

No. 740,367.

PATENTED SEPT. 29, 1903.

E. M. KNIGHT.
FILTER PAD AND METHOD OF MAKING SAME.

APPLICATION FILED MAR. 4, 1903.

NO MODEL.

Fig. 1.

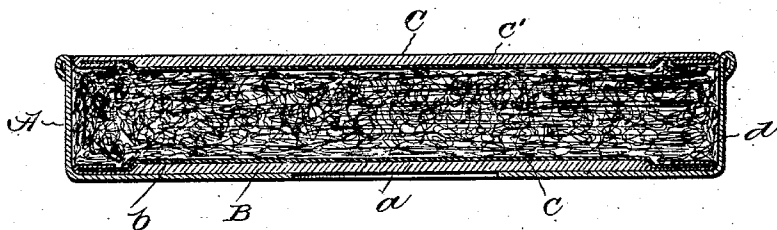


Fig. 2.

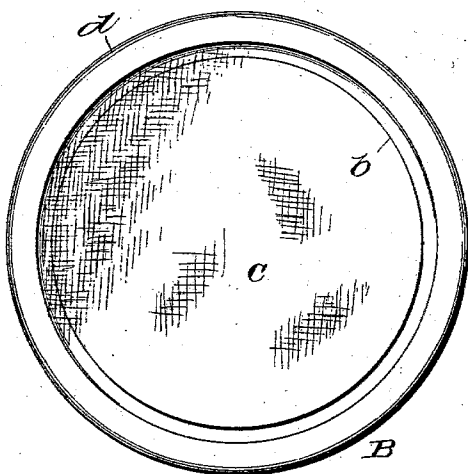
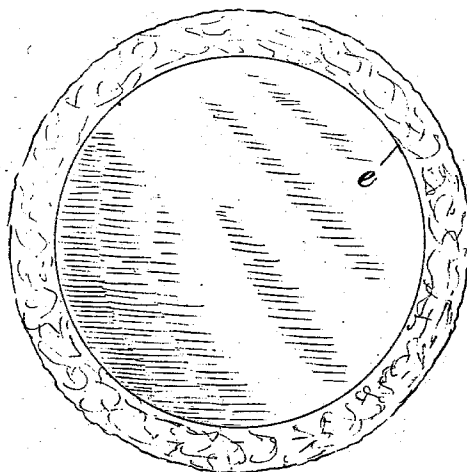


Fig. 3.



Witnesses
J. L. Hockaday
Chapman H. Fowler

Inventor
Edward M. Knight
by *J. D. Walter Fowler*
his Attorney.

UNITED STATES PATENT OFFICE.

EDWARD M. KNIGHT, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
TO R. H. MARTIN, OF NEW YORK, N. Y.

FILTER-PAD AND METHOD OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 740,367, dated September 29, 1903.

Application filed March 4, 1903. Serial No. 146,123. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. KNIGHT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Filter-Pads and Methods of Making the Same, of which the following is a specification.

This invention relates to filter-beds, and particularly those employing a fibrous pad for separating sedimentary matter from water designed for drinking or domestic purposes; and the invention consists, essentially, of a filter-pad formed of fibrous material having the greater portion of its body compressed to make substantially a dense and yet sufficiently porous body through which the water percolates and during its passage is relieved of the suspended or sedimentary particles, said pad having a surrounding edge of less density than the remaining portion and substantially uncompressed, whereby the edge may be turned at an abrupt angle without danger of breaking the pad at the angle or bend or so disturbing the fibers as to open up crevices for the possible leakage of unfiltered water.

My invention further consists of the method of making the aforesaid pad, said method including the steps of placing a mass of fibers between surfaces which have a greater thickness or elevation at the central portion than at the edges and applying pressure to cause the surfaces to compress and make more dense and compact the middle portion of the pad and to leave the edges substantially uncompressed and the fibers thereof substantially loose.

In the accompanying drawings I have illustrated one means for carrying forward my process, and wherein—

Figure 1 illustrates a vertical sectional view of a holder and opposing dies or surfaces between which the loose fibers are compressed. Fig. 2 is a plan view of one of the dies removed. Fig. 3 illustrates one of the complete pads.

