

(No Model.)

W. W. DEAN.  
RHEOSTAT.

No. 567,223.

Patented Sept. 8, 1896.

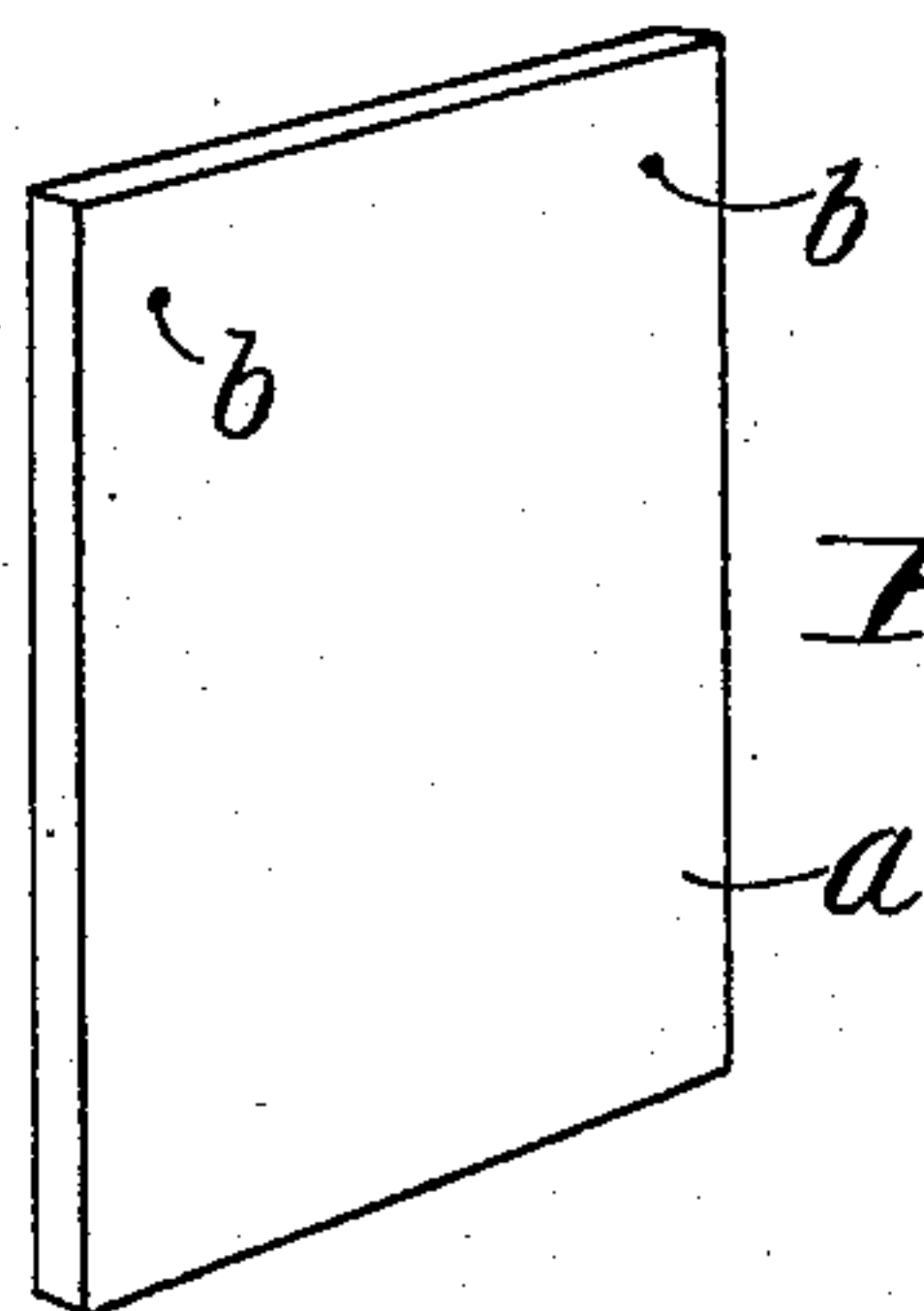


Fig. 1

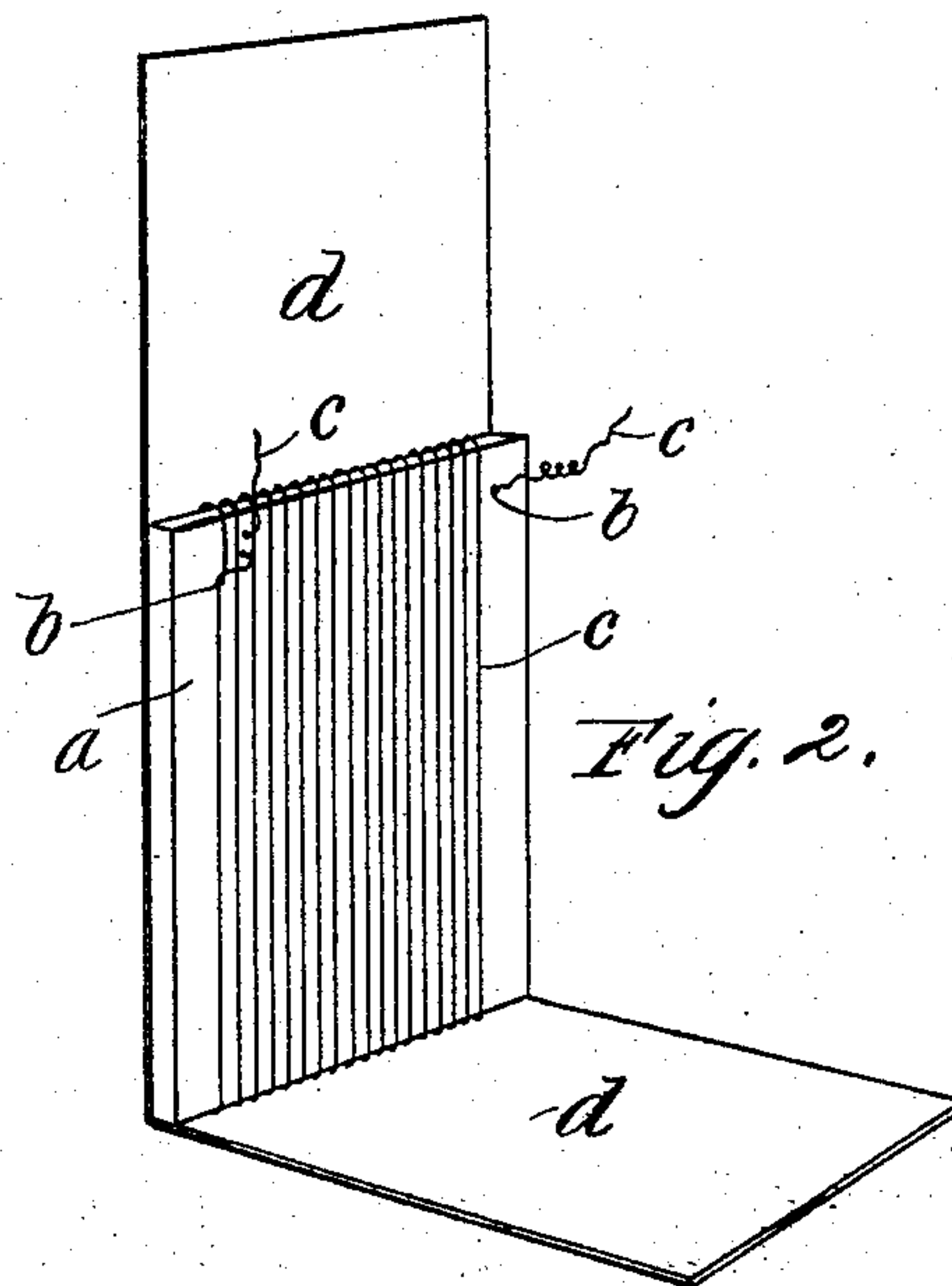


Fig. 2.

