

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **84301906.8**

(51) Int. Cl.³: **D 06 B 3/10**

(22) Date of filing: **21.03.84**

(30) Priority: **29.03.83 GB 8308573**

(43) Date of publication of application:
03.10.84 Bulletin 84/40

(84) Designated Contracting States:
DE GB NL

(71) Applicant: **British Nuclear Fuels plc**

Risley Warrington Cheshire, WA3 6AS(GB)

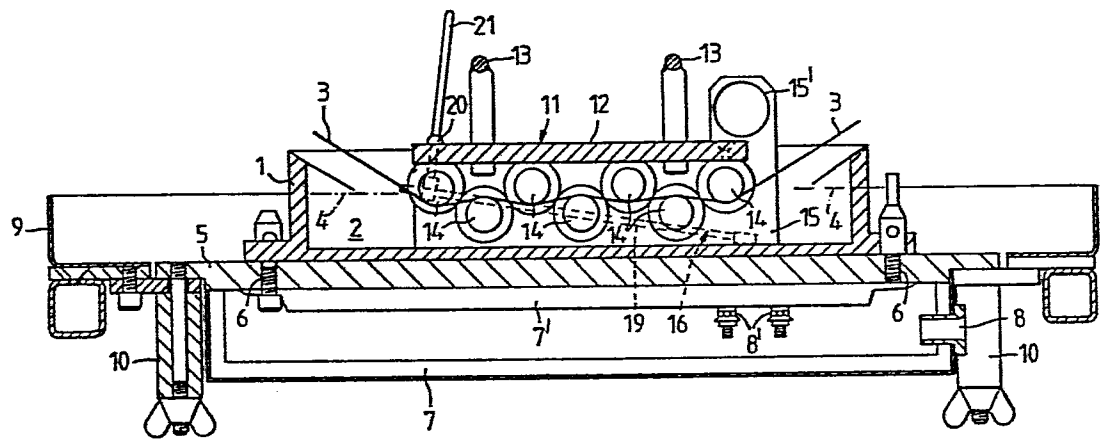
(72) Inventor: **Tarrant, Colin David**
Hafan Glyd Pentre Hill
Flint Mountain Clwyd Wales(GB)

(74) Representative: **Owen, Geoffrey John et al,**
Patents Branch United Kingdom Atomic Energy
Authority 11 Charles II Street
London SW1Y 4QP(GB)

(54) **An improved apparatus for wetting filaments.**

(57) **Apparatus for treating a continuous filament with a wetting medium includes a bath, guides for the filament disposed beneath the level of wetting medium contained in the bath, and filter means through which the medium in the bath is caused to flow by a current induced in the medium by the passage of the filament about to the guides.**

Fig.1



An improved apparatus for wetting filaments

This invention relates to apparatus for wetting filaments.

It is known that some composite bodies comprise filaments, such as glass fibres, encased in a medium such as cured epoxy resin. Where the formation of such bodies is on a mass production basis and is repetitive, it is advantageous to include apparatus in the production line which will perform the necessary operations. One such operation is wetting a continuous filament and presenting the wetted filament for application to the body being formed.

According to the present invention, apparatus for treating a continuous filament with a wetting medium comprises a bath for the medium, a roller guide assembly having a plurality of staggered upper and lower rollers arranged at one side of the bath, a filter assembly arranged at the opposite side of the bath, and an intervening partition plate between the assemblies whereby drawing a fibre through the bath and the roller guide assembly induces a current flow to cause medium to circulate about the partition and through the filter assembly.

The invention will be described further, by way of example, with reference to the accompanying drawings; in which:-

Figure 1 is a side sectional view of an embodiment of the invention; and

Figure 2 is a plan view of Figure 1.

In the drawings, a bath 1 contains a wetting medium 2, such as a liquid epoxy resin, up to a level 4 in the bath 1. The bath 1 is supported on a base plate 5 by bolts 6, the base plate 5 also carrying a cover 7 for an electrical heater 7' located beneath the bath 1. The heater 7' serves to maintain the medium 2 in a liquid state. Current for the heater 7' is supplied to terminals 8' by a cable (not shown) which enters the cover 7 through a cable port 8. A tray 9 surrounds

the bath 1 and is secured to the base plate 5 by connectors 10, the tray serving to collect any wetting medium which escapes from the bath 1.

A continuous strand or filament 3, for example a filament of glass fibre, is guided through the bath by a roller guide assembly 11. The guide assembly 11 is removably disposed in the bath 1 at one side thereof as can be seen from Figure 2. The guide assembly 11 comprises a top plate 12 with handles 13 and a staggered arrangement of alternate upper and lower rollers 14. The upper rollers of the assembly are supported from the plate 12. The lower rollers of the assembly are journaled on a partition plate 15. The partition plate 15, which is provided with a lifting eye 15' for removal during bath cleaning operations, extends to the bottom of the bath and serves to separate the roller guide assembly 11 from a filter assembly 16 which is situated in the bath at the opposite side of the plate 15 to the roller assembly 11.

