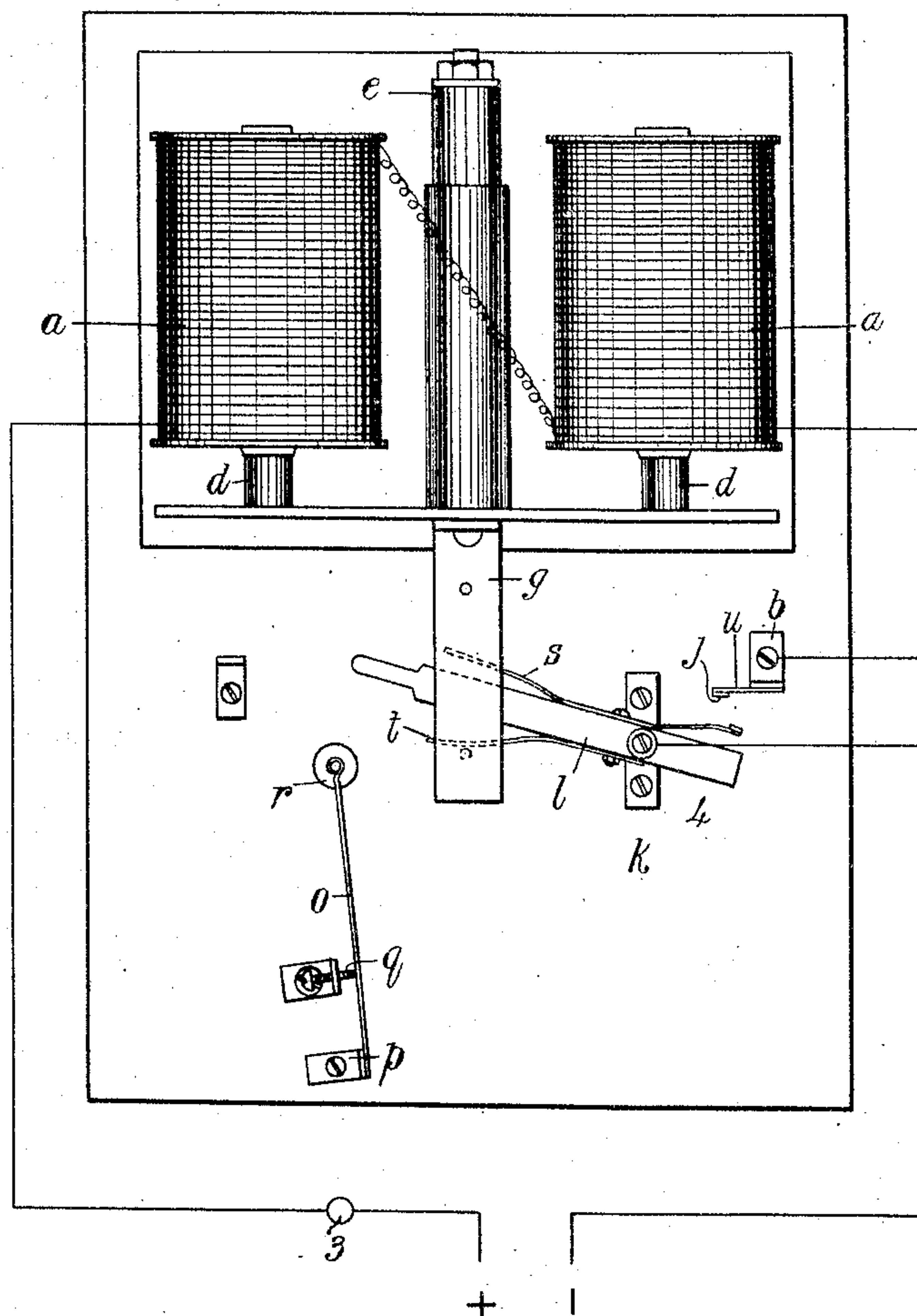
Inventor  
Leonard Kingwill Job.  
per Herbert Leffman Jones  
Attorney.



