

G. WILTON.

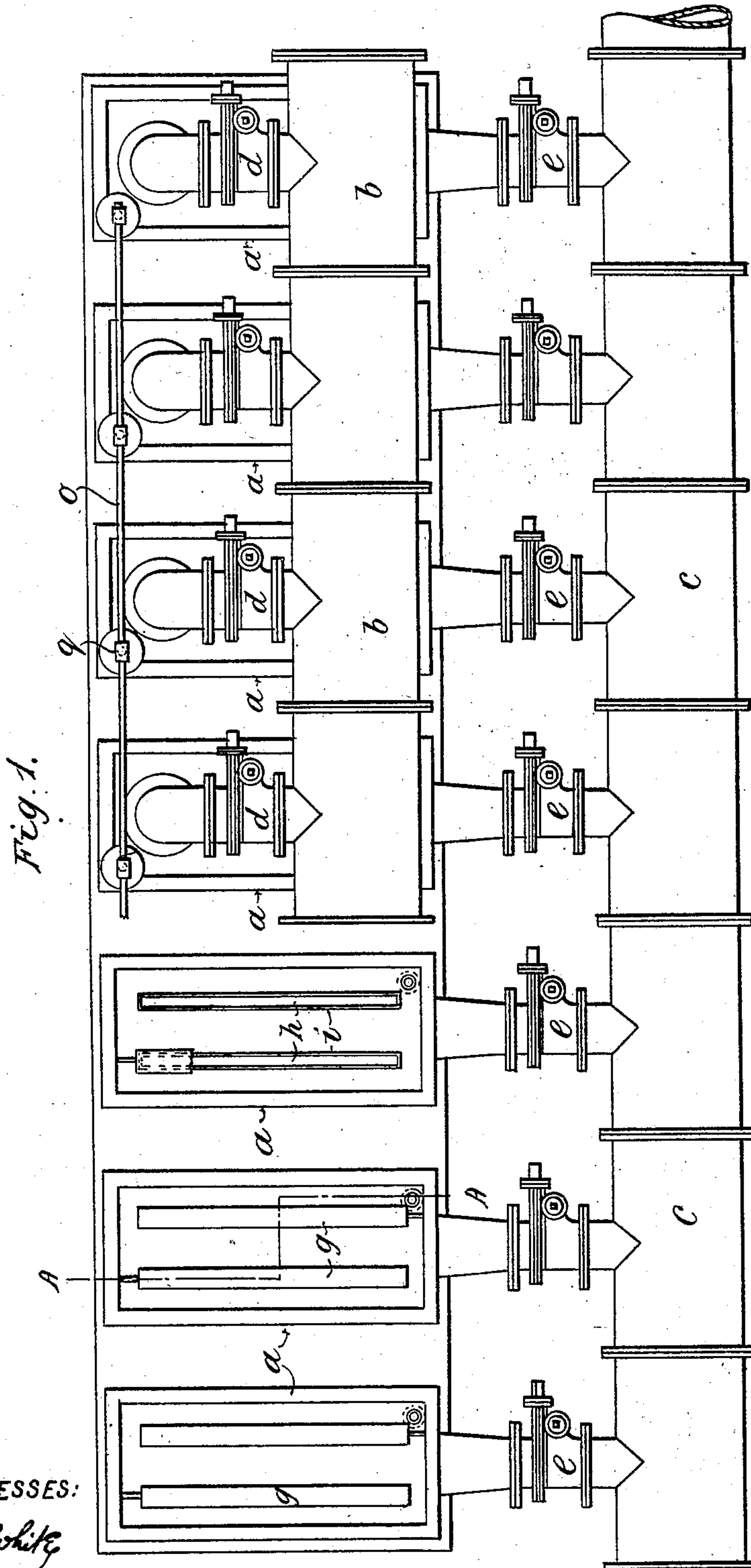
GAS WASHER.

APPLICATION FILED FEB. 26, 1907.

929,358.

Patented July 27, 1909.

