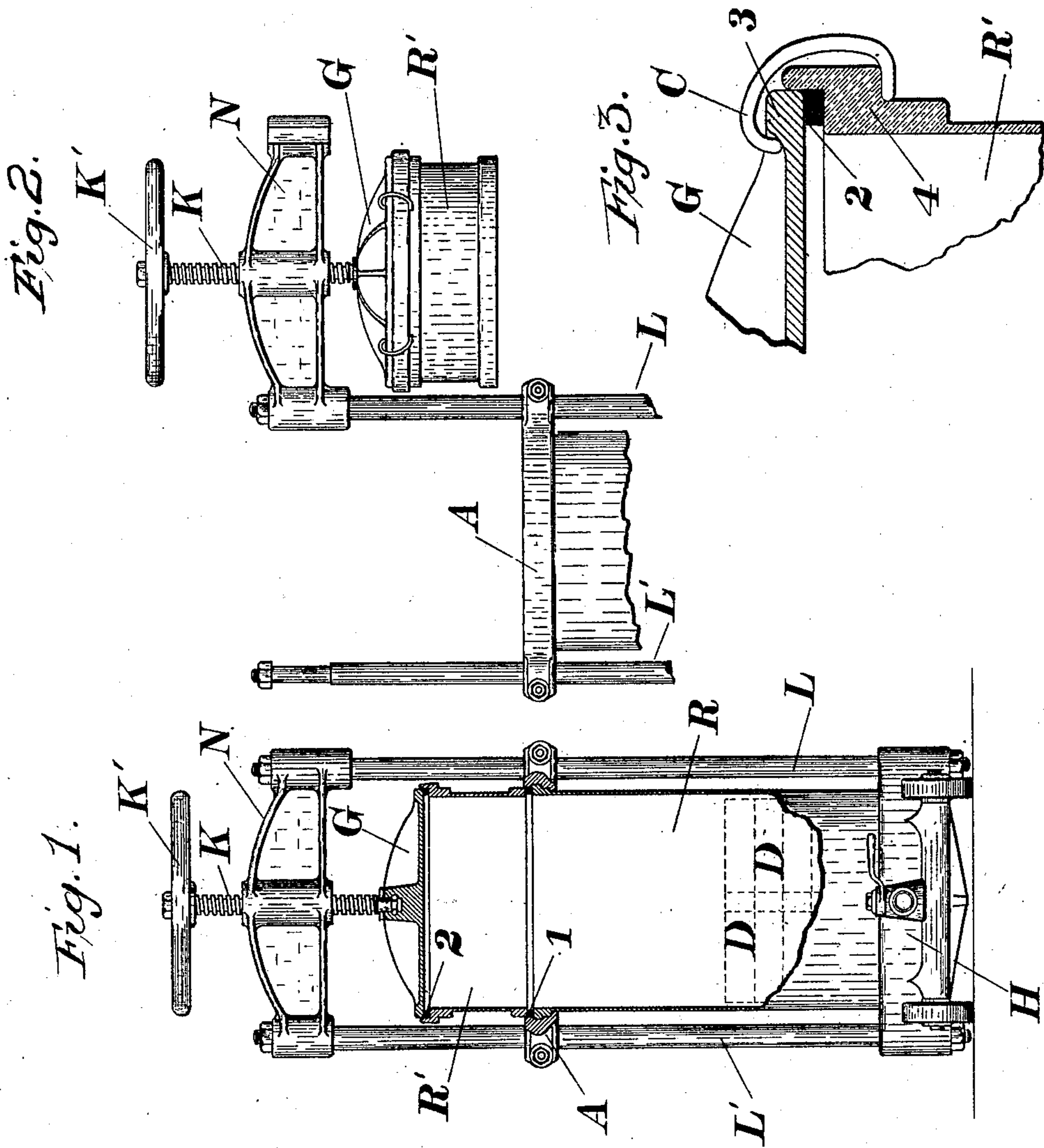


No. 828,320.

