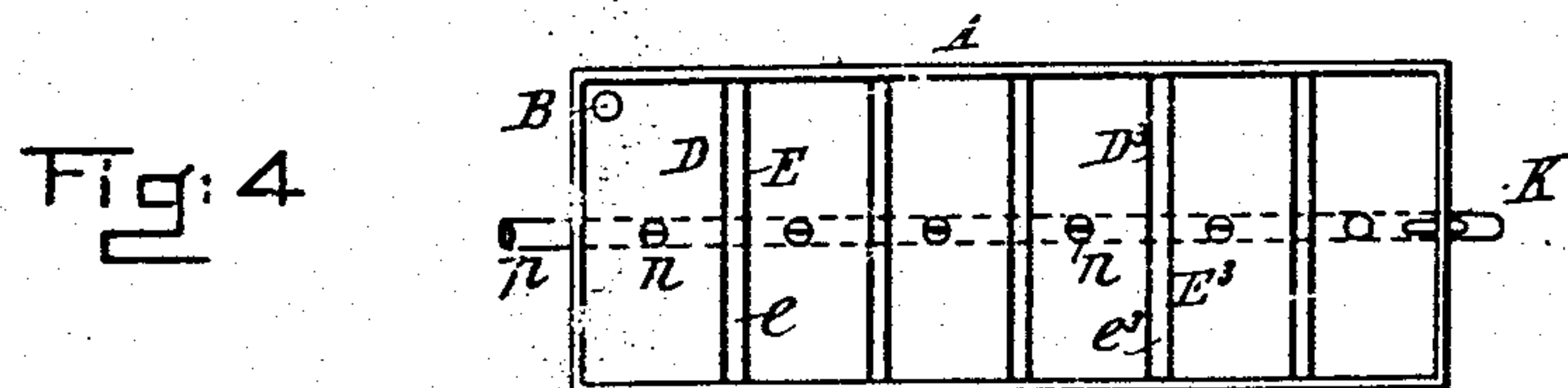
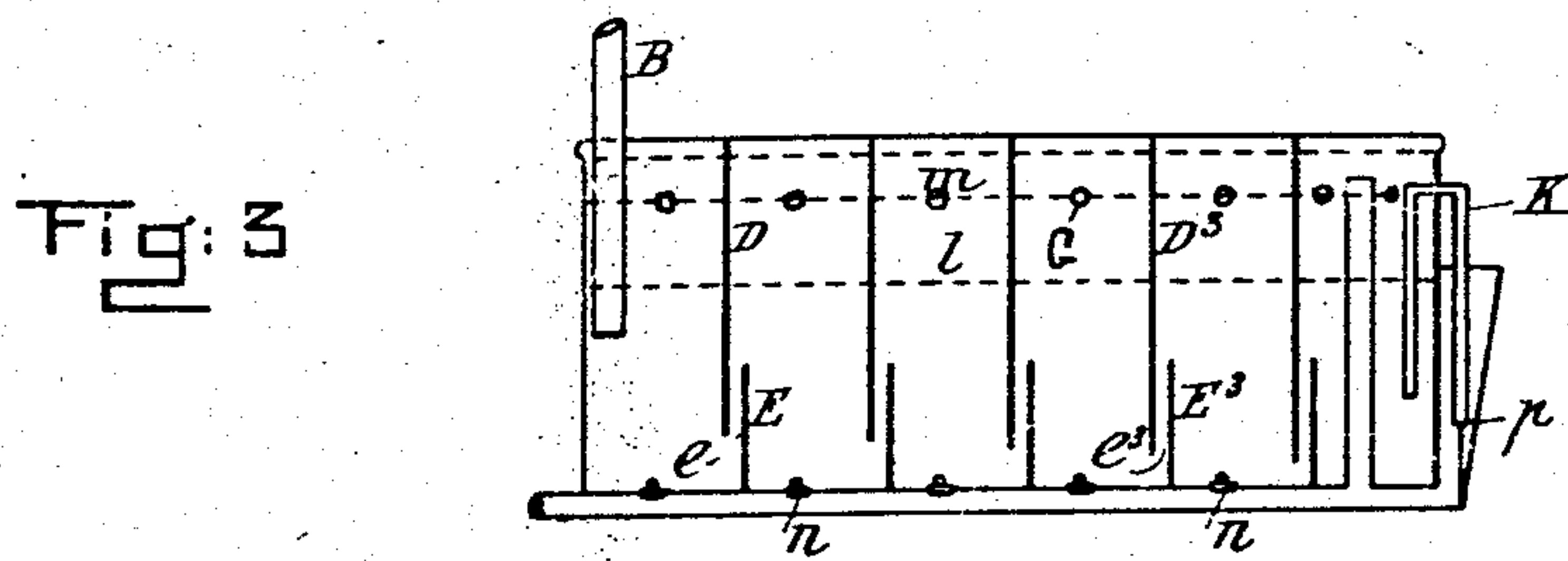