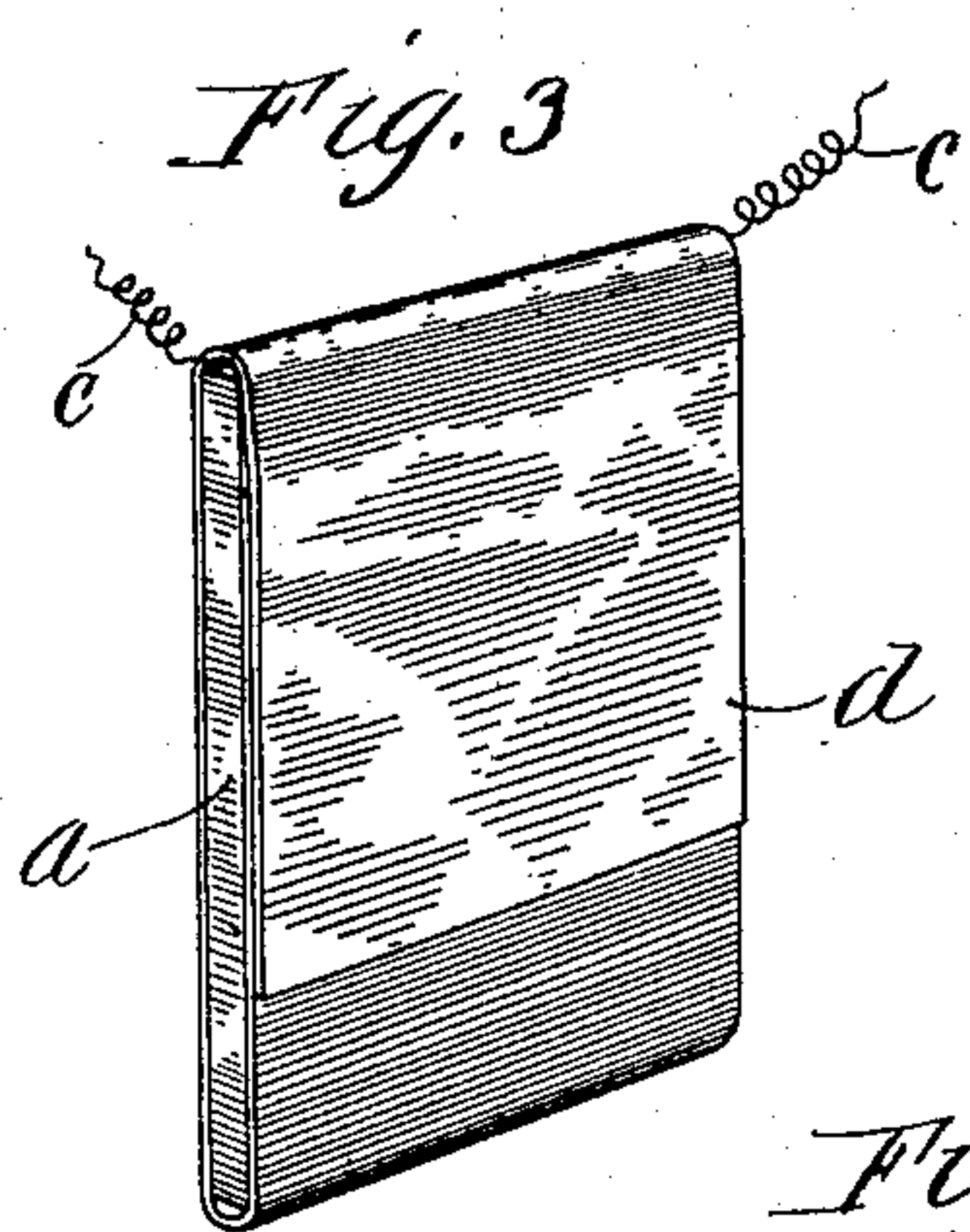


Fig. 3