## AUTOMATIC SWITCHING DEVICE FOR USE IN FLASH ADVERTISING.

APPLICATION FILED DEC. 27, 1905.

4 SHEETS--SHEET 4.

*Fig. 6.**Fig. 5.*

Witnesses

*E. D. Bartlett**Albert V. Seale*

Inventor

*Leonard Kingwill Job.**per Herbert Leffman Jones*  
Attorney



# UNITED STATES PATENT OFFICE.

LEONARD KINGWILL JOB, OF NOTTING HILL, LONDON, ENGLAND.

## AUTOMATIC SWITCHING DEVICE FOR USE IN FLASH ADVERTISING.

No. 876,555.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed December 27, 1905. Serial No. 293,489.

*To all whom it may concern:*

Be it known that I, LEONARD KINGWILL JOB, a subject of the King of Great Britain, residing at 115 Ladbroke Grove, Notting Hill, in the county of London, England, have invented a new and useful Improved Automatic Switching Device for Use in Flash Advertising, of which the following is a specification.

10 This invention has for its object improvements in automatic switching devices whereby electric lamps may be periodically switched on and off in the manner required for "flash" advertising.

15 According to this invention the switching devices are operated by solenoids or electromagnets which make and break their own circuits by the movements of their cores or armatures, these movements being damped and controlled by dash-pots.

The invention is illustrated in the accompanying drawings in which:—

25 Figures 1 and 2 show front and side elevations respectively, the former partly in section, of a device adapted to be fixed on a wall and to switch on and off one or more lamps. Figs. 3 and 4 are plan and elevation respectively of a similar device as arranged for switching in a succession of lamps step by step and extinguishing all simultaneously. Figs. 5 and 6 are front and side elevations respectively of a device similar to that shown in Figs. 1 and 2.

Referring first to Figs. 1 and 2, *a* is a solenoid the coils of which are connected between a terminal *x* and a post *b* on an insulating base *c*. The post *b* is also connected by a wire to a terminal *z*. The solenoid has a movable core *d* working as a piston in a dashpot *f* which is inside the solenoid, and may be of brass; this dash pot is of the type wherein the air can only find its way in and out by leakage past the piston. *e* is an adjustable core fitting so as to slide in the tube 51 so that it may be set in various positions in which more or less of its length is inside the coil in order to adjust the magnetic strength of the coil which will be available to act on the movable core *d*. The rod *g* forms an extension of the core *d* and is drawn downward by a spring *h*. In some cases the core *d* will be heavy enough to fall under its own weight without the use of a spring, or a small additional weight may be substituted for the spring. *i* is a guide for the rod *g*. *k* is a support for a metal block *l*, pivoted at 4

and having spring pieces *s*, *t*, fixed to its upper and lower faces; the block is connected by a wire as shown with a terminal *y*. The rod *g* carries two pins *m*, *n*, adapted to press alternately on the springs *s*, *t*, and thus to turn the block *l* as the core *d* is allowed to fall and is drawn up again, during which movements the end of the block passes over a roller *r* mounted on the end of a spring *o* which is fixed at *p* on the base, and the tension of which is adjusted by a screw *q*. The post *b* carries a spring *u* adapted to make contact at *j* with the tail piece of spring *s*; the tension of this spring and its exact position are adjusted by the screw *v*. *w* is a stop on the base limiting the movement of the block.

In the diagrammatic connections shown at the top of Fig. 1, the current from the + main is branched, part going through a resistance 2, which is inserted to diminish the current in this circuit, to the terminal *x*, and part through lamp or lamps 3 to terminal *z*. The terminal *y* is connected to the — main.