PATENTED AUG. 14, 1906.

K. KIEFER.  
FILTER APPARATUS.  
APPLICATION FILED NOV. 17, 1905.



Witnesses.  
*E. J. Appleton*  
*G. W. Woodin*

Inventor.  
*Karl Kiefer*



# UNITED STATES PATENT OFFICE.

KARL KIEFER, OF CINCINNATI, OHIO.

## FILTER APPARATUS.

No. 828,320.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed November 17, 1905. Serial No. 287,797.

*To all whom it may concern:*

Be it known that I, KARL KIEFER, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Filter Apparatus, of which the following is a specification.

The invention consists of certain arrangements and devices to facilitate the operation and manufacture of filters of considerable filtering-surface and to facilitate the placing of filter elements within drums such as shown in my Patent No. 12,347, reissued May 16, 1905.

The invention is illustrated in the accompanying drawings, of which—

Figure 1 is a vertical cross-section through a filter embodying the invention. Fig. 2 is a partial view upon the machine while same is open to gain access into the interior. Fig. 3 is an enlarged cross-section of a detail of the apparatus.

The filter apparatus is similar to the construction of that patented to me in Patent No. 12,347, reissued May 16, 1905, and consists of a base H, having an inlet and outlet, of two uprights L and L', fastened onto said base, of a stationary drum R, a traverse N, a cover-plate G, a screw K with a hand-wheel K', and a shorter drum R', which is made removable. It is shown in place in Fig. 1 and swung out in Fig. 2. The stationary drum R is riveted or otherwise rigidly and tightly connected to the base H. A stationary ring A, preferably made in two parts, so as to clamp against the uprights L and L', surrounds the upper part of the stationary drum R. It protects the drum from injury, but in this present invention is made rigid enough so as to also transfer the strain on the upright L, caused by the heavy weight of the swinging parts N, G, and R', to the second upright L'. A rubber gasket 1, Fig. 1, is placed between the stationary drum R and the swinging drum R'. A second rubber gasket 2 is placed below the cover when closing up the filter, as shown in Fig. 1. Fig. 3 shows how this sectional drum is attached to the cover for the purpose of swinging it out to gain access to the stationary drum R. Three or four clamps C of C shape are slipped over the offset 3 of the cover and offset 4 of the drum R'. They are made so as to slip over when the rubber

gasket 2 is under compression. In the position as shown in Fig. 3 it could not be removed. This is the position as shown in Fig. 2 when the drum is swung out. The accidental dropping of the drum R' is therefore prevented by this arrangement. By means of the invention described it is possible for the man packing the filter to easily gain access to the bottom of the filter, as the stationary drum R is made of such a height only as to allow the man without discomfort to reach the bottom of the filter when holding a filter element D (several indicated, Fig. 1, in dotted lines) by the usual means.

When operating, the filter is filled with filter layers up to the rim, as shown in Fig. 2. Then the upper section R' is swung in place, all clamps C removed, and the cover alone swung out. An additional number of filter layers are then put in place without exertion on the part of the operator. When sufficient filter layers are placed within the filter, it is finally closed, as shown in Fig. 1.

The drawings show the loose drum R' as being only about one-third the height of the stationary drum R. Of course it can be made higher until both drums are of like height. A step or ladder could then be used for placing the filter layers in the upper section.

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

1. In a filter, the combination of a series of filter elements with a surrounding drum consisting of a plurality of sections, at least one of the drums of a greater height than the height of one of the filter elements.
2. In a filter, the combination of a base, a series of filter elements a drum surrounding the filter elements, a swinging cover, and means for attaching a drum-section to the swinging cover to enable it to swing away with the cover when packing or unpacking the filter elements.

In testimony whereof I have signed my name to this specification, this 14th day of November, 1905, in the presence of two subscribing witnesses.

KARL KIEFER.

Witnesses:

E. J. APPLETON,  
G. W. WERDEN.