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NOZZLE HEAD FOR THE ARTIFICIAL SILK STRETCH-SPINNING PROCESS

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Fig. 1-

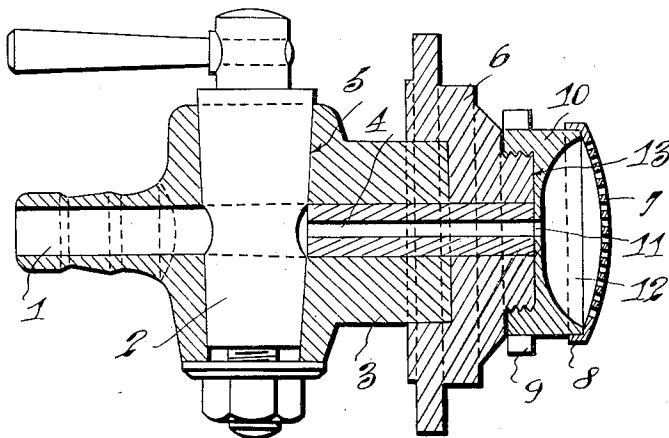
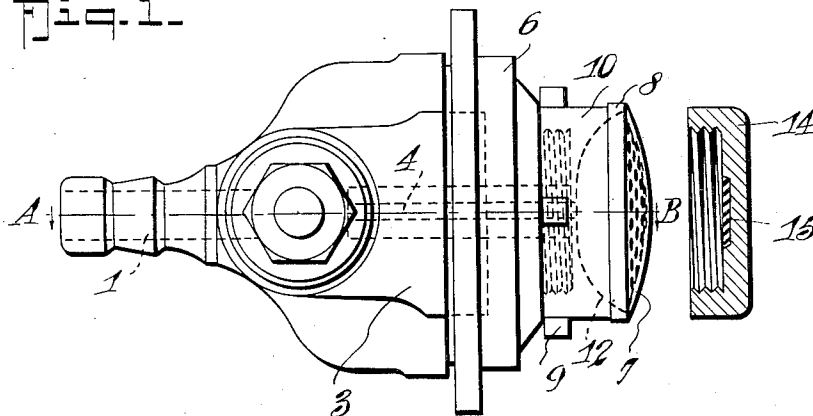


Fig. 2-

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NOZZLE-HEAD FOR THE ARTIFICIAL SILK
STRETCH-SPINNING PROCESS

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2 Claims. (Cl. 18-8)

This invention relates to an improved construction of a nozzle head for the artificial silk stretch-spinning process.

In the known stretch-spinning devices the spinnerette is directly attached to the so-called nozzle head which carries the supply pipe for the solution to be spun and a stop-cock and at the same time serves as the upper or rear closure member for the spinning vessel. The supply pipe is usually widened to a flow-chamber just before the spinnerette so as to supply the spinning solution to the spinnerette in a uniform current. The spinnerette provided with a flanged-over margin is firmly mounted on the end of the nozzle head.

At the places where it comes into contact with the outer air the spinning solution has the property of hardening owing to evaporation of the solvent. If the spinning devices are stopped, adhering, encrusted layers of hardened spinning solution are formed where the spinning solution comes into contact with the air and, therefore, more particularly at the spinnerette. These layers are the more extensive the greater the surface of contact between the spinning solution and the air. Since these layers do not dissolve up again without further treatment they must first of all be removed when setting the apparatus into operation, since otherwise the solid portions are carried along by the freshly flowing solution and, by stopping up the orifices of the spinnerette, render the spinning process liable to interruptions or even quite impossible, and then the spinnerette has to be rinsed several times with the spinning solution issuing from the supply pipe so as to ensure removal of the last remnants of the hardened spinning solution.

This cleansing operation is bothersome and consumes much time owing to the large number of spinnerettes usually used; further, it entails considerable losses in spinning solution, since this is used for the rinsing. In addition, there is the danger that even when the nozzle head has been carefully cleaned coagulated solution remains behind and impairs the spinning operation.

