

(No Model.)

T. SCHMAUSER.
COMBINATION BATTERY.

No. 246,037.

Patented Aug. 23, 1881.

Fig. 1.

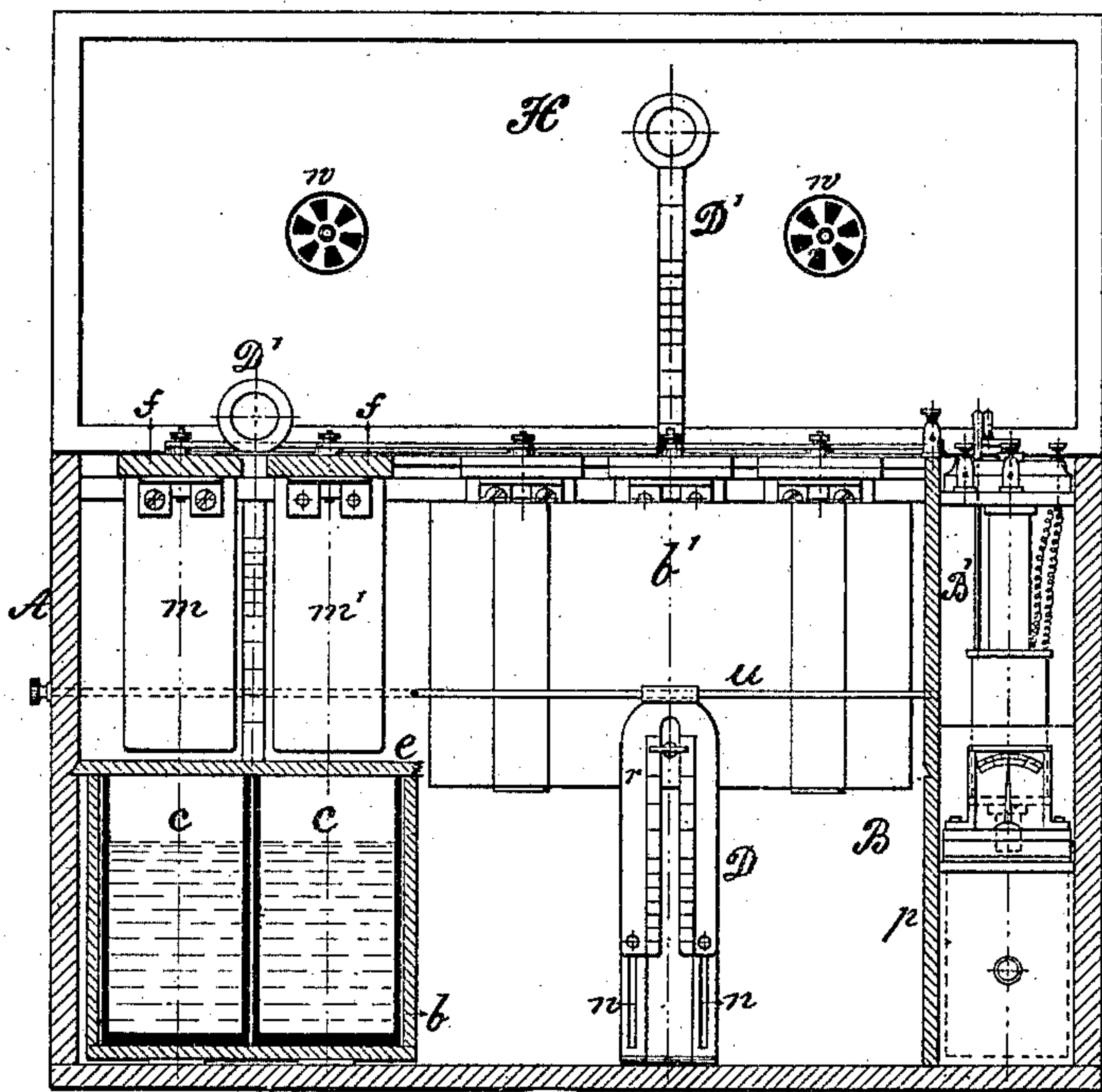


Fig. 2.

