

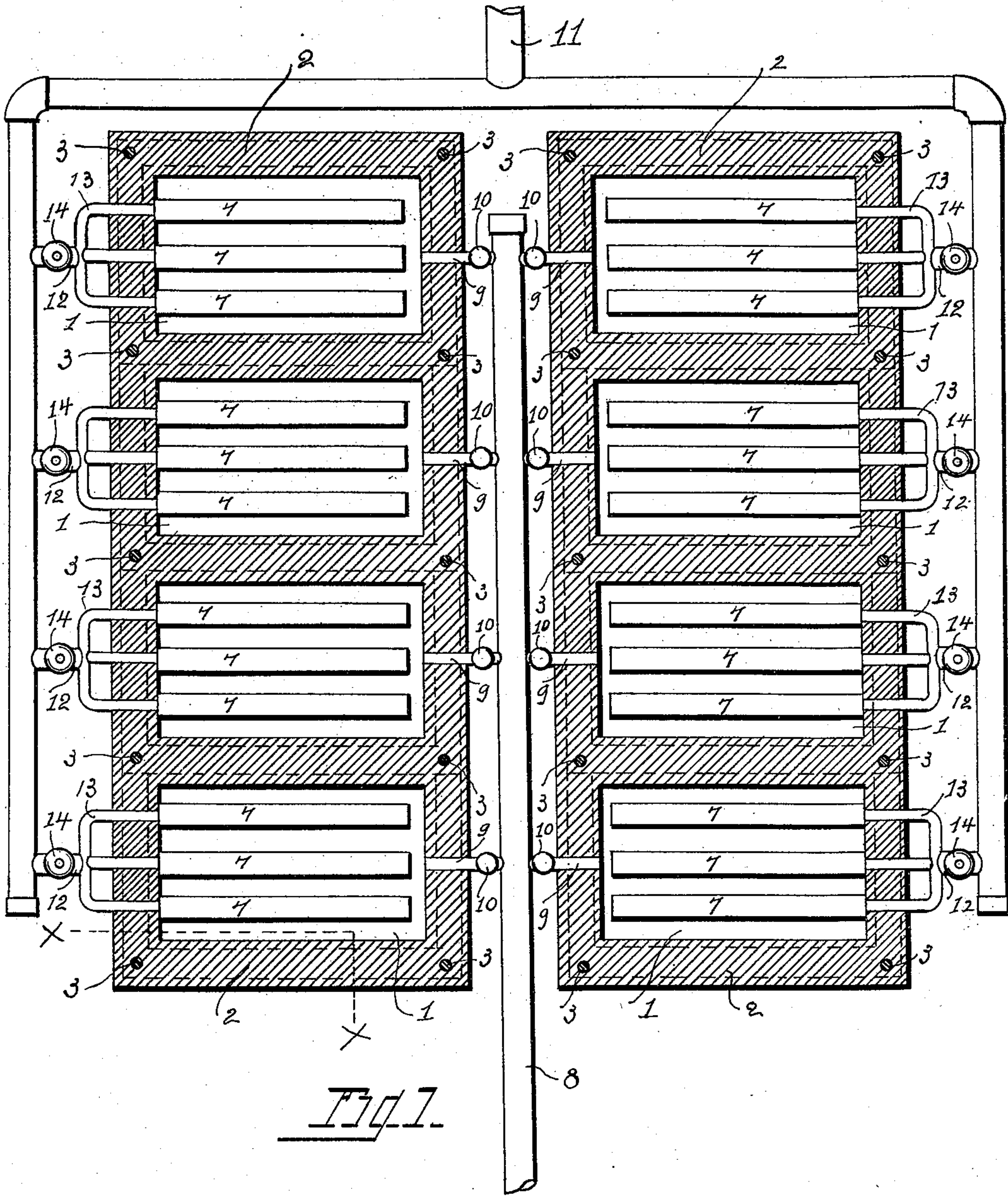
(No Model.)

J. F. ZIEGLER.
FILTER.

2 Sheets—Sheet 1.

No. 599,757.

Patented Mar. 1, 1898.



WITNESSES

Carroll J. Webster
Maud Schumacher.

