

Nov. 18, 1924.

S. ASTREN

1,515,766

SPRAYER

Filed Oct. 8, 1923

FIG. 1

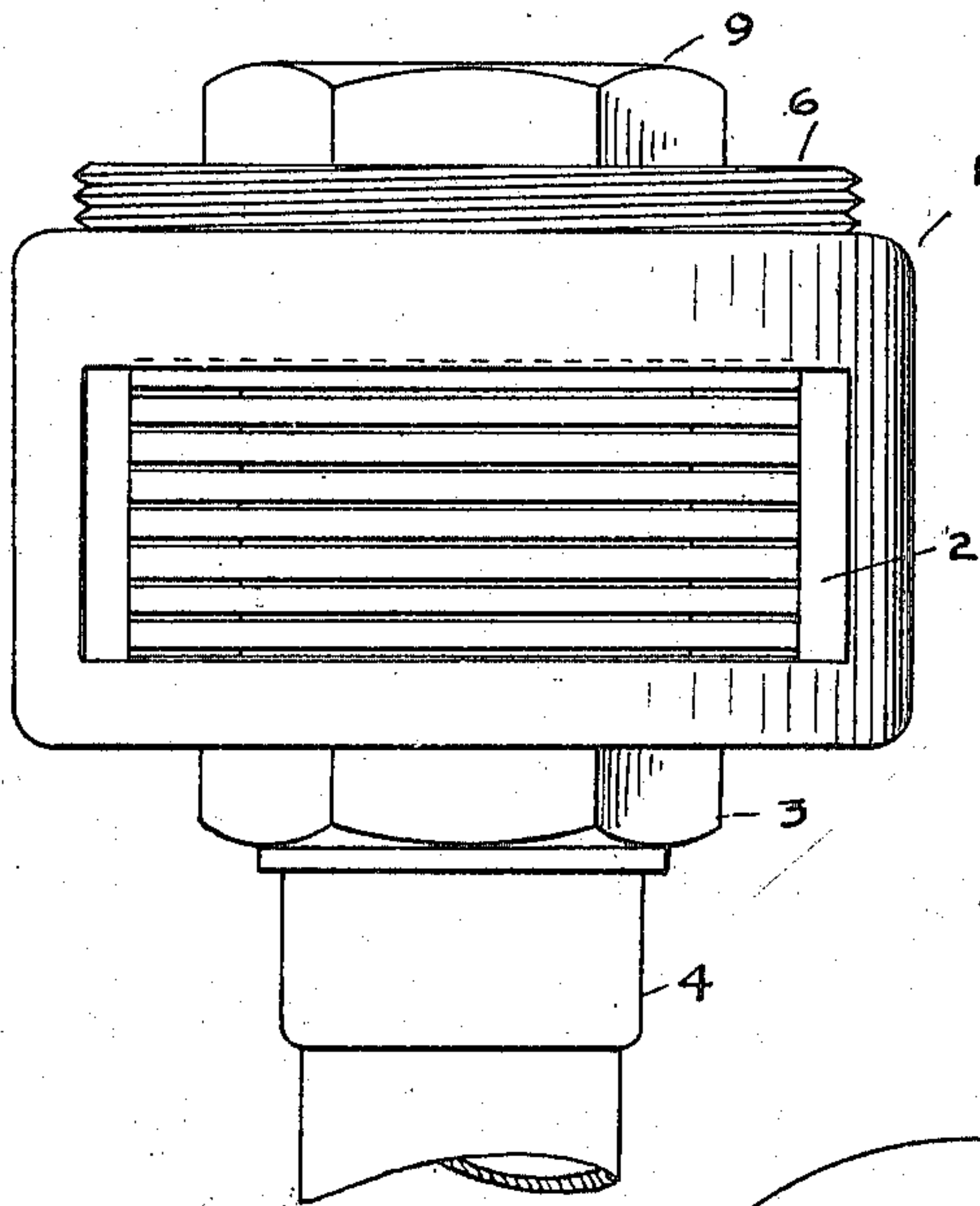


FIG. 2

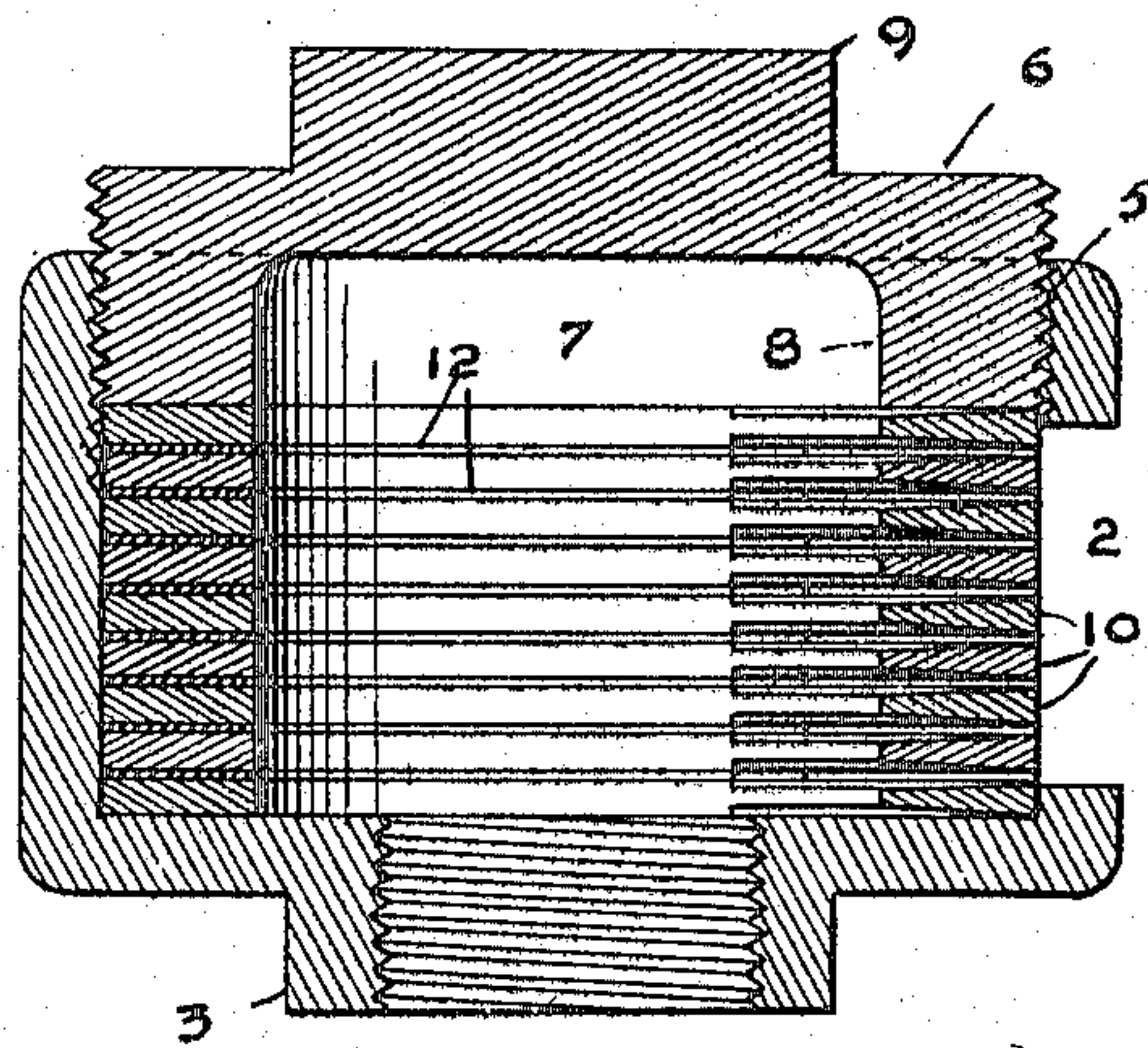


