

(No Model.)

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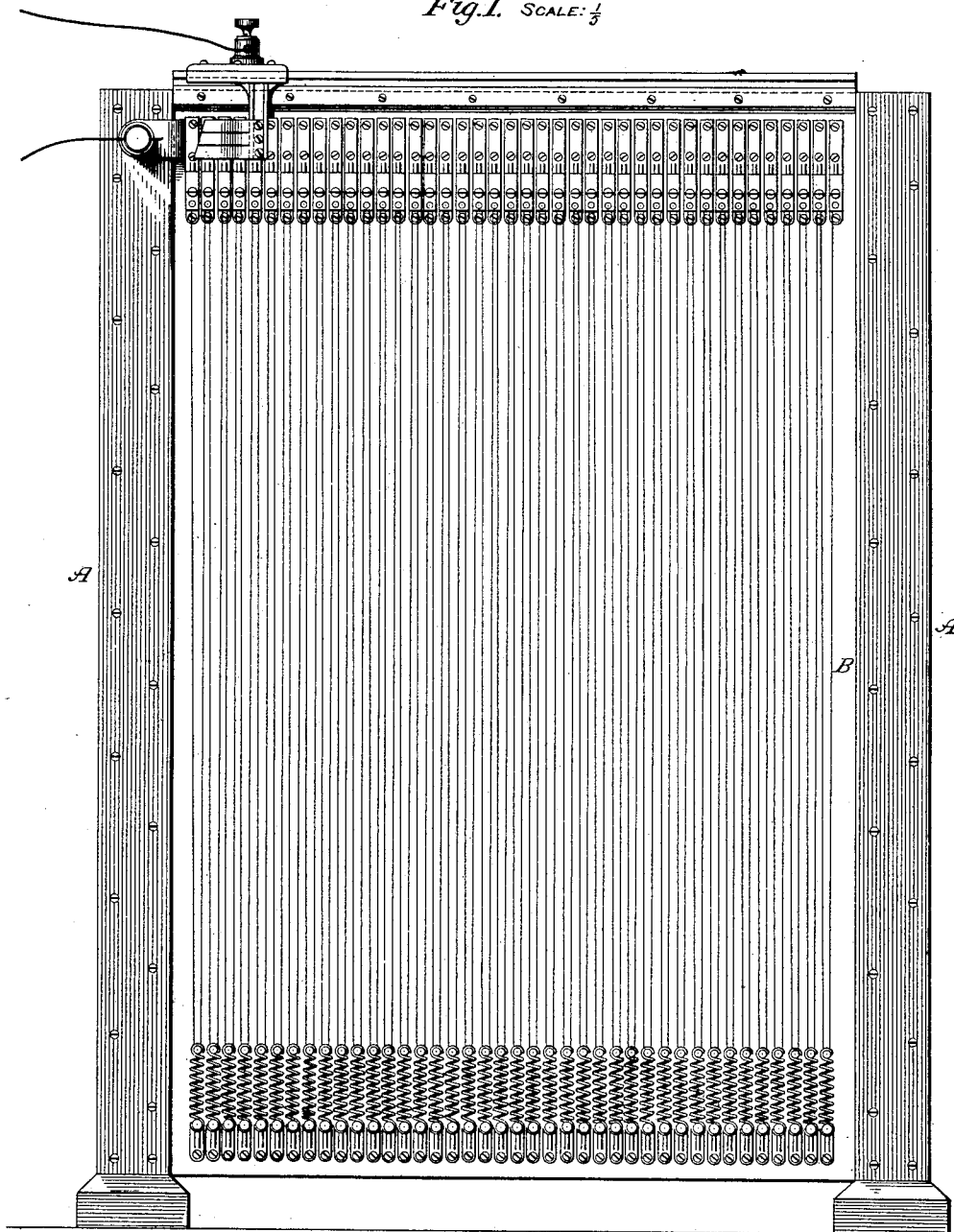
E. WESTON.

RHEOSTAT.

No. 269,760.

Patented Dec. 26, 1882.

Fig. 1. SCALE: $\frac{1}{2}$



Attest:

R. J. Barnes
W. Frisby

Inventor:

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att'y.