INVENTOR

John F. Ziegler
By William Webster
Atty

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Fig 2

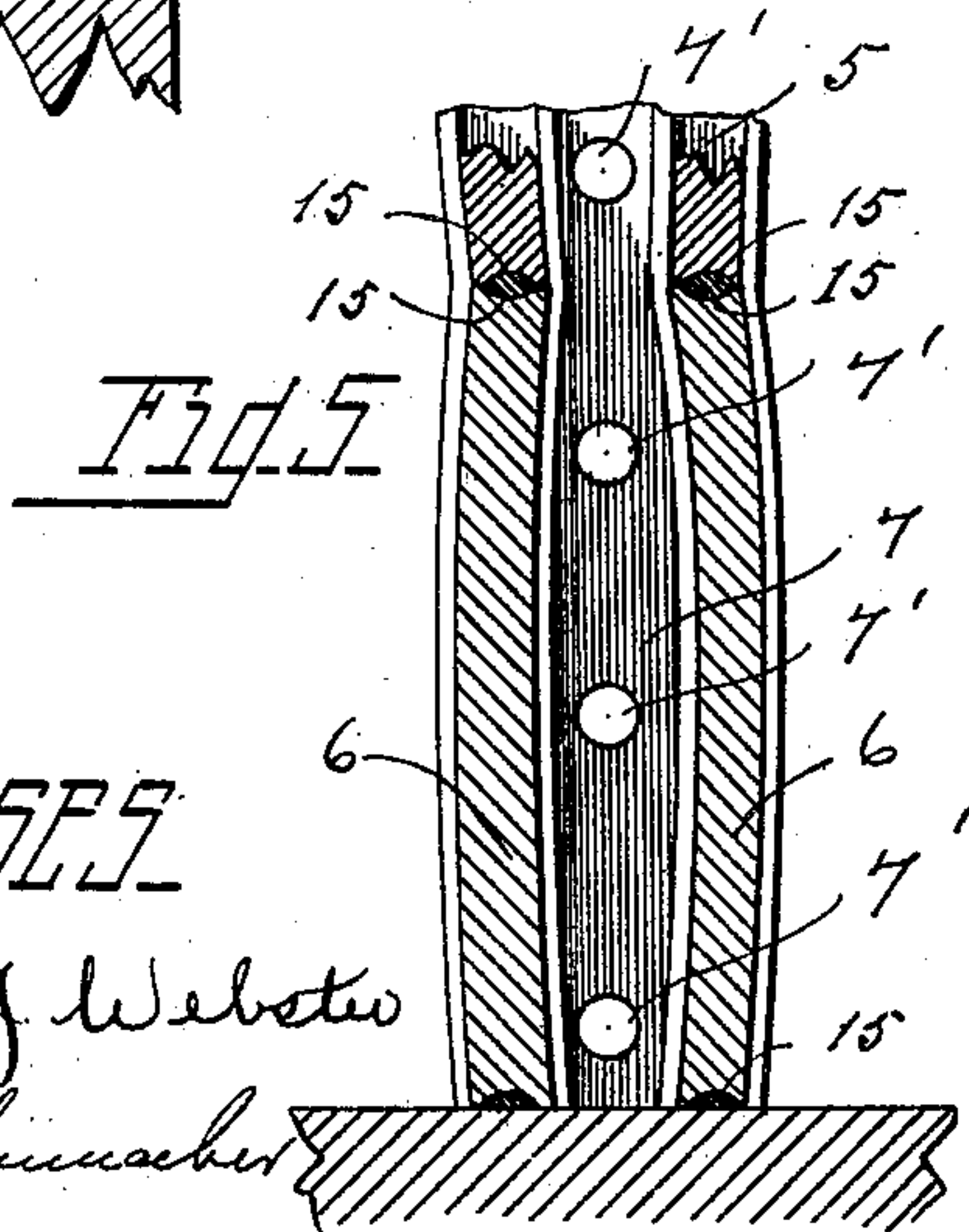
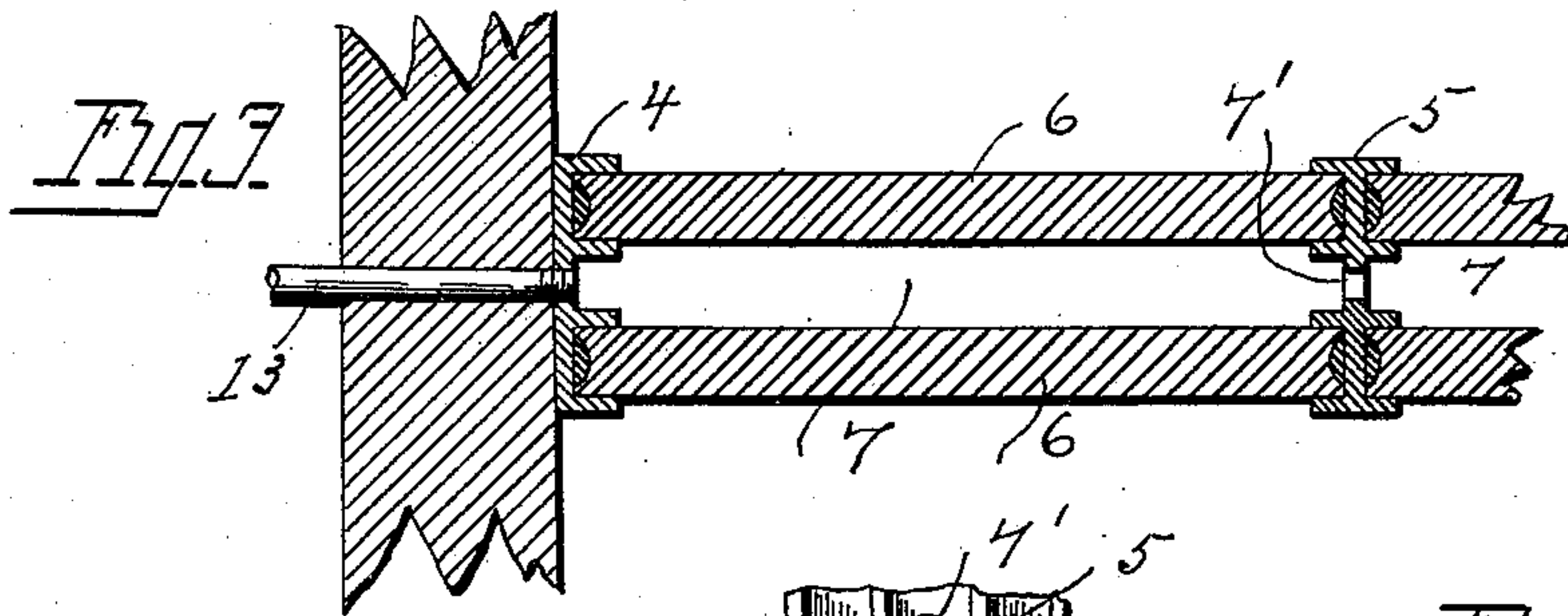