2 SHEETS—SHEET 1.



WITNESSES:

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INVENTOR:

*George Wilton,*

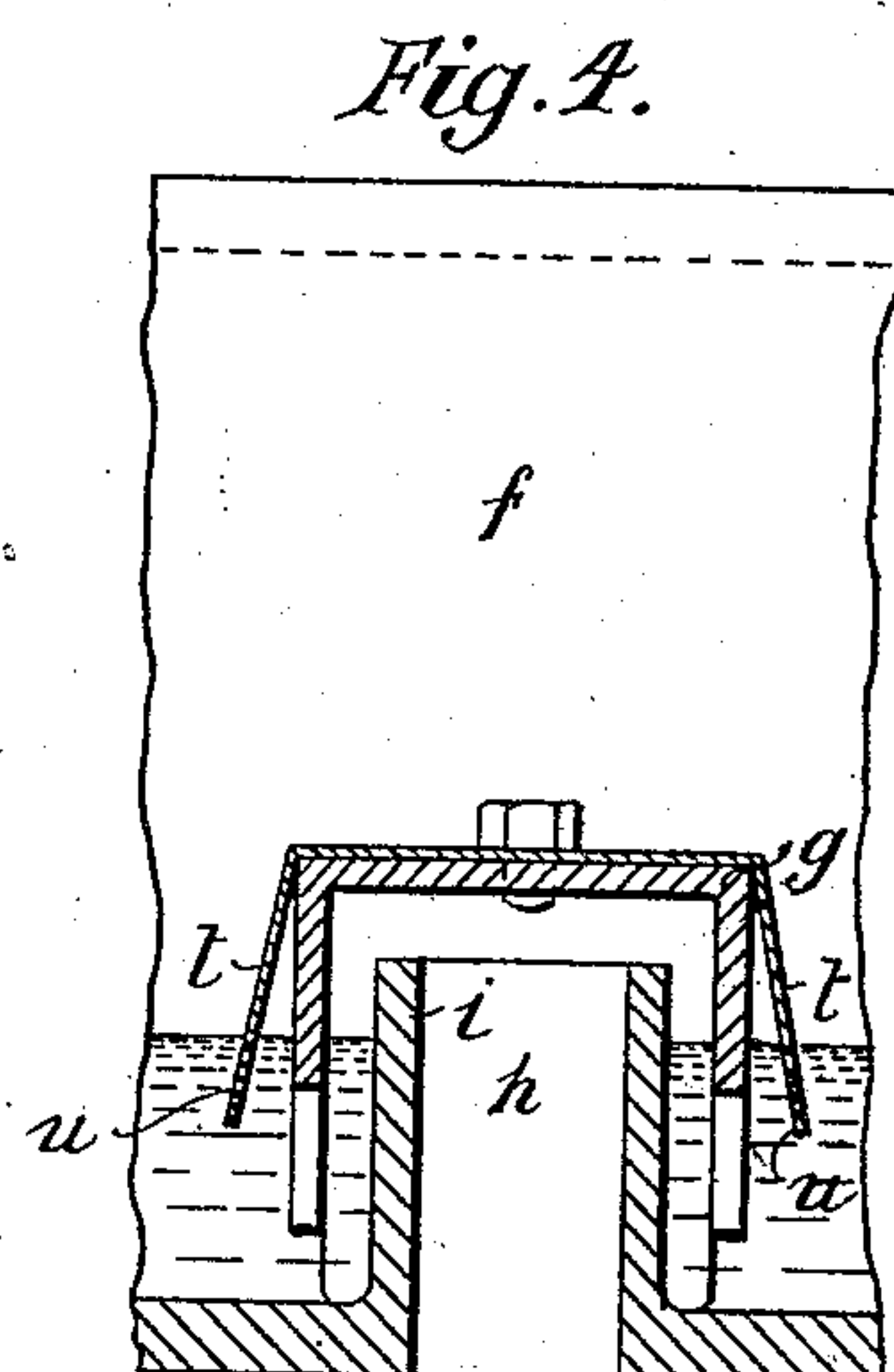
