

(No Model.)

2 Sheets—Sheet 1.

C. P. ELIESON.
STORAGE BATTERY.

No. 469,129.

Patented Feb. 16, 1892.

Fig. 1.

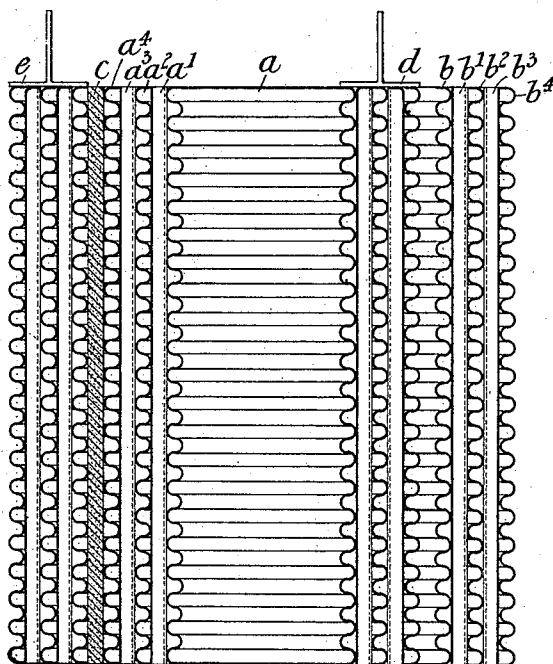
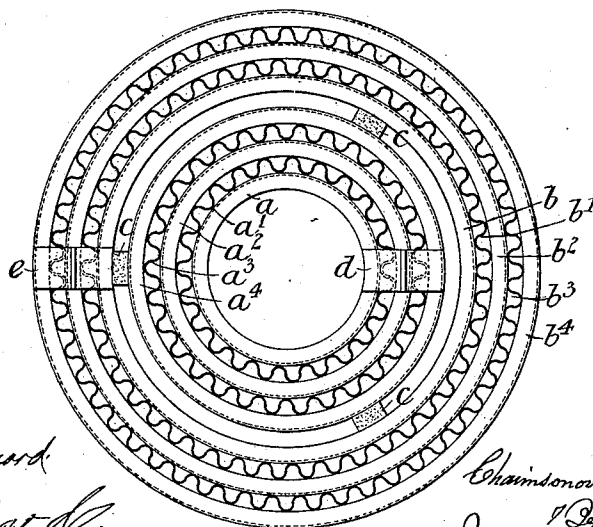


Fig. 2.



Witnesses

Charles C. Driscoll
W. H. Mainard

Inventor.

Chasmonovitz Prosper Eliason
John J. Hales for
his attorney

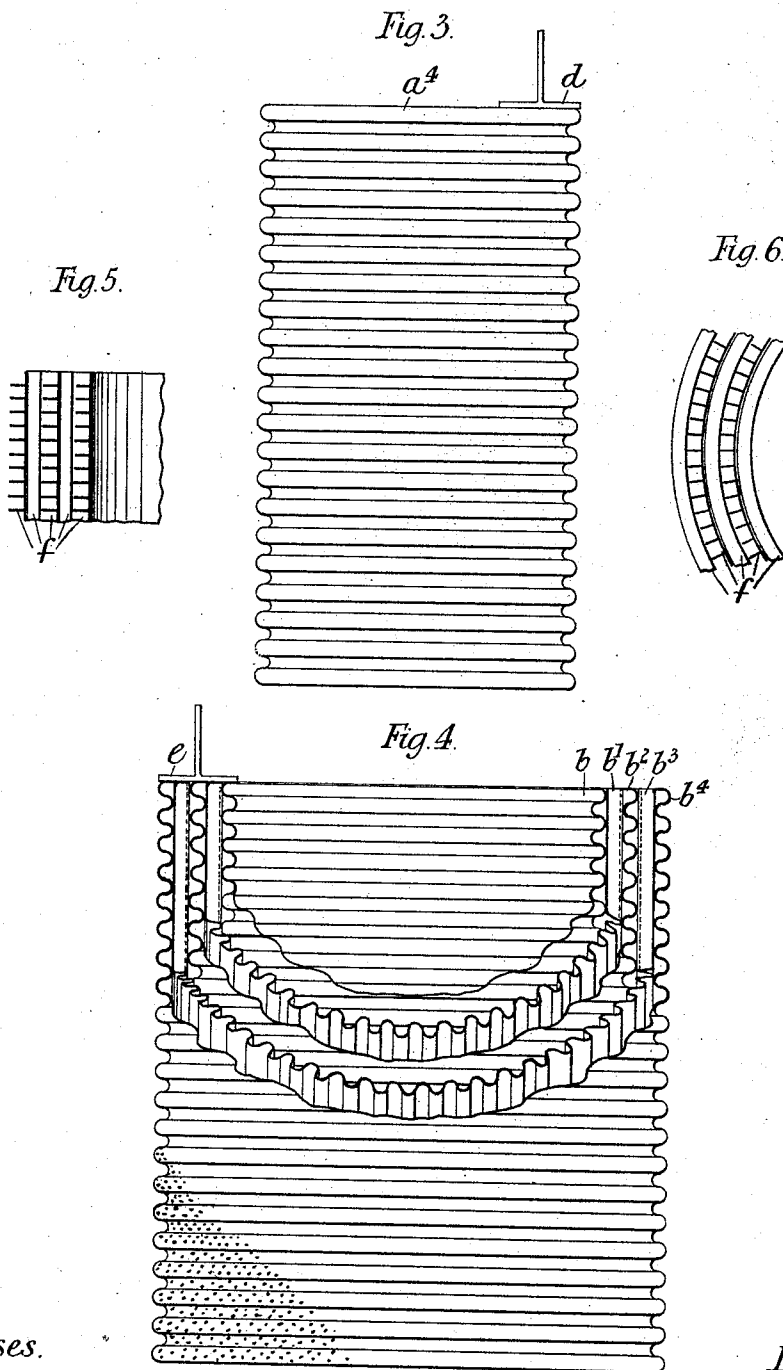
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2 Sheets—Sheet 2.