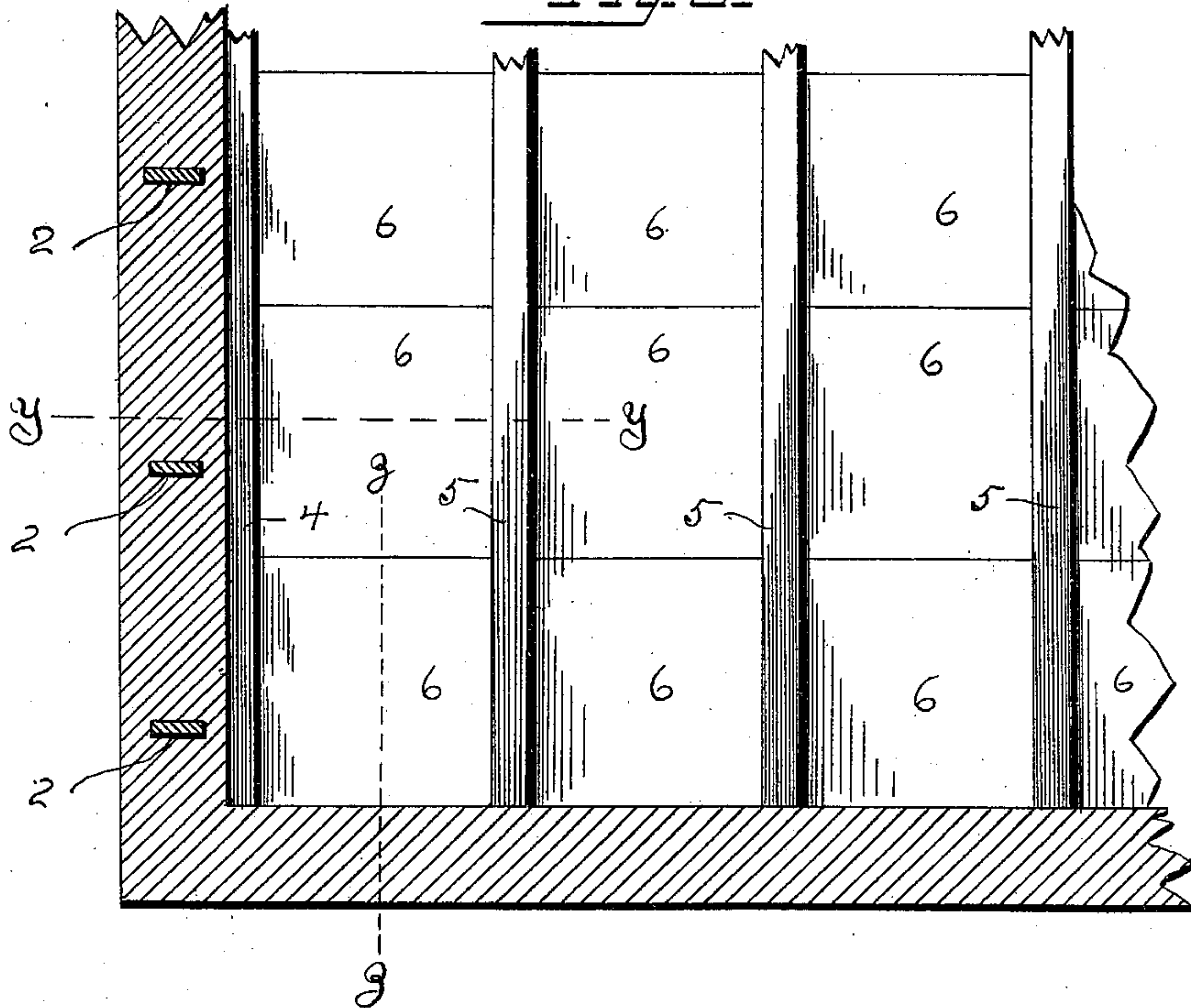
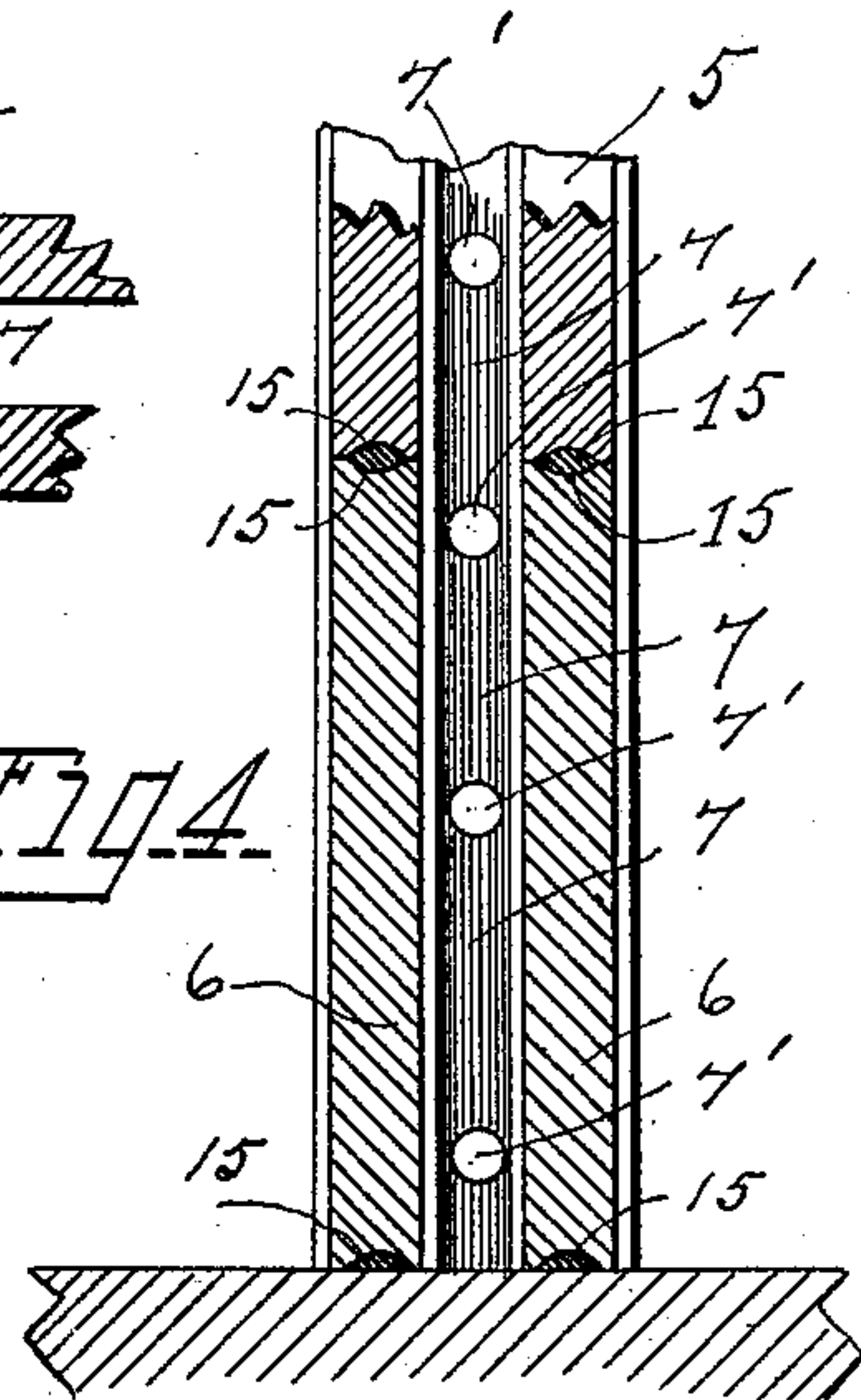


