

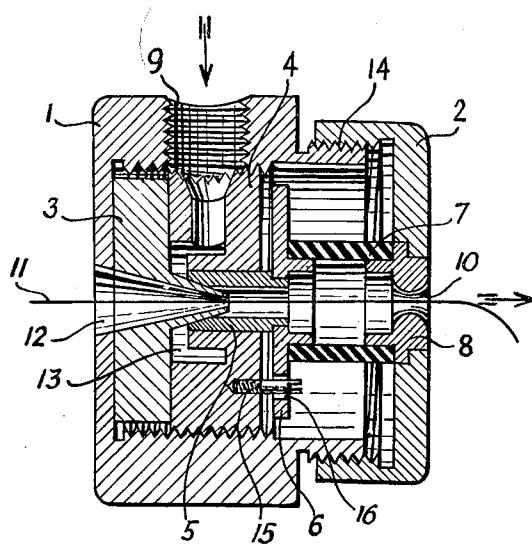
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NOZZLE FOR JET WEAVING LOOMS

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4 Claims. (Cl. 139—127)

The present invention relates to improvements in and relating to the nozzle of a jet weaving loom of the type, wherein the weft is carried through the shed with the aid of a column of liquid, moving with a high speed.

In the heretofore known embodiments of weaving loom nozzles spiral or leaf springs, made of steel, are used for returning a conical closure of the nozzle to its operative position. In a simple design of this kind, the conical closure is loaded with a spiral spring. Both these spring arrangements show however serious drawbacks in operation. The main disadvantage is the liability of steel springs to become very quickly damaged by the liquid carrying the weft through the shed, because the springs are subjected to the influence of electro-corrosion even if their surface is chromium-plated or treated in another way. Small rust particles which are inevitably formed, will stick to, and be impressed into, the accurately mounted movable parts of the nozzle and leave permanent traces on said parts. This fact results first in an irregular operation of the nozzle and, later, in a partial or complete breakdown thereof.

It is a further drawback of said springs that their adjusted preliminary stress drops in relation to the fatigue of the material. The discharge velocity of the hydraulic jet carrying the weft is thereby reduced, and consequently the weft driven by such a jet is not reliably carried through the full width of the fabric. Furthermore, if springs are used, no instantaneous damping takes place after the picking operation because subsequent oscillations of the spring are produced, which interfere with the proper operation of the nozzle.

The manufacture of leaf springs intended for the above purpose is extremely difficult, this difficulty being caused by the profile of the spring which includes a dangerous zone in which the leaf springs are liable to break. For the manufacture of springs of high quality, material is used, the heat treatment and hardening of which causes considerable difficulties. The unreliable operation of the nozzle leads to a poorer quality of the fabric produced.

It is the main object of the present invention to eliminate substantially all the aforesaid drawbacks. According to the invention an elastic rubber member is used instead of the steel spring for resiliently loading the conical closure of the nozzle. Such member eliminates any possibility of corrosion, permits to maintain the adjusted constant preliminary stress for an unlimited period, obviates any breakdown which may be caused by a partial or complete breakage of the spring, and shows a high ability to damp oscillation. The reliability in operation of the nozzle is thereby increased, its final characteristic improved, and the entire design and manufacture of the nozzle simplified at the same time.

The arrangement of the nozzle according to the invention will be explained in the following description with reference to the accompanying drawing, which represents an exemplary embodiment of the nozzle in an elevational cross-sectional view.

The nozzle comprises a hollow cylindrical body 1, which is closed by means of an adjusting nut 2. Rigidly but exchangeably mounted in the body 1 is a conical

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nozzle 3 and a block 4 containing a conical closure 5 slidably arranged therein. A supporting plate 6 is provided on the conical closure 5, and said plate is pressed against the conical part of the nozzle 3 by the influence of a resilient rubber member 7 bearing against the plate with one end. The resilient rubber member 7 has preferably an annular cross-section and bears with its other end against a sleeve 8 provided in the end wall of the adjusting nut 2. The pressure medium used in the hydraulic system is admitted to the nozzle body through an aperture 9. The pressure medium flows to a chamber 13 which is closed at one side by the body of the nozzle 3 and at the other side by the block 4 provided with the slidable conical closure 5.

At the moment when the weft 11 has to be picked through the shed, the pressure liquid shifts the conical closure 5, provided in the block 4, against the action of the resilient rubber member 7 to the right with the result that an annular aperture is formed between the conical portion of the nozzle 3 and the conical closure 5. The pressure liquid is expelled from the nozzle through a bore 10 in the sleeve 8 carrying the weft 11 through the shed, not illustrated in the drawing.

The weft thread 11 is fed to the nozzle through a bore 12 and its cut-off end protrudes from the nozzle through the bore 10 provided in the sleeve 8. After the pressure liquid has been ejected, the resilient rubber member 7 causes the conical closure 5 to bear immediately on the conical portion of the nozzle 3, whereby the chamber 13 is closed.

In view of the fact that the actuating member is a rubber member, an immediate damping and a complete closing of said bore is effected. The preliminary stress of the resilient rubber member can be adjusted by means of the nut 2 screwed on to a thread 14. An undesirable rotation of the supporting plate 8 and thereby of the conical closure 5 is prevented by means of a screw 15, which is screwed into the body 4 and whose free end projects through a bore 16 provided in the supporting plate 6.

It will be appreciated that although in the foregoing disclosure the resilient member 7 has been described as consisting of rubber, another material of similar properties may be used, as will be apparent to those skilled in the art.

I claim:

1. A nozzle for jet weaving looms comprising a body, a conical nozzle mounted in said body, a conical closure adapted for cooperation with the conical nozzle, a pressure chamber closed by said conical closure, means for admitting a pressure medium into said pressure chamber, means for feeding a weft thread through the nozzle, and a resilient member made of a corrosion-proof material bearing against the conical closure and exerting closing pressure thereon.

2. A nozzle for jet weaving looms comprising a body, a conical nozzle mounted in said body, a conical closure adapted for cooperation with the conical nozzle, a pressure chamber closed by said conical closure, means for admitting a pressure medium into said pressure chamber, means for feeding a weft thread through the nozzle, a resilient member made of a corrosion-proof material bearing against the conical closure and exerting closing pressure thereon, a supporting plate fixed to the conical closure, and an adjusting nut mounted on the body, said resilient member having the shape of a tube bearing with one of its ends against the supporting plate and with its other end against the adjusting nut.

3. A nozzle for jet weaving looms comprising a body,

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a conical nozzle mounted in said body, a conical closure adapted for cooperation with the conical nozzle, a pressure chamber closed by said conical closure, means for admitting a pressure medium into said pressure chamber, means for feeding the weft thread through the nozzle, a resilient member made of a corrosion-proof material bearing against the conical closure and exerting closing pressure thereon, a supporting plate fixed to the conical closure, an adjusting nut mounted on the body, said resil-

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ient member having the shape of a tube bearing with one of its ends against the supporting plate and with its other end against the adjusting nut, and means preventing undesirable rotation of said supporting plate with respect to the nozzle body.

4. A nozzle as claimed in claim 1, wherein the resilient member consists of rubber.

No references cited.