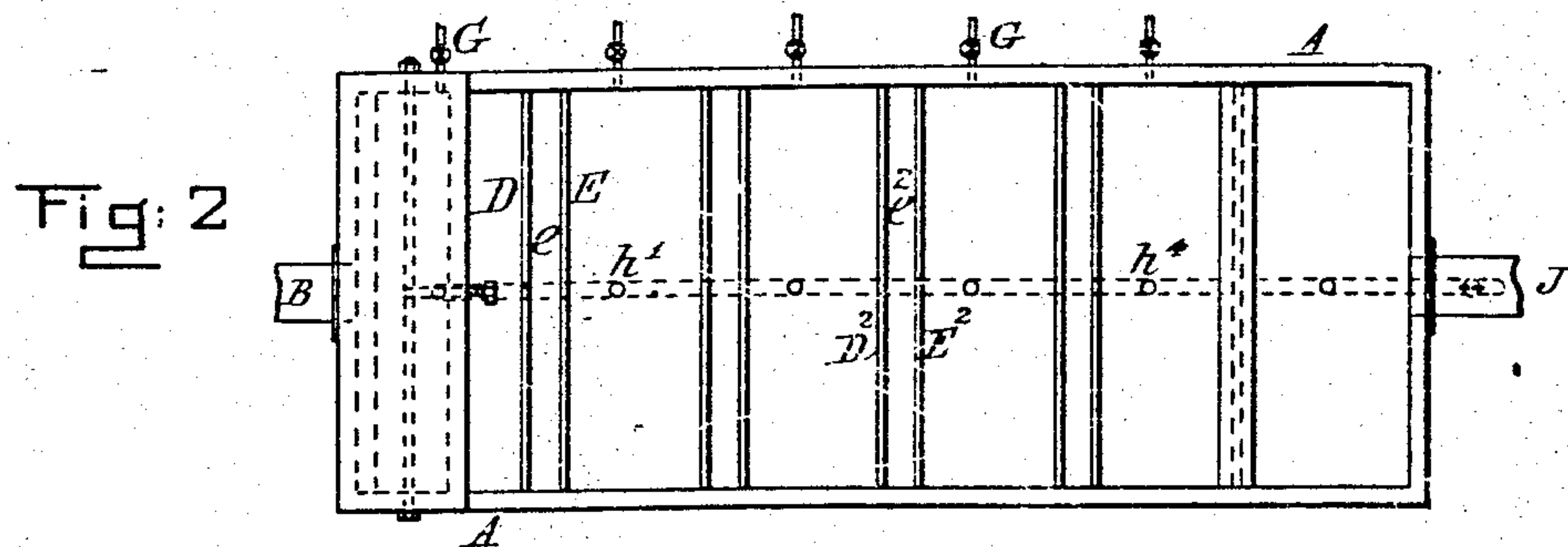
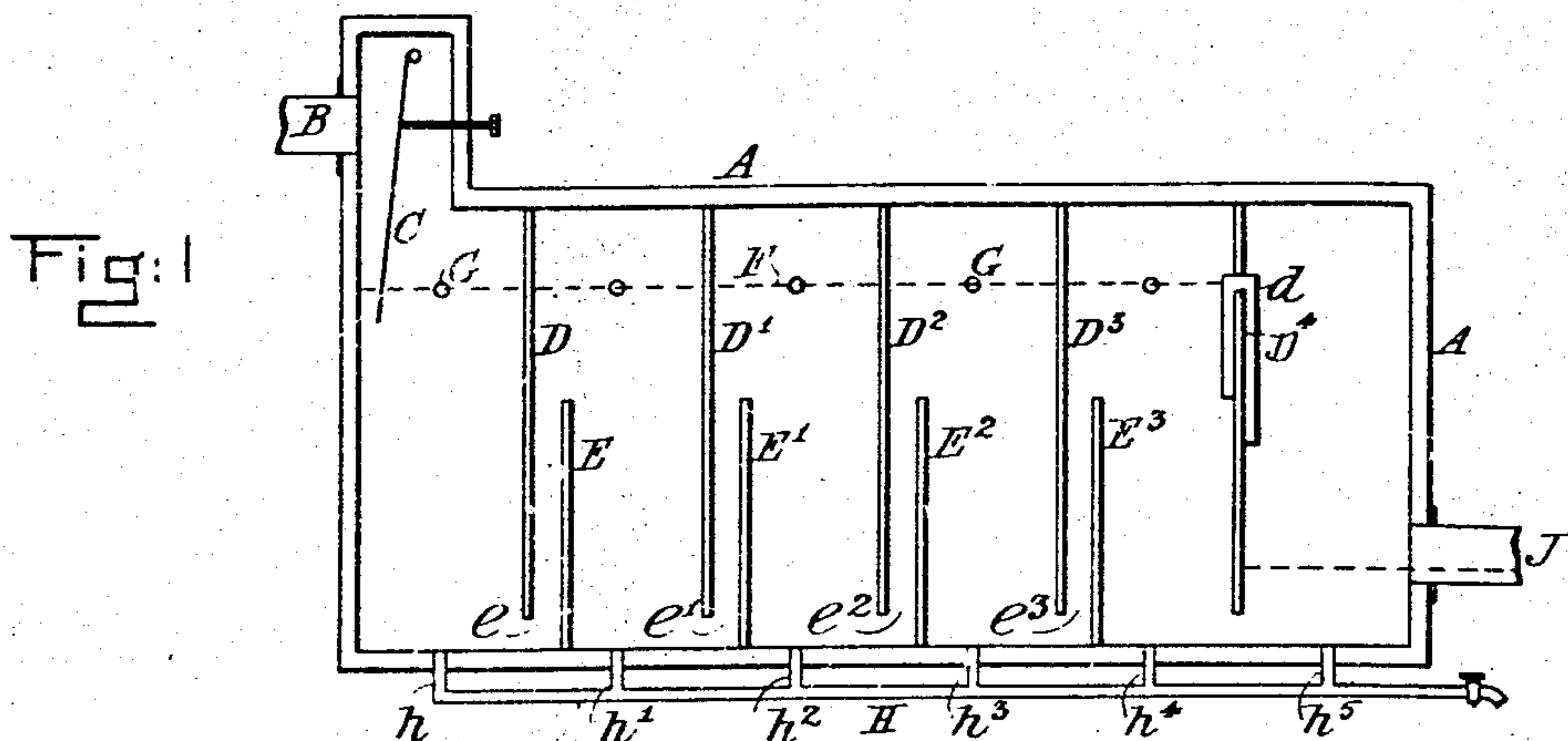