The device operates as follows:—In the position shown the core *d* has just fallen until the pin *m* pressing on the spring *s* has forced the block downward past the roller *r* closing the contact at *j*. Current is now flowing from the + main through the resistance 2 and solenoid *a*, and through the lamp 3 to the post *b*; through spring *u*, contact at *j*, spring *s*, block *l*, and so through terminal *y* to the — main. The solenoid is therefore energized and it attracts its core *d*, drawing it up at the speed permitted by the dash pot *f*; when the pin *n* comes against spring *t* it turns the block but the springs *o* and *s* remain in contact at first. Finally the block *l* is forced past the roller *r* with a quick motion, breaking the contact at *j* (see position of fly in Fig. 3) and so cutting out the lamp 3 and solenoid *a*. The core *d* is thus released and is slowly drawn downward by the spring *h* (or its own or an added weight) until the pin *m* presses upon the spring *s* sufficiently to force the block *l* downward past the roller *r*, when the circuit is remade at *j* and the lamp 3 lights up while the solenoid *a* becomes energized again. The same set of operations is repeated as long as current is supplied to the apparatus, and the lamp or set of lamps 3 illuminating the flashing sign will thus be switched on and off in the required manner.

In Figs. 3 and 4 the same device is shown



arranged to work horizontally and to operate a switch for lighting a succession of lamps step by step. In this case the block *l* simply makes and breaks a local circuit for the solenoid *a*. 5 represents a battery supplying the current for the local circuit, and the other letters of reference, where applicable, are the same as in Figs. 1 and 2. In place of a battery of course any convenient source of current may be used; *e. g.*, the current may be taken from the mains as is illustrated in Fig. 1. A cylinder is provided having a metal part 6 and an insulating part 7, the said cylinder being supported in bearings 8. 9 is a contact brush which always bears on a completely cylindrical part of the metal 6, while 10 are brushes which bear either on the stepped parts of the metal or on the insulation 7 according to the position of the cylinder. The brush 9 is connected to one (say the +) main terminal, and the brushes 10 are connected, each through one or more lamps 3, to the other (say the -) main terminal. Each lamp 3 illuminates one letter or element of the talking sign, and as there are thirteen brushes 10 in the example shown, the sign may have thirteen letters or elements to be illuminated one by one and then extinguished simultaneously. Of course there may be any desired number of brushes if the contact cylinder has the required number of steps. The cylinder carries a ratchet wheel 11 having a check spring 12, and the rod *g* carries a pawl 13 held in action by a spring 14 and checked by a stop 15. This device operates as follows: The rod *g* is reciprocated just as in the device of Figs. 1 and 2, and each time that it is drawn to the right by the solenoid *a* the pawl 13 turns the ratchet wheel 11 one tooth. The cylinder is thus turned round step by step and the brushes 10 come on to the stepped metal part 6 one after another, switching in their respective lamps 3. After all the lamps have been switched in all the brushes 10 come on to insulation 7 simultaneously and thus all are simultaneously

extinguished. As the cylinder is further rotated the lamps are again switched in one after another.

The device shown in Figs. 5 and 6 is in principle exactly the same as that shown in Fig. 1 only that in this case there are two solenoids *a* connected in series with one another and with a bridge piece 37 connecting their cores *d* as shown. The rod *g* carrying the pins *m*, *n* for operating the fly *l* is mounted on the bridge piece 37 while the dash pot *f* is arranged between the solenoids *a* at the rear of said bridge piece. The operating and lamp circuits may be the same as in the device shown in Figs. 1 and 2; or the shunt may be omitted and the lamp 3 connected in series with the coils *a a* as shown. Finally it is to be understood that the drawings are intended to serve only as examples of constructions according to the invention. Details of construction and arrangement may be modified. Further the dash pots may be of any known type whether operating with air or with a fluid such as glycerin.

What I claim is:—

In an automatic switching device for use in flash advertising, the combination with the electric lamps to be controlled, the source of current, and the electric connections for the same, of a pivoted arm carrying a switch contact, a spring upon each side of said arm, a spring held roller adapted to catch the free end of said arm, a screw for adjusting said roller, and electromagnetically operated means for pressing against either of the springs upon the arm, so that said arm is caused to move suddenly past the spring held roller.

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

LEONARD KINGWILL JOB.

Witnesses:

FLORENCE E. PARVIN,  
FLORENCE G. BROWN.