No. 663,937. Patented Dec. 18, 1900.

C. B. SCHOENMEHL.

PRIMARY BATTERY.

(Application filed Feb. 27, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

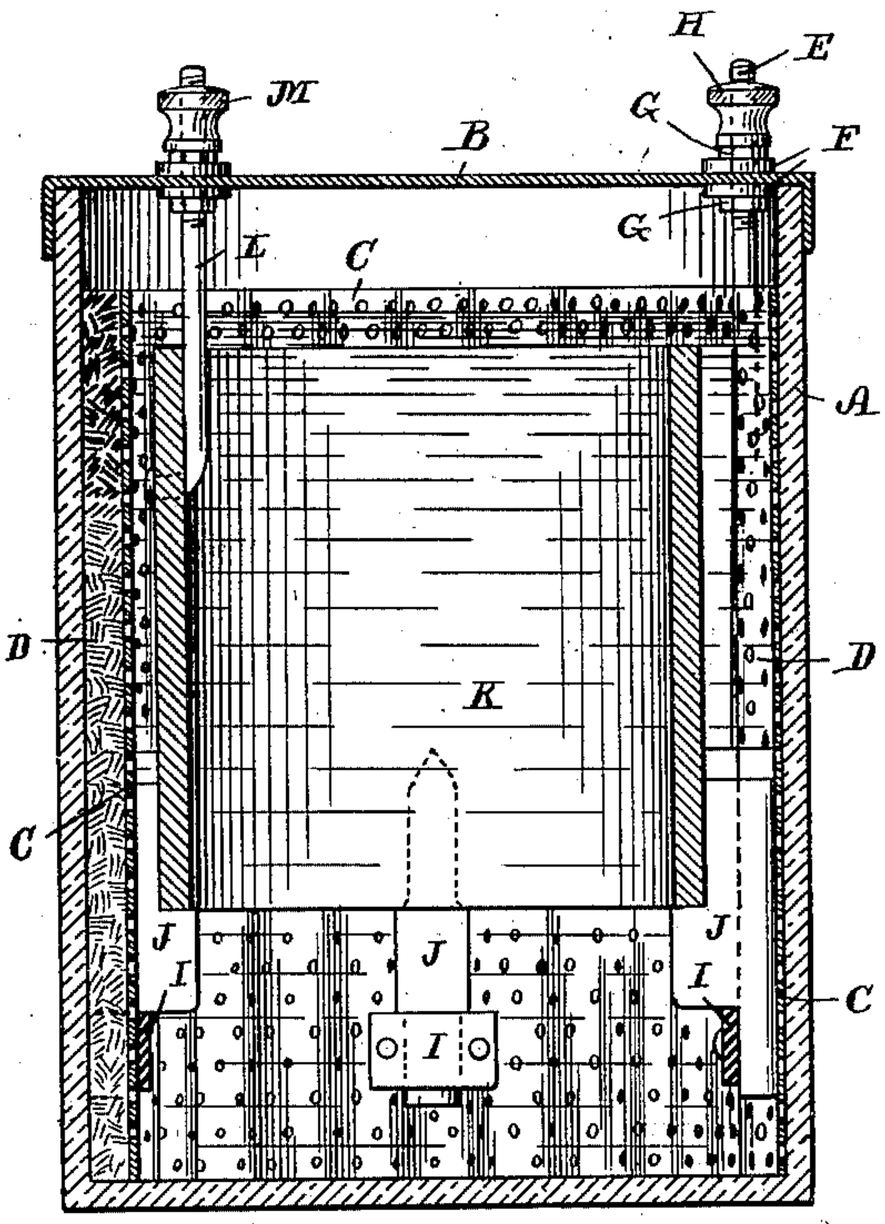


Fig. 3.

