

No. 654,520.

Patented July 24, 1900.

C. J. COLEMAN.
SECONDARY BATTERY.

(Application filed Oct. 2, 1899.)

(No Model.)

Fig. 1.

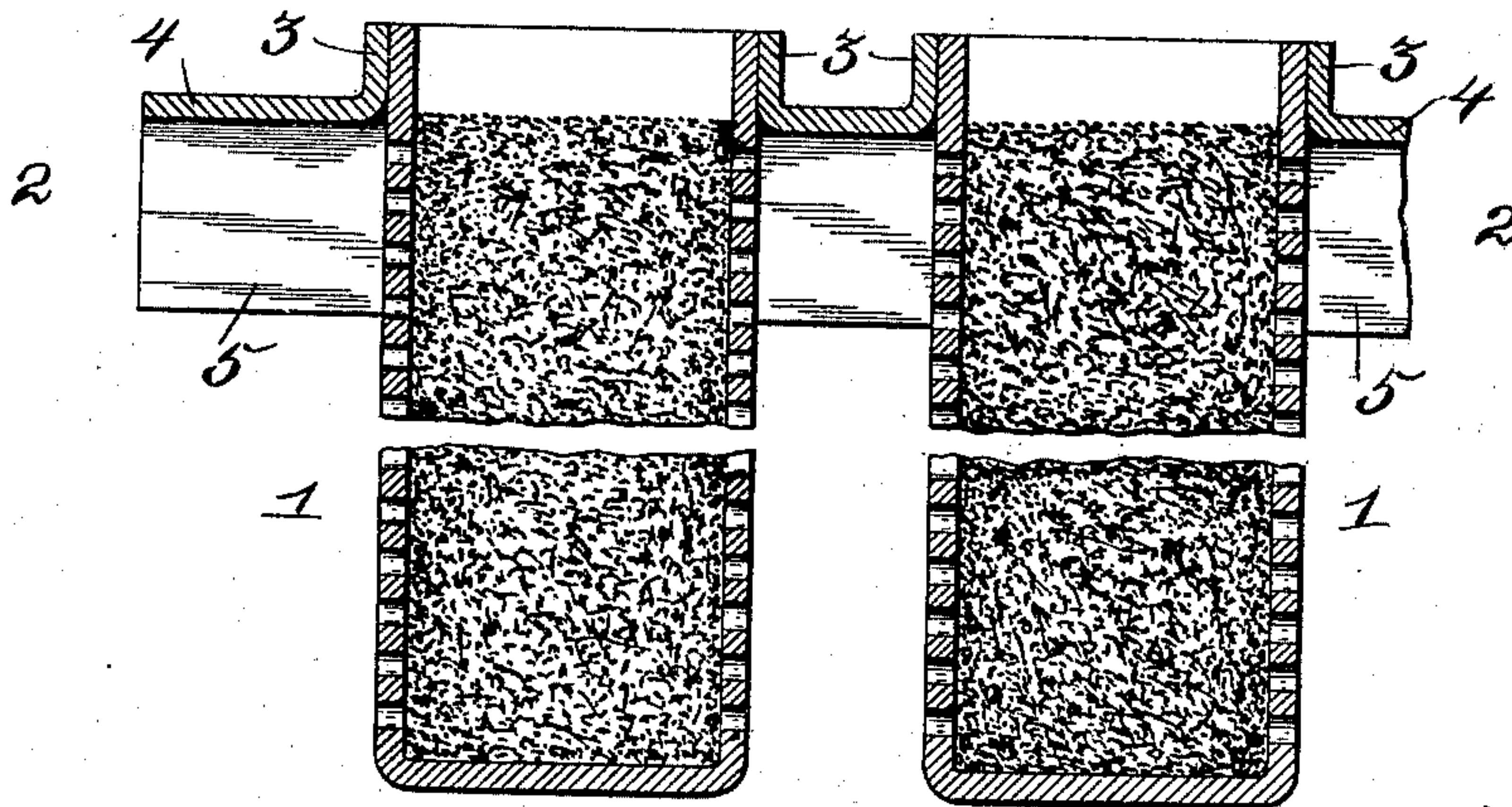


Fig. 2.

