

(No Model.)

C. MONJEAU.  
SAND SCREEN OR FILTER.

No. 436,502.

Patented Sept. 16, 1890.

FIG. 1.

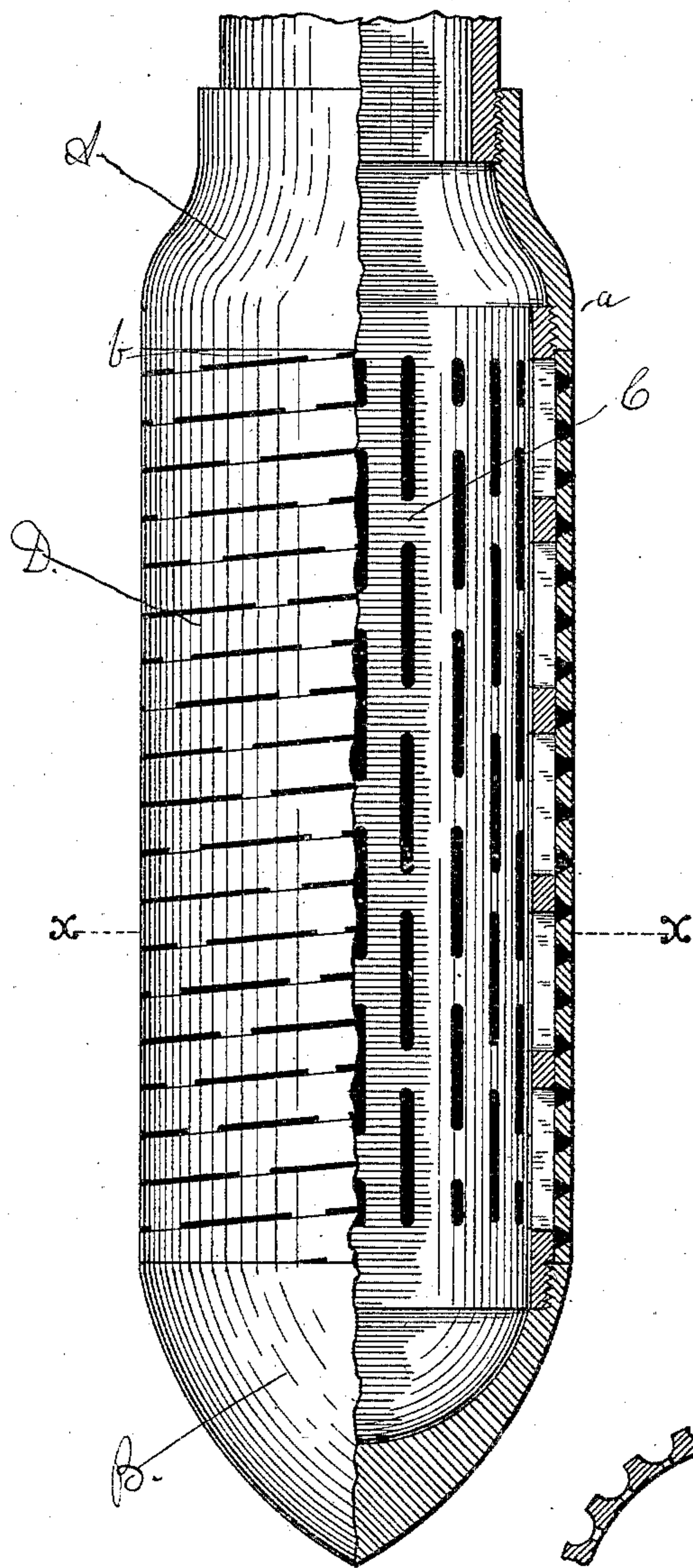


FIG. 2.

