

No. 677,639.

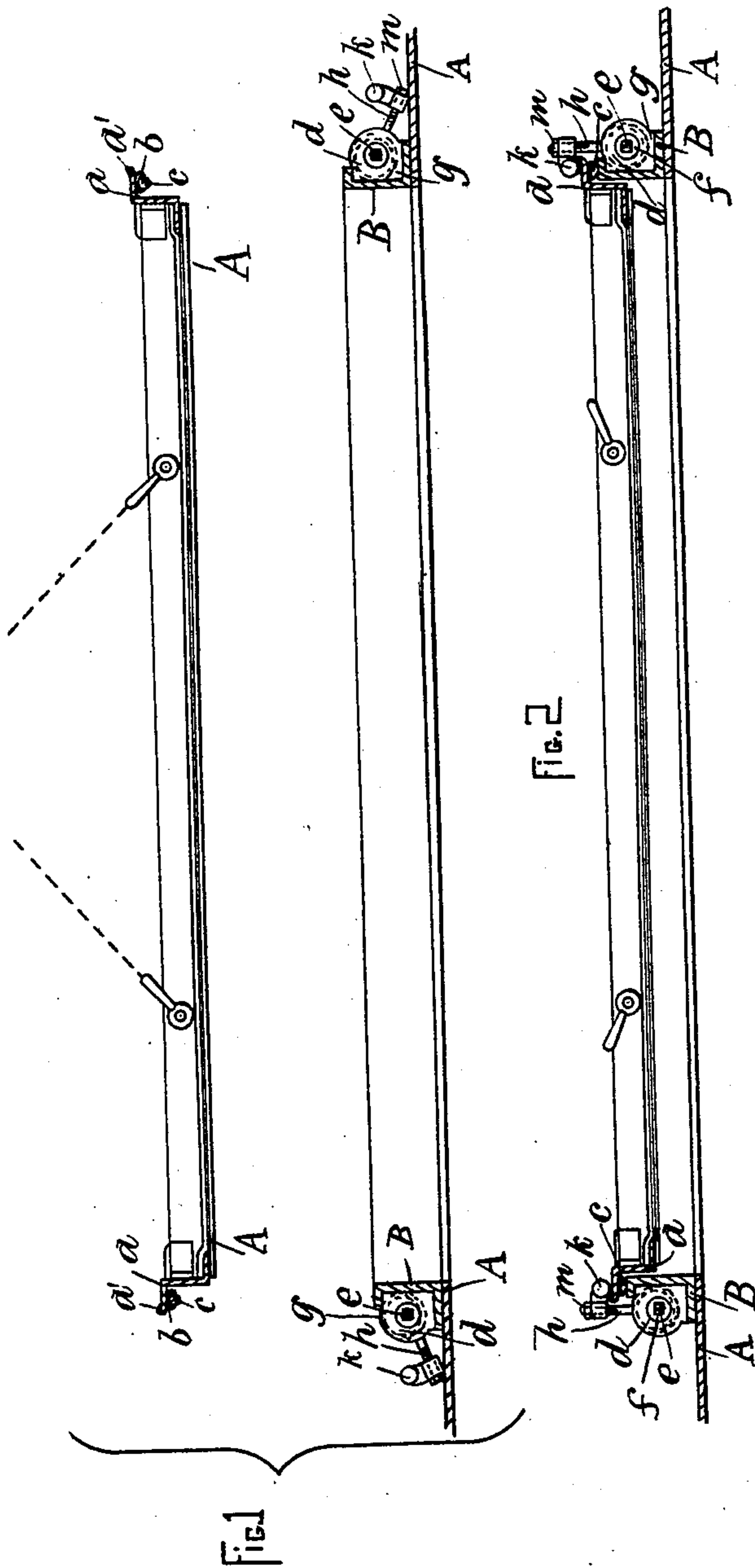
Patented July 2, 1901.

T. S. CLAPHAM.
COVER FOR GAS PURIFIERS.

(Application filed Feb. 23, 1901.)

4 Sheets—Sheet 1.

(No Model.)