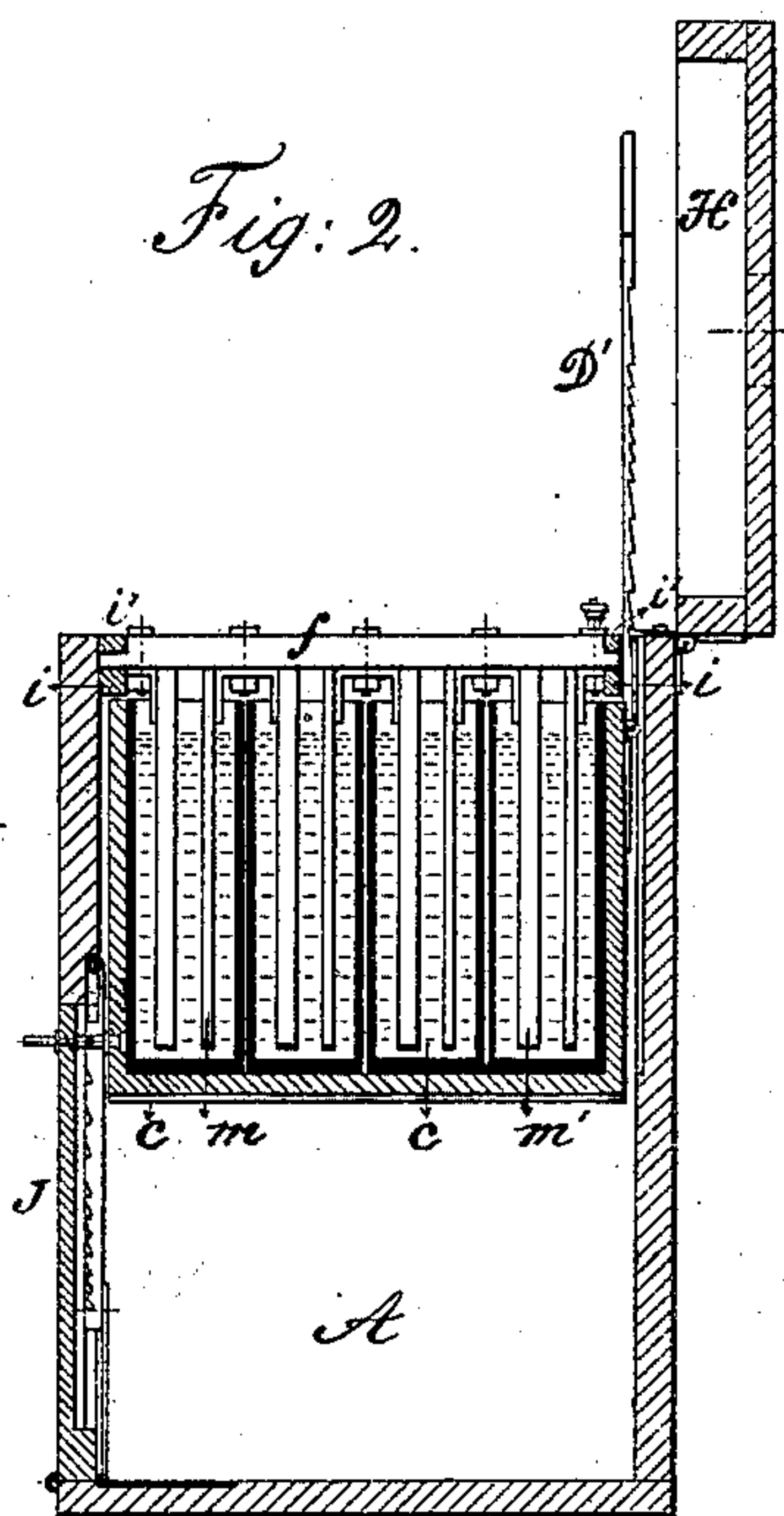


Fig. 3.