FIG. 3

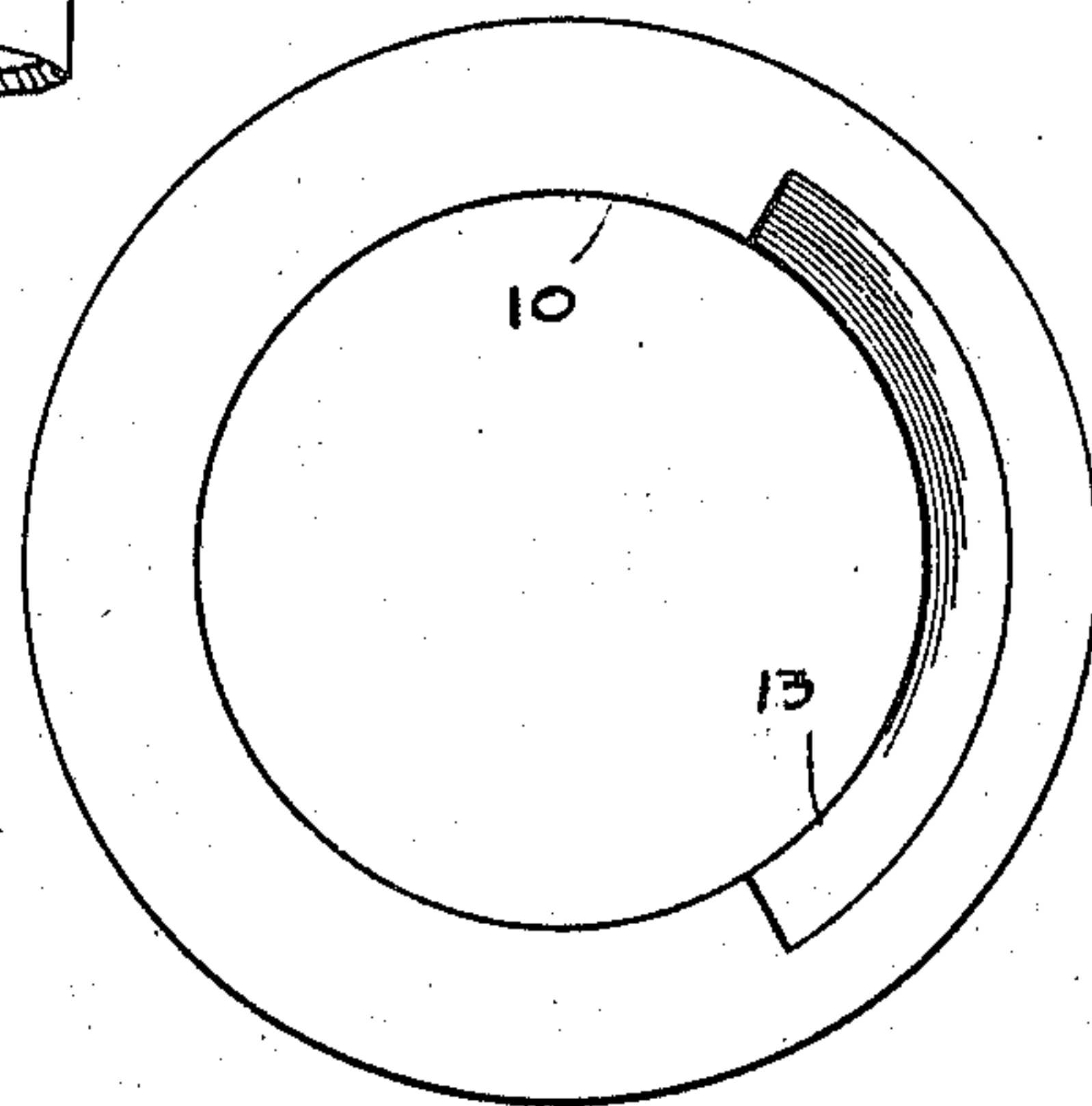


FIG. 4