(No Model.)

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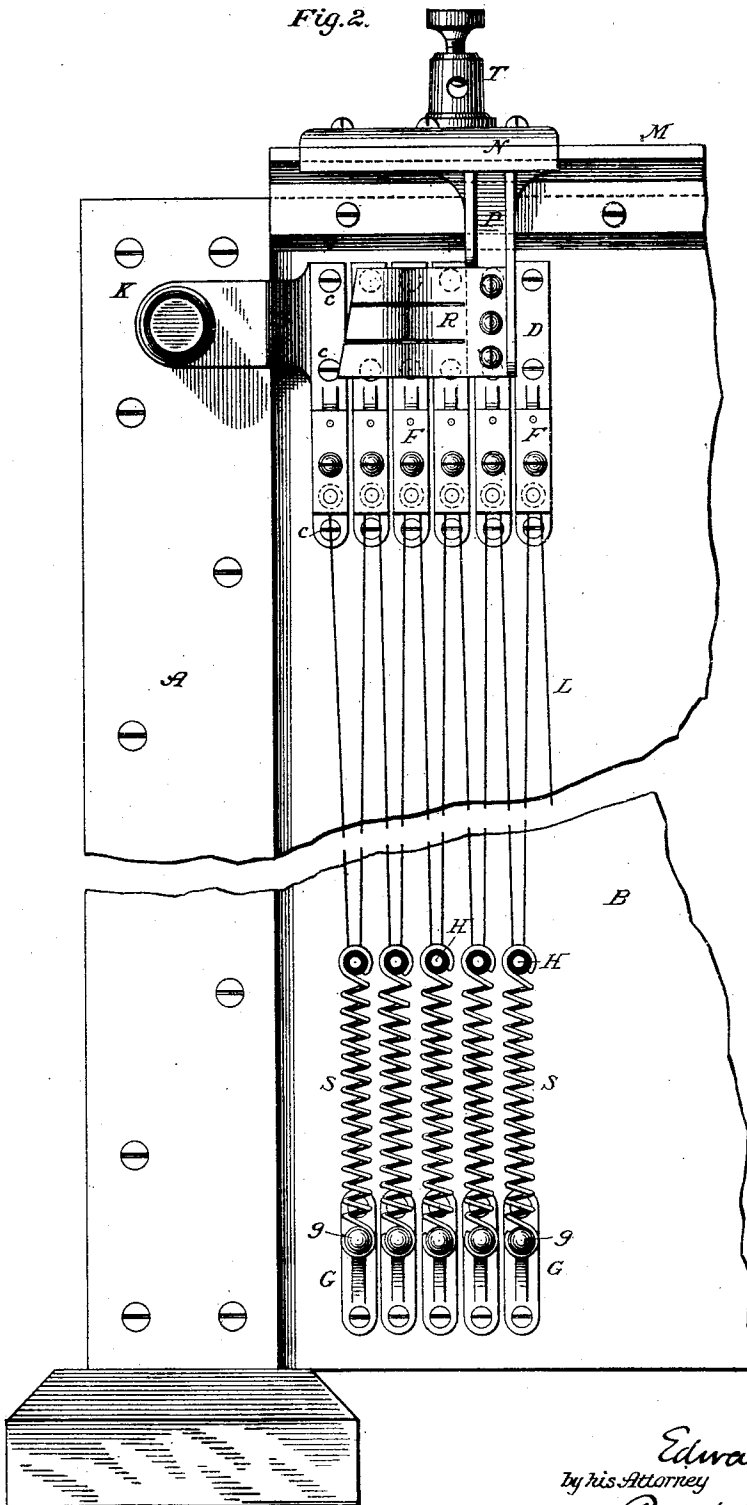
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Fig. 2.