Witnesses
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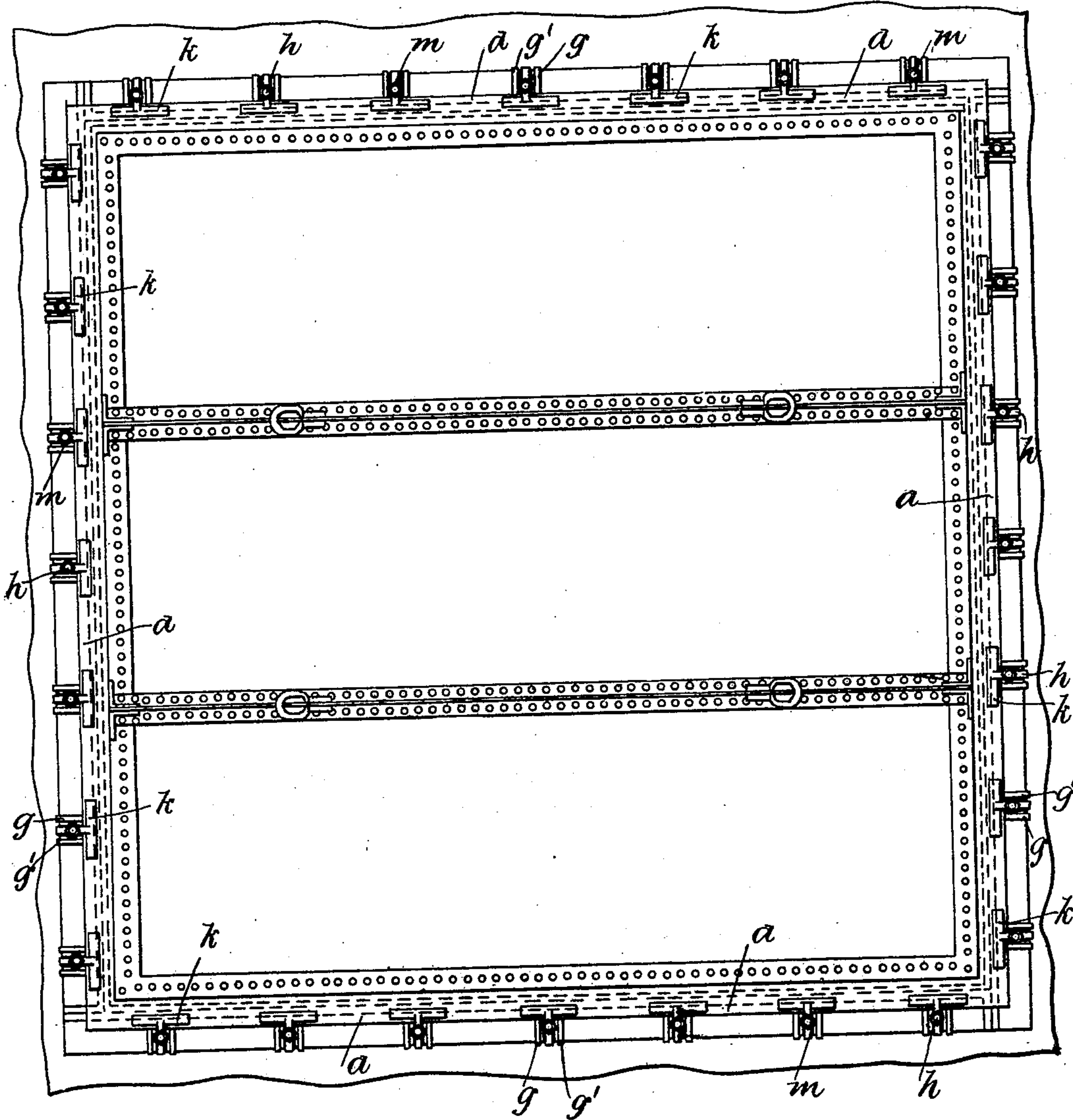
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FIG. 3