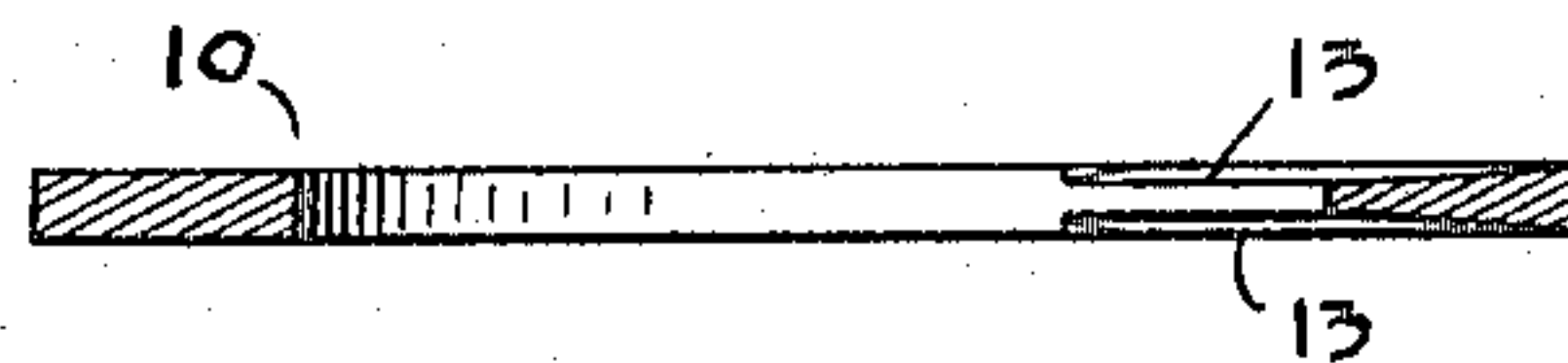
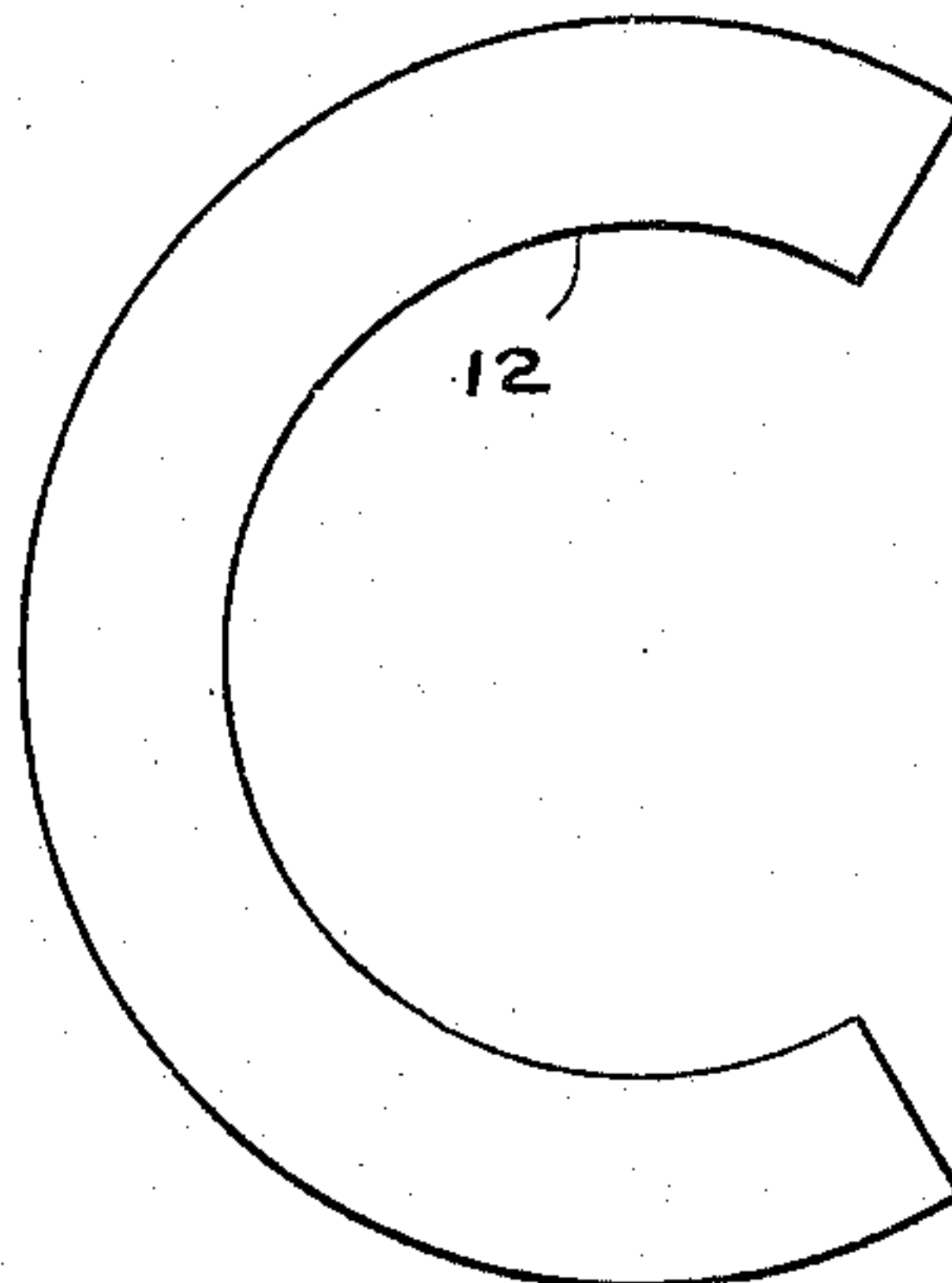


