

E. J. FRASER.
Galvanic-Belt.

No. 224,414.

Patented Feb. 10, 1880.

FIG. 1.

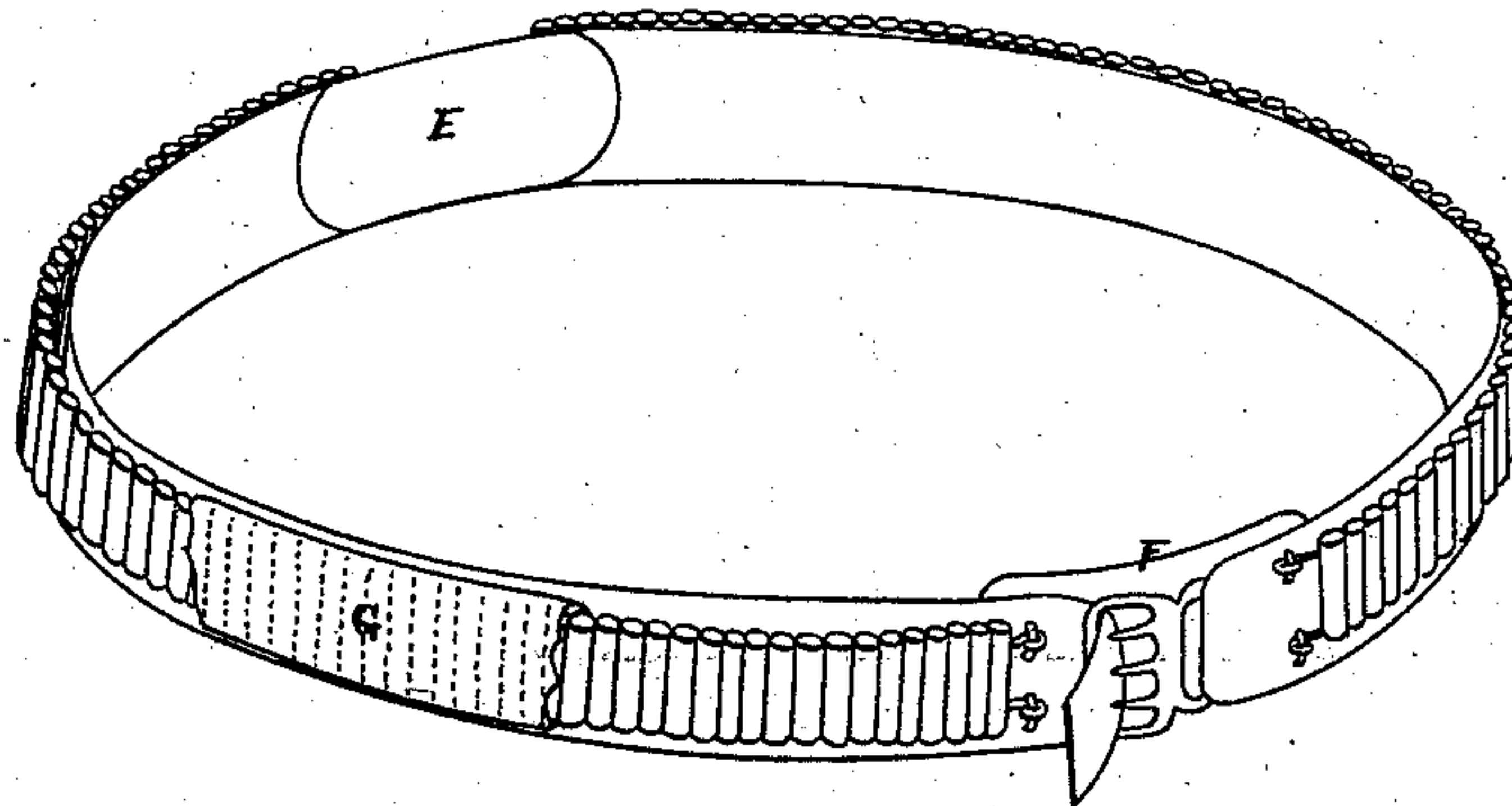


FIG. 2.

