

No. 638,730.

Patented Dec. 12, 1899.

R. MACRAE.

CLAMPING TOOL FOR MANUFACTURING BATTERY ELECTRODES.

(Application filed Apr. 8, 1899.)

(No Model.)

Fig. 1.

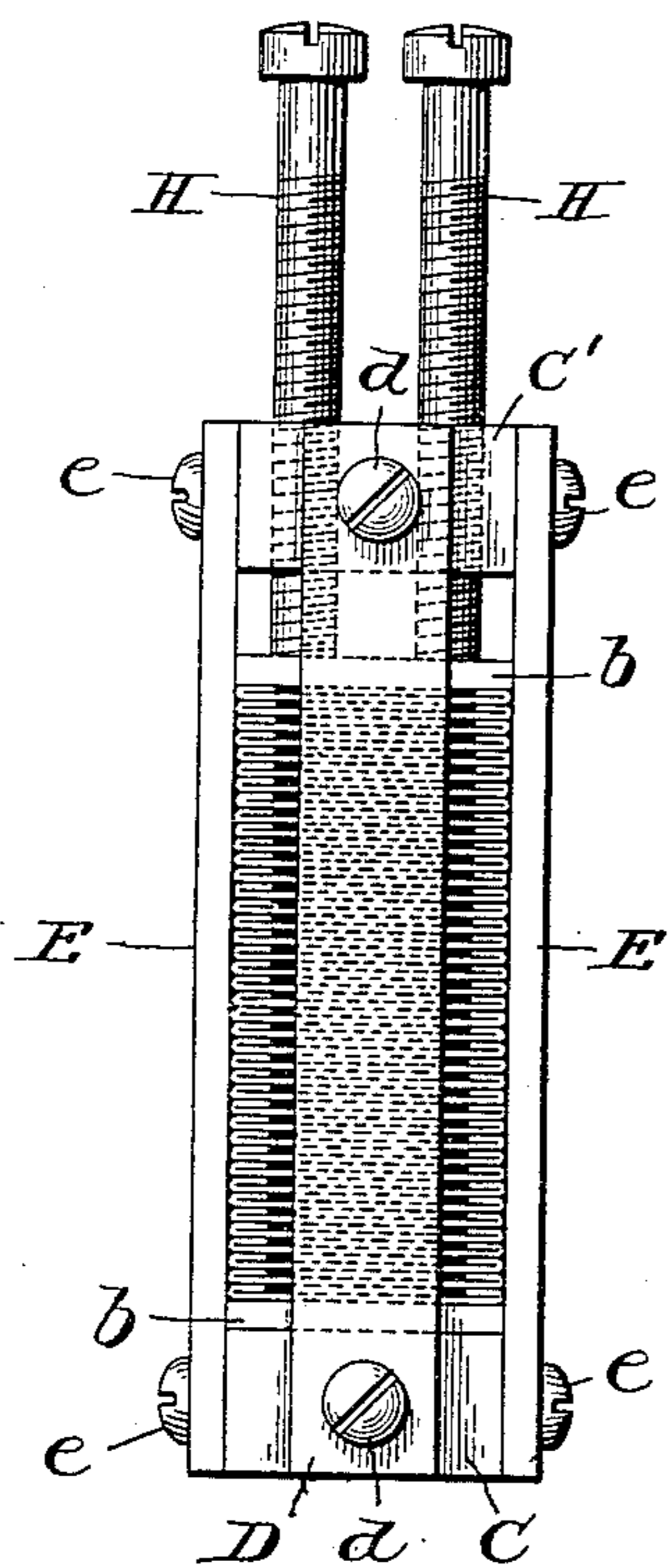


Fig. 2.