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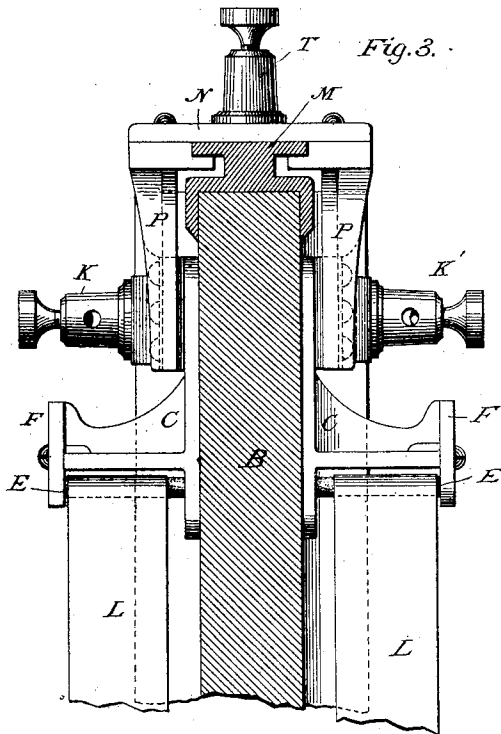
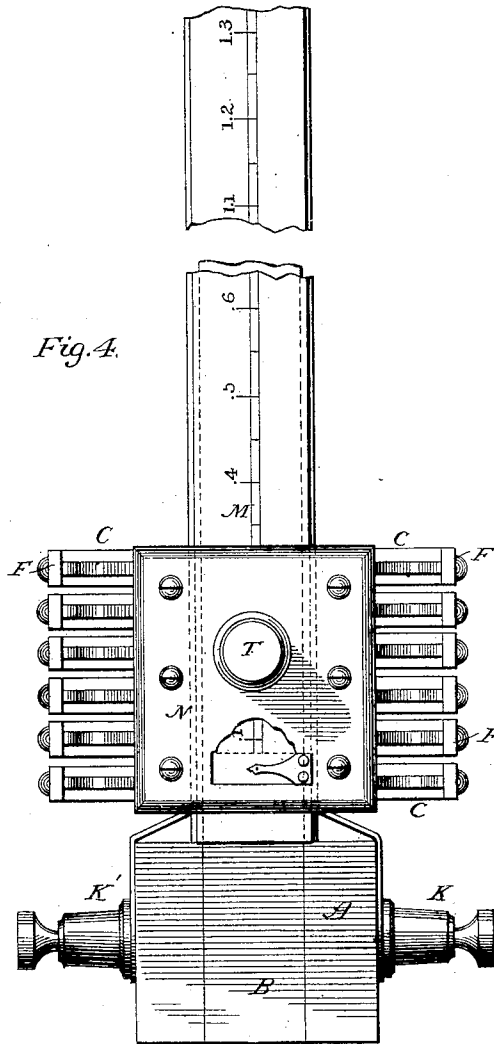
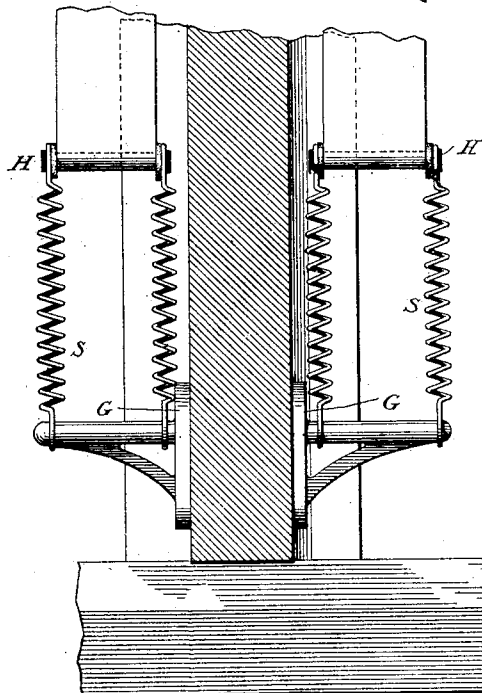


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 269,760, dated December 26, 1882.

Application filed August 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WESTON, a subject of the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Rheostats, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The object of my improvements is chiefly to render more durable and serviceable rheostats containing conductors in the shape of ribbons or strips; and the improvements consist in the combination, with said conductors, under the conditions hereinafter specified, of springs or their equivalents, for the purpose of maintaining the conductors under constant tension, and thereby preventing contacts between adjacent portions of the same when expanded by heat.