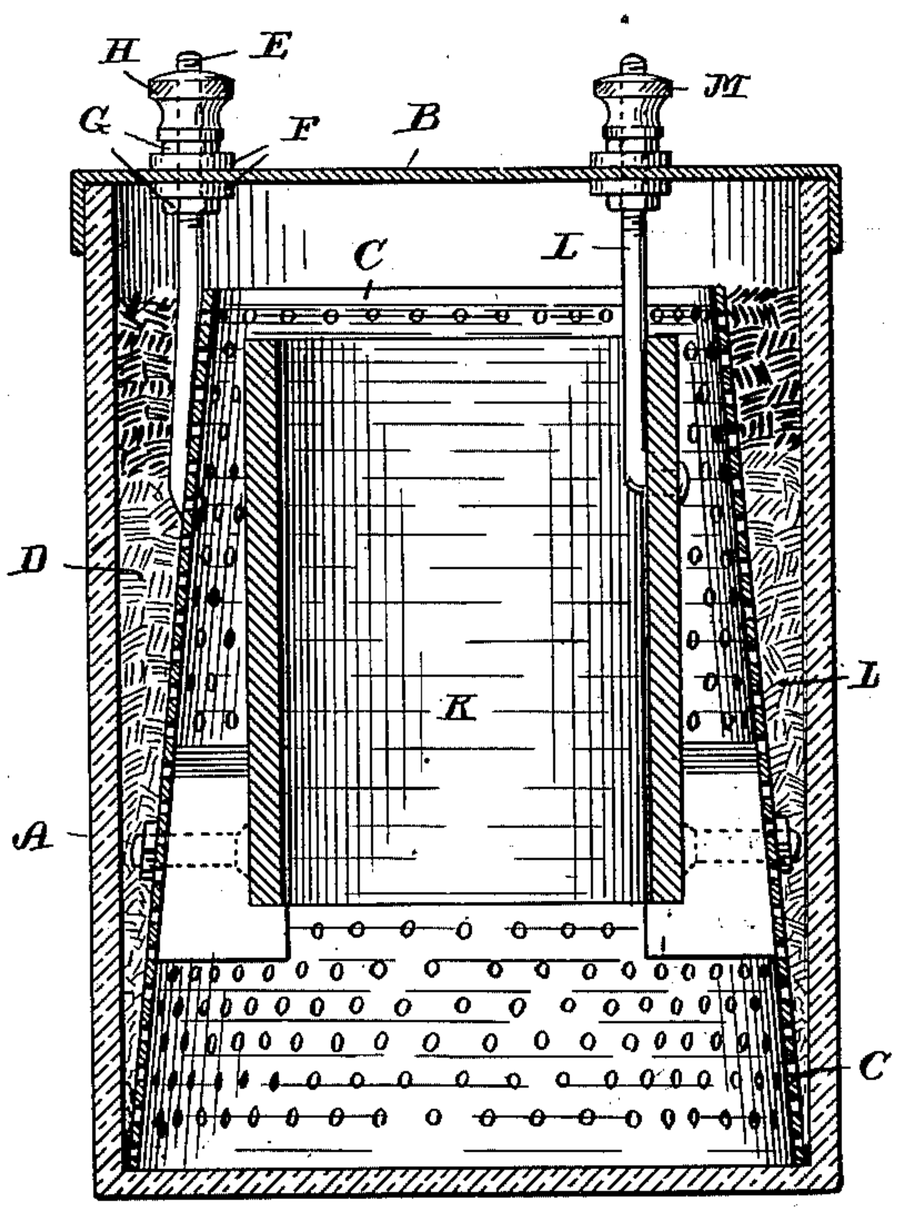


Fig. 2.