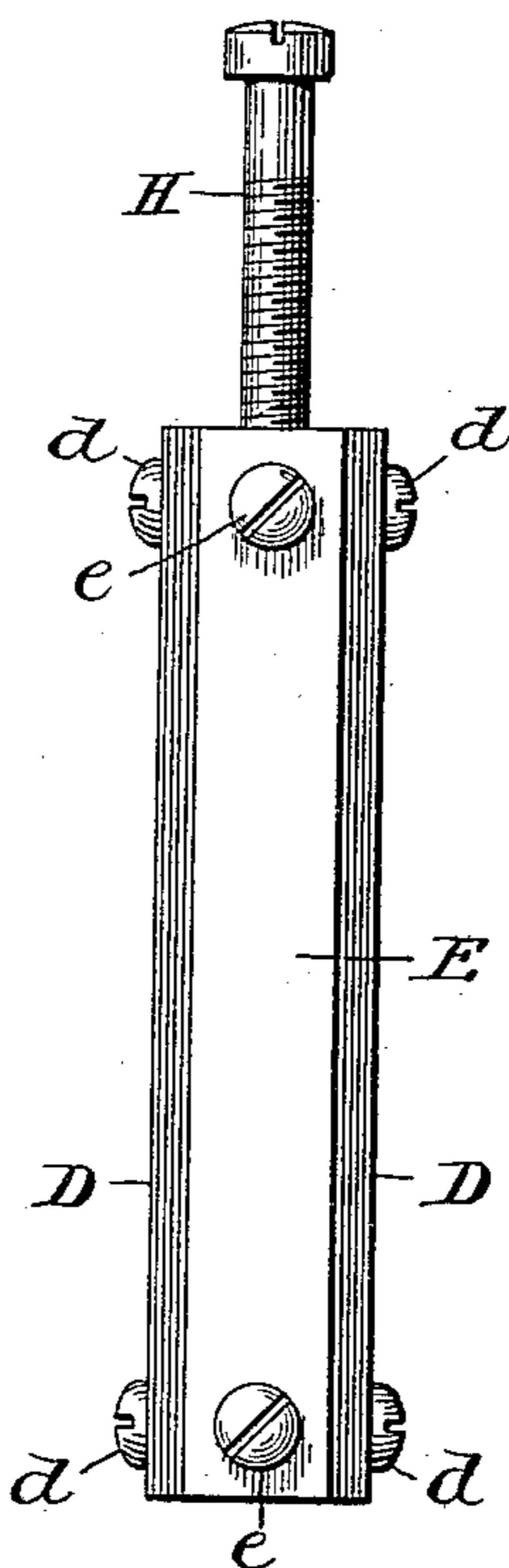


Fig. 3.

