

No. 713,544.

Patented Nov. 11, 1902.

J. MCK. WARE.
STRAINER FOR WELL TUBING.

(Application filed Oct. 4, 1901.)

(No Model.)

Fig. 1.

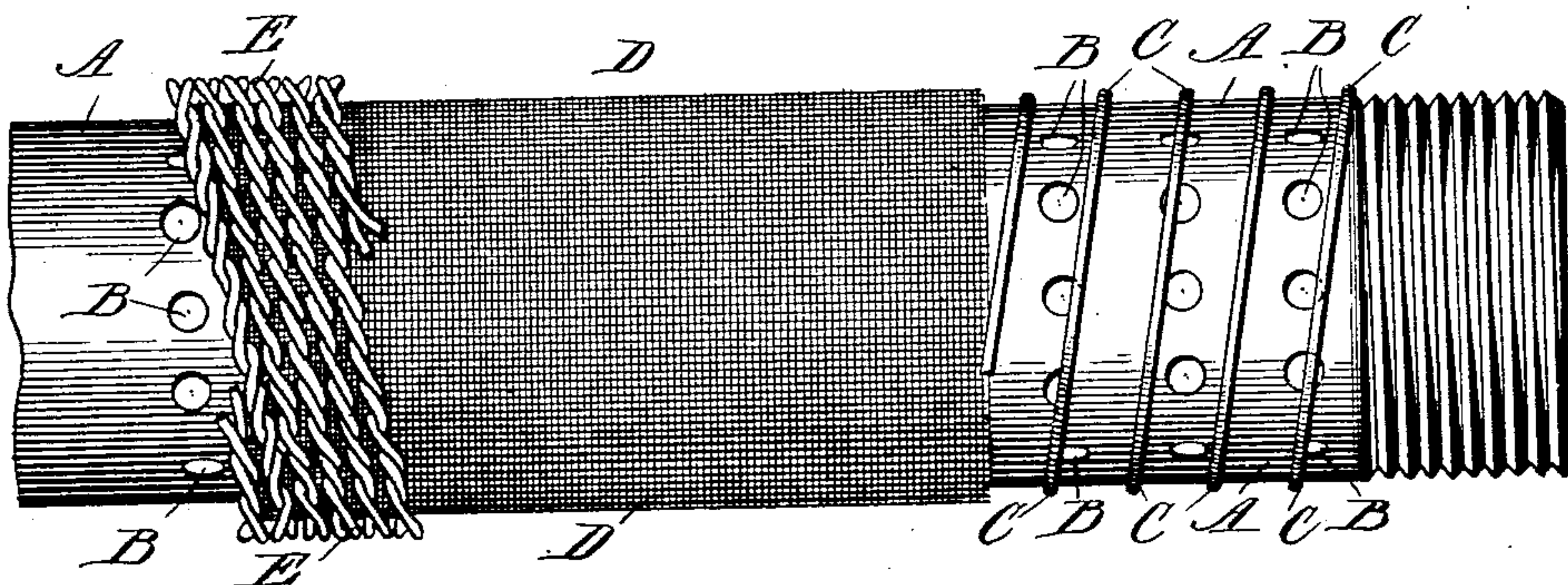


Fig. 2.

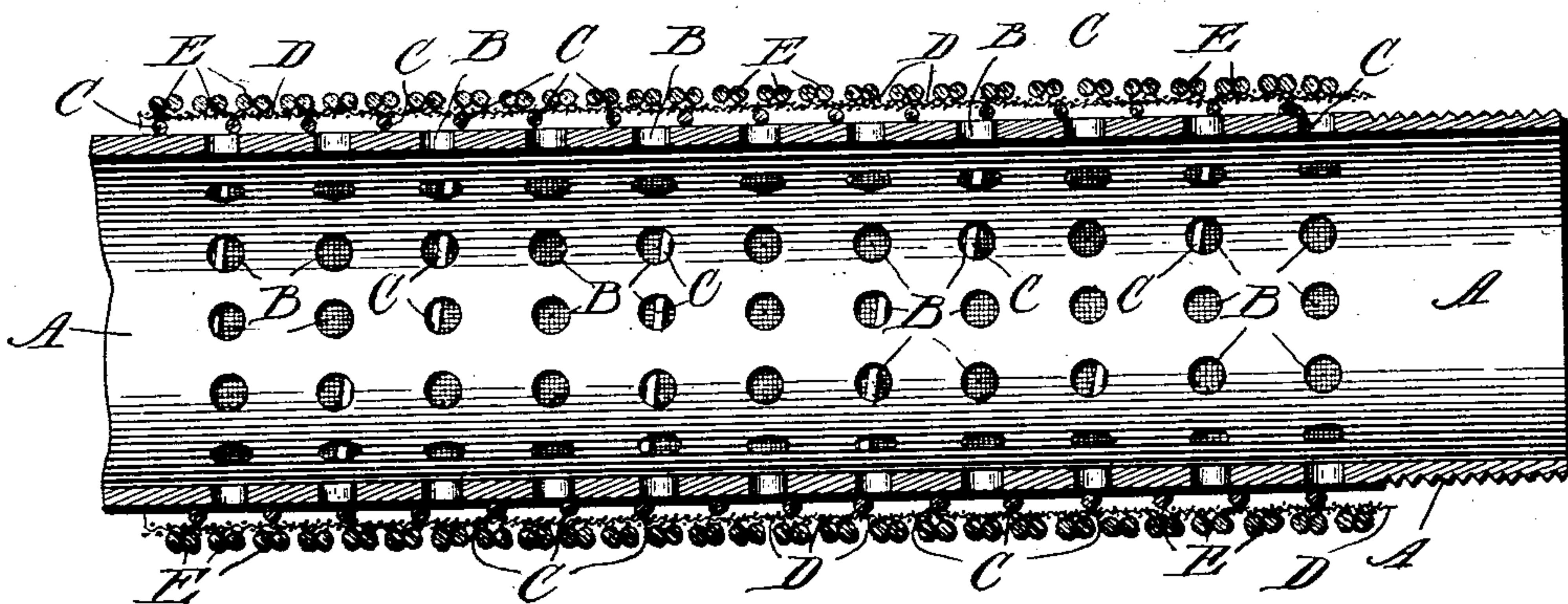


Fig. 3.