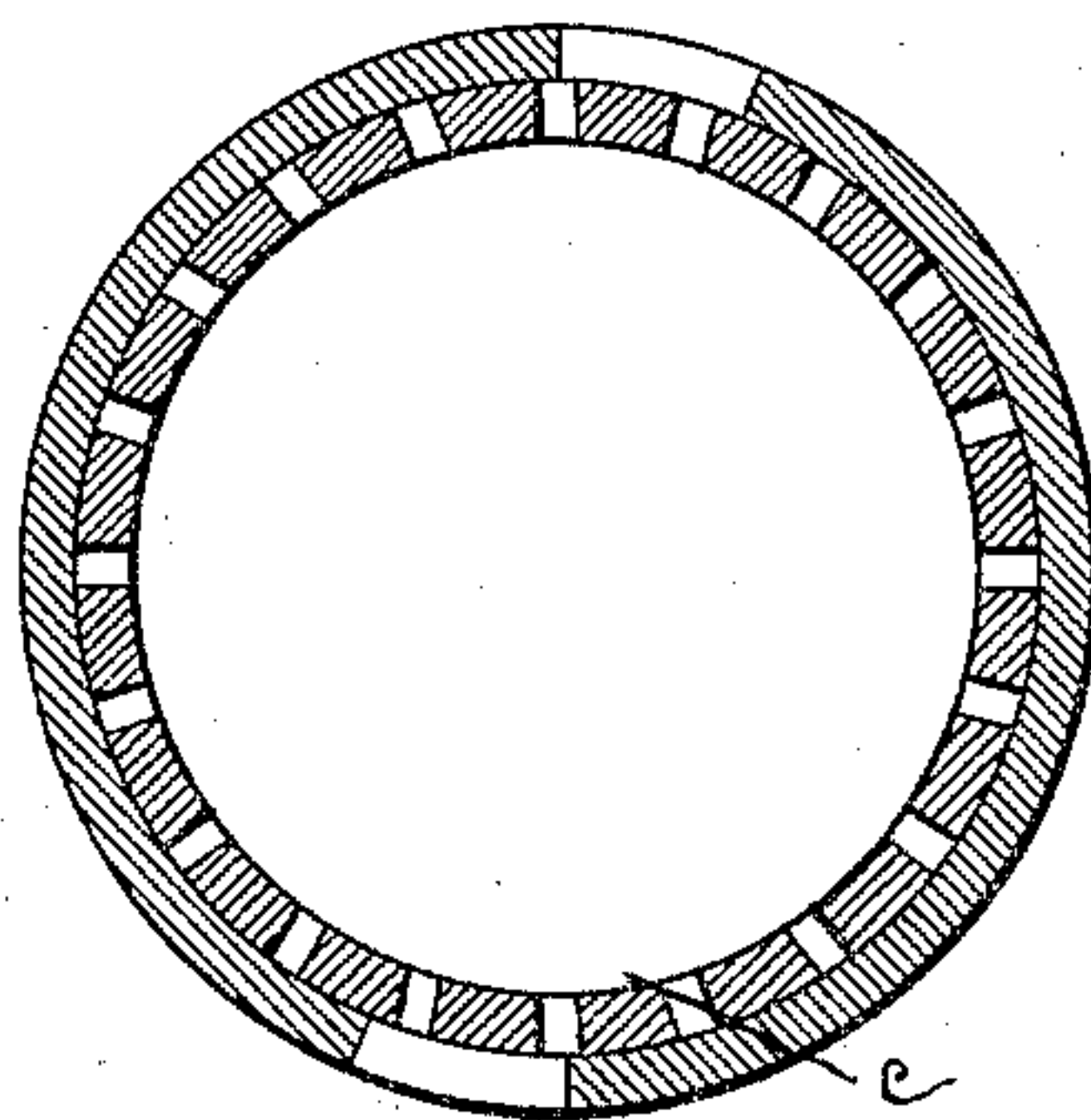


FIG. 3.