No. 801,330.

PATENTED OCT. 10, 1905.

F. MOORE.
OIL AND GREASE SEPARATOR.
APPLICATION FILED JAN. 2, 1903.



WITNESSES

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UNITED STATES PATENT OFFICE.

FREDERIC MOORE, OF MARRICKVILLE, NEW SOUTH WALES, AUSTRALIA.

OIL AND GREASE SEPARATOR.

No. 801,330.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed January 2, 1903. Serial No. 137,592.

To all whom it may concern:

Be it known that I, FREDERIC MOORE, draftsman, a subject of the King of Great Britain and Ireland, and a resident of Marrickville, in the State of New South Wales, Commonwealth of Australia, have invented a certain new and useful Oil and Grease Separator, of which the following is a specification.

This invention consists in forcing a mixture of grease and water to take a vertically-upward course and then a downward one between pairs of partitions, one partition projecting downward from the top and the other projecting upward from the bottom, such pairs of partitions inclosing a narrow space, with a much larger space between each pair. In this way the lighter particles in mechanical combination with the water are given an impulse upward, where they are likely to remain, while the water or heavier particles will continue to travel forward after separation from a large percentage of the particles of lighter oleaginous matter; but in order that the invention may be properly understood reference is made to the accompanying sheet of drawings, in which—

Figures 1 and 2 show a separator apparatus in vertical section and plan, respectively, for separating oil or grease from water when there is a continuous flow of water. Figs. 3 and 4 show an apparatus in vertical section and plan, respectively, for separating oil or grease from water when there is an intermittent flow through the apparatus.