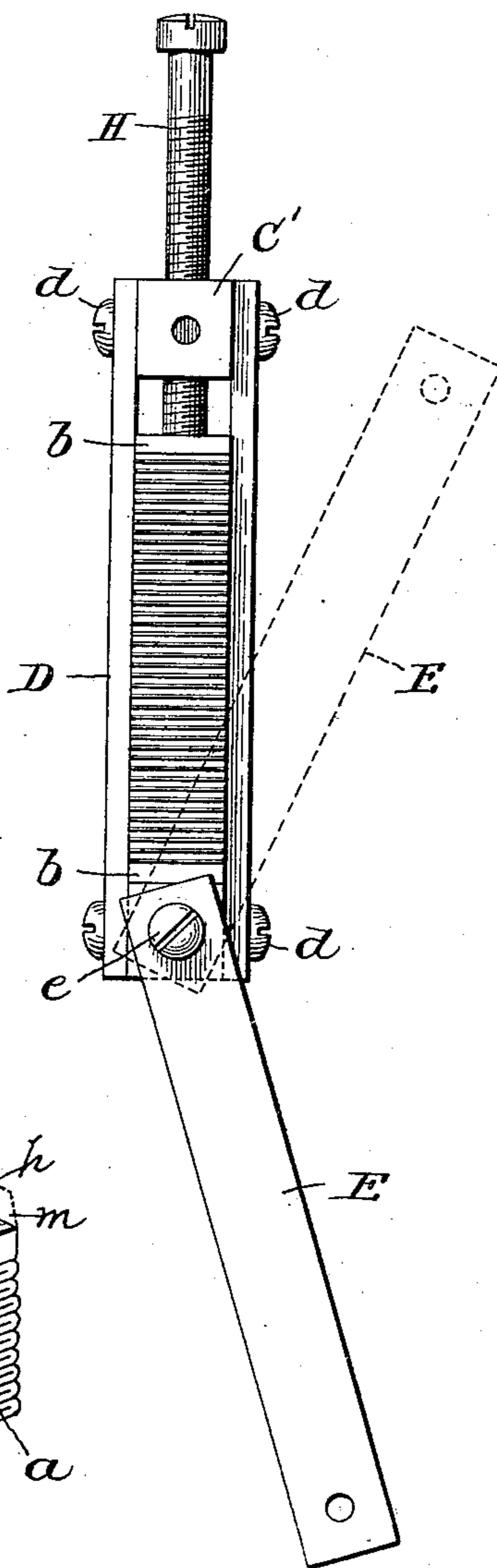


Fig. 6.