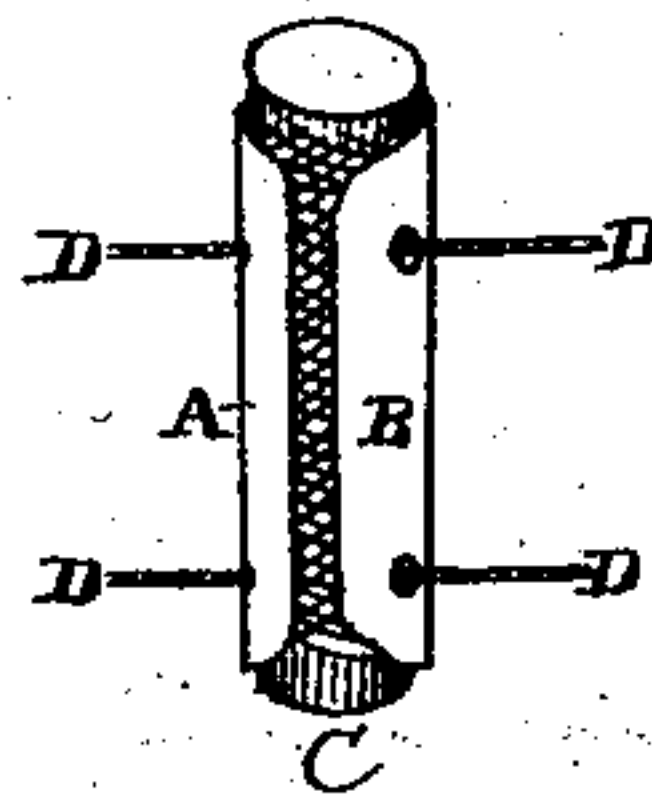
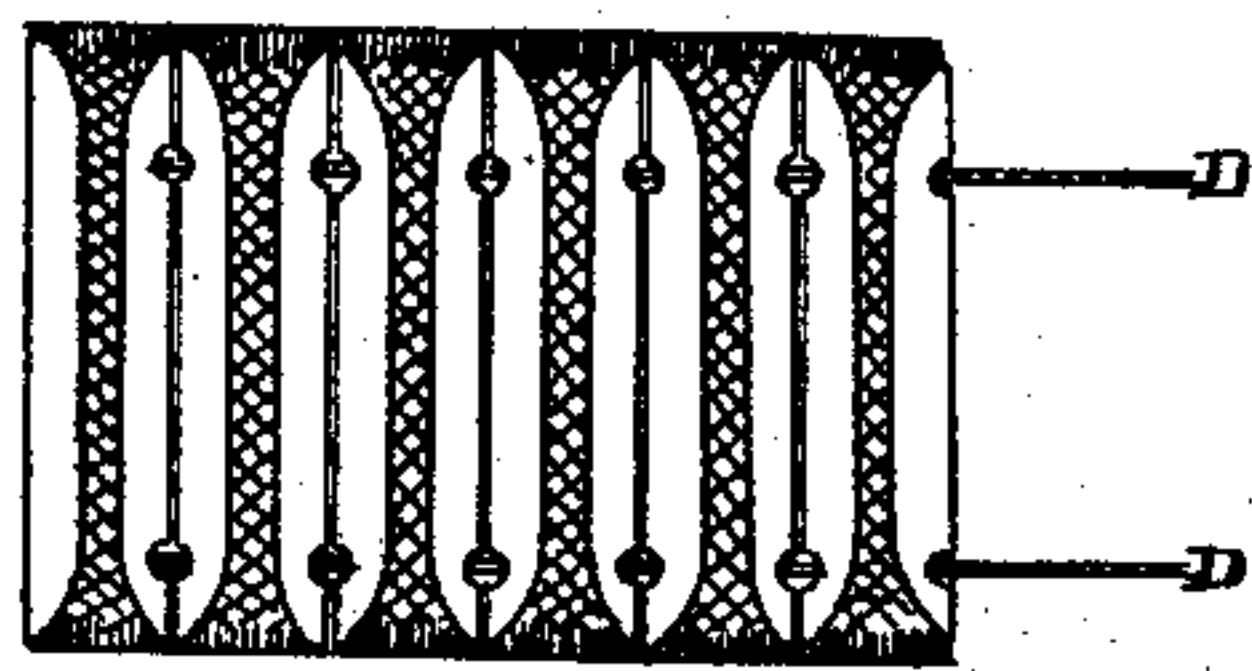


FIG. 3.

