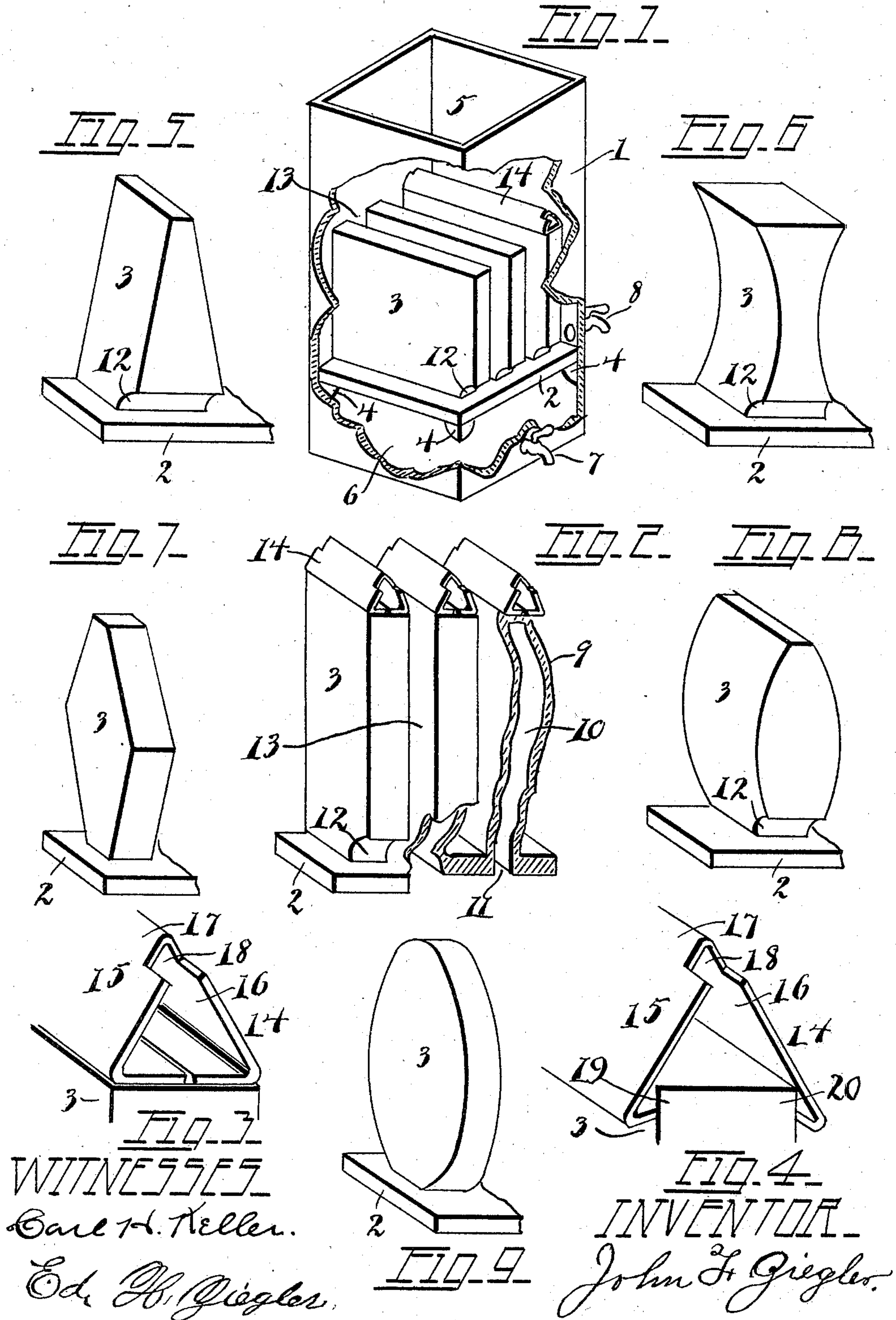


(No Model.)

J. F. ZIEGLER.
FILTER.

No. 589,887.

Patented Sept. 14, 1897.



UNITED STATES PATENT OFFICE.

JOHN F. ZIEGLER, OF TOLEDO, OHIO.

FILTER.

SPECIFICATION forming part of Letters Patent No. 589,887, dated September 14, 1897.

Application filed January 30, 1897. Serial No. 621,356. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. ZIEGLER, a citizen of the United States, residing at Toledo, in the 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 use the same.

My invention relates to filters, and has for its object to provide a filter which shall be simple in construction and efficient in operation.

My invention has particular relation to filtering-shells which may be easily applied to any ordinary filter-case for filtering purposes.

A further object is to provide as a new article of manufacture a filtering device inexpensive in construction, which may be employed with any ordinary filtering-case.

A further object is to provide a convenient means for removing from the filtering-shells any deposit thereon which has accumulated during the process of filtering and a means whereby it is easily removed from the filter.

A further object is to provide a protective covering or guard for the filtering-shells, which shall also combine to hold the shells from lateral displacement, which sometimes results from careless handling or by the lodgment of particles of ice between the same, and to form a guideway for the insertion of a cleaning device, which is inserted between the filter-shells for the purpose of cleaning the same.

With these objects in view the invention further consists of the parts and combination of parts hereinafter described, shown, and claimed.