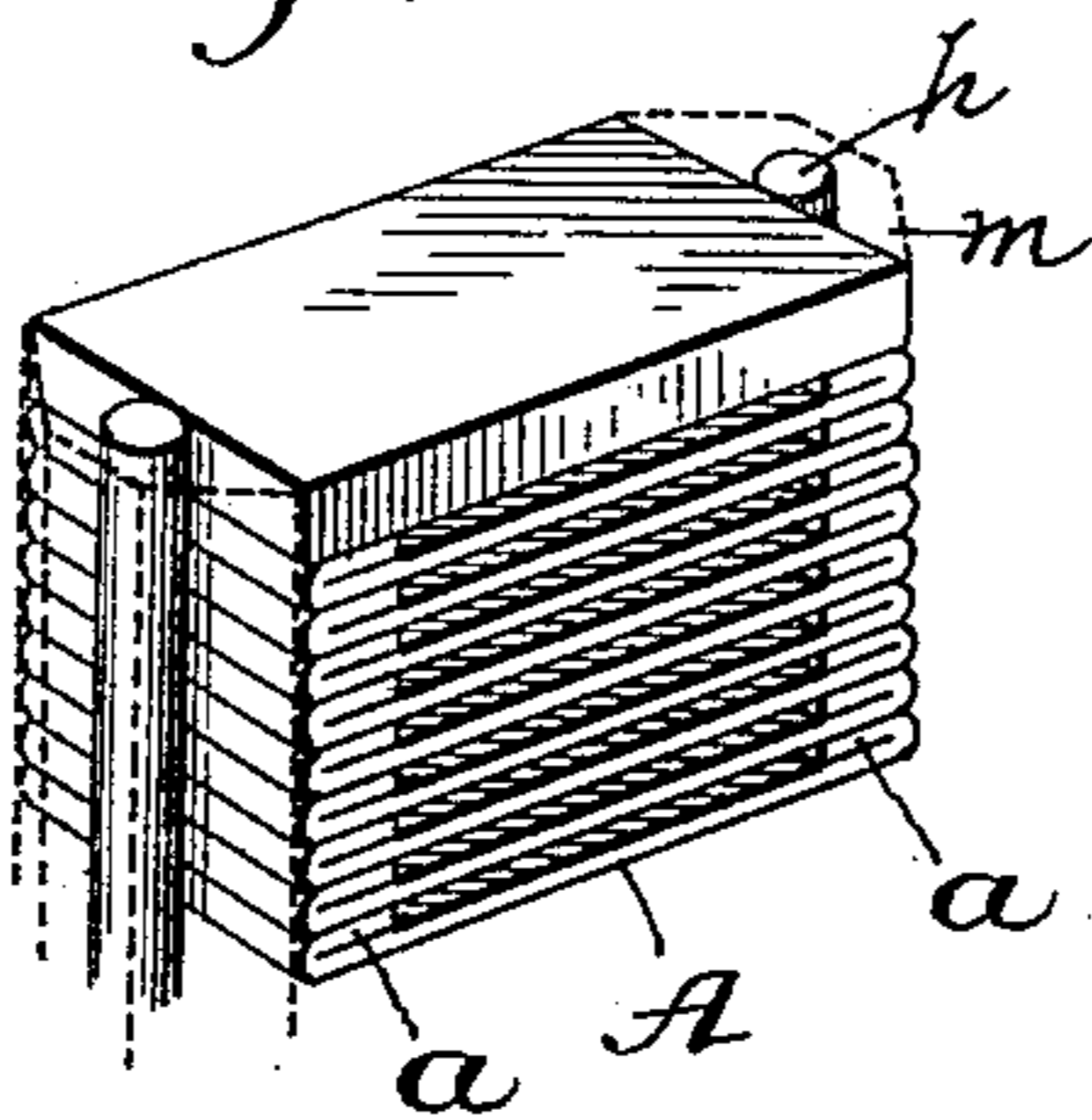


Fig. 4.