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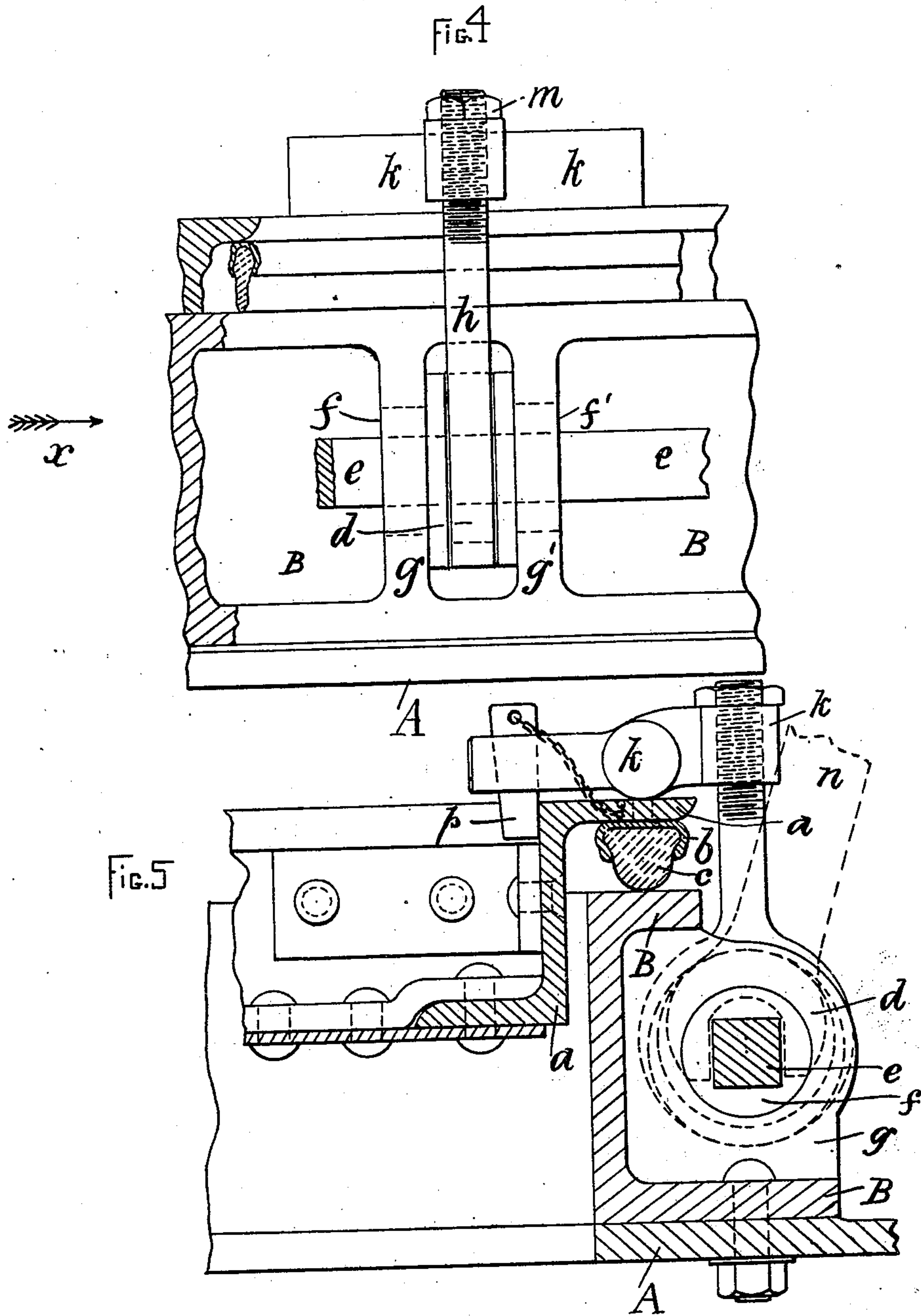
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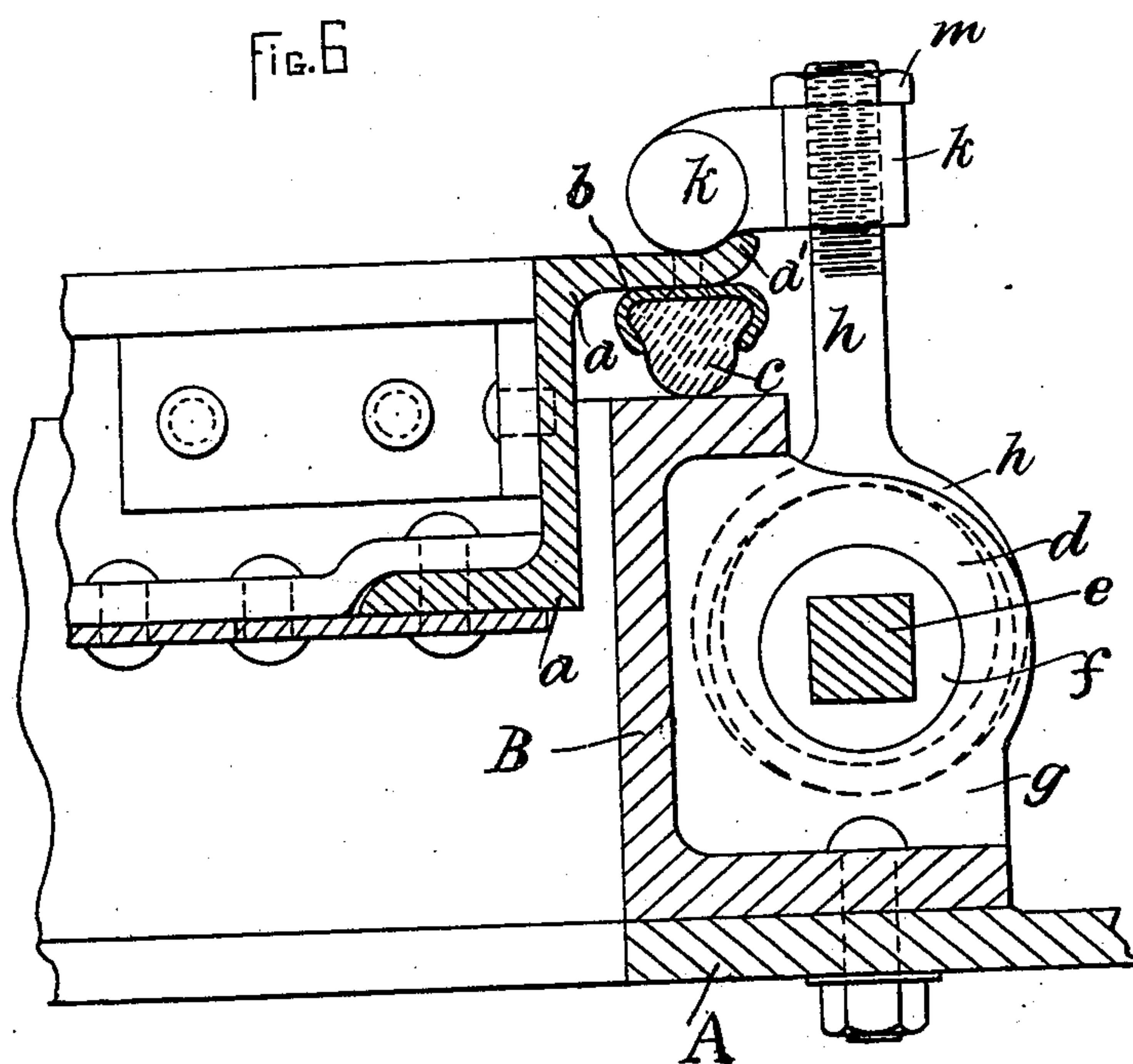
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4 Sheets—Sheet 4.