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN F. ZIEGLER, OF TOLEDO, OHIO.

FILTER.

SPECIFICATION forming part of Letters Patent No. 599,757, dated March 1, 1898.

Application filed January 25, 1897. Serial No. 620,521. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. ZIEGLER, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Filters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a filter, having special relation to a pressure-filter for use in municipal waterworks or in hotels, laundries, &c.

The object of the invention is to provide a filter which in its construction shall be cheap and which can be built into any desired size to meet the demand and which shall be self-cleaning and easy of repair.

The invention therefore consists in a filter formed of filtering-blocks cemented into the receptacle into which they are to be used and with novel means for securing a plurality of blocks to form an enlarged filtering-section, whereby the filter may be enlarged to meet any desired demand.

The invention further consists in the parts as shown, described, and claimed.

In the drawings, Figure 1 is a sectional plan view of a pressure-filter, illustrating a construction adaptable for a waterworks where it is desired to filter the water-supply for a city or town. Fig. 2 is a sectional view taken at a point indicated by the lines *xx*, Fig. 1. Fig. 3 is a plan view taken at a point indicated by the lines *yy*, Fig. 2. Fig. 4 is a sectional elevation taken at a point indicated by the lines *zz*, Fig. 2. Fig. 5 is a view similar to Fig. 4, illustrating a modification of a portion of a filtering-section.

In carrying out my invention I employ a chamber or a series of chambers 1, connected together but insulated from each other. In a large filter these chambers are formed of masonry and are preferably bound together by metallic braces or bands, (shown in dotted lines, Fig. 1,) the bands 2 surrounding each chamber being built into the masonry and are secured therein and into each other by vertical metallic posts 3. By this arrange-

ment the chambers 1 are prevented from expanding, due to the pressure of water therein. The bands 2 may be of one piece, preferably oblong in contour, or they may be formed sectional and bound together by the standards 3, as desired.