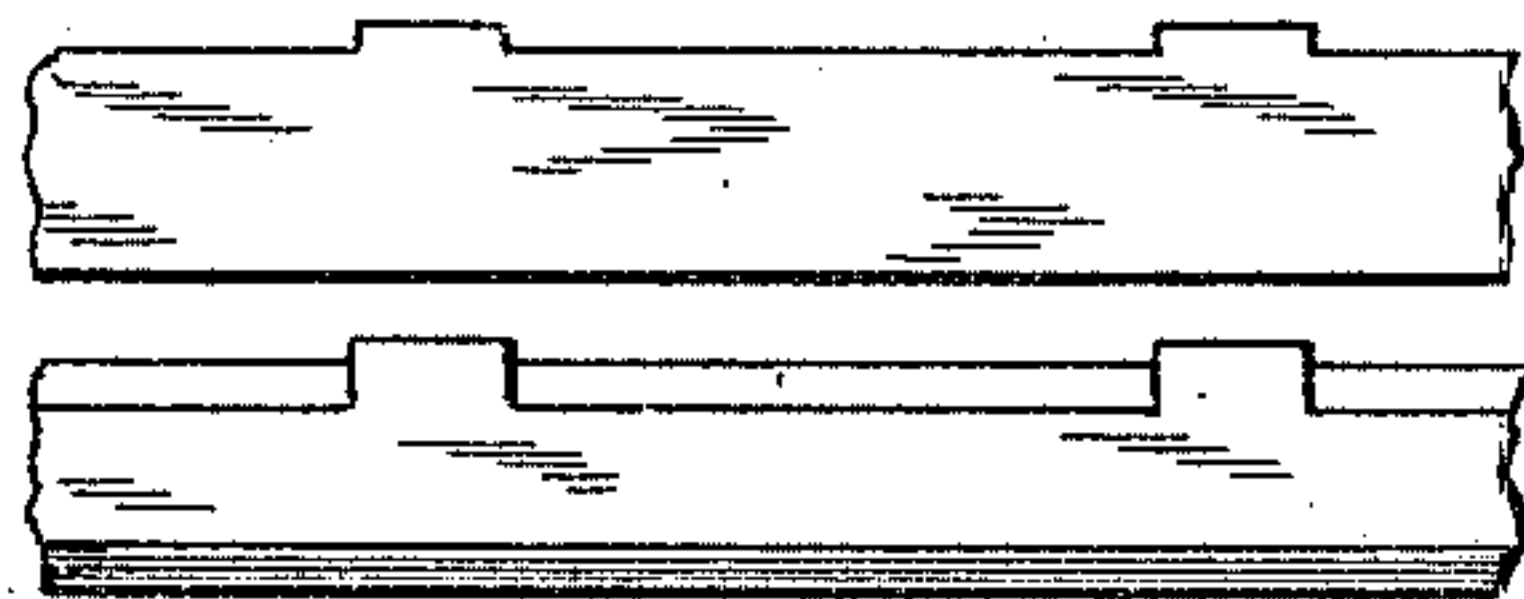


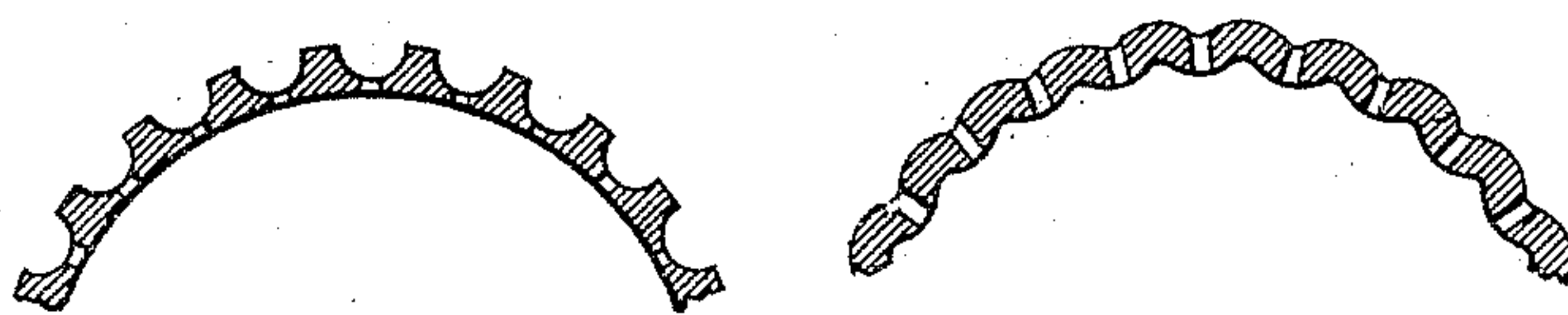
FIG. 4.



FIG. 5.



FIG. 6.



Witnesses  
J. C. Hosea  
C. L. Spurr

Inventor  
Geophag Monjeau  
By his Attorney  
K. M. Hosea



# UNITED STATES PATENT OFFICE.

CLEOPHAS MONJEAU, OF MIDDLETOWN, OHIO.

## SAND SCREEN OR FILTER.

SPECIFICATION forming part of Letters Patent No. 436,502, dated September 16, 1890.

Application filed October 12, 1889. Serial No. 326,814. (No model.)

*To all whom it may concern:*

Be it known that I, CLEOPHAS MONJEAU, a citizen of the United States, residing at Middletown, State of Ohio, have invented new and useful Improvements in Sand Screens or Filters, of which the following is a specification.

My invention relates to sand screens or filters, its object being to produce a cheap and efficient construction for well-tube points, and for pumping-mains generally under all conditions of use where a screen or filter is required.

My present invention is a flat band or strip of metal wound upon a longitudinally corrugated or perforated hollow core and provided at one or both edges with offsets or projections of uniform depth, which serve to hold the successive increments of the band in winding a proper distance apart to form the screening-apertures, and also form shoulders by which the aggregated increments are supported against each other as a substantially continuous tube to resist strain in planes parallel to the axis, producing an economical and efficient construction of great strength and with no liability to displacement of parts. The band or strip so used is beveled inwardly at one or both edges to give a free water-way in the spiral spaces below the outer surface, but when wound upon the tube presents a substantially continuous cylindrical outer surface with spiral slits, except as interrupted by the offsets or shoulders at the edge of the band. The tube upon which the band is wound may be corrugated or ribbed, with apertures between, or may be cylindrical, with perforations arranged in any convenient manner, a series of longitudinal openings being preferred.