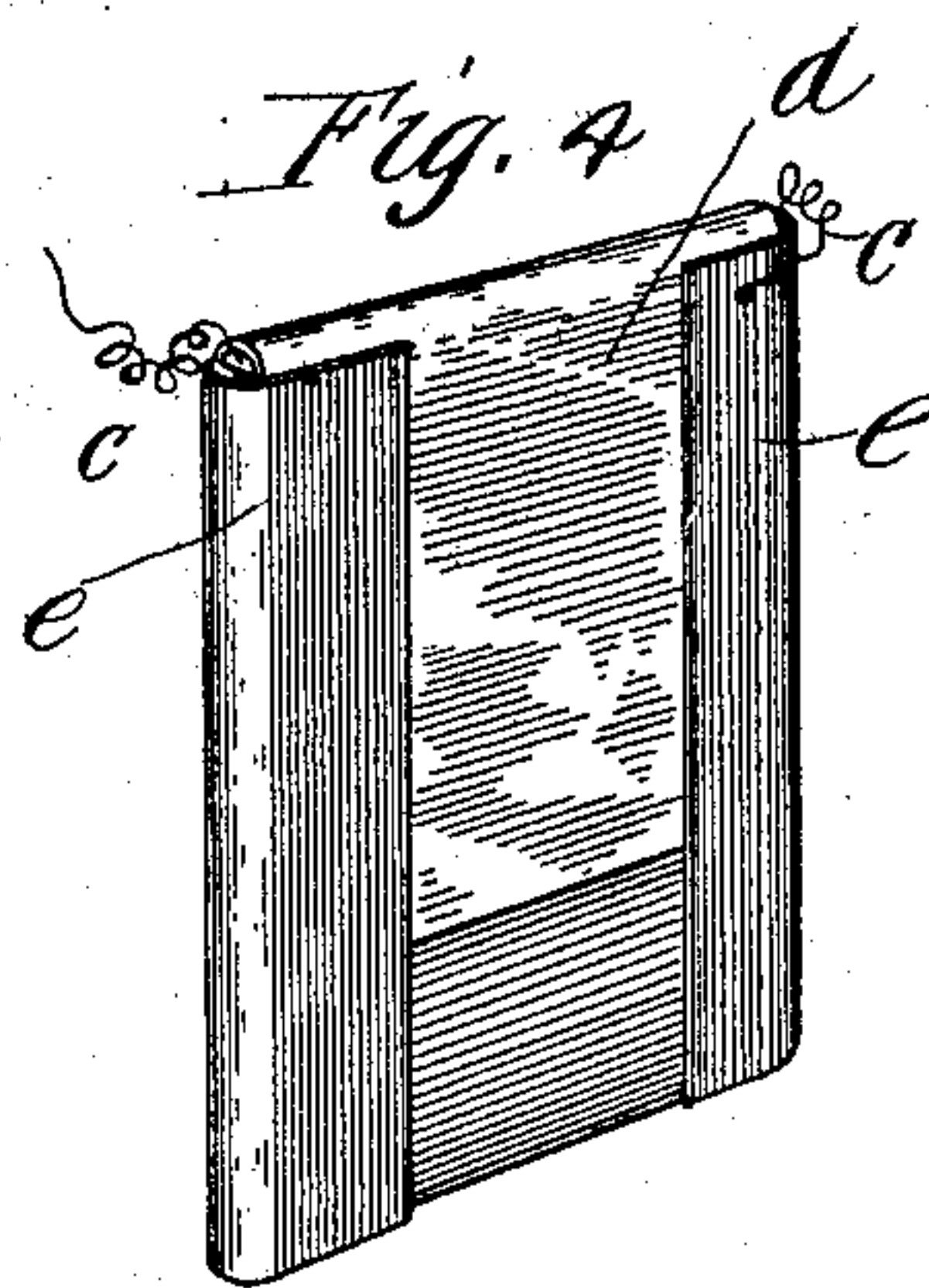
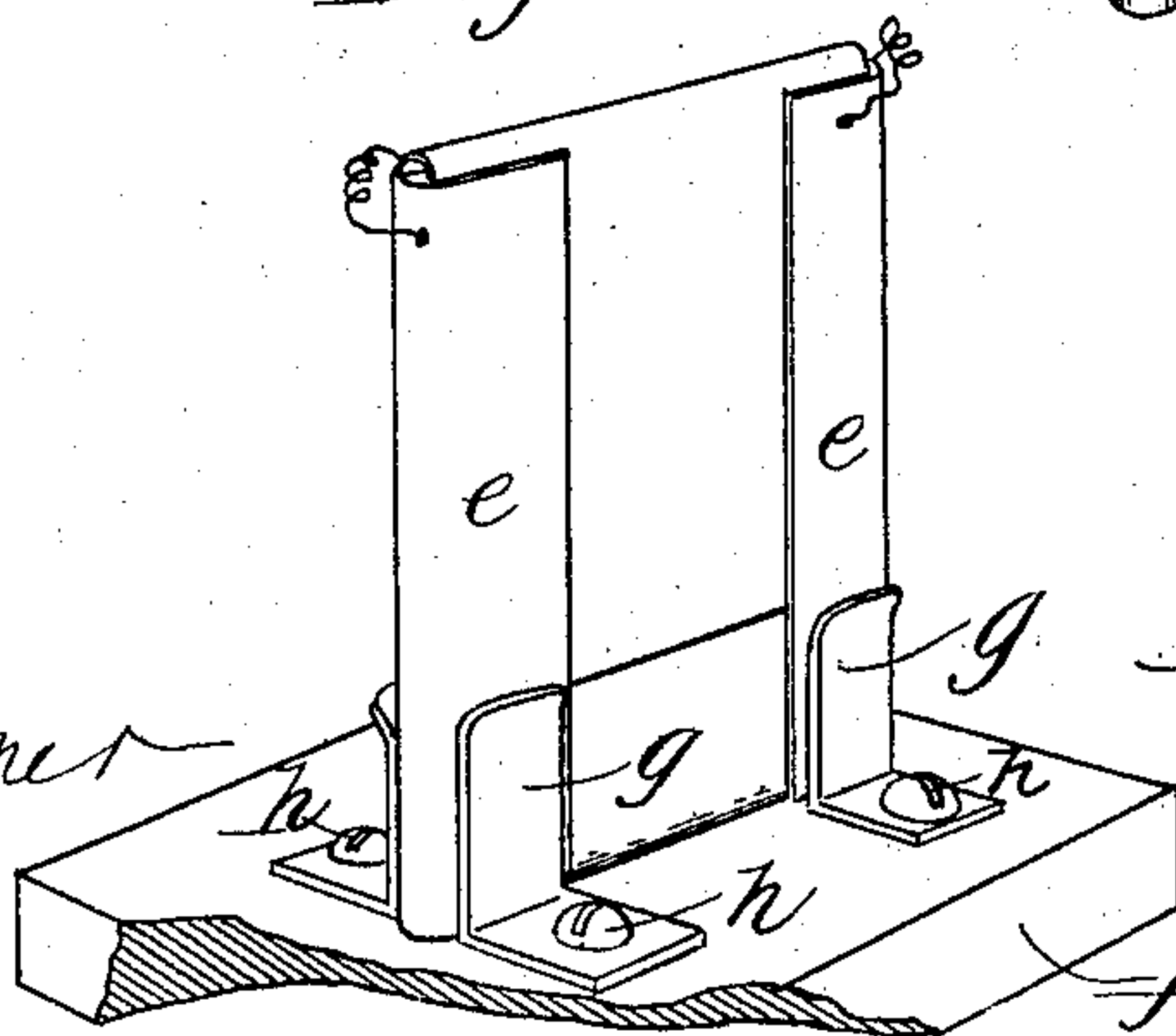