The plate 12 which carries the upper rollers is retained in an operating position by a clamp 17 which resiliently urges the upper rollers on to the lower rollers of the assembly 11, thereby providing strand tensioning.

The filter assembly 16 comprises a comb 19 one end of which lies on the bottom of the bath 1 and the other end of which is suspended from a support 20 which spans across the top of bath 1 between one side wall of the bath and the top of partition plate 15. The comb 19 is immersed in the depth of the medium 2 as can be seen from Figure 1. A handle 21 is provided for removal of the comb 19 for cleaning.

In operation, the fibre strand 3 enters the bath 1 at the right hand side, referring to the drawings, and is threaded through the guide assembly 11 in an under/over/under manner, leaving at the left hand

side of the bath 1. The drawing of the strand through the upper and lower rollers 14 induces a relatively weak pumping action which is sufficient to create a current in the medium to cause flow between the guide assembly and the filter assembly about the partition plate 15 and
5 as indicated by the arrows X, Y in Figure 2, it being understood that the partition plate 15 does not extend as far as the two end walls of the bath, see Figure 1. The induced flow is sufficient to cause the wetting medium 2 to pass through the comb 19 which traps any solid foreign matter in the wetting medium. The comb 19 can be removed
10 periodically from the bath for cleaning. The fibre strand 3 is impregnated or coated (or both) with wetting medium 2 during its passage through the bath 1.

30478 RR

Claims

1. An apparatus for treating a filament with a wetting medium characterised by a bath (1) for the wetting medium, a roller guide assembly (11) having a plurality of staggered upper and lower rollers
5 (14) arranged at one side of the bath, a filter assembly (16) arranged at the opposite side of the bath, an intervening partition plate (15) between the assemblies (11, 16) whereby drawing a fibre (3) through the bath and the roller guide assembly induces a current flow in the medium to cause medium to circulate about the partition and through the filter
10 assembly.
2. An apparatus according to claim 1 in which the filter assembly (16) is removable.

30478 RR

Fig. 1

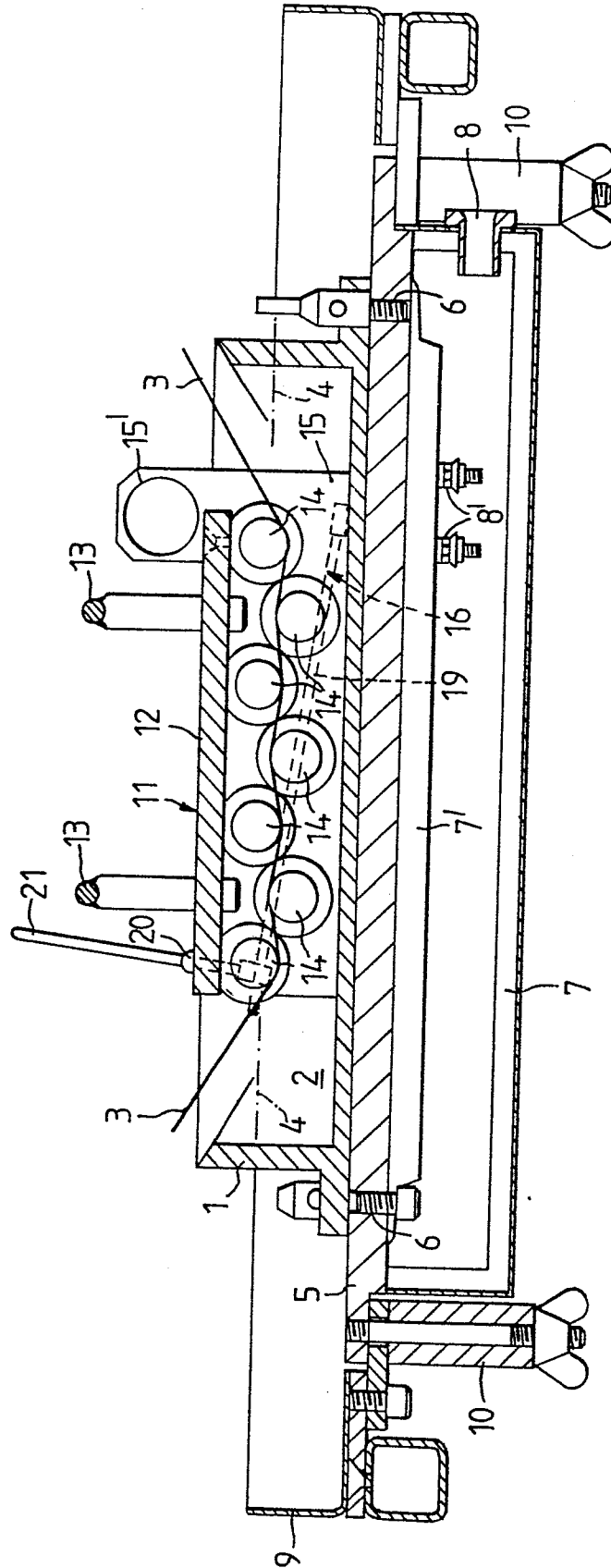


Fig. 2

