

Description

TECHNICAL FIELD

[0001] The present invention refers to a kind of cylinder fabric dyeing anti-clockwise machine structure, especially one reducing machine volume to save space and increase efficiency.

INVENTION BACKGROUND

[0002] The commonly used clockwise reel rotation of fabric dyeing machine has a long body and much motor power is needed to conduct the fabric. In order to increase pressure, power is wasted and fabric can be easily damaged as this process is more suitable for heavier fabrics.

[0003] According to the commonly used clockwise reel rotation of fabric dyeing machine, this structure is mainly used for thicker materials but for dyeing of light weight materials such as knitted or cotton materials, possibility that pills or slipping of material might occur should be considered. Thus, the distance of overflow should be reduced and natural circulation principle as well as force of gravity used to conduct such materials to the machines for high-speed dyeing.

[0004] According to the commonly used anti-clockwise reel dyeing machine structure, dyeing results and texture have much to be improved. During dyeing process, fabric is not expanded and released since circulation is quick and pressured thus causing crease marks influencing proportion to dyeing and texture of fabric.

SUMMARY OF THE INVENTION

[0005] The structure of the present invention is to obviate the above mentioned drawbacks of a clockwise-rotation dyeing machine, save space and improve dyeing results thus providing a kind of new machine structure for economical choice.

[0006] The fabric passage structure of the present invention is reduced and a reel is used to control circulation of fabric to prevent stretching or slipping of material, to co-operate with dry and wet changing conditions and mutual action of round and square dyeing tubes. During dyeing process, fabric is sometimes high-speed and expanding dyed and moves in a wave-like pattern such that fabric is released and dyed simultaneously thus increasing result of dyed fabric.

[0007] According to the present invention of a fabric dyeing machine structure, especially one reducing machine volume to save space and increasing efficiency. The structure mainly consists of a machine head, round dyeing tubes, square dyeing tubes and a storage tank levels. The machine head is designed with a window at the front portion and a reel inside, the rear portion is connected to the storage tank levels and the bottom portion is connected to a group of round dyeing tube; The round

dyeing tube is connected from the head portion to the bottom portion of machine head followed by a group of square dyeing tube which are hidden in the bottom layer of storage tank levels. The arc of storage tank levels is expanded to a suitable angle for release and thus an anti-clockwise circulation is formed; The front portion of storage tank levels is connected to machine head and the bottom side portion is connected to a group of square dyeing tubes such that fabric is easily expanded when conducted in. Hence, with the new design and improvement of this new invention, machine volume is reduced, dyeing solution decreased and quality and speed increased.

BRIEF DESCRIPTION OF THE DRAWING

[0008] Fig. 1 shows a structure of commonly used product.

[0009] Fig. 2 shows horizontal sectional view of present invention.

[0010] Fig. 3 shows sectional view of bottom layer.

Numerical:

[0011]	10-dyeing machine body	11-tube
[0012]	20-dyeing head	21-machine
[0013]	22-window 23-reel	25-bottom
[0014]	24-rear portion 26-nozzle	28-head
[0015]	27-round dyeing tube 29-square dyeing tube	31-bottom
[0016]	30-storage tank levels 32-tank edge	34-bottom side
[0017]	33-front portion 35-remaining path	37-dyeing solution

BEST MODE FOR CARRYING OUT THE INVENTION

[0018] With reference to Fig. 1 showing the structure of commonly used product, the tube body 11 of dyeing machine 10 is long in structure and because of such length, much power is needed to cause fabric 12 to circulate. Nozzle pressure should be increased thus wasting power and fabric 12 can be damaged. Hence, its length is one of its drawbacks as it requires more space.