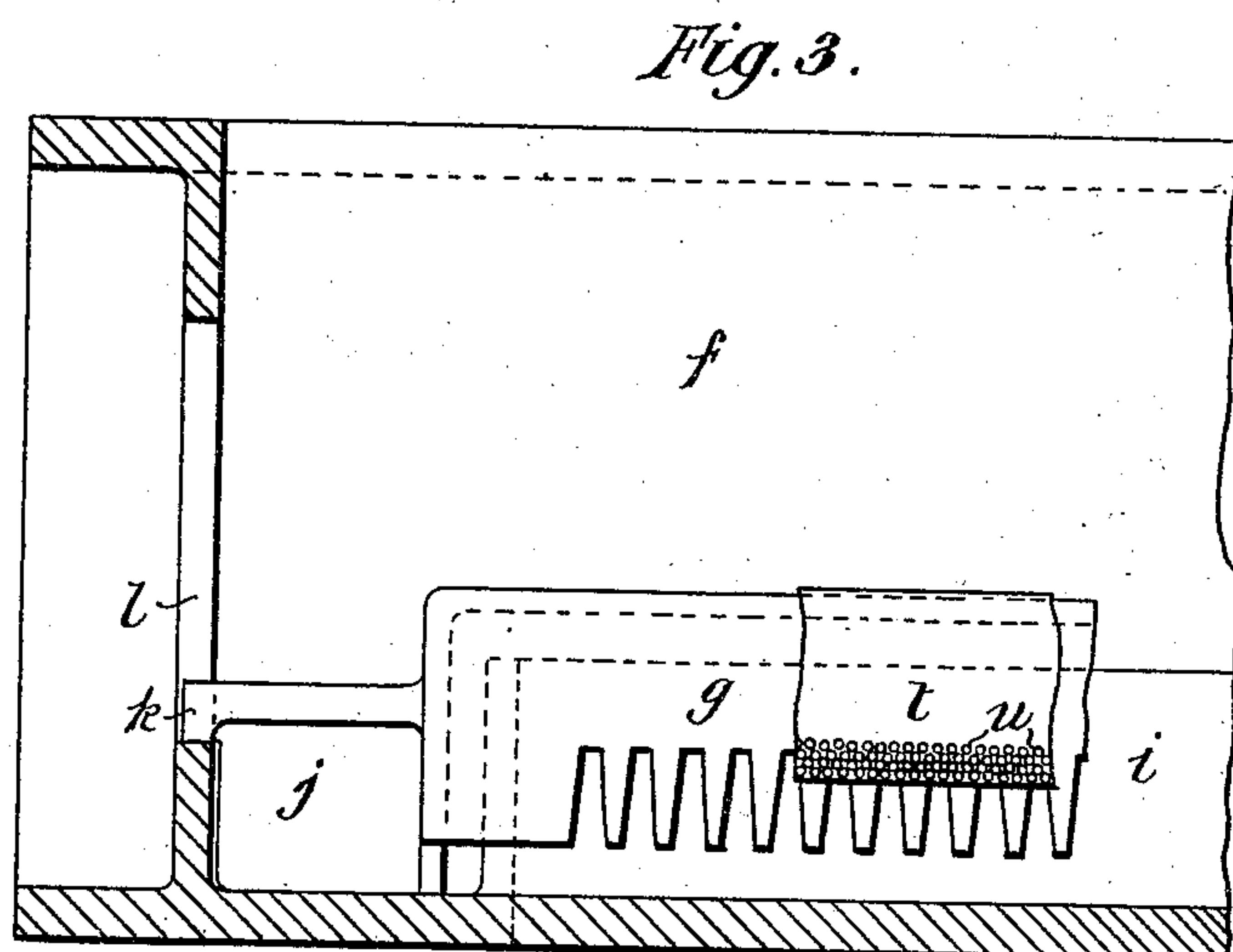
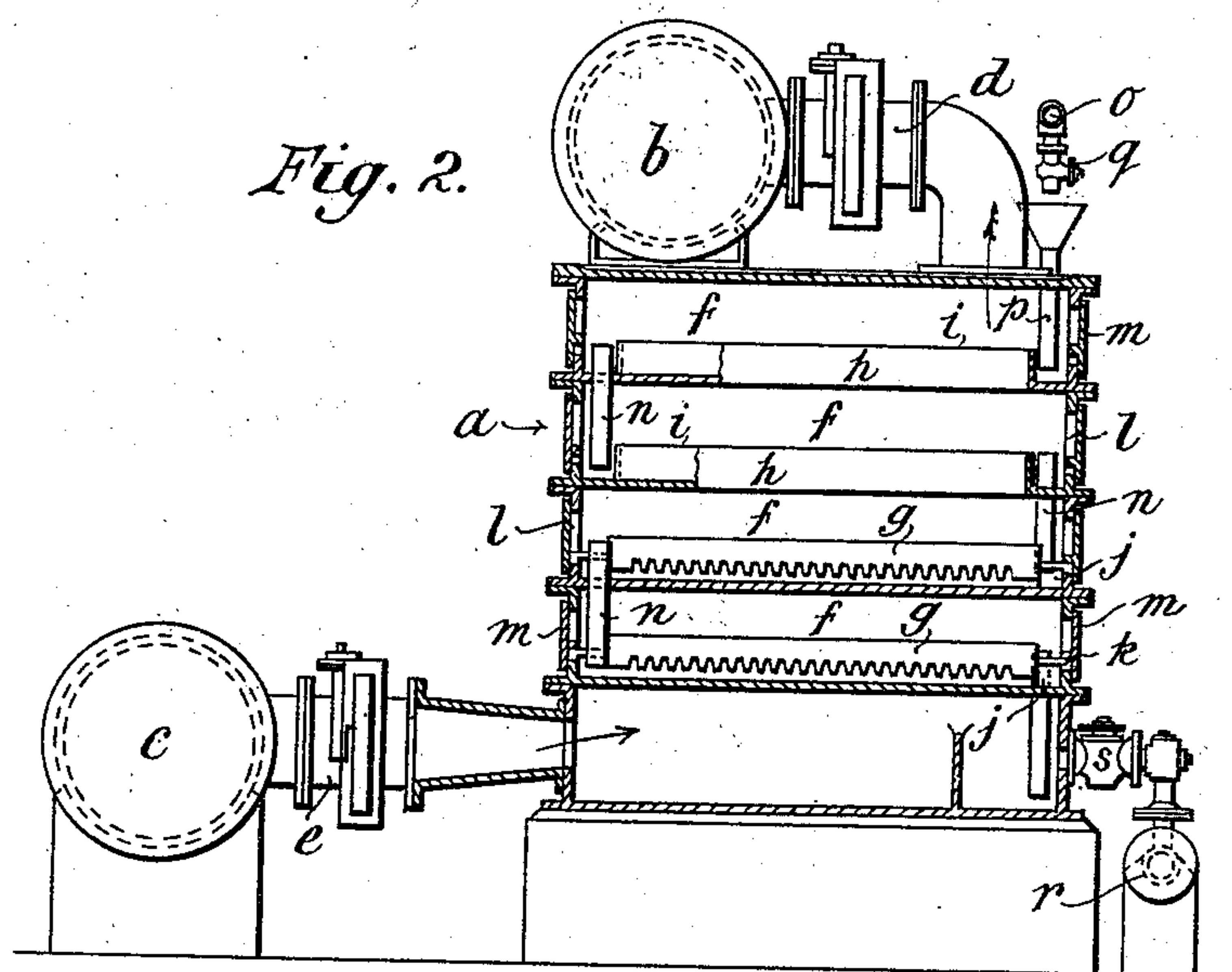
*By his Attorneys*