The economy of construction attained by my invention will be readily understood, inasmuch as the band may be rolled or cut by well-known processes and machinery in any multiples of length required for single filters, and screens or filters of varying degrees of fineness in respect to the spiral screening-slits may be produced without extra expense by simply varying the degree of projection of the shoulders or by passing a given strip through a suitable cutting apparatus to re-

move any excess of projection of the shoulders and reduce all to a common gage.

An especial advantage of the construction is realized in points for drive-wells, in that the completed screen presents a smooth exterior surface with no projections, which will therefore readily pass into an aperture of the earth without liability to injury or displacement, just as any cylindrical tube of smooth exterior would do.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation, half in section, of a preferred form of the invention complete; Fig. 2, a horizontal section at any point between the "heads" of the filter; Fig. 3, a plan view of the outer and corresponding under face of a given portion of the screen-strip; Fig. 4, cross-sections of the strip, showing variations in the form of the shoulder or edge projections; Fig. 5, a longitudinal cross-section of a portion of the screen-tube with wound increments of the band thereon, showing the lateral relations of said increments and the office of the shoulders or projections; Fig. 6, two partial horizontal sections of tubes, showing variations of form.

Referring now to the accompanying drawings, the "sand-screen" or "filter" illustrated therein consists of four elements or parts—viz., a head or cap A, to which the pump may be attached, a corresponding opposite head or "point" B, an intervening section of perforated tube C, secured to and between the head and point, and a preferably continuous band or flat strip D of metal, formed as hereinafter more particularly described, wound spirally around the tube between the head and point, leaving a spiral slit or interstice between contiguous increments of winding.

A convenient mode of construction is to secure the head and point by screw-threading upon the ends of the tube, as indicated in Fig. 1, with or without an external flange, as shown by dotted lines at *a*, extending somewhat over the screening-strip by way of protection. It is preferred, however, to extend the shoulder of the cap or head outward flush with the cylindrical outer surface of the wound strip D. The preferred constructive process is to first wind the strip D upon the



tube C, securing the ends by rivets, as indicated by dotted lines at *b*, Fig. 1, or by passing the ends through perforations of the tube from outside to inside and forming a hook within, as indicated at *c*, Fig. 2, in dotted lines, or by soldering or otherwise, and then screwing on the head and point to form the complete screen.

The construction of the screening-strip, in which the essence of the invention chiefly resides, is as indicated in Figs. 3, 4, and 5. The strip is a flat band of suitable width and thickness, having beveled edges, giving it a flat wedge-form in cross-section, and provided at one or both edges (preferably at one edge only) with slight lateral projections. The projections may assume either of the forms illustrated in Fig. 4—that is to say, a projection corresponding with the beveled contour of the edge the full depth of the strip, a similar projection extending a partial depth only, or a projection extending at right angles to the outer face of the strip the full or partial depth of the strip. The object of the projection in any case is to present a shoulder to the opposite side of the same strip when brought into contiguous relations in winding about the central tube as a core to separate the contiguous edges and form an intervening spiral slit or opening continuous except as interrupted by the shoulders, as indicated in Fig. 1, and of a cross-sectional area indicated in Fig. 5. As indicated in Fig. 5, the strip is wound upon the tube or core with its narrow side in contact therewith, thus forming a free and inwardly-expanding interstice as a water-way beneath the outer surface of the screen around the tube-core to reach the various perforations of the latter. The strip

may have but one edge beveled, the other being rectangular, as indicated by dotted lines in Fig. 5. A slight advantage in this form lies in the greater lateral resisting strength by reason of the broader contact bearing-faces of the projecting shoulders against the adjacent flat edge of the strip in comparison with the line-edge contact obtained by the construction otherwise shown.

The construction of the tube-core in respect to the mode of perforating is immaterial. It may be provided with longitudinal parallel grooves, as shown in Fig. 6, having perforations at the bottom of the grooves, or the tube may be longitudinally corrugated, as indicated in the same figure. In either case the flat band is wound upon the ribs thus formed by and between the grooves. In Fig. 1 the tube is shown as cylindrical, with a series of longitudinal perforations placed in echelon in parallel lines.

I claim as my invention and desire to secure by Letters Patent of the United States—

A sand screen or filter embodying, in combination, a cylindrical tube or core formed with longitudinally - arranged perforations and a flat strip of metal having a beveled edge or edges and lateral projections wound spirally upon the tube or core and forming by its contiguous edges an inwardly-widening slit or water-way around the tube or core, substantially as set forth.

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

CLEOPHAS MONJEAU.

Witnesses:

I. M. HOSEA,  
ELLA HOSEA.