March 31, 1936. P. A. CHAPMAN 2,036,087

SPINNERET COUPLING

Filed May 31, 1935

Fig. 1.

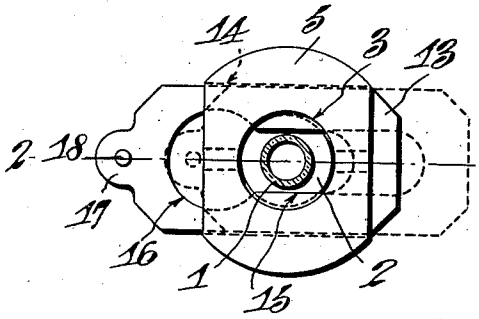


Fig. 2.

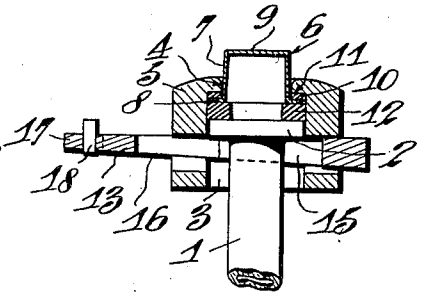


Fig. 3.

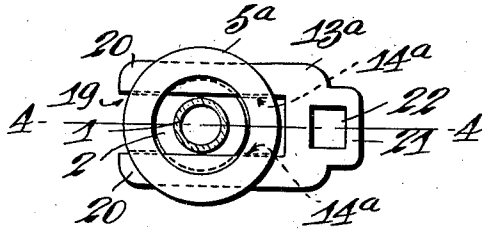


Fig. 4.

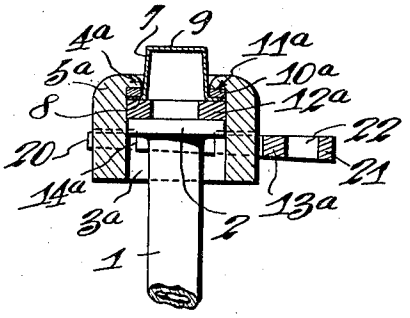


Fig. 5.

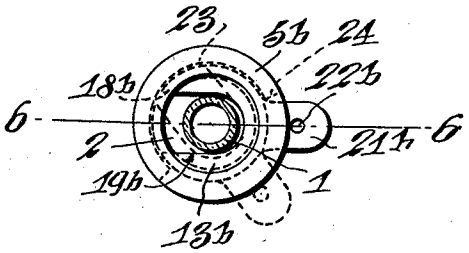
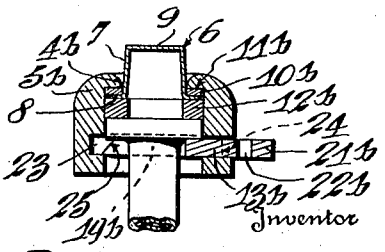


Fig. 6.



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Patented Mar. 31, 1936

2,036,087

UNITED STATES PATENT OFFICE

2,036,087

SPINNERET COUPLING

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Application May 31, 1935, Serial No. 24,275

2 Claims. (Cl. 285—182)

The present invention relates to spinning nozzles and particularly that class of the same which are utilized for forming filaments from solutions of cellulosic origin in which the spinning solution is forced under pressure through a perforated spinneret into a precipitating solution.

In the spinning of artificial silk it frequently happens that the spinning nozzles must be changed either due to the partial clogging thereof, or, as may be, the total stoppage of the solution therethrough due to impurities in the spinning solution being of a particle size too large to go through the small spinning orifices. On other occasions, as when different devices are to be spun on the machine, an entire change of the spinnerets is necessary, in order that spinning nozzles may have the proper hole size. Whenever the aforementioned happenings occur it is essential that the change of spinnerets be accomplished as quickly as possible inasmuch as it would be inconvenient and dangerous to the quality of the silk to be spun should the spinning solution be cut off. It is therefore necessary that the spinnerets be attached to the supply pipes in a manner which will allow the quick exchange of spinnerets and yet will withstand the high pressure of the spinning solution.

One object of the present invention is to devise a means for quickly and easily attaching spinnerets to the spinning pipes.

Another object of the present invention is to devise a construction for attaching spinnerets to spinning pipes which may be easily cleaned.

Still another object of the present invention is to devise an attaching device for spinning nozzles which is of simple construction, inexpensive to manufacture, and of a durable nature.

These and other objects will in part become obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, the invention consists in the novel features of construction and in the combination, connections and arrangement of parts, hereinafter more fully described, and then pointed out in the following specification and appended claims. When taken in conjunction with the attached drawing, in which:

Fig. 1 is a plan view of one form of the spinneret attaching device;

Fig. 2 is a sectional view taken on the line 2—2 of Figure 1;

Fig. 3 is a plan view of a modified form of the invention;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a plan view of another modified form of the invention; and

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5.

In the drawing, in which like numerals of reference indicate like parts, 1 refers to a tube or pipe through which the spinning solution flows. The pipe 1 has a flanged portion 2 which fits within the counter bore 3 and axially coincides with the bore 4 of the coupling head 5.