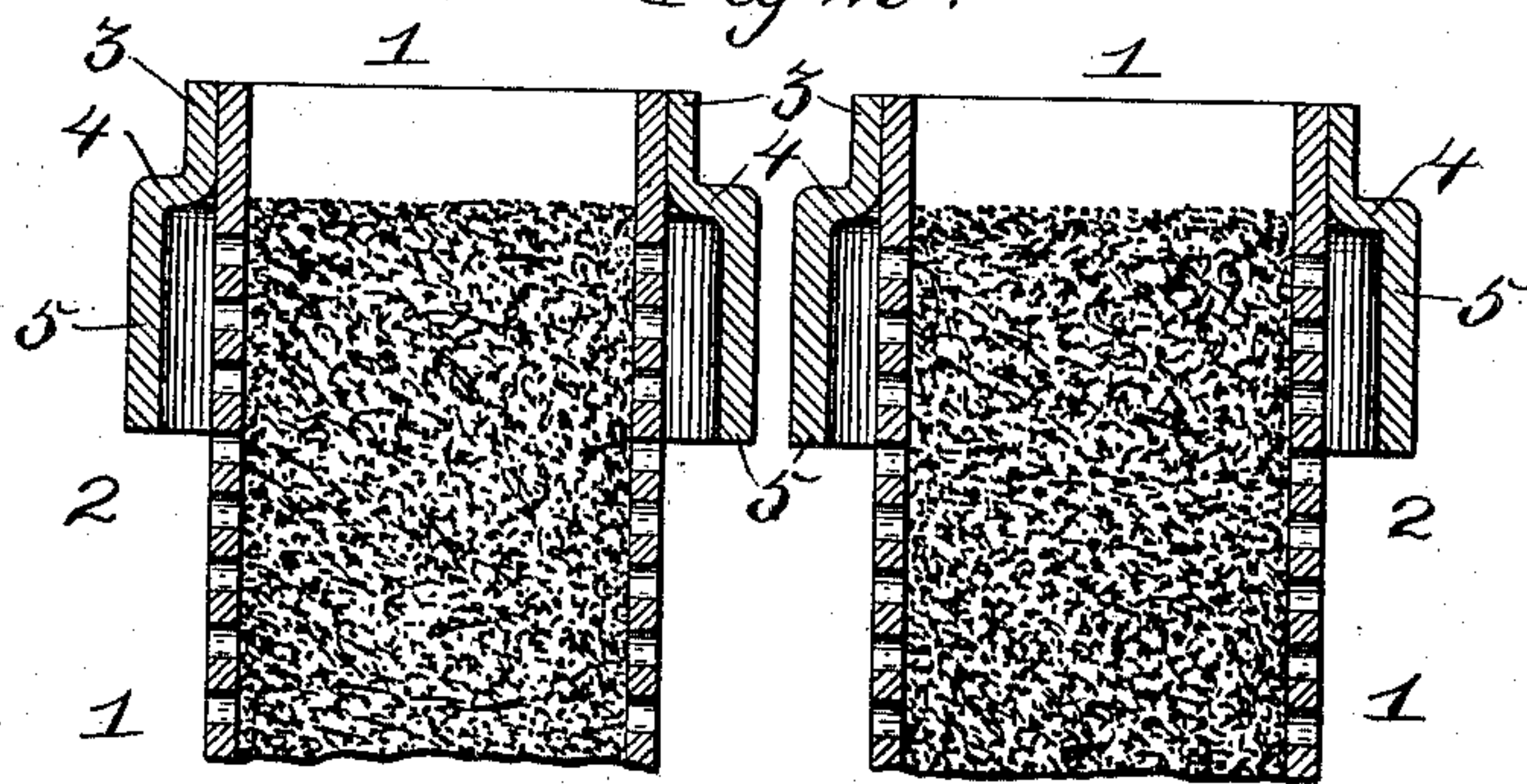
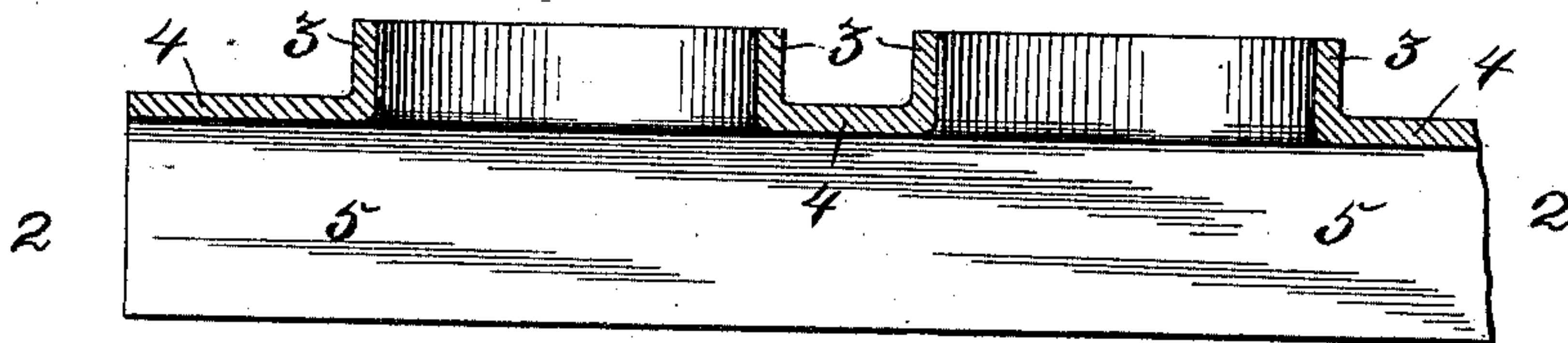


