No. 843,465. PATENTED FEB. 5, 1907.

R. KOEHLER.

FILTER.

APPLICATION FILED OCT. 19, 1906.

Fig. 1.

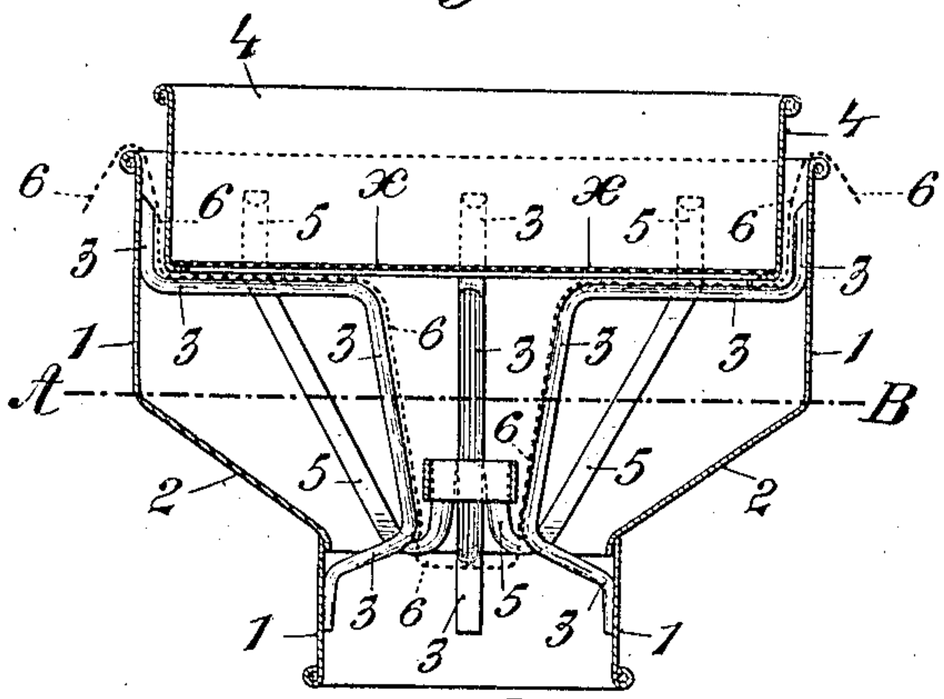


Fig. 2.

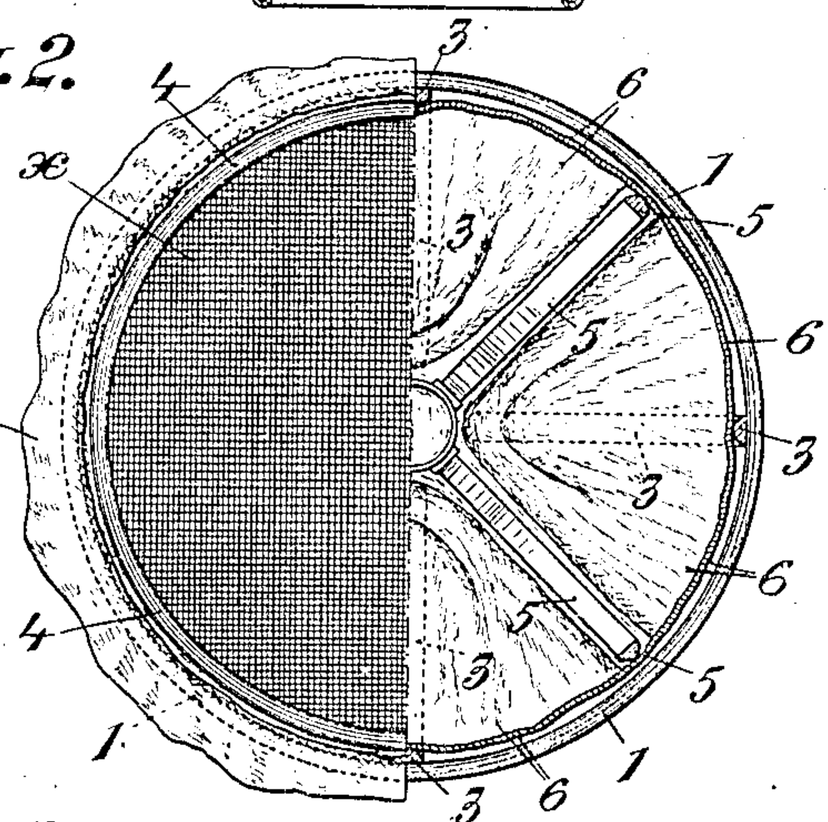
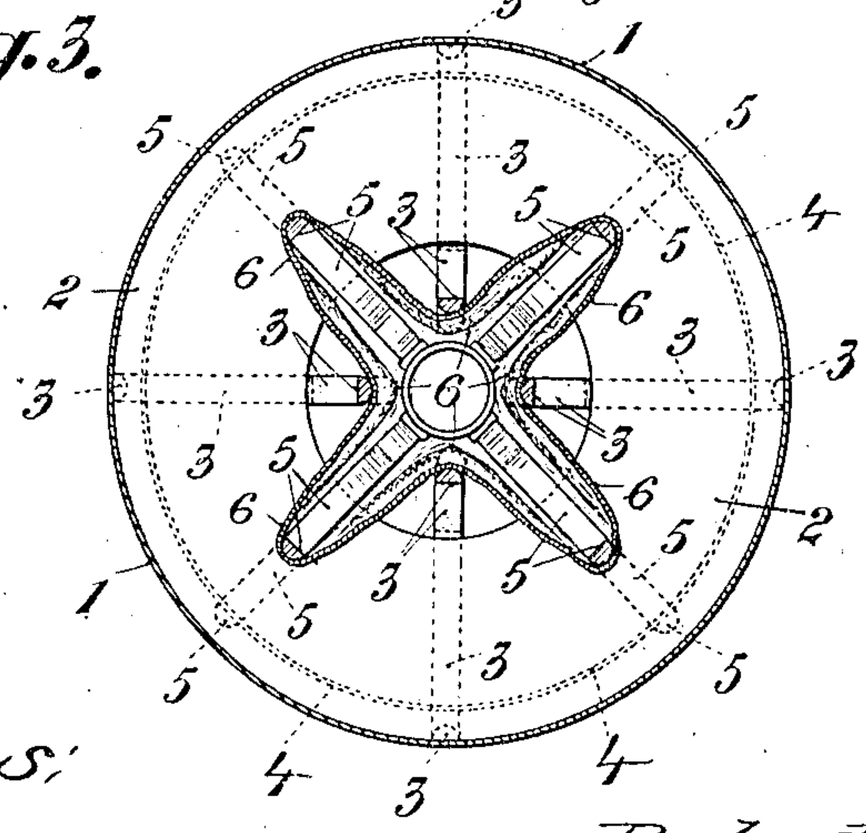