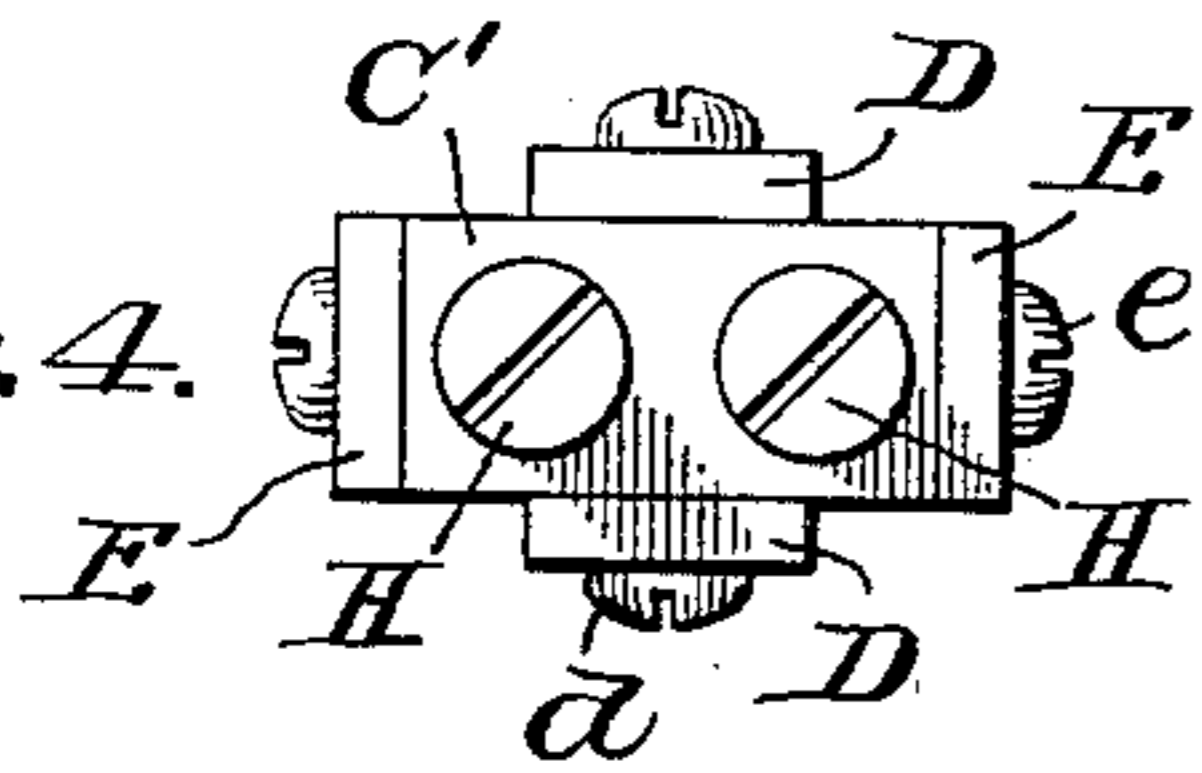
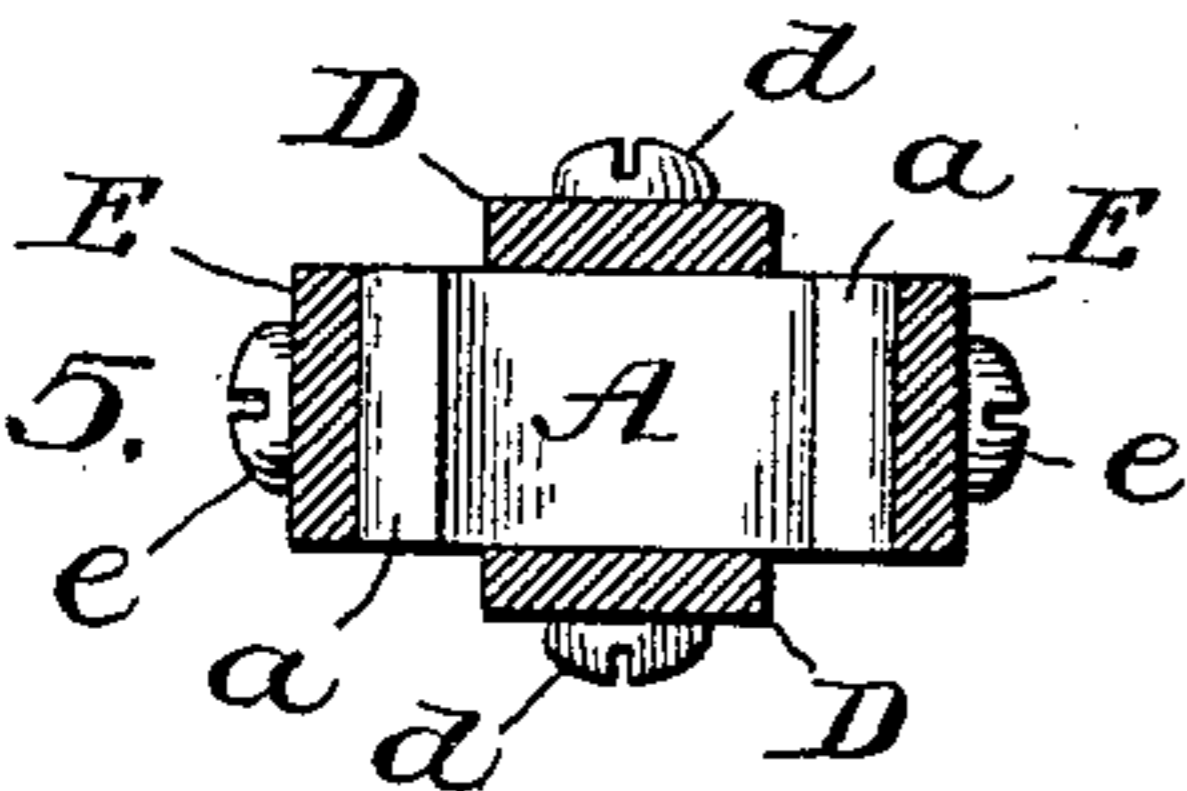


Fig. 5.



WITNESSES:

A. V. groupe
C. E. Parker

INVENTOR

INVENTOR
Roderick Macrae

BY

ATTORNEY

UNITED STATES PATENT OFFICE.

RODERICK MACRAE, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO WILLIAM C. L. EGLIN, OF PHILADELPHIA, PENNSYLVANIA.