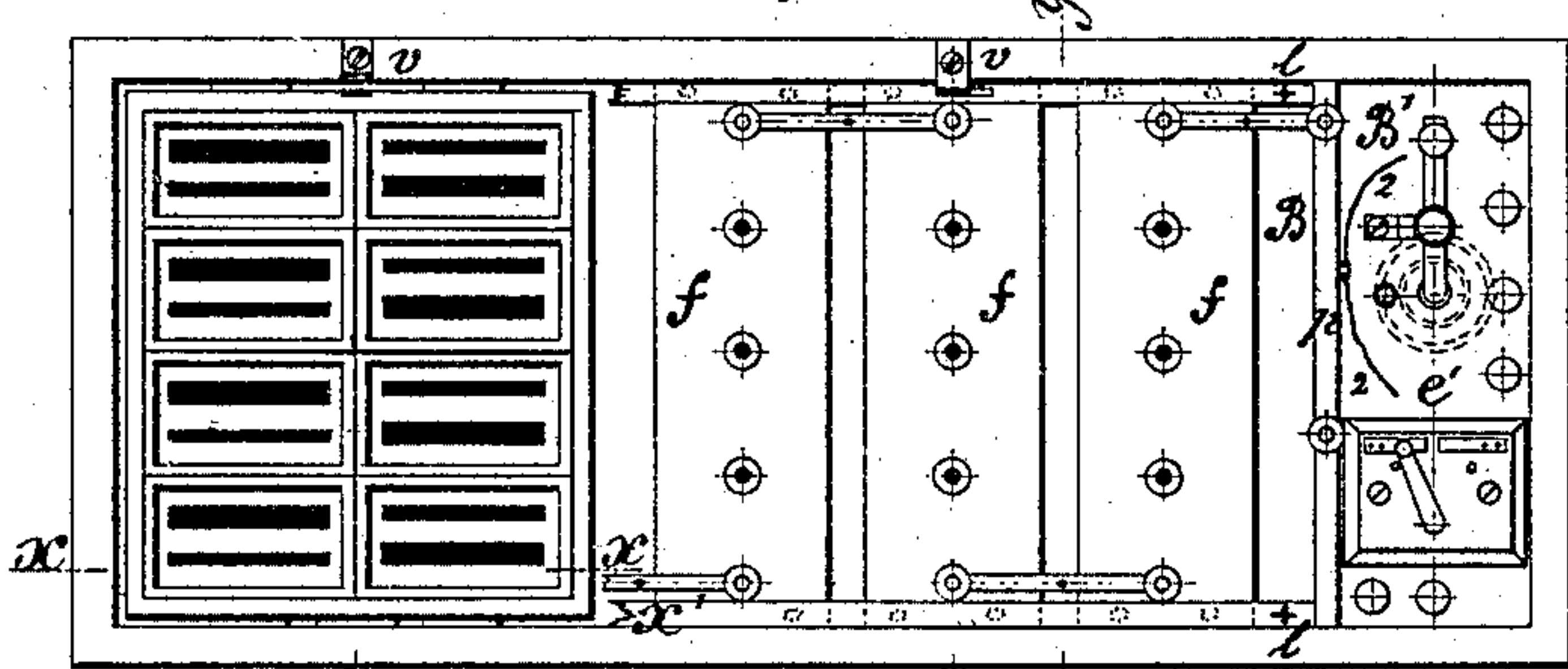


Fig. 4.