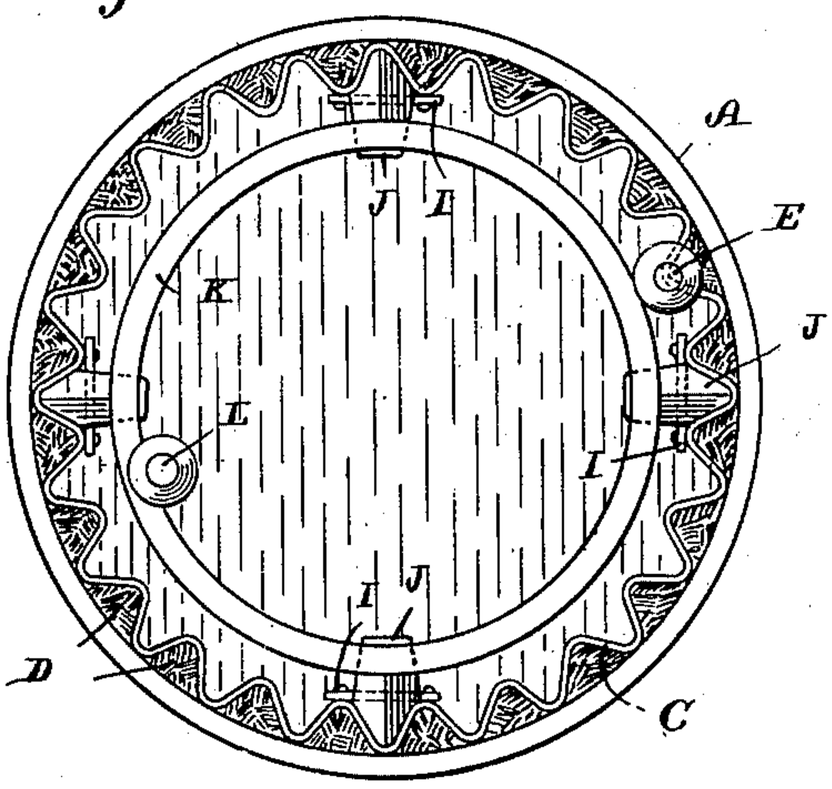
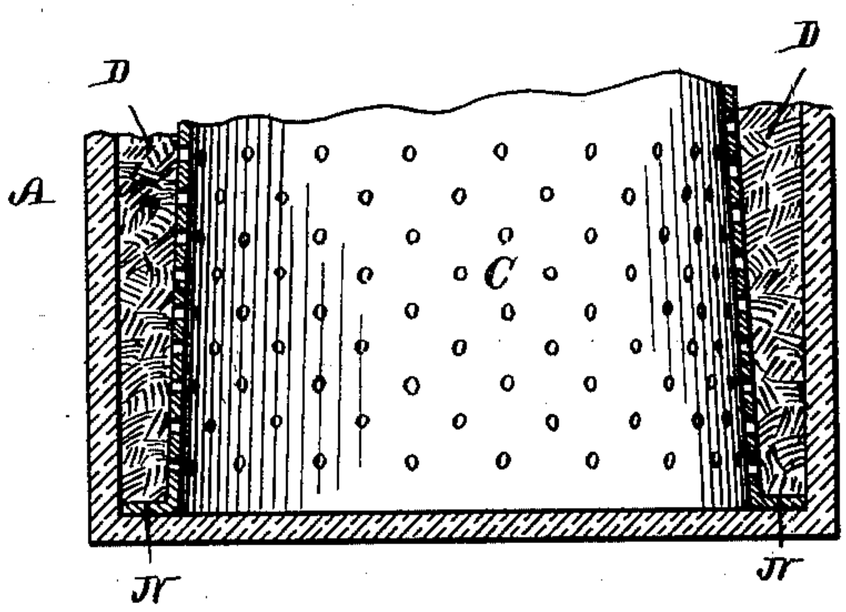