FIG. 5



INVENTOR  
S. ASTREN

BY *Wright & Chew*

ATT'YS.



Patented Nov. 18, 1924.

1,515,766

# UNITED STATES PATENT OFFICE.

SAMUEL ASTREN, OF SAN FRANCISCO, CALIFORNIA.

## SPRAYER.

Application filed October 8, 1923. Serial No. 667,104.

*To all whom it may concern:*

Be it known that I, SAMUEL ASTREN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Sprayers, of which the following is a specification.

This invention relates to improvements in liquid sprayers and resides in the provision of a simply constructed, inexpensive, durable and highly efficient device for spraying various liquids, the arrangement and construction of the device being such that it may be easily adjusted to vary the character of the spray.

Another object of the invention is to provide a sprayer of the character described which is constructed so that it may be easily taken apart and effectively cleaned or on clogging of the spray openings, the members forming said openings may be replaced with new members.

Another object of the invention is to provide a novel arrangement for providing a plurality of spray openings, which openings may be varied as to size, to vary the character of the spray and are such that the device will not readily clog.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawings:

Fig. 1 represents a bottom plan view of a sprayer constructed in accordance with the invention.

Fig. 2 represents a vertical sectional view of the sprayer.

Fig. 3 is a top plan view of one of the rings.

Fig. 4 is a cross sectional view of the ring shown in Fig. 3.

Fig. 5 is a top plan view of one of the gaskets.

The embodiment of the invention shown in the accompanying drawing comprises a housing or shell 1, which in this instance is cylindrical, and is provided in its cylindrical

wall with an opening 2 extending part way of the circumference of said wall, said opening being rectangular. On one end of the shell or housing there is formed an internally threaded boss 3 which provides for connection with a pipe or conduit 4, which conducts the liquid under pressure, to said housing.

The other side of the housing is fully open and internally screw threaded as at 5 to receive a screw threaded plug 6 which is hollowed out as at 7 on its inner side and defines an annular rim 8. The upper side of the plug is formed with an upstanding nut-like projection 9, which provides for use of a wrench in fitting and moving the plug.