(No Model.)



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UNITED STATES PATENT OFFICE.

THOMAS S. CLAPHAM, OF KEIGHLEY, ENGLAND.

COVER FOR GAS-PURIFIERS.

SPECIFICATION forming part of Letters Patent No. 677,639, dated July 2, 1901.

Application filed February 23, 1901. Serial No. 48,513. (No model.)

To all whom it may concern:

Be it known that I, THOMAS STOWELL CLAPHAM, a subject of the King of Great Britain, and a resident of 14 Devonshire street, Keighley, in the county of York, England, have invented certain new and useful Improvements in Covers or Lids for Gas-Purifiers, of which the following is a specification.

My invention relates to covers or lids for gas-purifiers, and more especially to that class of apparatus consisting of a closed tank or box containing the purifying substances through which ordinary coal-gas is conducted under pressure; and my said invention consists in the formation or construction of the covers or lids of said tanks, so that when they are placed in position thereon perfectly gas-tight joints are formed while their removal and readjustment may be easily effected. To attain this object, I make use of the devices constructed and arranged to operate as hereinafter described and as illustrated in the accompanying sheets of drawings, in which—

Figure 1 is a sectional elevation of the upper wall or covering of a tank, showing the lid or cover removed or raised from it. Fig. 2 is a similar view to Fig. 1, but shows the lid or cover fixed in position on the tank. Fig. 3 is a plan of the lid and a part of the upper wall of the tank surrounding it. Fig. 4 is an elevation drawn to an enlarged scale, showing the construction of the edges of the lid and the parts of the tank in connection with which it is to fit, as well as the means whereby the one is forced and held in contact with the other. Fig. 5 is a view of the parts shown by Fig. 4, as seen in the direction indicated by the arrow *x*. Fig. 6 is a similar view to Fig. 5, but shows a modification hereinafter explained.

Similar letters of reference indicate similar parts throughout the several views.

A indicates the upper wall or covering of the tank, and B a flange mounted thereon and made to surround the opening therein to receive the cover.