Fig. 3.



Attest:
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UNITED STATES PATENT OFFICE.

CLYDE J. COLEMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THOMAS J. RYAN,
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SECONDARY BATTERY.

SPECIFICATION forming part of Letters Patent No. 654,520, dated July 24, 1900.

Application filed October 2, 1899. Serial No. 732,855. (No model.)

To all whom it may concern:

Be it known that I, CLYDE J. COLEMAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Secondary Batteries; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to that type of secondary batteries in which the active material is inclosed within perforated casings of conductive material, an example of which forms the subject-matter of my application for Letters Patent filed August 3, 1899, Serial No. 726,014.

The object of the present improvement is to provide a durable and efficient connecting means between a series of tubular holders or casings and a connecting bar or strip to constitute an electrode for secondary batteries, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a fragmentary longitudinal section of a secondary-battery electrode embodying the present invention; Fig. 2, a similar transverse section of a pair of such electrodes; Fig. 3, a detail longitudinal section of the connecting bar or strip of the present improvement.

Similar numerals of reference indicate like parts in the different views.

As represented in the drawings, each secondary-battery electrode of the present invention will comprise a series of elongated tubular casings or holders 1, formed of perforated lead tubing or other like conducting material and arranged in parallel and separated relation, with their upper ends connected together by means of a conducting strip or bar 2, the arrangement being substantially the same as that set forth in my aforesaid former application, Serial No. 726,014.

The first part of the present improvement involves the formation of the connecting strip or bar 2 with a series of vertically-extending necks or flanges 3 of a diameter corresponding to that of the upper ends of the series of tubular casings or holders 1 and adapted to

fit over such ends and afford an extended surface contact between the parts to afford both a substantial mechanical connection and a maximum conductive union between the parts, and which conductive union may be still further increased by a fusion together of the upper ends of the flanges 3 and the tubular casings 1, as set forth in my former application, Serial No. 726,014.

Another part of the present improvement involves the formation of the connecting strip or bar with a wide horizontal portion 4, in which the necks or flanges 3, heretofore described, are formed, and with longitudinal flanges 5 at each side of the horizontal portion 4 to afford lightness and rigidity to the connecting strips or bars.

The series of tubular and perforated casings or holders 1 are filled with loose active material, such as oxid of lead, to constitute the completed battery-electrodes, as usual in the present type of secondary batteries.

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

1. In a secondary battery, the combination of a perforated conducting-casing for containing the active material, and a connecting strip or bar having an opening with a thin vertically-extending flange or neck around said opening receiving the upper end of such casing, and adapted to afford a convenient means for effecting a fused joint between the parts, substantially as set forth.

2. In a secondary battery, the combination of a series of perforated conducting-casings for containing the active material, and a connecting strip or bar, common to the series, and having an opening with a series of thin vertically-extending flanges or necks around said opening receiving the upper ends of such casings, and adapted to afford a convenient means for effecting a fused joint between the parts, substantially as set forth.

3. In a secondary battery, the combination of a perforated conducting-casing for containing the active material, and a connecting strip or bar having an opening with a horizontal plate portion, longitudinal side flanges, and a thin vertically-extending flange or neck around said opening receiving the upper end

of such casing and adapted to afford a convenient means for effecting a fused joint between the parts, substantially as set forth.

4. In a secondary battery, the combination
5 of a series of perforated conducting-casings
for containing the active material, and a connecting strip or bar common to the series, and
formed with a horizontal plate portion, longitudinal side flanges, and a series of thin vertically-
10 cally-extending flanges or necks receiving the

upper ends of such casings, and adapted to afford a convenient means for effecting a fused joint between the parts, substantially as set forth.

In testimony whereof witness my hand this 15
2d day of September, 1899.

CLYDE J. COLEMAN.

In presence of—

ROBERT BURNS,

HENRY A. NOTT.