Mounted one above the other within the housing 1 are a plurality of thin flat rings 10 of the same size and having interposed between them segmental gaskets or spacers 12. The gaskets provide for openings between the rings, which openings may extend throughout substantially  $120^\circ$  more or less of the circumference of the rings at points opposite the opening 2 is the housing. The rings, at points where the ends of the gaskets terminate, are beveled on upper and lower sides as at 13. The ends of the segmental gaskets terminate at the beveled portions so that when the rings and gaskets are mounted one upon the other as shown in Figs. 1 and 2, there will be provided spaces between the rings equal in length to the beveled portions. Through these openings the liquid delivered to the housing will be sprayed and pass out through the opening 2 in a series of fan-like jets. The beveled inner portions of the rings provide for a ready entrance of the liquid into the spaces between said rings or in other words, the spray openings. The openings provided between the rings are therefore wider at their intake ends and taper for substantially half their width from which point to the outer sides of the rings, they are of uniform size. By providing these wide openings between the substantially flat rings, the liquid will be sprayed out through the opening 2 in very fine jets or as coarse jets, dependent on the spacing of the rings. The thickness of the gaskets will regulate the spacing of the rings and the size of the openings formed between the rings. After the rings are mounted in place with the gaskets between them, the plug 6 is screwed in place so that the rim portion 8 which is substantially equal in



width to the rings, will engage upon the uppermost ring. By tightening this plug, the rings will be held securely in place, said rings fitting snugly in the housing.

5 In order to clean the rings, it is only necessary to remove the plug and then lift out the rings, all parts thereof being thereby readily accessible for cleaning or, if desired, new rings may replace those which have be-  
10 come worn or which have collected deposits of alkali or like substances.

It will thus be seen that with the sprayer of this invention, provision is made for spraying various liquids in either fine or  
15 coarse sprays and with as many jets as desired, depending on the number of rings used and the spacing of the rings. The sprayer of this invention will operate much more effectively than sprayers which take into con-  
20 sideration the use of small holes bored through metal pieces or the like, in that there is less tendency of clogging, the character of the spray may be varied and the cleaning of the spray openings may be effect-  
25 ed much more easily. The sprayer of this invention, after having been installed, requires little or no attention in order to operate efficiently over a long period of time.

By omitting the gaskets and reducing the  
30 thickness of the rings at certain points, spray openings will be provided the same as when the gaskets are used. The thickness of the rings may be reduced by cutting away as in beveling or by grooving the opposed faces of  
35 the rings.

I claim:

1. A sprayer of the character described  
40 embodying in its construction a housing having an opening in one side and provided with means for connecting said housing with

a source of liquid supply, a plurality of rings mounted in superposed relation with-  
in the housing, a removable plug in the housing holding said rings in place and a  
45 plurality of gaskets interposed between said rings, which gaskets are cut away for part of their circumference in order to provide openings between the rings at points oppo-  
site the opening in the housing.

2. A sprayer of the character described  
50 comprising a housing, being open on one side, a screw threaded plug mounted in a threaded portion of the housing, means for establishing connection with a source of liq-  
uid supply, a plurality of rings mounted one  
55 above the other within the housing between one wall thereof and said plug, a plurality of spacers mounted between said rings and extending part way of the circumference of the rings in order to provide segmental  
60 spray openings between the rings at points opposite said side opening in the housing, said rings being beveled on their inner edges for the part of the circumference thereof  
65 wherein the openings are provided between the rings.

3. A sprayer comprising a housing having  
a cylindrical chamber therein open on one  
side thereof, which chamber is adapted to  
receive liquid under pressure, a plurality of  
70 rings fitting snugly, one upon the other, within the chamber of the housing, a plurality of gaskets mounted between the rings and extending part way of the circumference  
75 thereof so as to provide spaces between the rings at points opposite said opening in the housing, and a plug removably mounted in the housing and holding said rings in place.

SAMUEL ASTREN.