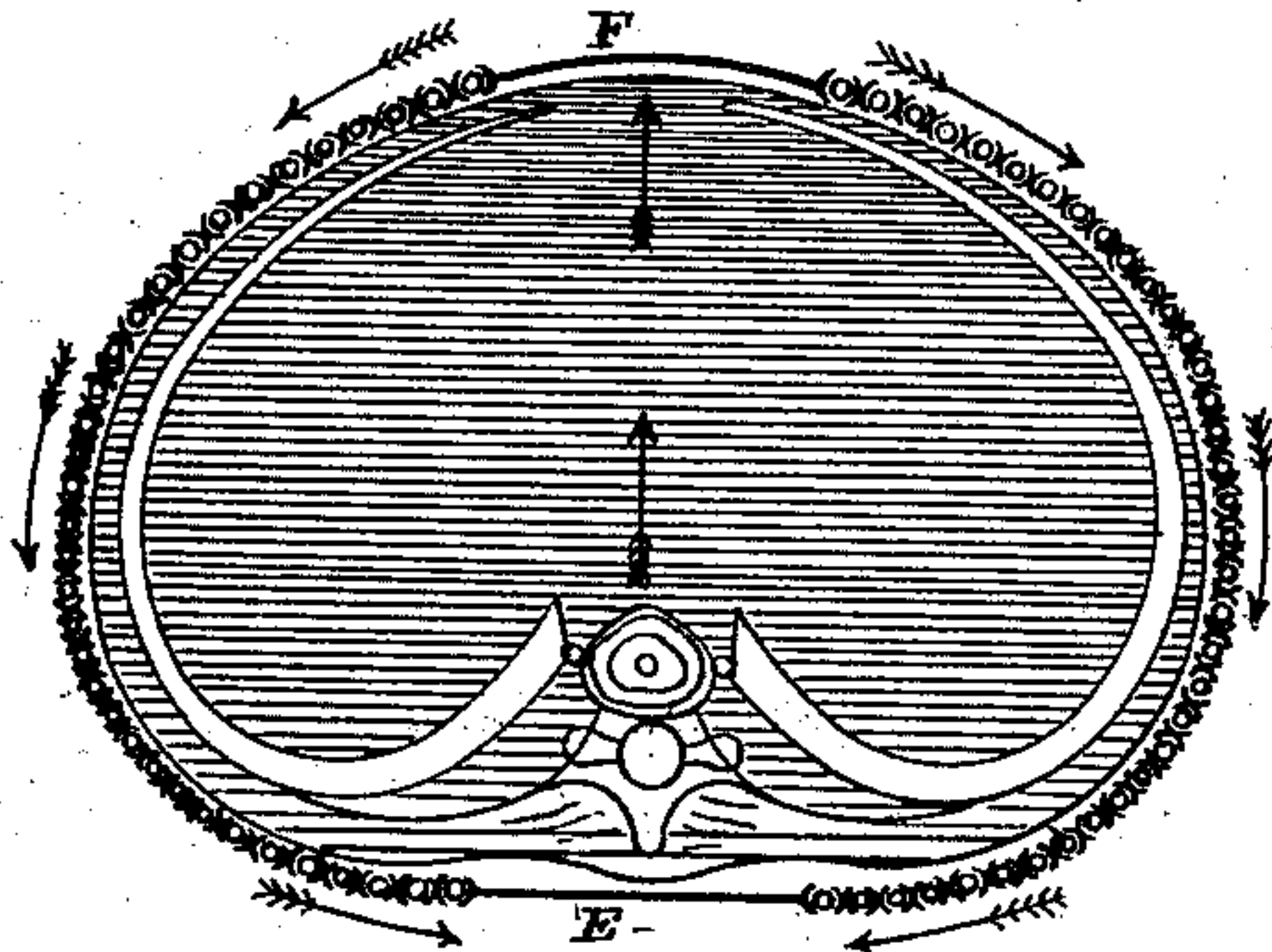