[0019] With reference to Fig. 2 showing a horizontal sectional view of the structure, the dyeing machine 20 mainly consists of machine head 21, round dyeing tube 27, square dyeing tube 29 and a storage tank levels 30. The machine head 21 is designed with a window 22 at the front portion 33 and a reel 23 inside. The rear portion 24 is connected to storage tank levels 30 as by-pass, the bottom portion 25 is designed with a nozzle 26 and connected to a group of round dyeing tube 27, which is connected from the head portion 28 to the bottom portion 25 of machine head 21, followed by a group of

square dyeing tube 29 found at the bottom layer 31 of storage tank levels 30. The arc angle of tank edge 32 is expanded to a suitable angle for release of fabric and make an anti-clockwise. The front portion 33 of storage tank levels 30 is connected to machine head 21, and at bottom side portion 34, a group of square dyeing tube 29 is connected such that fabric 36 is naturally expanded when entering square dyeing tube 29 and continuously being dyed. Hence, the new design and improvement of this new invention reduces machine volume, decreases amount of dyeing solution and increases dyeing-speed and quality.

[0020] With reference to Fig. 3 showing a sectional view of bottom layer, bottom layer 31 of storage tank levels 30 is designed with a group of square dyeing tube 29 to enable fabric 36 to come from nozzle 26 after being dyed and continues its dyeing process following dyeing solution 37. Fabric 36 is immersed in remains of dyeing solution 37 and uses the remaining path 35 of bottom layer 31 to go through a single path hence being separated from square dyeing tube 29.

[0021] With reference back to Fig. 2, fabric 36 of storage tank levels 30 is appropriately released at a certain height to meet dry conditions and because of pressure and bigger space, will naturally crease, and conducted by reel 23 is once again being dyed from nozzle 26, and goes through round dyeing tube 27 and square dyeing tube 29 and finally goes along tank edge 32 of bottom layer 31 storage tank levels 30 to form an arc and fall down at appropriate level. Fabric 36 is in dry and released condition such that dyeing process is facilitated.

[0022] According to the present invention, the length of dyeing machine 20 is indeed reduced for convenient use of limited space. Further, since circulation channel is reduced, the speed circulation of reel 23 and fabric 36 is easily controlled such that stretching of fabric 36 or damage caused by fabric slipping is avoided. Dyeing solution 37 of fabric 36 is naturally sprayed from nozzle 26 and goes through round dyeing tube 27 and square dyeing tube 29 for circulation to heater and more dyeing and conducted to nozzle 26 in high-heat, high-pressure state for continuous dyeing. Hence, dyeing solution 37 quantity being reduced. The above mentioned dyeing machine 20 is reduced in length and relatively circulation of fabric 36 is also reduced. However, from the view of utilization, fabric 36 is circulated such that space is fully used without wasting any inner space thus differing the present invention from commonly used products.

Claims

1. A kind of cylinder anti-clockwise fabric dyeing machine structure mainly consisting of a machine head, round dyeing tube, square dyeing tube and a storage tank levels with the following characteristics:

The machine head is designed with a window at the

front portion and a reel inside, the reel portion is connected to the storage tank levels and the bottom portion is connected to a group of round dyeing tube;

The round dyeing tube is connected from the head portion to the bottom portion of machine head followed by a group of square dyeing tube which are hidden in the bottom layer of storage tank levels. The arc of storage tank levels is expanded to a suitable angle for release and thus an anti-clockwise circulation is formed; The front portion of storage tank levels is connected to machine head and the bottom side portion is connected to a group of square dyeing tubes such that fabric is easily expanded when conducted in.