In the drawings, Figure 1 is a perspective view of a filter, the casing of which is cut away to disclose the filtering-shells therein, also showing the guard in position on one of the filtering-shells. Fig. 2 is a perspective, partly in section, of the filtering-shells removed from the casing, showing the protective covering thereon. Fig. 3 is an enlarged perspective of one of the guards, one end only being shown, since both ends are alike. Fig. 4 is a similar view of a slightly-modified form of guard in which the sides extend over the

shell to more effectually protect the same from injury. In Figs. 5, 6, 7, 8, and 9, respectively, I have shown a wedge-shaped, double-concave, double-convex, diamond, and disk form of filtering-shells which I employ in the manufacture of my filter. These modified forms I employ to meet requirements when it becomes necessary to make different forms to suit the places in which the filters are to be used—such as railway-coaches, places left in the building of walls, &c.

1 is a body portion or casing of a filter of ordinary construction open at the top, and closed at the bottom, having therein a dividing-wall 2 upon which and integral therewith are a plurality of filtering-shells 3. Dividing-wall 2 is of a contour to fit the interior of the filter-casing and is supported intermediately therein by means of bracket 4, secured to the sides of the casing by any suitable means. I further secure the dividing-wall to the sides of the casing by means of cement or other adhesive material. It will be seen by this construction that I divide the casing or body portion of filter into two apartments 5 and 6, these being employed, respectively, to contain unfiltered water and the filtered water.

7 is an ordinary cock to draw off the filtered water. 8 is a cock of similar construction to draw off the washings and refuse from the chamber 5 while in the act of cleaning the filter-shells.

Filter-shells 3 are constructed of walls 9 of a porous material, thereby forming a hollow interior portion 10, the only direct passage thereto being at the bottom 11.

In the manufacture of filter-shells they are preferably constructed integral with the dividing-wall 2. On the lower end of each shell I have constructed a cut-out portion 12, which forms a connecting-passage to the spaces 13 between the shells, whereby the water in apartment 5 and immediate surrounding shells 3 is maintained on a level. The combined passages 12 also form a direct passage to outlet-cock 8 to permit of the washings and refuse to be drawn from apartment 5 when cleaning the filter.

14 are protective coverings for the filter-shells 3, which are perfectly constructed of metal and having side walls 15 and 16, respectively, which combine to form a ridge 17.

This construction gives great strength to the guards and prevents any possibility of breaking when ice is placed thereon. It will then be seen that the filter-shells will be protected
 5 from breaking or crushing through careless handling. On the end of guards 14 is a cut-away portion 18 in which I insert small quantities of cement sufficient to fill the interior portion of the end of the guard, which firmly
 10 secures the guard and shell to the side of casing.

In forming walls 15 and 16, as I have already shown and described, I furnish a convenient means for inserting a cleaning device
 15 in the spaces between the shells when I wish to remove any deposits which are thereon.

In Fig. 3 I have shown side walls 15 and 16, respectively, turned under and resting upon top of filtering-shell. In modified form
 20 (shown in Fig. 4) the sides 15 and 16, respectively, are formed so as to impinge the edges 19 and 20, respectively, of the filtering-shells, thereby preventing any possibility of chipping the same by the insertion of a cleaning
 25 device.

In operation apartment 5 is filled with unfiltered water. The ice is then placed therein and permitted to rest upon the guards 14. The cooled water in apartment 5 will perco-
 30 late through the porous material forming the walls 9 of the shells 3 into the interior portions 10 and through passages 11 into the apartment 6, from which it is drawn for use.

It will be seen from the foregoing description that in the construction of my filter I dis-
 35 pense with washers, clamps, or all similar devices which add to the expense and are a continual source of annoyance in the filters of present construction.

40 It will be seen, the filtering capacity or area being so great, I need but little reservoir for filtered water, as the supply is equal to the demand. Therefore the filtered water in chamber 6 is in close proximity and, in fact,

within the filtering-shells, which are sur- 45 rounded by the ice-cold water in chamber 5. Consequently when the water is drawn it is as cold as that which the ice is in.

Although in the foregoing description I have confined myself to the employment of 50 gravity-pressure, it will be seen that I may employ pressure from any source.

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

1. In a filter, a casing, an apartment for un- 55 filtered water and an apartment for filtered water, formed by a dividing-wall integral with a plurality of filtering-shells, having cut-out portions at the lower ends thereof and a plu- 60 rality of guards mounted thereon substantially as set forth.

2. In a filter, a casing, an apartment for un- filtered water, and an apartment for filtered water, a dividing-wall integral with a plural- 65 ity of filter-shells, secured by cementation to the sides of the casing and having mounted thereon inverted-V-shaped guards, substan- 70 tially as set forth.

3. In a filter, a casing, a chamber, for un- filtered water, and a chamber for filtered wa- 75 ter, a dividing-wall integral with a plurality of filtering-shells, guards mounted thereon, the sides of the guards being inclined and the end thereof being cut out, substantially as set forth.

4. In a filter, a casing, a chamber for un- filtered water and a chamber for filtered wa- 80 ter, guards mounted upon filtering-shells integral with a dividing-wall, the ends of the guards being secured to the filtering-shells and to the casing substantially as set forth.

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

JOHN F. ZIEGLER.

Witnesses:

GEO. P. KING,
 E. H. ZIEGLER.