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J. E. CRIGGAL

NOZZLE FOR USE IN THE PRODUCTION OF ARTIFICIAL FILAMENTS, THREADS, AND THE LIKE

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Fig. 1.

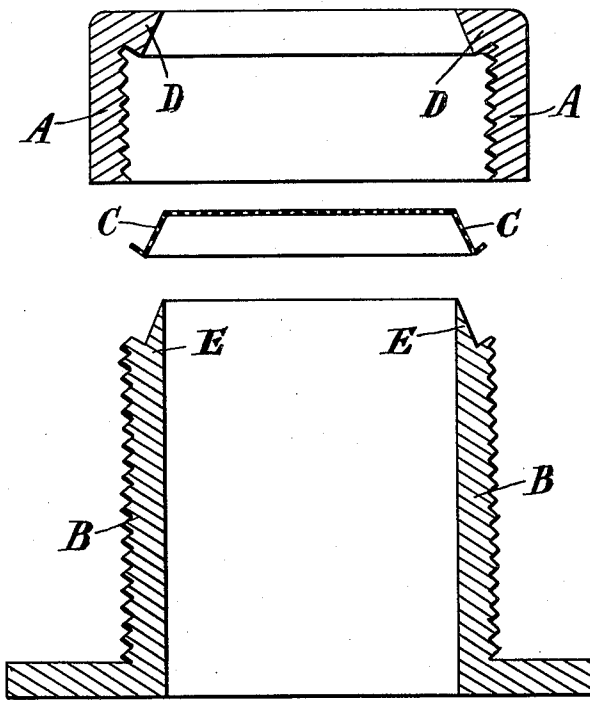
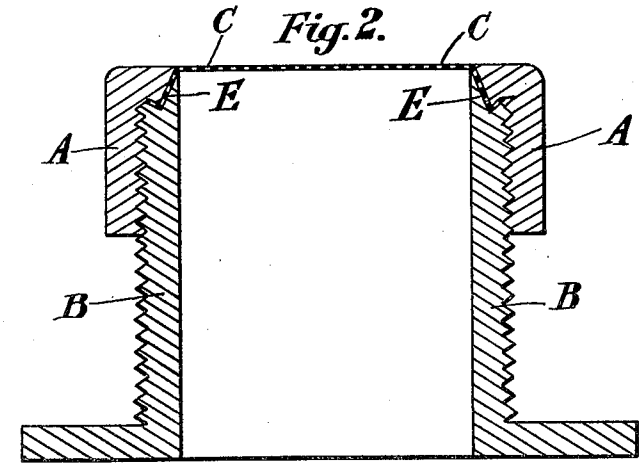


Fig. 2.



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UNITED STATES PATENT OFFICE.

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NOZZLE FOR USE IN THE PRODUCTION OF ARTIFICIAL FILAMENTS, THREADS, AND THE LIKE.

Application filed April 2, 1926, Serial No. 99,372, and in Great Britain June 23, 1925.

Many different types of squirting nozzles have been suggested for use in the production of artificial filaments, threads and the like from solutions of cellulose, including derivatives thereof. For instance, nozzles have been made by perforating a metal plate, or by imbedding metal wires in glass tubes, fusing these tubes into a mass, cutting into thin slices and then dissolving out the wire by means of acid. Again, it has been proposed to produce filaments by passing the cellulose solution through a filtering cloth or through numerous fine holes arranged without order.

We have now discovered that nozzles for the said purpose can be obtained by employing wire gauze, which has been subjected to considerable pressure, for instance by pressing between flat surfaces in a press, or by passing between rollers such for example, as calendering rollers. Nozzles produced according to this invention are particularly useful in those cases in which a large number of holes is required in one jet. The wire gauze may be made from any suitable metallic wire, for instance, when spinning threads from viscose, platinum gauze, phosphor bronze gauze, or Monel-metal gauze may be employed, which latter we understand is the alloy sold under the registered trade mark "Monel".

The jets themselves may be made in any suitable manner for example, a piece of the wire gauze can be fixed by soldering, or otherwise, onto a base, which is provided with the necessary shoulders or flanges for holding the whole nozzle in the required position during the spinning process. For instance, the body of the nozzle may be made in two parts which screw one into the other, and are provided with flanges, the wire gauze being formed into the requisite shape, so that its edge is clipped between the said flanges.

This particular method of constructing a nozzle is illustrated by way of example in the accompanying drawing, in which Figure 1 is a vertical section of a dismembered nozzle with wire gauze separate and Figure 2 a like section shewing the two parts of the nozzle assembled together with the wire gauze clipped therein, but the invention is in no way restricted to the nozzle shewn in the said drawing. A and B represent the two parts of the body of the nozzle, the part B screwing into the part A. C is the wire gauze, and it will be seen that, on assembling the nozzle, the edge of the wire gauze C is clipped between the flanges D and E of the nozzle.

The size of the piece of gauze may be varied to suit the desired conditions, such as the number of holes required and further the shape of the holes may be varied according to the manner in which the wire is woven into the gauze. For example, the gauze may be of the most regular type, formed by taking the weft wire under and over alternate warp wires, or any other suitable type of weaving may be employed by which the shape of the holes may be varied, giving to the holes an irregular shape, or an elongated shape, and further the method of weaving can also be varied to vary the distance apart of the resulting holes.

The wire gauze may be subjected to considerable pressure either before insertion into the nozzle as already described or after being made up into the nozzle.

The pressure applied to the wire gauze helps to flatten the surface, and this enables the spinning to take place more easily than is the case if such pressure had not been applied. After the pressure has been applied, the holes between the wires may be left in that condition, or they may be altered in shape, for instance, they may be made more nearly circular, by broaching them with a suitable broach or drill.

What we claim is:—

1. A nozzle for use in the production of artificial filaments, threads, and the like, in which the perforated surface through which the solution is forced, consists of wire gauze which has been subjected to considerable pressure, substantially as described.

2. In a nozzle as claimed in claim 1, having a perforated surface consisting of wire gauze, to which pressure has been applied, the holes being shaped so that they may be more nearly circular, substantially as described.

In testimony whereof I have signed my name to this specification.

JOHN EDWARD CRIGGAL.