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

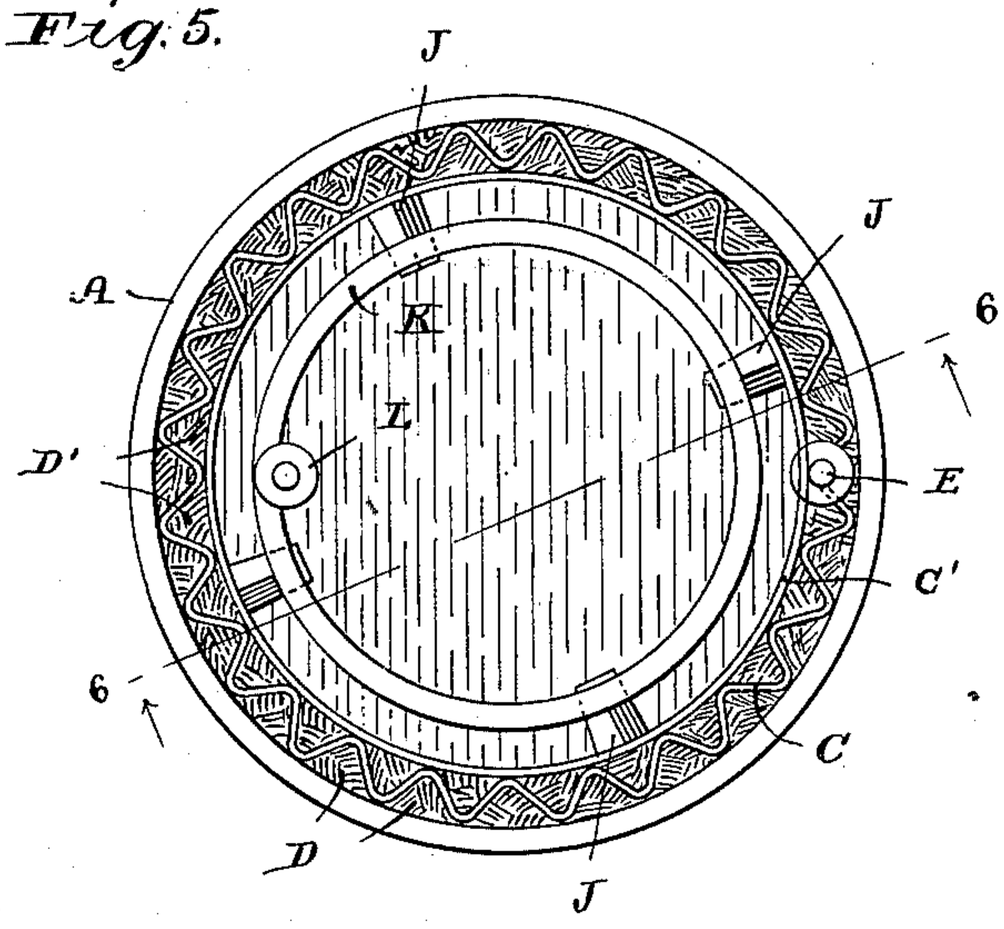
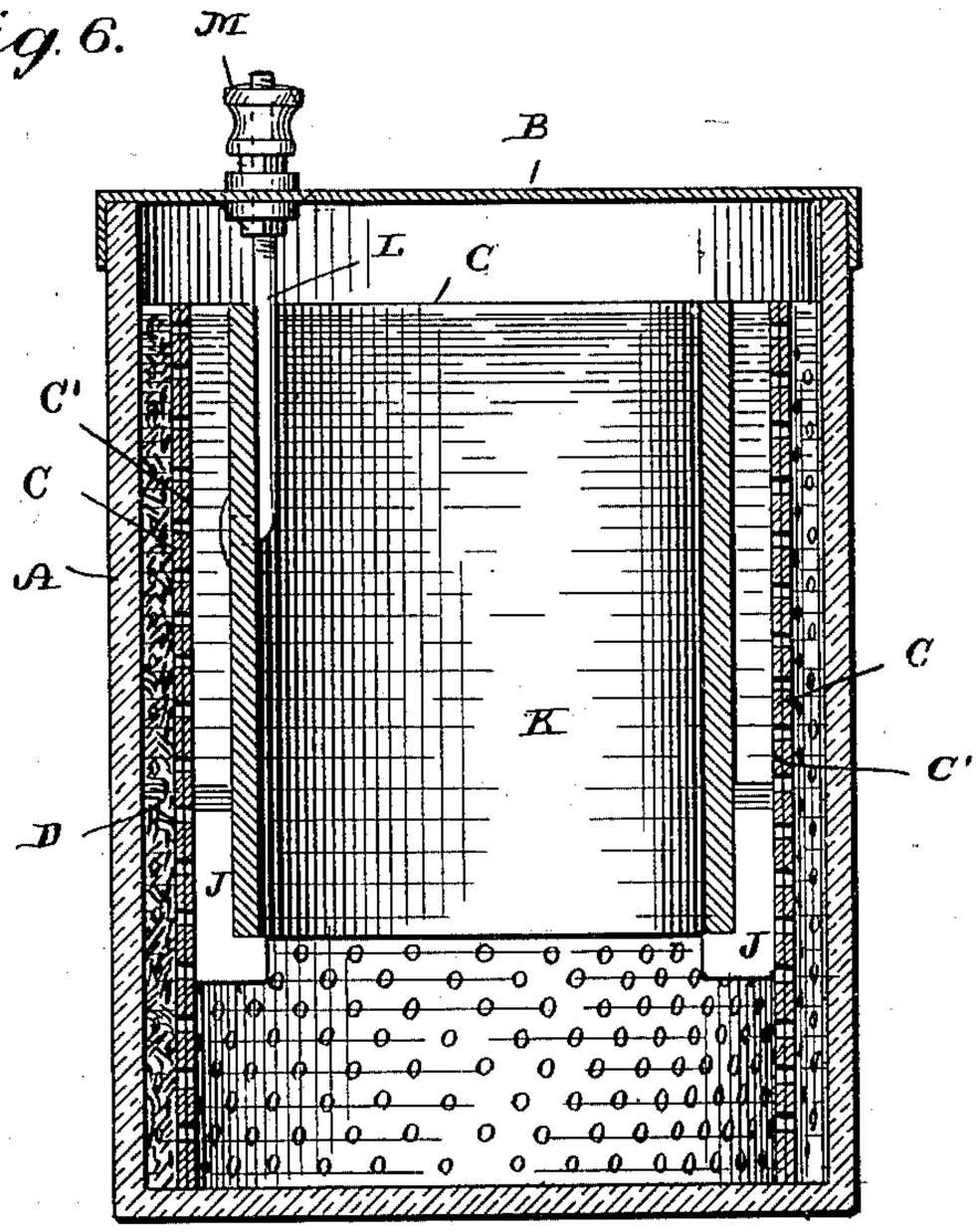