Fig. 4

Fig. 5.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 567,223, dated September 8, 1896.

Application filed March 28, 1896. Serial No. 585,184. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. DEAN, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Rheostats, (Case No. 10,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to rheostats, and more particularly to that class of resistances which is designed to carry a current which may heat the conductor to a point where it is liable to carbonize combustible material which is brought in contact with it.

The object of my invention is to provide a resistance which is at once cheap to construct, absolutely non-inflammable, and the parts of which may be replaced with readiness.

My invention consists, broadly, in providing a core of non-carbonizable and non-combustible material upon which the bare resistance-wire is wound, proper spaces being left between the convolutions, a flexible and non-combustible envelop surrounding the core and the resistance-wire, means being provided for bringing the ends of the resistance-wire through the envelop, and means for making contact between the ends of this resistance-wire and the terminals of the line, which consists in a metallic support, supports, or springs for the rheostat adapted to secure or engage the rheostat, said support, supports, or springs constituting a terminal or terminals of a circuit to which either or both of the terminals of the resistance-wire are connected.

My invention will be more readily understood from the following description, which is made with reference to the accompanying drawings, in which—

Figure 1 represents the core of non-combustible material. Fig. 2 represents the same core with the winding of resistance-wire in place thereon and the flexible non combustible envelop partly in place. Fig. 3 shows the core and resistance-wire with the envelop completely applied. Fig. 4 shows, in addition to the parts included in Fig. 3, the clips which I prefer to employ for making a contact be-

tween the resistance-wire and the line-terminals. Fig. 5 shows a complete device of my invention, with the part shown in Fig. 4 mounted upon the base and making contact with the line-terminals.

Like letters of reference indicate similar parts in all the different views.

The core *a* is provided with the perforations *b b* to permit the resistance-wire to be inserted and held with facility. The core I have usually constructed of asbestos cardboard, but it is obvious that it may be constructed of porcelain or other insulating material which is non-carbonizable and non-combustible. The form in which I have employed the device of my invention has been that with a rectangular core. It is obvious, however, that other forms of core may be employed.