Arranged in each of the chambers 1 are flanged vertical standards 4, and arranged at intervals across the chambers 1 in alinement with the side standards 4 are double-flanged standards 5. Standards 4 are secured to the inner side walls of the chamber and are preferably built therein when the chamber is formed, as are also the standards 5, whereby they are solid with the masonry of the filter, the flanges of the standards forming the recesses into which slabs 6 of filtering material are inserted and held from lateral movement, there being two slabs secured between adjacent standards in parallel relation, thereby forming a chamber 7, which is insulated from the interior of the chamber 1 by the walls of the filtering material. Within each chamber 1 there are preferably three sections of filtering material, each section acting as an independent filter and built up of a plurality of rows of slabs separated by the rows of standards 5, the standards being perforated centrally along their length, as at 7', so that the chambers formed by adjacent slabs connect with each other.

8 designates the supply-pipe, connected with any desired source of water-supply under pressure, and connecting with said pipe 8 and the interior of each of the chambers 1 are individual supply-pipes 9, having valves 10 interposed thereon.

11 designates the feed-pipe, leading to the source of discharge, having branch pipes 12 connecting therewith, which connect with the individual pipes 13, leading from each of the chambers 7 to each of the filtering-sections. Pipes 12 are provided with valves 14.

It will thus be seen that water under pressure when the valves 10 are open enters the interior of the chambers 1 and has an outward pressure against the interior surface of the walls of the chambers 1 and also against the exterior surface of the sections composed of the filtering-blocks, with the result that the water percolates through the walls of the filtering-blocks and is cleansed of all impuri-

ties into the interior chambers 7 thereof and passes through the pipes 13 and branch pipes 12 into the supply-pipe 11 to the point of consumption.

5 It will be seen that there is an external pressure upon the filtering-sections, and in order to prevent the same from collapsing the chambers 7 are preferably filled with sand or granulous material, through which the filtered
10 water has a free passage.

In order to effectually seal the sides of the filtering-blocks 6 to each other and to the standards 4 and 5, respectively, each of the edges of the filtering-blocks is formed with
15 a channel 15, and interposed between the blocks in alinement with the channel when the sections are being put together during the construction of the filter is the water-proof cement by which the sections are se-
20 cured together and to the standards. I consider this feature of the groove around the edges of the filtering-blocks of great importance, as I am enabled to secure these filtering-blocks to each other, to the standards, or
25 directly to the side wall of the interior of the filtering-chambers 1 without the possibility of leakage, as the cement forms a lock to prevent the blocks from side movement.

In Fig. 5 I have illustrated a modification
30 in which each of the blocks is curved, the flanges in the standards 4 and 5 being curved correspondingly to receive the edges of the blocks. By this means I can dispense with the filling of sand or granulous material with-
35 in the chambers 7, as the curved portions of the filtering-block act as an arch to withstand the pressure of the water against them.

While I have shown a series of filtering-chambers 1, formed with filtering-blocks ar-
40 ranged therein, I wish it understood that I may use one chamber, if desired, and that I may otherwise depart from the construction as shown without departing from the spirit of my invention.

45 What I claim is—

1. In a filter, a compartment having a series of filtering-blocks arranged therein in parallel relation forming a plurality of independent filters, each filter built up of a plu-
50 rality of slabs of filtering material separated by standards, the standards being perforated centrally along their length so that the chambers formed by adjacent slabs communicate with each other.

2. In a filter, a chamber composed of en-
55 veloping walls, filtering-blocks secured therein in parallel relation, a groove in the edge of the filtering-block to receive the cement by which to secure the edges of the filtering-
60 blocks to the wall of the chamber.

3. In a filter, a plurality of chambers insulated from each other, vertical standards within each chamber, the standards being in aline-
65 ment with each other and extending across the chamber, filtering-blocks secured in parallel relation between the standards forming a chamber for filtered water between the same, a feed-pipe and branch pipes leading there-
70 from into the chambers, an exit-pipe, and branch pipes connecting the same and each individual chamber formed between the filtering-blocks.

4. In a filter, a chamber formed of enveloping walls, vertical standards arranged therein, each standard being provided with two verti-
75 cally-arranged recesses, filtering-blocks secured in the recesses and arranged vertically with reference to each other, grooves around the edges of the filtering-blocks to receive the cement by which to secure the edges of the
80 filtering-blocks to the vertical standards and the adjacent blocks respectively.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

JOHN F. ZIEGLER.

Witnesses:

WILLIAM WEBSTER,
MAUD SCHUMACHER.