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WITNESSES:

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*George Wilton,*  
By his Attorneys  
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# UNITED STATES PATENT OFFICE.

GEORGE WILTON, OF LONDON, ENGLAND.

## GAS-WASHER.

No. 929,358.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed February 26, 1907. Serial No. 359,492.

*To all whom it may concern:*

Be it known that I, GEORGE WILTON, of 79 Mark Lane, London, England, engineer, have invented certain new and useful Improvements in or Relating to Gas-Washers, of which the following is a specification.

This invention relates to gas washers, particularly for use in the manufacture of coal gas.

The object of the invention is to provide an improved construction and arrangement of parts whereby the apparatus may be more readily inspected and cleansed and to enable this to be done without stopping or decreasing the output of the apparatus.

It also has for its object to so construct the bubbling hood or cover where the gas bubbles through the liquor that a more efficient washing of the gas is obtained.

According to this invention I provide a gas washer divided vertically into sections and each vertical section consists of a series of superimposed chambers, the uppermost chambers of each section being in connection with the liquor supply and the gas outlet and the lowermost chamber of each section being in connection with the gas supply main and the liquor outlet, whereby each vertical section may represent a unit of the capacity of the washer as a whole and whereby by providing an additional section the washer may be continuously worked at its maximum capacity only a part remaining idle to allow of inspection, cleansing and so forth, and also whereby the capacity of the apparatus may be increased by the addition of a further section without altering the connection between the original sections and the liquor supply of the mains.

In the apparatus to which this invention refers, the gas is caused to pass through certain bubbling hoods the edges of which are sealed in a suitable depth of liquor when supplementary hoods or serrated edges have hitherto been employed with such hoods they have all been formed in one with the main hood, but according to this invention I supplement the ordinary single serrated edge of the bubbling hood with one or more supplementary detachable aprons or hoods in the form of caps, covers or inverted trays adapted to be laid on to the lower hood or slid lengthwise thereonto and then fas-

tened in place; the terminal edges of said hoods may be serrated or perforated and these hoods may in the known manner terminate at an equal depth in the liquor or they may be of varying depths gradually lessening toward the outer apron. The supplementary aprons will provide an increased wetted surface exposed to the passage of the gas and they are all preferably arranged that the water seal is not duly increased as regards the power required to pass the gas therethrough.

The accompanying drawings illustrate a gas washer made in accordance with this invention wherein seven separate sections are employed.

Figure 1 is a plan of the complete apparatus with parts removed to show the inside of some of the chambers. Fig. 2 is an end elevation of one section or element, part of which is shown in vertical section. Figs. 3 and 4 are enlarged views of the improved bubbling hoods.

I will assume the washer shown in the drawings to be capable of dealing with say six million cubic feet of gas per 24 hours the apparatus is divided into seven vertical sections or elements *a a a* all so grouped together as to form practically one apparatus. These sections are connected at bottom and top to the gas supply main *c* and discharge main *b* which gas mains have separate connections to each section with corresponding valves *e d* for closing the inlet and outlet of the gas mains. These mains *b* and *c* adjacent to the sections will preferably be divided into sections of substantially the same width as each section *a* of the washer, whereby each section of the washer and its sections of mains *b* and *c* with accompanying valve connection *d* and *e* forms a unit of a sectional apparatus thereby allowing of an apparatus being conveniently increased in capacity according to the requirements and yet always complete whether consisting of one or many sections. Each section *a* of the washer consists of a series of superposed chambers *f* of suitable number each formed with one or more elongated hoods *g* which in a rectangular apparatus will preferably run lengthwise of the respective chambers as shown, and will cover a correspondingly shaped opening *h* in the floor of each chamber, the said open-



ing being surrounded by a wall *i* projecting up to the hood *g* in the usual manner. The hood *g* at the end where the liquor enters the chamber will be provided with a vertical flange *j* shown more particularly in Fig. 3 closing the space between the hood and the end wall of the chamber *f* while the said flange *j* will preferably be provided on its upper edge with a projection or extension *k* projecting slightly downward if required. This projection *k* will rest on the edge of an opening *l* in the chamber side which is of sufficient dimensions to allow the hood being raised and removed therethrough, said hole being normally covered by a suitable plate or door *m*.