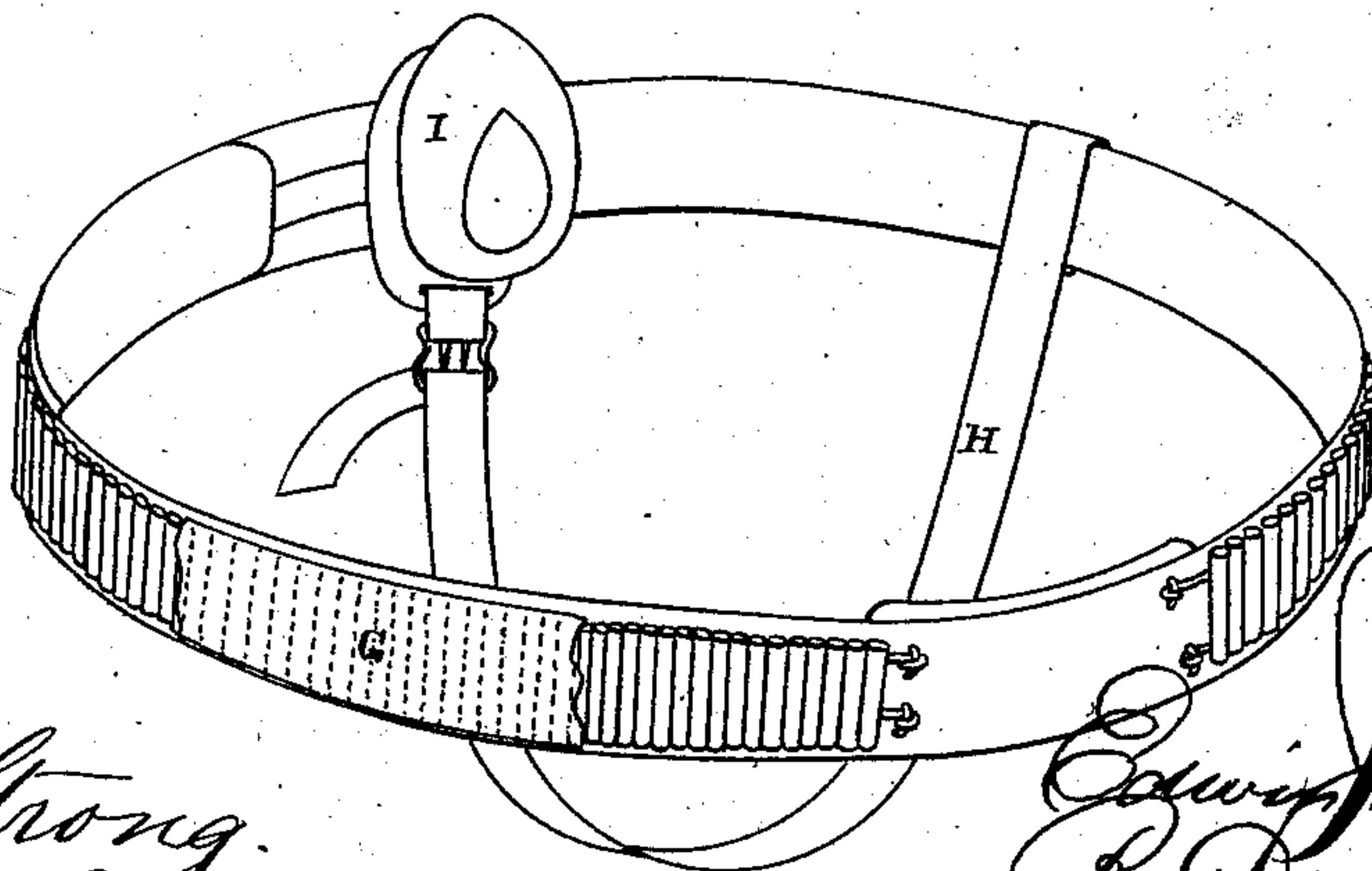