CLAMPING-TOOL FOR MANUFACTURING BATTERY-ELECTRODES.

SPECIFICATION forming part of Letters Patent No. 638,730, dated December 12, 1899.

Application filed April 8, 1899. Serial No. 712,269. (No model.)

To all whom it may concern:

Be it known that I, RODERICK MACRAE, a subject of the Queen of Great Britain and Ireland, residing in the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Clamping-Tools for the Manufacture of Battery-Electrodes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to devices for clamping and supporting the elemental parts of battery-electrodes in the process of manufacturing the same; and it consists in a clamping-tool having the distinguishing features hereinafter described, and referred to in the claim.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation of the device with a series of electrode-plates piled or stacked therein; Fig. 2, a side view thereof; Fig. 3, a like view illustrating the pivoted locking-plate; Fig. 4, a top view; Fig. 5, a bottom or end view, and Fig. 6 a diagrammatic view to illustrate the mode of piling the flanged or spaced electrode-plates within the clamp in the first step of the manufacture of an electrode of that character.

In an application for Letters Patent filed simultaneously herewith I have described and claimed an improved electrode formed of such flanged or spaced plates, for the manufacture of which this clamping-tool is especially applicable. Electrodes of that character are formed, as therein stated, of bottom and top thickened plates, (indicated at *bb*, Figs. 1 and 3,) and between them is placed a series or pile of plates *A* with turned-over flanges *a* or interposed strips in lieu of the flanges, the pile being compressed in the clamp and afterward held therein as a supporting-vise during the completion of the remaining steps in the construction of the electrode. The improved tool for these purposes is composed of rectangular blocks *CC'* at top and bottom, united by bars *EE* on opposite sides by screws *ee* or other like fastening devices, of which one is capable of operating as a pivot-pin and the other

capable of easy removal and replacement as a locking device for the bars *EE*, which are designed to be swung laterally, as indicated in Fig. 3. Upon the other two sides of the top and bottom blocks *CC'* are attached in like manner other like bars *DD*, one of which is capable of being swung on its mounting-screw in like manner and locked in position by the opposite end screw or other retaining device, the same being shown as so attached by screws *dd*. Clamping mechanism consists of, preferably, two screws *HH* which enter through screw-threaded openings in the top block *C'*, as shown in Figs. 1 and 2.

The operation of the tool is as follows: The clamping-screws *HH* being retracted and the screw *d* removed from the locking-bar *D*, the series of electrode-plates *Aabb* are piled within the interior of the tool, as indicated in Fig. 1, and the clamping-screws *HH* applied to bring the same into compressed condition, insuring uniformity of spaced relation to each other. The locking-bar *D* being then replaced, the tool may be then turned on its sides *EE* alternately, the opposite or upper bar *E* being then swung sidewise on its mounting-screw, and the exposed edges of the lateral ends of the pile of electrode-plates are fused, and hence united, by a blowpipe or soldering-tool, and, if desired, a conducting and strengthening wire (indicated at *h*, Fig. 6) is laid lengthwise of the pile before the soldering material (indicated by dotted lines at *m*, Fig. 6) is applied to form the side pieces or solid edge of the electrode.

The device provides a cheap and efficient clamping-tool and supporting-vise for the manufacture of electrodes of this type and character.

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

A clamping-tool composed of rectangular end pieces, their narrow faces being united by oppositely-disposed pivotally-mounted side bars *EE*, and their broader faces by oppositely-disposed bars *DD*, one or both of the latter being also pivotally attached to said

end pieces; and screw clamping devices having bearings in one of the end pieces and adapted to clamp and support the material piled within the tool; said parts being constructed, combined and operating substantially as and for the purpose set forth.

In testimony whereof I have hereunto af-

fixed my signature this 6th day of April, A. D. 1899.

RODERICK MACRAE.

Witnesses:

WALTER C. PUSEY,
H. T. FENTON.