The spinneret nozzle 6, through which the spinning solution is injected into the coagulating bath, is usually formed in the shape of a cup consisting of a cylindrical portion 7, one end of which is provided with an annular flange 8 and the other end of which forms the face 9 or draw plate. The face 9 is provided with the usual spinning holes or orifices through which the spinning solution is forced.

The flange 8 of the spinning nozzle 6 rests against a gasket 10 positioned against a seat 11 formed by the counter bore 3 in the coupling head 5.

Another gasket 12 is positioned between the flange 8 of the nozzle 6 and the flanged portion 2 of the pipe 1.

A wedge member 13 is slidably mounted in a slot 14 of the coupling head 5 and has a longitudinal slot 15 formed in the center thereof through which the pipe 1 extends.

The wedge member 13 is tapered and when pushed in one direction forces the flange 2 inwardly against the gasket 12 and thereby holds the flange 8 of the spinning nozzle tightly between the said gasket 12 and the gasket 10.

When the wedge member 13 is forced in the opposite direction the wedging action is released and an enlarged portion 16 of the slot 15 is brought into position with the pipe 1 and allows withdrawal of the flanged portion 2 from the coupling head 5.

The wedge 13 has an extension 17 with a pin 18 mounted thereon to act as an abutment to prevent the entire withdrawal of the wedge from the coupling head 5 thereby preventing loss or misplacement thereof.

With the use of a coupling head such as described above the changing of spinnerets is greatly facilitated and done with far greater dispatch than heretofore in the art.

Referring again to the drawing and particularly to Figs. 3 and 4, in which is illustrated a modified form of coupling head, like numerals of reference will be used for equivalent parts of Figs. 1 and 2 with the exception that the letter

a will be added thereto. The spinning nozzle and spinning pipe will bear the same numerals as before.

In this form the flanged portion 2 of the pipe 1 fits within the coupling head 5ª and compresses the flange 8 of the spinning nozzle 6 between the gaskets 10ª and 12ª and against the seat 11ª of the counter bore 3ª the same as in the preferred form of the invention when wedged thereagainst.

In this form the wedge 13ª comprises a forked shape member, the opening 19 between the forked extensions 20 being the equivalent of the slot 15 of the first form. The forked extensions 20 are tapered and extend through slots 14ª—14ª of the coupling head 5ª and when forced inwardly against the flange 2 act to seal the spinning nozzle 6 in position. The wedge 13ª in this form must be fully removed in order to withdraw the coupling head 5ª from the spinning pipe flange 2 thereby differing from the preferred form. In order to facilitate the removal of the wedge 13ª from the coupling head 5ª an extension 21 is provided with an opening 22 formed therein through which a tool may be inserted if necessary.

In Figs. 5 and 6 of the drawing is illustrated another form of the invention. In this form equivalent parts will have the same numerals but with the letter *b* added thereto.

The coupling head 5ᵇ in this instance has an annular groove 23 formed therein and a slot 24 connecting the groove 23 with the outer periphery of the said coupling head 5ᵇ.

The wedge member 13ᵇ comprises forked extensions 18ᵇ having beveled ends 25, the opening between, through which the pipe 1, extends is indicated at 19ᵇ.

The spinneret flange 8 is compressed, as in the other forms of the invention, between the gaskets 12ᵇ and 10ᵇ when the wedge 13ᵇ is inserted and bears against the flange 2 of the spinning pipe 1.

The wedge 13ᵇ is inserted in the slot 24 forcing the flange 2 against the gasket 12ᵇ in the same manner as in the other forms of the invention and as shown in the dotted line position then turned to the full line position shown in Fig. 5 of the drawing thereby locking it in position against an outward pull.

The wedge 13ᵇ also has an extension 21ᵇ and an opening 22ᵇ formed therein to facilitate the removal of the wedge 13ᵇ from the coupling head 5ᵇ.

From the foregoing description, taken in connection with the accompanying drawing it is thought the complete construction, operation and advantages of the invention will be clear to those skilled in the art to which it relates.

It is to be understood that the forms of the invention, herewith shown and described, are to be taken as preferred examples of the same, and that various changes in the size, shape and arrangement of parts may be resorted to, without departing from the spirit of the invention, or the scope of the appended claims.

Having thus described the invention as required by the patent statutes, what is claimed is:

1. In a device of the character described, the combination of a coupling head open at both ends and having an internal seat portion formed at one end thereof, a flanged spinneret fitting within said coupling head, a supply pipe having at its end a flange and extending into said coupling head, said coupling head having an internal annular groove formed therein and a slot in the side thereof, and a forked wedge member removable from said coupling head and inserted through said slot and into said groove whereby the said wedge member bears against said pipe flange to hold said spinneret flange between said seat and said pipe flange, said wedge member being rotated in said slot whereby a locked relation between said coupling head and wedge member results.

2. In a device of the character described, the combination of a coupling head open at both ends and having an internal seat portion formed at one end thereof, a flanged spinneret fitting within said coupling, a supply pipe having at its end a flange and extending into said coupling head, said coupling head having at its other end an internal seat portion and a slot in the side thereof, and a forked wedge member removable from said coupling head and inserted through said slot and into said seat portion whereby the said wedge member bears against said pipe flange to hold said spinneret flange between said first mentioned seat portion and said pipe flange, said wedge member being rotated in said slot whereby a locked relation between said coupling head and wedge member results.

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