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C. P. Bainard
M. A. Bainard

Inventor.

Chaimsonovitz Prospera Elison
By J. H. Husted
his atty

UNITED STATES PATENT OFFICE.

CHAIMSONOVITZ PROSPER ELIESON, OF LONDON, ENGLAND, ASSIGNOR OF
ONE-HALF TO FREDERIC ALFRED PELLAS, OF OGGOBIO, ITALY.

STORAGE-BATTERY.

SPECIFICATION forming part of Letters Patent No. 469,129, dated February 16, 1892.

Application filed June 4, 1891. Serial No. 395,091. (No model.)

To all whom it may concern:

Be it known that I, CHAIMSONOVITZ PROSPER ELIESON, a subject of the Queen of Great Britain, residing at London, England, have
5 invented new and useful Improvements in Electrical Accumulators or Storage-Batteries, of which the following is a specification.

My invention relates to electrical accumulators or storage-batteries.

10 Electrical accumulators or storage-batteries as at present generally used have a number of plates, which deteriorate so rapidly as to become comparatively useless in a short time, and this is especially the case with accumulators used for electric traction. The principal reasons of such short life are the buckling of the positive plates and their rapid
15 disintegration, chiefly owing to the gradual growth or expansion of the said plates and the molecular increase of the active material and to the fact that such growth or enlargement is usually checked by the body or frame which holds the active material, whereby the plates in their forcible expansion will assume
20 fanciful shapes or become warped, with the result that the said plates are nearer at some points than others, whereby the uniformity of the internal construction is in a short time destroyed, as is also the uniformity of the internal resistance between the plates.

25 The object of my invention is to obviate these defects; and to this end I provide electrodes, each of which is advantageously built up of a series of corrugated envelopes of cylindrical or other desirable shape, composed
30 of thin lead or other suitable metal and preferably perforated. These envelopes are placed one within the other, and the corrugations are so arranged that those of one cylinder cross
35 or are at an angle to those of the adjacent cylinders.

40 In using my improved electrodes one is placed within the other, suitable means being provided for preventing them from coming into contact.

45 To enable my invention to be fully understood, I will describe the same with reference to the accompanying drawings, in which—

50 Figure 1 is a vertical section of a pair of accumulator-electrodes constructed according to my invention, and Fig. 2 is a plan of the

same. Figs. 3 and 4 are an elevation and an elevation partly in section of the electrodes separated. Figs. 5 and 6 are a vertical section and a sectional plan illustrating a modification of my invention.

55 $a a' a^2 a^3 a^4$ indicate a series of corrugated and perforated cylinders, forming the positive electrode, the perforations being shown in part in Fig. 4, and $b b' b^2 b^3 b^4$ are the cylinders of the negative electrode, which are similarly corrugated and perforated. In the drawings I have shown each electrode as composed of five cylinders, (although a greater or lesser number may be used,) which cylinders are
60 alternately corrugated longitudinally and circumferentially, as shown most clearly in Fig. 1, and fitted one within the other, so as to be in contact. In order to prevent the two electrodes from coming into contact, and thereby
65 forming a short circuit, I advantageously place india-rubber strips c between the electrodes, as shown in the drawings.

70 $d e$ are contact-plates, which form metallic connection between the various cylinders of the positive and negative electrodes, respectively.

75 Although I have described the cylinders as being corrugated longitudinally and circumferentially, it is obvious that the corrugations could extend in a helical direction around the cylinders, provided the corrugations of one cylinder cross or are at an angle to those of the other cylinder; also, I sometimes form the cylinders with small flanges instead of
80 with corrugations. As shown in Figs. 5 and 6, these flanges, which are indicated by the letter f , are arranged longitudinally and circumferentially on alternate cylinders and on one side of each cylinder only; but it is obvious that the said flanges may be formed upon
85 both sides of each cylinder and arranged in any desirable direction.

90 Some of the advantages of my invention are that, owing to the very large surface obtained by the use of a series of concentric cylinders, I secure a large amount of storage capacity; that the method of construction affords great strength, whereby I am enabled to use relatively thin metal for the cylinders, thereby
95 greatly reducing the weight of an accumulator of given storage capacity as compared with

an accumulator of the same capacity as heretofore constructed, and that the grooves of the corrugations afford ample space for the molecular increase of the cylinders without causing buckling or bending, whereby the cost of maintenance is very low as compared with that of other accumulators.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

An electrical accumulator or storage-battery, each electrode of which is built up of a

series of juxtaposed corrugated and perforated metal tubes united together by a contact-piece, as described, the corrugations of each of the several tubes composing such electrode being at an angle to those of its next adjacent tube or tubes.

CHAIMSONOVITZ PROSPER ELIESON.

Witnesses:

JOHN E. BOUSFIELD,
*Of the firm of G. F. Redfern & Co., 4 South
Street, Finsbury, London, Patent Agents.*
W. C. BROKENSHERE.