In contradistinction to the foregoing, the nozzle head according to the present invention consists of two parts which are screwed together, the lower of said parts, i. e., the front portion, constructed as a spinnerette holder, holding the spinnerette, and the upper or rear part having a narrow bore.

In this manner it is ensured that, when the

spinnerette is changed, the spinning solution issuing from the narrow bore offers only a small surface to the outer air and consequently only a little spinning solution can harden, which hardened solution can be removed in a simple manner by stripping off, but, besides this, no impairing effect is exerted since any films that may still be present, owing to their small size, are forced through the holes which, in the stretch-spinning process, are always quite wide. If, as a matter of fact, on any occasion it should happen that a film cannot be penetrated and as a result a hole is stopped up, this is immaterial when the large number of holes is borne in mind, the titre still being maintained.

It is particularly advantageous to connect the portion serving as spinnerette holder to the supply lead only by a narrow bore. In this way it is ensured that the sealing surface between the upper or rear nozzle portion and the spinnerette holder is not moistened by the spinning solution, as a result of which the formation of film is still further diminished.

The arrangement of the special spinnerette holder enables the flow chamber for the nozzle to be arranged in the spinnerette holder. It is just this widening which, owing to the residual solution remaining behind, most readily leads to contamination of the spinning solution and must, therefore, be carefully cleaned. Hitherto this could only be carried out with the necessary care with difficulty, since it had to be effected on the machine itself.

In contradistinction thereto, the spinnerette holder according to the invention can be cleaned in the simplest possible manner after unscrewing by treatment with suitable solvents. Finally, since the cleaning can be carried out not on the spinning machine but apart from this while in storage, the spinning machines are, as a result, better utilized since the time necessary for cleaning is dispensed with. It is only necessary to screw the already cleaned spinnerette holder on to the nozzle head after the contaminated spinnerette holder, or a special closure cap provided for when the machine is not in operation, has been removed.

The accompanying drawing shows one constructional form of the nozzle head according to the invention by way of example.

Figure 1 shows in elevation a nozzle head having a screwed-on spinnerette holder.

Figure 2 shows a section along the line A B of Figure 1.

The nozzle head consists of an upper or rear

portion 3 attached to the spinning machine and the nozzle holder 10 capable of being screwed thereon. The upper or rear portion 3 is provided with a bore 1 for conducting the spinning solution to the nozzle, and a conical bore 5 vertical thereto for accommodating the stop cock 2. The lower end 6 of the portion 3 of the nozzle is made of chemically resistant material, e. g. of non-rusting steel. By this means rusting together of the spinnerette holder with the nozzle head at the connecting places, with consequent difficulty in subsequent separation, is avoided.

The bore 4 leading from the stop cock 2 to the nozzle 7 is made specially narrow in order to diminish the hardening of the spinning solution at the point of exit to a minimum. Consequently, it would suffice to make the bore itself wide and to make only the orifice narrow.

The spinnerette 7 provided with flanged-over edge 8 is firmly drawn on to the spinnerette holder 10, so that a flow chamber 12 is formed which is closed in on all sides. The spinnerette holder 10 is screwed on to the nozzle head 3 and at the same time abuts tightly against the sealing surface 13 thus preventing entrance of spinning solution, which can pass through the bore 11 of the spinnerette holder 10 into the flow chamber 12. The spinnerette holder 10 is provided with nose members 9 for the purpose of firmly drawing on the same by means of a key.

What I claim is:

1. In combination a nozzle head for extruding artificial products, comprising, a unit for supplying the solution to be extruded, a unit detachably secured to said first unit, said second unit comprising a disc perforated to form the artificial products, and a third unit which may be substituted for said second unit to stop the flow of the solution when said second unit is removed.
2. A nozzle-head for a stretch-spinning apparatus comprising, in combination, an upper or rear portion provided with a narrow supply duct, a spinnerette holder adapted to be screwed thereon, said holder being connected to the supply duct through a narrow bore, the abutting surfaces of the upper or rear portion and the spinnerette holder being in such tight contact that the passage of spinning solution is prevented, and a spinnerette provided with perforations.

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