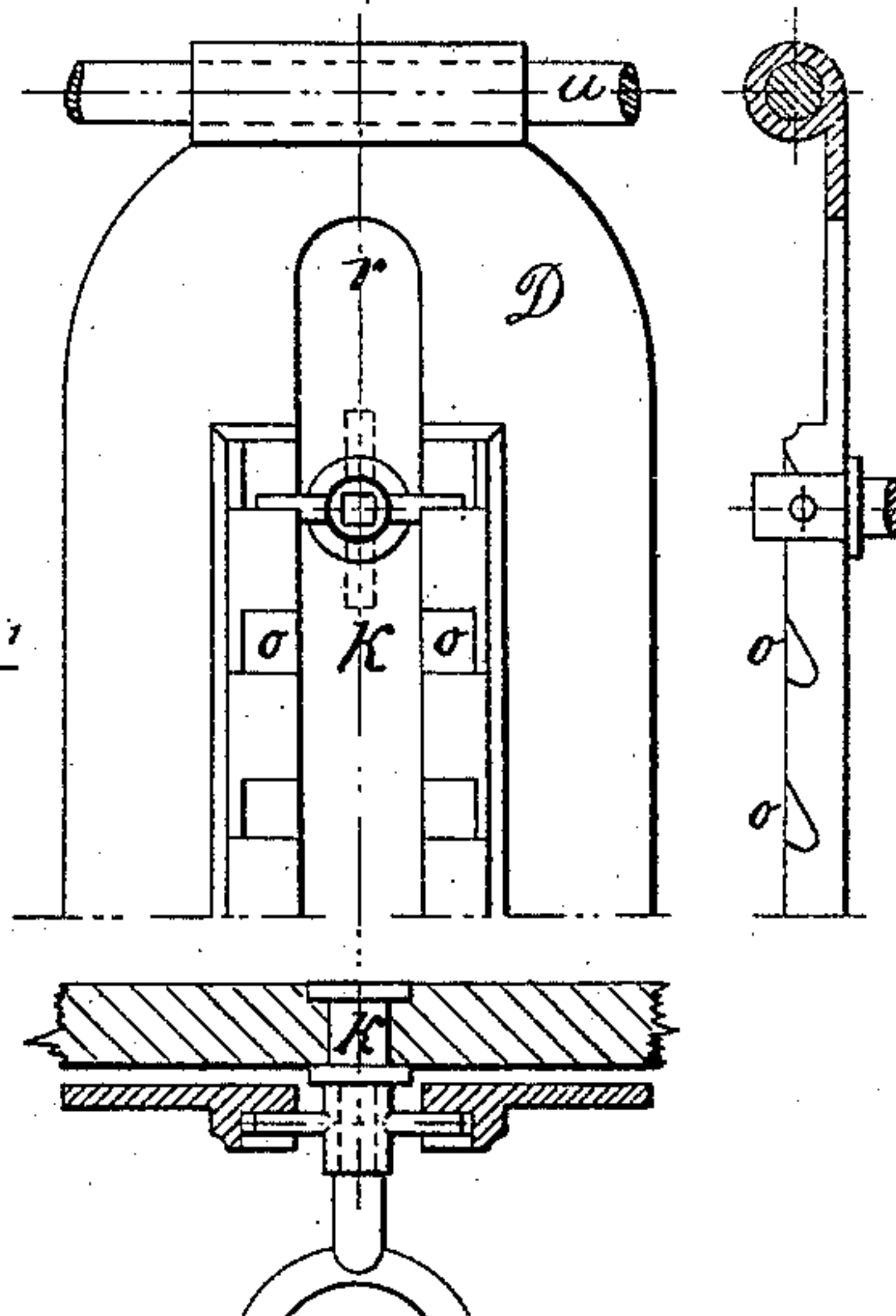
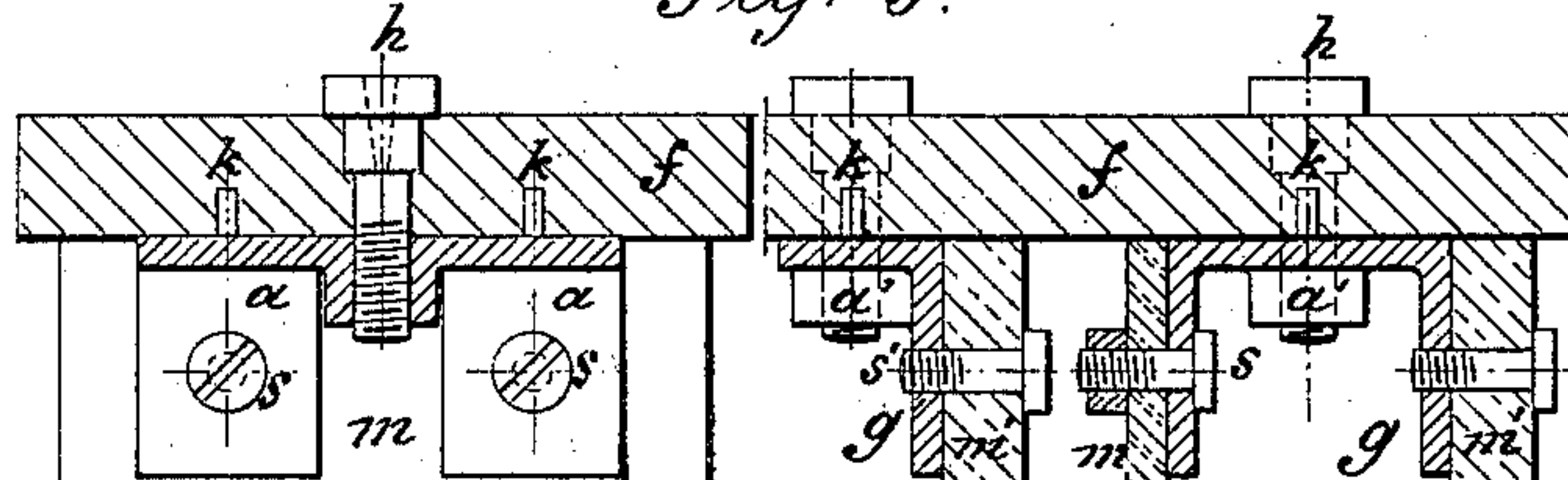