By forming the ends of the hood *g* with vertical flanges *j* as described the liquor will be caused to flow first along one side and then along the other side and if two hoods are employed in each chamber these flanges *j* will be so arranged that the liquor will first pass along the side of the first hood, back between the two hoods and then along the outside of the second hood to the exit from whence it passes by suitable depending pipes *n* to the chamber next beneath. In this manner the liquor will pass through each vertical section of the apertures from top to bottom. The liquor is fed from the liquor main *o* into the uppermost compartment of the chamber by the pipe *p* which may be flared or funnel shaped at top, suitable valves *q* being provided so as to allow of the liquor supply being cut off from any particular section. The liquor leaves the lowermost chamber by the main *r* and valved connection *s*.

The longitudinal side of the hood *g* which is serrated in the ordinary manner will be fitted with a supplementary detachable apron or hood *t* projecting outward at an angle and consisting of sheet metal bent to a section corresponding with the crown of the head *g* so as to be slid lengthwise onto and off from the hood *g* or otherwise suitably placed thereon so as to be removed for cleansing when required, the aprons being fastened to the hood *g* by studs or otherwise suitably. In this manner one or more of such supplementary aprons *t* may be fitted and by removing the studs or fastenings the aprons may be slid or lifted off. These aprons may be formed with a series of holes *u* situated close together say three or four rows deep along their lower edge where immersed in the liquor. The ends of the hood *g* are shown closed entirely or they may be similarly perforated or serrated but will generally be formed with some parts projecting down to the floor of the compartment or other means will be provided to suitably support the hood in its required position.

In operation the liquor passes from the

liquor main *o* into one end of the upper chambers of each section. The liquor passes first along one side of the one hood *g* on the right and then back between the hoods and then along the outside of the other hood *g* and thence by pipe *n* to the next chamber beneath and so on through the several vertically arranged chambers *f*. There is thus a separate stream of liquid for each section passing in at the funnel and out at the valve *S*. Correspondingly separate streams of gas enter the sections from main *c* and after passing through the chamber *f* leave by the main *b*.

In a modified arrangement it may be so arranged that the liquor passes through the whole series of chambers which are on one level and then back through the series next beneath. If such an arrangement is employed suitable by pass connection will be provided to isolate any particular section as required.

What I claim and desire to secure by Letters Patent is:—

1. A gas washer comprising a plurality of washing units each consisting of a series of super-imposed chambers each having a liquid seal and bubbling hood device, such device comprising a hood and a supplemental detachable apron in the form of an inverted tray resting on said hood, said bubbling hood device having serrated edges and being immersed at its edges at a considerable depth in the liquor in the chambers and each unit having a liquid inlet at its top and a liquid outlet at its bottom, a gas supply main common to the whole of the units but supplying each unit at its bottom with a stream of gas independently of the other, a gas discharging main common to the whole of the units receiving the independent stream from the top of each unit whereby the gas to be washed may be divided into several streams passing from one common main to another and each stream being washed without passing through more than one washing unit.

2. A gas washer composing a plurality of washing units each consisting of a series of super-imposed chambers each having a liquid seal and bubbling hood device, such device comprising a hood and a supplemental detachable apron in the form of an inverted tray resting on said hood, said bubbling hood device having serrated edges and being immersed at its edges at a considerable depth in the liquor in the chambers and said apron having perforations along its edge and each unit having a liquid inlet at its top and a liquid outlet at its bottom, a gas supply main common to the whole of the units but supplying each unit at its bottom with a stream of gas independently of the other, a gas discharging main common to the whole of the units receiving the independent stream

from the top of each unit whereby the gas  
to be washed may be divided into several  
streams passing from one common main to  
another and each stream being washed with-  
5 out passing through more than one washing  
unit.

In witness whereof, I have hereunto signed

my name in the presence of two subscribing  
witnesses.

GEORGE WILTON.

Witnesses:

H. D. JAMESON,  
P. W. WILLIAMS.