WITNESSES:

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JOHN MCKENZIE WARE, OF SHUTESTON, LOUISIANA.

STRAINER FOR WELL-TUBING.

SPECIFICATION forming part of Letters Patent No. 713,544, dated November 11, 1902.

Application filed October 4, 1901. Serial No. 77,606. (No model.)

To all whom it may concern:

Be it known that I, JOHN MCKENZIE WARE, of Shuteston, in the parish of St. Landry and State of Louisiana, have invented a new and
5 useful Improvement in Strainers for Well-Tubing, of which the following is a specification.

This invention has for its nature certain improvements in well-tubing of the class commonly known as "drive-wells"—i. e., tubular
10 or deep wells formed by sinking into the earth a tube shod at its lower end with a piercing point or cutter, all as is well known, and therefore needs no further description.

15 My invention is designed for and by actual test has proved to be an improvement over the present state of the art.

As is well known, tube-wells consist of a tube driven or rotated into the ground, the
20 tube at its lower end being perforated a suitable distance from the point end and the said perforations covered in various ways with material designed to allow water to pass into the tube through the perforations and at the same
25 time exclude sand, gravel, &c. I am aware that such strainers have been formed by a combination of coverings—such, for instance, as a smooth straight wire coiled around the tube over the perforations—also that wire-
30 gauze has been used and the said gauze protected in various ways, also that a wire having a small wire twisted around it has been used, and still another form consisting of wire-gauze covered by perforated sheet metal,
35 which is more or less defective, owing to the fact that the covering is frequently torn while the tube is being forced through coarse gravel and loose rock, particularly if the well is sunk by the rotary hydraulic method well
40 known in the art.

My invention is designed to obviate objections to strainers as now constructed, and to that end I have devised a strainer that is not
45 liable to be disarranged or torn while the tube is being sunk, and therefore the invention consists in the specially-formed strainer hereinafter described, and pointed out in the claim.

Referring to the accompanying drawings,
50 forming part of this specification, Figure 1 is a view showing the lower end of a well-tube, the point or cutter being removed and two

layers of the strainer partly broken away. Fig. 2 is a central longitudinal section; and Fig. 3 shows a modified form of the strand
55 forming the outer layer of the strainer, said strand consisting of a twisted flat metal strip.

In the drawings, A indicates a well-tube provided with perforations B, as shown.

C indicates a smooth wire coiled around the
60 tube with the convolutions thereof spaced, as shown.

D indicates a layer of wire-gauze, of small mesh, covering the spaced wire C, and E indicates a metal strand or twisted strip coiled
65 closely around the wire-gauze D, with the twists of the contiguous convolutions in contact, leaving interstices between them, formed by contact of the twists. In other words, the twisted strand or wire E is so wound on the
70 wire-gauze D that the grooves in the strand or wire of one convolution registers with the groove of the next convolution, and thereby providing interstices through which water may freely pass to and through the wire-
75 gauze. In winding the outer layer, as stated, the wire-gauze is provided with an armor from end to end, such as will protect its outer surface against liability of being impaired or
80 torn by sharp or pointed rocks, since it is effectually protected by reason of the convolutions being in contact. Obviously a smooth wire could not be so wound, since such winding would cut off the flow of water.

As hereinbefore stated, I am aware that a
85 strainer for well-tubing consisting of several layers is not new. I am also aware that such a strainer has been formed of an inner coiled wire, a wire-gauze layer, and an outer layer, formed by a smooth wire coiled upon the
90 gauze layer in spaced convolutions, and I am further aware that a strainer consisting of a twisted strand or strip coiled around the tube with an outer layer of perforated metal is not new.
95

It is well known that in strainers of a character similar to my invention designed for well-tubing wire-gauze is best adapted for
excluding sand, &c.; but previous to my invention no means had been employed meet-
100 ing all requirements—i. e., such as would effectively protect the said gauze against being torn in the sinking process of the tube.

Previous to my invention the only protect-

ing means employed in such a filter—*i. e.*, a filter involving two layers of coiled wire and a wire-gauze layer—was a smooth wire coiled upon the wire-gauze with the convolutions
5 spaced, leaving the gauze unprotected, while by employing a twisted strand or wire, for the reason stated, and arranging the convolutions in contact, as done by me, access to the wire-gauze is not possible, since it is com-
10 pletely covered. In brief, the novel feature in my invention resides in the combination, with the special layers stated, of a twisted strand or wire wound around the wire-gauze with the contiguous convolutions in contact,
15 leaving interstices formed by the grooves in the strand or wire registering, as stated.

Having thus fully described my invention, what I claim as new is—

The combination in a tubular-well strainer of filtering material consisting of three lay- 20
ers, namely, an inner layer formed by a wire coiled around the tubing in spaced convolu-
tions, an intermediate layer of wire-gauze, and an outer layer of twisted wire wound
around the tubing upon the wire-gauze with 25
the convolutions practically in contact where-
by an effective bracing and armor for the wire-gauze is provided throughout its length,
effectively protecting it against impairment
and at the same time insuring free water- 30
passage, substantially as described.

JOHN MCKENZIE WARE.

Witnesses:

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