Fig. 5.



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UNITED STATES PATENT OFFICE.

THEODORE SCHMAUSER, OF ALLEGHENY, PENNSYLVANIA.

COMBINATION-BATTERY.

SPECIFICATION forming part of Letters Patent No. 246,037, dated August 23, 1881.

Application filed January 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, THEODORE SCHMAUSER, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain
5 new and useful Improvements in Transportable Combination-Batteries for Medical Use; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying
10 drawings, which form part of this specification.

My invention relates to improvements in transportable combination-batteries for medical use, in which is contained the necessary machinery for applying either the constant gal-
15 vanic or the galvano-faradic current separately, if desired, upon the body of a human being.

The objects of my improvements are, first, to generate a galvanic current of greater constancy; second, to increase and decrease the
20 quantity and intensity of the current in a more perfect way, for the treatment of different cases; third, a better arrangement of the compartments and accessory machinery, whereby a safer and more reliable working of the bat-
25 tery is obtained; fourth, to construct a battery for all medical purposes, only galvano-caustic operations excluded, of a transportable size and weight; fifth, to combine a cheaper apparatus, all the necessary elements being con-
30 tained in a single case. I attain these objects by the combination and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the apparatus, taken on the line *xx'x'*, Fig. 3, as it
35 appears after the middle box is raised to its highest position. Fig. 2 is a vertical cross-section taken on the line *yy*, Fig. 3, as it appears after the middle box is raised to its highest position. Fig. 3 is a top view with the lid of
40 the case removed, the elements of the left side being shown in section. Fig. 4 represents the upper portion of the front elevator in full size; and Fig. 5 represents the attachment of the zinc and carbon plates to the supporting-bars,
45 also in full size.

Similar letters refer to similar parts throughout the several views.

A is a wooden case, provided with the lid H and the front door, J. The lid has openings *w*
50 *w* for the escape of vapors, to prevent corrosion and partial disintegration of the inner, particu-

larly wooden, parts of the case, which would otherwise occur in the course of time. These openings may be closed by any suitable mechanism, when the evaporation from the wet
55 electro-motive plates (if they had been previously immersed) appears to be ended, more or less time after the battery is out of action, and the general case itself is shut up for transportation. Especially in this drawing that al-
60 luded mechanism is represented by a pair of slotted disks, one revolving upon the other.