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES B. SCHOENMEHL, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY BATTERY COMPANY, OF SAME PLACE.

PRIMARY BATTERY.

SPECIFICATION forming part of Letters Patent No. 663,937, dated December 18, 1900.

Application filed February 27, 1900. Serial No. 6,695. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. SCHOENMEHL, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Galvanic Batteries, of which the following is a specification.

This invention relates to new and useful improvements in closed-circuit galvanic batteries wherein oxid of copper and a suitable fluid make up the several principal elements thereof.

The object of my invention is principally to provide a battery the condition of which may readily be detected without the use of a gage or meter, thereby avoiding loss of time when inspecting. The above is accomplished by the employment of a transparent jar and locating the copper element adjacent to the inner wall thereof, so that its condition may be seen at a glance. I further provide means whereby the copper employed is uniformly distributed within and against the inner wall of the jar, so as to insure a uniform action upon all sides and whereby an examination of one side of the jar may be relied upon as representing its true condition.

With the above object in view I provide the novel construction and combination of parts set forth in the accompanying drawings, forming a part of this specification, and upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a central vertical sectional view of my novel battery complete. Fig. 2 is a plan view of Fig. 1, the cover of the battery being removed. Fig. 3 shows a sectional view similar to that illustrated in Fig. 1, but containing a modified form of the oxid-of-copper chamber. Fig. 4 is a detail sectional plan view of the lower portion of a jar containing a further modification of the means for producing an oxid-of-copper chamber of uniform thickness. Figs. 5 and 6 show a plan and a cross-sectional view, respectively, of a construction containing a double series of vertical pockets.

Referring in detail to the characters of reference marked upon the drawings, A indicates the jar, which, as before stated, is preferably formed of glass, and B its cover, which may be of the usual metallic construction. Within the jar I locate a perforated cylindrical metal wall C, which is designed to retain the oxid-of-copper elements against the inner wall of the jar in a manner to permit of its inspection from the exterior. This perforated cylinder is specially constructed and so arranged that when placed into the jar it centers itself and needs no special adjustment to produce a chamber or series of chambers D of uniform depth and thickness upon all sides, thus permitting a uniform quantity of copper oxid to be contained therein, as before stated. In Figs. 1 and 2 I have shown this perforated cylinder consisting of a series of vertical corrugations, each of which, in conjunction with the jar, forms a separate vertical compartment for the reception of oxid of copper, as will be apparent. These compartments are of uniform size and shape and are equally subjected to the electrical influences. Consequently they are uniformly consumed, the process of which is first apparent by the coloring which begins at the top of said copper and gradually works down through the body thereof until it is entirely consumed. This perforated cylinder is provided with a wire E, which extends up through and is insulated from the cover B, before mentioned, by means of suitable insulating-washers F F, as is clearly shown. Nuts G G serve to clamp these washers against the cover, and a thumb-nut H is provided for the service-wire.