In carrying my invention into effect I form the jointing surfaces or edges of the covers *a* to receive dovetailed or otherwise appropriately-shaped holding-bars *b* to receive strips or bands of india-rubber or other yielding or elastic substance *c* of a suitable form

or shape in cross-section to fit tightly and firmly into the grooves in said holding-bars *b*, as well as to be of an appropriate shape for fitting against the upper surfaces of the flange B, against which they are pressed or forced in order to form a perfectly gas-tight joint therewith.

As means for forcing or pressing the parts *a*, *b*, *c*, and B firmly together, as described, I employ a series of eccentrics *d*, (shown in broken lines, Figs. 5 and 6,) mounted upon shafts *e*, arranged to carry flanged bushes *f f'*, so that although such shafts are square in cross-section they may freely and smoothly revolve for the reason that these cylindrical bushes *f f'* take into circular openings made in the projecting ribs *g g'* of the flange B. The eccentrics *d*, which are of a plain simple form, are kept or maintained in their proper positions by being mounted between them, as are also the straps or connecting-rods *h h*, taking over same. The extending ends of these straps *h h* have a screw-thread formed on them to receive the hooks or holding-arms *k k*, which may thus be adjusted upon them and there further secured by the nuts *m m*. By these means I am enabled to firmly force the lid or cover *a* into position by the turning of the shafts *e* by means of keys *n*, as shown in broken lines, Fig. 5, (and which may be applied at any part of said shafts *e*) or by means of any appropriate handle-levers secured to same. I may further arrange all the shafts *e* to be coupled together by bevel gear-wheels at their extremities, so that they may be operated simultaneously.

To prevent the hooks *k k* from slipping or being drawn from pressing against the lid *a*, I form extensions on them to receive the taper wedges *p p*, reaching down into the recess in the lid *a*, as shown by Fig. 5, or I turn the outer edges *a'* of the lid *a* slightly upward, as shown by Fig. 6, to receive the cross-pieces or jaws of the hooks *k k*, or I may extend the edges so that they will overhang the shafts *e*, in order that the pull of these latter will be in such a direction as to force the hooks toward instead of drawing them from said lid *a*.

I am aware that the formation and construction of the several parts herein described may be considerably varied to meet the requirements of the different conditions under which

they are to be used and that without departing from the nature of my invention; but

What I claim as my invention is—

1. In apparatus of the class described, the
5 combination with an upwardly - extending
flange surrounding the opening of the tank or
receptacle, of a lid or cover therefor fitting
within said flange and having an outwardly-
projecting portion overhanging said flange,
10 and having holding-bars on the under sides
thereof said holding - bars being dovetail-
shaped in cross-section, rubber strips secured
in said holding-bars, and clamping means ex-
tending from a point below the upper edge of
15 said flange and upward and over the project-
ing portion of the cover and adapted to draw
the strips of the cover tightly down upon said
flange.

2. In apparatus of the class described, the
20 combination with an upwardly - extending
flange surrounding the opening of the tank
or receptacle, of a lid or cover therefor fitting
within said flange and having an outwardly-
projecting portion overhanging said flange,
25 elastic packing carried by said outwardly-
projecting portions, and a plurality of simul-
taneously-operated hooks adapted to bear on
the upper portion of the cover to draw the
cover down upon said flange.

3. In apparatus of the class described, the
30 combination with an upwardly - extending
flange surrounding the opening of the tank
or receptacle, of a lid or cover therefor fitting
within said flange and having an outwardly-
projecting portion overhanging said flange,
35 elastic packing carried by said outwardly-

projecting portions, and a plurality of simul-
taneously-operated hooks adapted to bear on
the upper portion of the cover to draw the
cover down upon said flange, said hooks hav- 40
ing means whereby their overhanging por-
tions may be independently adjusted.

4. In apparatus of the class described, a lid
or cover, a yielding substance mounted to in-
tervene between same and the part against 45
which it has to fit, hooks for laying hold of
said lid, connecting-rods and eccentrics for
operating said hooks and shafts upon which
said eccentrics are mounted substantially as
herein specified. 50

5. In apparatus of the class described, a lid
or cover, a yielding substance intervening be-
tween same and the other parts, hooks for
laying hold of said lid, connecting-rods and
eccentrics for operating said hooks, square 55
shafts upon which said eccentrics are mount-
ed and bushes to form the rotary bearings for
said square shafts substantially as herein set
forth.

6. In apparatus of the class described, a lid 60
or cover, a yielding substance beneath said
lid, means for holding down said lid, shafts
for operating said means gears for coupling
said shafts together and handle devices for
transmitting motion to said shafts substan- 65
tially as herein specified.

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

THOS. S. CLAPHAM.

Witnesses:

SAMUEL HEY,

JOHN WHITEHEAD.