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT KOEHLER, OF PRENZLAU, GERMANY.

FILTER.

No. 843,465. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed October 19, 1906. Serial No. 339,733.

To all whom it may concern:

Be it known that I, ROBERT KOEHLER, doctor of philology, chemist, a subject of the King of Saxony, residing at Prenzlau, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Filters, of which the following is a specification.

Hitherto filters have been used in which the filters consisted of paper folded into a conical form with star-shaped base. This form of filter is generally employed in chemical laboratories and the like, on account of the exceedingly large filtering-surface afforded and the circumstance that all solid particles will be deposited at the bottom, so that, even after being in use for some time there still remains a sufficiently large effective filtering-surface.

My invention has for its object to render the advantages of this known arrangement available for sieve-like strainers for purifying liquids, more especially milk. With this object a cloth is stretched between an external funnel and a sieve-like insertion, so that it assumes the known form of the plaited paper filter and retains it during the whole course of operations. In carrying the invention into effect this filter-funnel, of cloth of star-shaped section, is formed by arranging on the inner side of the outer funnel at regular intervals from each other wires bent so as to form elbows or shoulders projecting toward the center and between which downwardly-projecting wires of a sieve-like insertion, likewise arranged at regular intervals, are interposed. As these latter wires are bent outward the filter-cloth extended between them will assume a star-shaped section, whereby the effective filtering-surface is considerably enlarged.

In the appended drawings, illustrating the invention, Figure 1 is a vertical section; Fig. 2, a plan of the strainer, partly in section. Fig. 3 is a section on line A B, Fig. 1.

The outer funnel 1 is of the usual form. On its inner face, at regular intervals opposite the conical part 2 of the funnel, wires 3 are arranged, which are bent so as to form angles or shoulders projecting toward the center. The horizontal upper parts of these wires 3 carry a ring 4, which may be provided with a strainer x, which ring is provided with wires 5, arranged at regular intervals and which extend downward and are bent so as to project outward with regard to the position of the wires 3 of the funnel 1. At their lower ends these wires 5 are joined to each other by a ring 7. The wires 5 are located between the wires 3, and when the stretching-ring 4 is inserted the filter-cloth 6 is firmly held in the position given to it. The filter-cloth 6 will then exhibit in section a stellate form.

In order to use the strainer, the filter-cloth 6 is first laid over the strainer-funnel 1, and thereupon the ring 4, provided with the strainer x, is inserted. The filter-cloth 6, being thus stretched between the wires, will be found to have assumed the same shape shown in Figs. 2 and 3. It will therefore have a star-shaped section. If now a liquid is strained through it, the coarser impurities will be retained by the upper sieve x, while smaller particles of foreign substances will be retained by the filter-cloth 6. The strainer may also, if desired, be used without the stretching-ring or strainer x, as the filter-cloth will assume a stellate section even under the influence of the pressure of the liquid alone in the strainer-funnel 1, owing to the wires 3 of the latter.

What I claim is—

1. In a device of the class described, the combination of a strainer-funnel having a plurality of radially-disposed arms, a stretcher-ring having a radially-disposed frame interposed between the arms of the funnel, and a filter-cloth arranged between the said arms and frame.

2. In a device of the class described, in combination, a strainer-funnel having a plurality of longitudinally-disposed arms providing a seat, a stretcher-ring resting on said seat and having a radially-disposed frame interposed between the arms, and a filter-cloth arranged between the said arms and frame.

3. In a device of the class described, in combination, a strainer-funnel having a plurality of radially-disposed divergent arms, a stretcher-ring carrying a plurality of radially-disposed convergent arms interposed between the arms of the frame, and a filter-cloth arranged between said arms.

4. In a device of the class described, the combination of a strainer-funnel having a plurality of radially-disposed arms secured

on the inner side of said funnel, a stretching-ring carrying a plurality of radially-disposed arms interposed between the arms of the funnel, all of said arms being arranged at regular intervals respectively on the funnel and the ring, and a filter-cloth arranged between the arms.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT KOEHLER.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.