In carrying out my invention I prefer to use as the material from which the pad is to be made asbestos fibers, which because of their insoluble and indestructible character

and their peculiar property of forming a soft seemingly-slimy bed when saturated forms a most effective substance for the filtration of fluid matter. These fibers are carded or otherwise combed or loosened, and a sufficient mass—determined, for instance, by weighing—is placed within a suitable holder and subjected to pressure to condense the mass and form a flexible pad that may be handled without danger of its being easily broken or injured. A holder well adapted for the purpose is shown at A, said holder having an opening *a* in its bottom to facilitate the removal of the dies and pad after compression has been completed.

Upon the bottom of the holder is first placed a die B, of metal or other appropriate material, said die having a thickened or raised portion *b*, so as to leave a surrounding outside portion of less thickness. Over this raised face of the die and also extending over the reduced edge portion is a piece of fabric *c*, the edge of which may be confined by bending the edge of the die over it to form a binding-strip, as shown at *d*, but the combined thickness of which folded edge will still be less than the thickness of the raised central portion of the die.

The fabric surface of the die is first moistened with water, and the dry loose asbestos fibers are placed within the holder upon this moistened surface, and a second or upper die C of the same construction as the first-named die and having its fabric-surface *c'* moistened is now placed upon the mass of fibers and the holder and its contained dies placed within a suitable press (not shown) and pressure applied to cause the dies to compress the interposed mass of fibers to any desired degree.

As the central portions of the dies are thicker than the surrounding edge portions and stand beyond the plane of the latter, it will be manifest that when the aforesaid pressure is applied to the dies said central portions will sink more deeply into the mass of fibers and will consequently more firmly compress the central portion of the mass of fibers than the edges, as the latter will occupy the greater space formed by the thinner edge portions of the dies and will accordingly be subjected to

little or no compression but will have its fibers left substantially loose. Further than this, the pad itself will show, as in Fig. 3, a decided bead *e* at the junction of the compressed central portion with the less compressed and soft and pliable edge portion, which enables this latter edge portion to be turned or bent at one or more sharp angles to the more solid central portion, as when putting the pad into a filter-frame and bending the soft edge to form a water-tight joint with said frame.

When the pad has been compressed, as before stated, the dies and pad are readily removed from the holder by pushing the finger or a tool or other device through the hole in the bottom of the holder, and thus lifting the dies and pad, and the dies are then lifted from the pad, their moistened surfaces having prevented the fibers sticking to the fabric of the dies, and packed in boxes or packages ready for use in filter-frames of suitable size and form.

By the method described I am enabled to make an effective, easily-handled, durable, and comparatively inexpensive pad which is capable of making a water-tight joint in its frame when in use, and which will thoroughly eliminate sedimentary matter from water and other liquids.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of making filter-pads consisting in subjecting a mass of dry fibers to pressure and proportioning the pressure so

that one portion of the pad is compressed to a greater extent than the remaining portion.

2. The method of making filter-pads consisting in subjecting a mass of dry fibers to pressure and compressing the central portion of the pad to a greater extent than the surrounding edge whereby the said edge remains substantially soft and pliable.

3. The method of making filter-pads consisting in subjecting a mass of dry fibers to pressure between moistened surfaces, and proportioning the pressure so that the central portion of the pad is compressed to a less thickness, and made more dense, than the surrounding edge.

4. The method of making filter-pads consisting in subjecting a mass of fibers to pressure between moistened fabric surfaces, and offsetting the surfaces to cause them to compress the central portion of the pad to a greater extent than the surrounding edge and to leave said edge soft and pliable.

5. As an article of manufacture, a filter-pad of fibrous material having a central portion of less thickness and greater density than the remaining portion so as to leave a surrounding pliable edge of soft substantially uncompressed fibers.

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

EDWARD M. KNIGHT.

Witnesses:

WALTER J. SKERTEN,
GEO. J. B. FRANKLIN.