Upon the inside of the perforated cylinder I attach a suitable number of cleats I to the convex portion of the adjoining corrugations, thus spanning the concave portion thereof in a manner to form a rest for a porcelain support J, as clearly appears in Figs. 1 and 2. These porcelain rests when properly located serve to retain a zinc element K central of the basket and at a uniform distance therefrom. This zinc is also provided with a wire L, which extends up through the cover and is insulated therefrom through the medium of washers and nuts, as in the instance of the previously-mentioned wire, attached to the perforated cylinder. This wire L is also provided with a thumb-nut M, by means of which

a second field-wire is attached. The completion of the battery is effected by the employment of a suitable exciting fluid.

In Figs. 3 and 4 I show perforated cylinders which when inserted produce a single chamber for the oxid of copper, which is of uniform diameter upon all sides. In Fig. 3 it will be seen that this is accomplished by forming the cylinder smaller at one end than at the other, the largest or bottom end being of a diameter equal to that of the interior of the jar, thus insuring the proper centering of the cylinder within the jar and producing a chamber thicker at the top than at the bottom, but of a uniform thickness at opposite sides. The perforated cylinder in Fig. 4 is shown partially inclined; but the essential feature in this construction is the turning out of a flange N at the bottom of the cylinder, the peripheral edge of which is of a size that will snugly fit into the interior of the jar.

In some instances I elect to use both the corrugated cylinder C′ (shown in Fig. 2) and a plain cylinder, in some respects similar to that shown in Fig. 4, by placing the latter inside of the former, thus producing a double series of compartments D and D′, which construction gives more room and is easier to fill with copper oxid.

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

1. The combination in a battery of the class described of a transparent jar, a perforated corrugated cylinder fitted into said jar producing an outer series of pockets, a perforated cylinder interior of said corrugated cylinder forming an inner series of pockets, a depolarizing agent in said pockets, a zinc, means for supporting the same and a binding-wire attached to said zinc.

2. In a battery of the class described, the combination with a transparent jar, of a perforated cylinder therein provided with a series of corrugations to retain it at a uniform distance from the jar, an oxid-of-copper element contained in the space formed between said jar and cylinder, a contact-wire leading from said cylinder, a zinc element located central of the cylinder and provided with a contact-wire, and means for supporting said zinc.

3. In a battery of the class described, the combination with a transparent jar, of the perforated corrugated cylinder adapted to snugly fit into said jar and be retained at a uniform distance from the same, a connecting-wire from said cylinder and series of cleats secured to the interior of said cylinder, porcelain rests supported on said cleats, an oxid-of-copper element, a zinc element resting upon said porcelain rests and a binding-wire attached to said zinc.

4. The combination in a battery of the class described, of a transparent jar, a perforated cylinder fitted into the interior of said jar, extensions of said cylinder forming a series of pockets between said cylinder and jar, an oxid-of-copper element in said pockets, porcelain blocks attached to the interior of said cylinder, a zinc resting upon said blocks and a connecting-wire from said zinc.

5. In a battery the combination with a transparent jar of a perforated cylinder, extensions of said cylinder to engage the vertical walls of the jar and retain it at a uniform distance from the same to form one or more pockets of an equal diameter upon all sides, an oxid-of-copper element within said pocket, a zinc element, suitable insulating-blocks supporting said zinc at a uniform distance from the cylinder, connecting-wires from the zinc and cylinder with suitable binding-screws attached, substantially as shown and described.

Signed at Waterbury, Connecticut, this 20th day of February, A. D. 1900.

CHARLES B. SCHOENMEHL.

Witnesses:

C. M. NEWMAN,

EDWARD K. NICHOLSON.