The case is divided into two compartments, B B', by means of a partition, *p*. The compartment B contains two smaller boxes, *b b'*, of
65 equal height and breadth, but of different length. They are occupied by hard-rubber cells *c c c*, of equal size and dimensions. The cells are tightly placed together, the box *b* receiving eight, and the box *b'* twelve, pieces,
70 making a total of twenty. They are all filled with the same exciting-fluid to an even height when in use.

e is a rubber-cushioned sliding board, to prevent the spilling of the fluid while the battery
75 is transported or accidentally upset. By means of its peculiar joints it presses tightly upon the cells *c c c*. The upper portion of the compartment B is reserved to the electro-motive plates *m m'*, of zinc and carbon. The latter are of
80 equal size and dimensions, and are arranged in pairs, fixed to supporting-bars *ff*, of hard rubber, by means of brass brackets *gg'* and screws *h h*, which latter screws are still more firmly
85 adjusted by passing through a collar, *a' a'*, cast upon the reverse of the horizontal part of the bracket. Each bracket is provided with two
pins, *k k*, to secure its position. The zinc plates *m m* are fixed to the brackets by bolts and nuts *s s*, while the carbon plates *m' m'* are
90 secured by screws *s' s'* taking hold in the legs *a a* of the brackets. Thus both plates are adjusted in a strictly perpendicular and immovable position to the supporting-bar, and can
also be easily removed and changed, if neces-
95 sary, in case of accidental breakage, or for other purposes, by the owner of such battery himself.

Ledges *i i*, fixed to the inside of the case A, support the bars *ff*. The latter are maintained
100 in position by small metallic pins without heads and by movable ledges *i' i'*, hinged to

the case A, and secured by thumb-screws *l l* to the lower ledges, *i i*. In the ordinary condition of the battery the cell-boxes *b b'* occupy the lower portion of the main case A, and as in this case no current can be generated, the zinc and carbon plates not being in contact with the liquid of the cells, the latter have to be raised to a certain height, corresponding to the required quantity of current. For this purpose each box is provided with special lifting arrangements or elevators *D D'*, one on its front side and the other on the rear, directly opposite the former.

Single lifting apparatus, fixed to one of the sides of the boxes *b b'*, or to one side of a frame upon which an even number of cells are compiled, or in their middle between the cells, have been used before. By the use of the former the lifting and maintaining of the cell box or frame, with its charge, cannot be effected satisfactorily. The weight of the cell-box and its contents will cause the box to take an inclined position, whereby the constancy of the current and the usefulness of the whole apparatus may be greatly impaired. The middle elevator requires a special shape of the cells around the lifting-rod, and an even number of supporting-bars interferes further considerably with the placing of a tight hydrostat, and is therefore also of a limited value. The front elevator, *D*, (partly shown by Fig. 4,) is arranged in the following manner: A slotted metal plate, *r*, having studs moving in grooves *n n*, has on both sides of the slot special teeth or grooves, *o o*, to receive two pins of a key-button, *K*, attached to the box *b b'*, respectively. The distance of the teeth is made to correspond to one-fourth, one-half, three-fourths, and one inch up to four and one-half inches, to indicate exactly the portion of the zinc and carbon plates in contact with the liquid of the cells. The top end of the slotted plate is turned into the shape of a tube. By means of pushing a rod, *u*, into and through the latter, the lifting apparatus may thus be suspended, as is shown in Fig. 1, for the box *b'*. The lower part of the mechanism is permanently hinged to the bottom of the main case A, to be laid over into a horizontal position for the removal of the cell-box.

The rear elevator, *D'*, consists of a flat metal rod provided at its upper end with a handle and at its lower end with a hook, which latter is attached in a removable manner to a fixed pin of a half-hinge, as shown by Fig. 2. On its outer side ratchet-teeth are cut in, corresponding in their distances to those of the front apparatus. A flat metal spring, *v*, engaging into the teeth, maintains the rod in position. Thus it will be seen that each cell-box may be easily and precisely raised from two opposite sides in the same time and kept in a perfectly horizontal position during its use.

The compartment *B'* of the main case A is occupied in its upper portion by the galvano-faradic coils and their accessory parts. They

are of the usual construction; but for the purpose that they may be easily removed and transferred, if desired, the apparatus is attached to a removable but sufficiently secured board, *e'*. The same upper portion contains, besides the galvano-faradic part, a current-changer, some binding-posts, and, farther below, a galvanoscope, all these last-mentioned attachments arranged upon separate boards and belonging strictly to the galvanic battery. The lower portion of *B'* contains a drawer for safe keeping of the connecting and conducting cords of the various electrodes, &c.