FIG. 4.



Witnesses.

Geo. H. Strong.
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UNITED STATES PATENT OFFICE.

EDWIN J. FRASER, OF SAN FRANCISCO, CALIFORNIA.

GALVANIC BELT.

SPECIFICATION forming part of Letters Patent No. 224,414, dated February 10, 1880.

Application filed April 7, 1879.

To all whom it may concern:

Be it known that I, EDWIN J. FRASER, of the city and county of San Francisco, and State of California, have invented an Improved Galvanic Belt; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in belts known as "voltaic" or "galvanic" belts; and it consists in a novel construction of the plates and the intermediate fibrous material by which the plates are separated and through which the current passes, and also in mounting these elements upon flexible connecting-cords which permit a free rolling motion upon each other of the adjacent positive and negative plates and allow the belt to be perfectly fitted to the body.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my belt. Fig. 2 is a vertical section of the same. Fig. 3 is a cross-section, showing a body with the belt applied. Fig. 4 shows the belt combined with a truss-pad.

A and B represent the positive and negative plates, such as copper and zinc, or their equivalent. C represents an intermediate porous or fibrous substance for containing the exciting-liquid, such as diluted vinegar, or any other suitable liquid; and D D represent the cords, which I prefer to be of silk, upon which the little batteries are strung for the purpose of forming a series in the form of a belt.

I prefer the plates A and B to be formed into segments of about two-fifths of a circle, so that the intermediate substance can be in the form of a round pencil or cord cut off in sections of equal length of the plates. The plates are perforated near their ends for the passage of the cords. Each pair of plates with the intermediate substance forms a complete battery, and when strung on the cords the zinc of one battery comes in metallic contact with the copper of the next, forming a series.

E and F represent the positive and negative electrodes of the belt. When used, one electrode is applied to the spine at or above the origin of the nerve-ganglions supplying the part affected, while the other is applied over the part affected.

G represents the water-proof covering, which is applied to the belt for the purposes of insulation and the retention of moisture in the belt. This may consist of a coating of rubber dissolved in naphtha or other suitable material, and spread over the series with a brush, or coated in any other suitable manner.

H represents a web or band which passes around the body under the galvanic belt, to give greater strength and support and to prevent chafing of the body by the metallic belt.

I have discovered that galvanism aids materially in the radical cure of hernia. In that case, instead of the web H, I combine my belt with the band of a truss and direct the currents between the spine and rupture. When so used I insulate the electrode F and direct the current to the truss-pad I, which forms the electrode, as shown in Fig. 4.

It will be observed that the complete galvanic belt consists of two series of batteries, one on each side of the body, but joining at their ends to one common electrode at each end.

When the zinc end of a series is placed over the abdomen and the copper end upon the spine the current passes from zinc to copper through the series half-way around the body on each side, from abdomen to back, then through the body to the zinc, forming a circuit. In that case the current is direct along the nerves from spine to periphery; but when the electrodes are reversed the current is inverse. A direct current soothes and strengthens, while an inverse one stimulates and excites. To meet these important indications my belt is constructed.

I do not claim, broadly, a belt composed of the voltaic elements, as I am aware that such belts have been heretofore constructed; neither do I claim a truss-pad having the elements of a voltaic pile or battery within itself, as I am aware that such a device has been patented; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The improvement in galvanic or voltaic belts, consisting in forming the positive and negative plates A B of each pair into segments of cylinders, extending across the belt and inclosing a cylinder of fibrous material, which separates their edges, said pairs being perfo-

rated and mounted upon the flexible cords D D, so that the adjacent opposite elements are in contact, substantially as herein described.

2. The galvanic or voltaic serial belt constructed of the transverse cylindrical elements A B C, perforated and mounted upon the flexible cords D D, as shown, in combination with a truss or supporting-pad, I, said pad forming one electrode, while the other is placed upon the opposite side of the body, substantially as herein described.

3. The independent current-plates A B, with the intermediate fibrous substance C, in com-

bination with the flexible connecting-cords D D, the same forming a belt or band to be worn around the body, while the curvature of the plates allows them to roll upon each other for adjustment without breaking their contact, substantially as herein described.

In witness whereof I have hereunto set my hand.

EDWIN J. FRASER, M. D.

Witnesses:

GEO. H. STRONG,
FRANK A. BROOKS.