In the drawings I have illustrated my invention as applied to a rheostat of well-known construction, by reference to which the general nature of the improvements will be understood.

Figure 1 represents in elevation a rheostat constructed according to my invention. Fig. 2 is a portion of the same enlarged, exhibiting the mechanical construction in detail. Fig. 3 is an end view, partly in section; and Fig. 4, a top view, showing the indicating-scale and sliding contacts.

Similar letters indicate corresponding parts in the several figures.

A A designate the vertical supports of the apparatus, by which is supported a wide board, B, constituting a base, upon which the resistance devices are mounted. In a line along the upper edge of the board B, and as close together as practicable, are clamped devices for holding the ribbon-conductor. These consist of brass castings C, forming brackets, and are clamped to the board B by screws c c. D D are the portions of the castings that serve as contact-surfaces.

E E are pins, of iron or other metal, that are held in place by the castings C and plates of brass F F, clamped to the outer ends of the castings C.

Along the lower end of the board B, and corresponding in number and position to the cast-

ings C C, are clamped the brass castings or brackets G G. Stout spiral springs S S are made fast to the opposite ends of the bars g of the brackets G, and their free ends united to pins H H, and are preferably insulated from them in any convenient manner.

The conductor consists of a long flat strip or ribbon, L, of German silver or other proper metal. One end is secured to the pin E of the first casting, C, on either side, and it is then carried alternately under the pins H and over the pins E in order until all the upper and lower brackets are connected and the rheostat presents the appearance shown in Fig. 1. In practice it will be found desirable to solder the pins E to the strip after having measured off the proper distances, then to secure the pins E in place, and, lastly, to insert the pins H in the folds or convolutions of the strip and fasten the springs S S to them. The first one of the series of upper brackets, C, is connected by a thick metal strip with a binding-post, K, and on the opposite side of the board are arranged brackets, contacts, and a ribbon, exactly corresponding to those described, K' being the binding-post of the opposite series of resistances.

Along the upper edge of the board B is a metal guide, M, of suitable kind, upon which is arranged to slide a metal block, N. Plates P P, depending from either side of block N, carry brushes R R, and a binding-post, T, is set in the block N. Along the metal guide M, preferably on its upper surface, one or more scales are marked, by which the variations in resistance corresponding to different positions of the block N are ascertained. If one end of a severed circuit be connected with the binding-post T and the other end with either binding-post K or K', the resistance will be increased by the introduction into the circuit of so much conductor as lies between any two of the brackets for each bracket or casting C that is touched by the brush R. On the other hand, if the ends of a circuit be connected to posts K K', double the resistance is brought into circuit for every casting that is encountered by the contact-brushes.

Heretofore serious difficulties have been met with in the use of devices of this kind. The

heating of the strips by a powerful current expands and distorts them, so that a number of short circuits are likely to result. By the use of the springs S, however, these obstacles to the accurate and successful operation of the apparatus are entirely surmounted.

It may be stated that in lieu of the springs weights may be used; but the construction described is believed to be the most convenient.

It is also possible, without departure from my invention, to use a greater or a less number of springs for taking up expansion. This is, however, a matter that the necessities of particular cases must govern.

What I claim as my invention is—

1. In an electrical rheostat, the combination, with the conducting strips or ribbons, of springs connected to the said strips in such manner as to prevent contact of adjacent por-

tions of the same when expanded or distorted, as by heat.

2. In an electrical rheostat, the combination, with a conducting strip or ribbon bent or folded upon itself, as described, of brackets for holding the strip and tension - springs connected with the folds of the same, as and for the purpose specified.

3. In an electrical rheostat, the combination, with the brackets or castings C C and conducting strip or ribbon L, of the brackets G and spiral springs S S, all substantially as herein set forth.

In testimony whereof I have hereunto set my hand this 30th day of August, 1882.

EDWARD WESTON.

Witnesses:

W. FRISBY,

RAYMOND F. BARNES.