To make use of the battery the following operations are necessary: The lid and the front door of the main case A have to be opened. The elevator *D* is let down in a horizontal position and the lifting-rod *D'* unhooked. Next, the sliding board *e* is removed and the cells filled with the necessary fluid. This being done, the operations are reversed, with the exception of the sliding board, which has to be laid aside as long as the battery is in use. The front elevator is suspended to the rod *u*, and the hook of the rear elevator, *D'*, engaged. The key-button *K* is turned by means of an adjustable key to take the position shown in broken lines by Fig. 4. The boxes *b b'*, respectively, are now ready, one box after the other, to be raised horizontally by employing both hands and both elevators. At the required height the key-button *K* is turned to let its pins rest on the teeth of plate *D*, while the spring *v* is arresting the rod *D'* at the same height. In Figs. 1 and 2 the box *b'* is represented as raised up and ready for operation or use.

The circuit of the current of the different sections of electromotors forming the galvanic battery is effected in the usual way. Only for the use of the galvano-faradic current independently, the galvanic current has to be previously interrupted. The faradic coil may then be connected with either one or two of the electromotors of any one of the two sections by means of the cords 2 2, Fig. 3.

I am aware that prior to my invention transportable combination-batteries and galvano-faradic batteries have been constructed in separate cases and independently.

I therefore do not claim the general construction of either of these batteries; but

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

1. In a combination-battery, the combination, with two sets of cells contained in separate and movable cell-boxes, each set consisting in a different number of similar cells and adapted to be raised independently or together to immerse the battery elements in the exciting-fluid within the cells, of an induction-coil adapted to be connected with either or both of said systems of cells, the said sets of cells and induction-coil being inclosed in a transportable case, substantially as set forth.

2. In a combined battery, devices to lift the

boxes containing the cells, and consisting, essentially, in the combination, with a key-button provided with laterally-projecting pins and secured to the front faces of the boxes containing the cells, of a plate provided with a slot in which the key has vertical movement, and with two graduated series of notches in which the key-button is received to support the cell-boxes at the required height, substantially as set forth.

3. In a combination-battery, devices to lift the battery-cells, consisting, essentially, in the combination, with a plate provided with studs which run in grooves secured to the front face of the case, with a tube or ring at its upper end, and with a vertical slot and a graduated series of notches, of a key attached to the cell-box, the pins of said key being received in the graduated notches of the plate, and a rod extending laterally across the battery-case and adapted to pass through the tube or ring in the upper end of the plate, substantially as set forth.

4. In a combination-battery, devices to lift the boxes containing the battery-cells, and consisting, essentially, in a rod removably secured to the rear face of said boxes, and provided with notches to engage with a spring-catch secured to the battery-case, substantially as set forth.

5. In a combination-battery, devices to lift the boxes, consisting in a slotted and grooved plate attached to the front of the case and adapted to engage with a key secured to the front face of the cell-box, and a notched rod attached to the rear face of the box and adapted to engage with a catch secured to the battery-case, substantially as set forth.

6. In a combination-battery, ledges secured to the front and rear face of the battery-case to support the bars from which the battery elements are suspended, and devices to retain the bars on said ledges, consisting, essentially, in similar ledges hinged to the battery-case and adapted to be secured to the fixed ledges by thumb-screws, the ends of the supporting-bars being interposed between said ledges, substantially as set forth.

7. In a transportable combination-battery, and also in a simple galvanic battery, the mode of fastening the supporting-bars *ff* by means of pins or screws without heads and by two upper ledges, *i' i'*, hinged to the case *A* and secured by thumb-screws *ll* to the lower ledges, *i i*, substantially as described.

8. In a transportable combination-battery, and also in a simple galvanic battery, the elevator or lifting apparatus *D*, having teeth *o o*, key-button *K*, and rod *u*, in combination with boxes *b b'*, for the purpose set forth.

9. In a combination-battery, brackets for supporting the battery elements, and consisting each of a cross-piece provided with pins on its upper face and a boss on its lower face, and having a perforation extending through it and the said boss, and a pair of arms depending from each side of the said cross-piece, and respectively adapted to support the positive and negative battery elements, substantially as set forth.

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Witnesses:

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