A is a tank or other receptacle which receives the inflow of water at B, where such inflow is met by an adjustable spreader-plate C, so that the water shall be distributed in a film in the first division of the receptacle A. Extending downward from the top of the tank are transverse dividing-plates D D' D'' D''' D^4 , which extend the full width of the tank, but not quite to the bottom. On the sides of the dividing-plates D most remote from the inlet are other vertical plates E E' E'' E''' E^4 , which extend the full width of the tank and project upward from the floor of the tank, so as to overlap the bottom end of the adjacent partition which projects from the top of the tank. The uprights E should be placed so close to the uprights D as to form a series of constricted passages e e' e'' e''' e^4 , so that as the mixture of oil and water rises in the passages e , the tendency of the oleaginous matter shall be upward toward the top level of the water in the tank. The pairs of par-

titions between which the liquid will rise must be much closer together than the spaces between the pairs of partitions. The level F of the water will be some distance above the tops of the partitions E , and at this level will be placed cocks or taps G , adapted to draw off the oil or liquid grease which may have accumulated and be floating on the top of the water. In order to empty the separator-tank, an emptying-pipe H is placed below the tank and connected to the separate divisions thereof by short connections h h' h'' h''' h^4 h^5 . Most of the oil and grease will be separated by difference of specific gravity in the second and third divisions of the tank. The fourth division may show a very thin film of grease on its surface; but the fifth division should be quite clear of oil or grease. In order, therefore, to assist the exit flow of the water from the outlet J , a siphon d is placed in the last division at or about the normal level of the water in the tank, the long arm of the siphon extending downward to a point which shall be always below and clear of oil or fat, while the opening of the short arm of the siphon shall be just below the normal level of the water. Directly the water rises above normal level it will begin to siphon, and consequently the clear effluent will pass.

It will be understood that more vertical partitions may be used than are shown in the drawings; but for ordinary installations the number shown will generally prove sufficient.

In tanks where the flow is intermittent, but comes with a rush, the arrangement must necessarily be somewhat different. In such a case the aperture for the passage of the water below the first partition should be greater than that below the second partition, and the areas of these apertures go on progressively diminishing to the last partition. This is in accordance with natural law. In the intermittent tanks (shown in Figs. 3 and 4) it is better to siphon the water in the tank to the outflow-pipe by means of the siphon K . The siphon will begin to operate directly the water rises to the water-level m or above it from the water-level l . The grease and oil will be separated from the water in precisely the same way as has been explained in reference to the Figs. 1 and 2; but in order to allow the separating process to proceed with success the siphon arrangement K has been introduced, so that the effluent water shall be drawn away from the point far below the level of the fat or grease which may lie on the surface even of the last

division of the tank. The separate divisions of the tank will be provided with plugs *n*, adapted to allow the water to flow into the outflow-pipe *p*.

5 The essential feature of this invention is that oil and water in mechanical mixture shall be projected upward through the passages *c* with a much larger space between the pairs of partitions, so that the lighter oleagi-
10 nous matter may remain at or near the surface of the water in the tank, while the heavier water may at the same time freely flow through the apparatus, the vertical partitions fully depleting it of the lighter oleagi-
15 nous particles with which it was originally mixed.

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

20 1. In apparatus for separating oil or grease from water, a tank provided with partitions alternately starting from the top and the bottom of the tank, those partitions starting from the top not reaching to the bottom of the
25 tank, and those starting from the bottom extending upward so as to overlap the bottom end of the partition extending from the top, the partitions starting from the top extending down to a point near the bottom of the
30 tank while those starting from the bottom extend to a point substantially in the middle thereof, such pairs of partitions having a narrow space between them and a much greater space between the first pair and the next ad-
35 jacent pair, said narrow spaces having their inlets at their lower ends and their outlets at their tops, whereby the mixture of oil and

water passing between these pairs of partitions shall receive an impulse upward to a point where most of the oleaginous particles 40 will remain as herein set forth.

2. In apparatus for separating oil or grease from water, where the inflow is intermittent and comes with a rush, a series of baffle-plates, extending from the top of the tank, 45 the preceding plate having a larger aperture beneath it than the next analogous plate in the series and so on to the last plate, in combination with a series of baffle-plates projecting from the bottom of the tank so as to 50 overlap the bottom ends of the downwardly-projecting plates as specified.

3. In apparatus for separating oil or grease from water, where the inflow is intermittent and comes with a rush, a series of baffle- 55 plates, extending from the top of the tank the preceding plate having a larger aperture beneath it than the next analogous plate in the series and so on to the last plate, in combination with a series of baffle-plates pro- 60 jecting from the bottom of the tank so as to overlap the bottom ends of the downwardly-projecting plates, and with a siphon in the last division of the tank, such siphon being adapted to siphon the water, but not the oleaginous 65 matter, from the tank into the outflow-pipe as and for the purposes specified.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FREDERIC MOORE.

Witnesses:

MANFIELD NEWTON,
A. R. W. MASSEY.