The resistance-wire *c* is wound upon the core, preferably without being insulated, care being taken in winding the wire to avoid the liability of crosses between the different convolutions. The ends of this resistance-wire, being brought through the perforations *b b*, are held in place without requiring other means of attachment. Upon the core and resistance-wire thus constructed I wrap a flexible insulating non-combustible envelop *d*, which in practice I have made of asbestos. When this envelop is in place, the core represents the appearance shown in Fig. 3, the resistance-wire being wholly concealed, except the two ends, which are free to be attached to the terminals. Upon the outside of the envelop and at each end of this core I place the metal clips *e e*, which are formed so as to clasp firmly the envelop and hold the entire body of the device thus constructed in place. These metal clips perform the double function of holding the parts together firmly and of affording means for making contact between the terminals of the line and the resistance-wire, as I shall presently describe. The ends of the resistance-wire are soldered one to each of the metal clips. In Fig. 4 one of the ends *c* is shown soldered, the other one being still free. The two metal clips now form the terminals of the resistance-wire and afford means for making the connection with the line-terminals with facility. Upon the base *f*, which I prefer to construct of porce-



lain or similar non-combustible insulating material, I provide the springs *g g*, as shown in Fig. 5, formed so as to receive and clasp the metal clips *e e*. The line-wire terminals  
5 may be attached readily to the springs *g g* by means of the screws *h h*.

The device as thus constructed permits the ready replacement of the part shown in Fig. 4 without loosening the terminals of the line-  
10 wire. By using resistance-wires of different size varying resistances may be inserted in a base, and thus a resistance of exactly the right amount may be inserted in the line. In case the resistance which is required should be  
15 changed at any time another one may be substituted therefor, and this facility in substituting resistances of different amounts in a line makes this device of peculiar advantage in telephone-work where the lines have to be  
20 balanced.

While I have shown the specific form of device which I have used in practice, it will be apparent that my invention is susceptible of modifications without departing from its  
25 spirit. I therefore do not wish to be limited to the precise details of construction shown.

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

30 1. In a rheostat, the combination with a non-combustible core, of a resistance-wire wound thereon, a flexible, non-combustible envelop surrounding said core and resistance-wire, two metallic supports adapted to  
35 secure said rheostat in position, said supports constituting the terminals of a circuit, and means for electrically connecting the terminals of said resistance-wire with said supports, substantially as described.

40 2. In a rheostat, the combination with a resistance-wire mounted in a non-combustible envelop, of metallic plates adapted to clasp said envelop, to which plates said resistance-wire is connected, and metallic  
45 springs adapted to clasp said metallic plates

and to afford means of connection with the terminals of an electric circuit, substantially as described.

3. In a rheostat, the combination with a resistance-wire mounted in a non-combustible envelop, of metallic plates adapted to clasp said envelop, to which plates said resistance-wire is connected, a non-combustible base, and metallic springs mounted upon said base and adapted to clasp said metallic plates  
55 and to afford means of connection with the terminals of an electric circuit, substantially as described.

4. In a rheostat, the combination with the non-combustible core *a*, of the resistance-wire  
60 *c*, the non-combustible, flexible envelop *d*, the metal clips *e e*, the base *f*, and the springs *g g*, substantially as described.

5. In a rheostat, the combination with a non-combustible core, of a resistance-wire  
65 wound thereon, a flexible, non-combustible envelop surrounding said core and resistance-wire, a metallic support for the rheostat constituting one terminal of a circuit, and means for electrically connecting the termi-  
70 nals of said resistance-wire with the other terminal of said circuit and said metallic support, substantially as described.

6. In a rheostat, the combination with a resistance-wire mounted in a non-combustible envelop, of a metallic plate adapted to clasp said envelop, to which one end of the resistance-wire is connected, and a metallic spring adapted to engage said plate constituting one terminal of an electric circuit,  
80 and means for connecting the other terminal of said resistance-wire with the remaining terminal of said circuit; substantially as described.

In witness whereof I hereunto subscribe my name this 18th day of March, A. D. 1896.

WILLIAM W. DEAN.

Witnesses:

GEORGE P. BARTON,  
JOHN W. SINCLAIR.