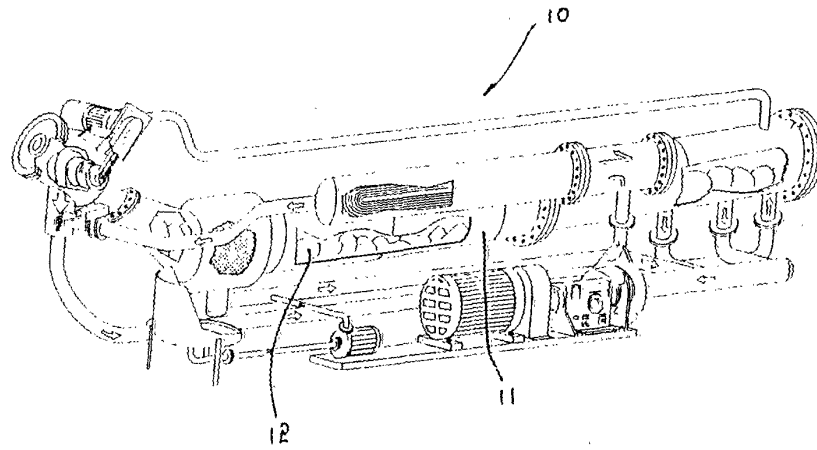


FIG. 1

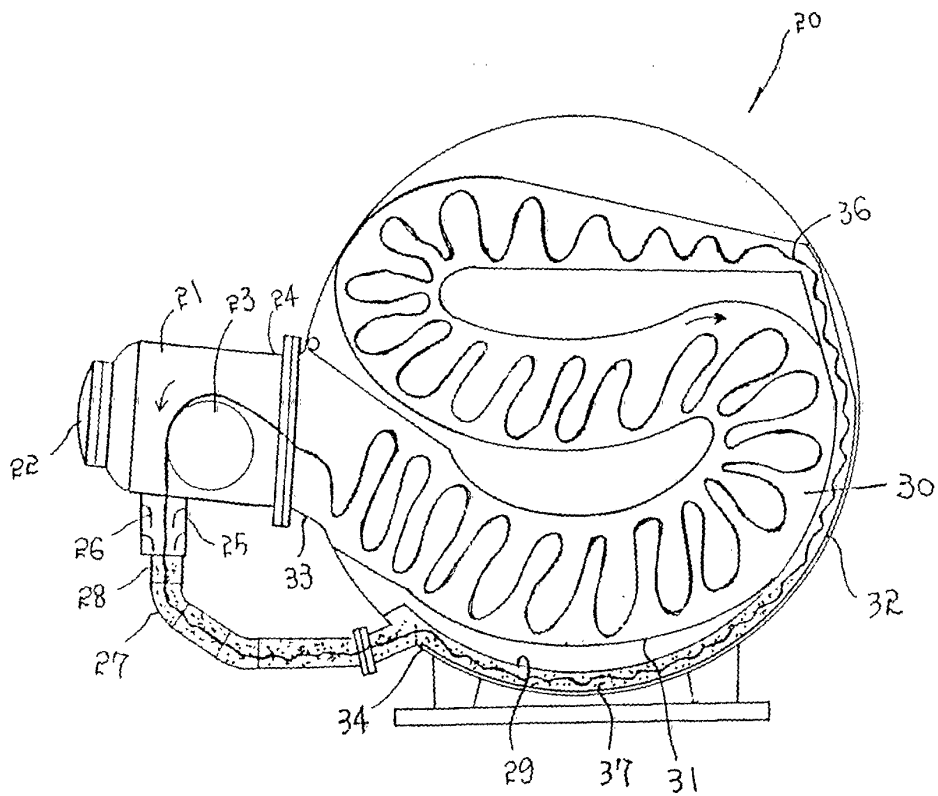


FIG. 2

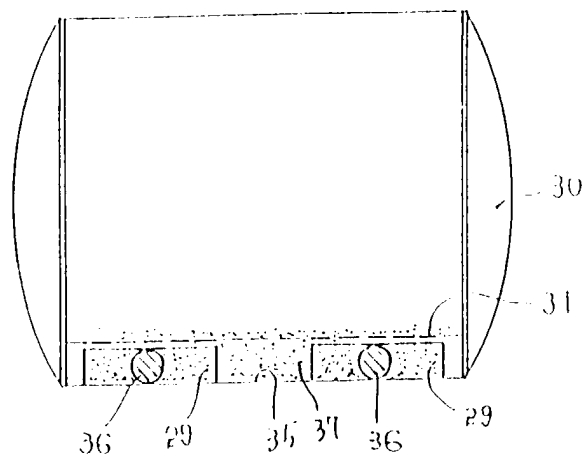


FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 61 0071

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 32 45 921 A (H. KRANTZ GMBH & CO) 14 June 1984 (1984-06-14) * page 11, line 22 - page 15, line 20 *	1	D06B3/28
A	US 4 318 286 A (W.C. STURKEY) 9 March 1982 (1982-03-09) * abstract; figures 1,2 *	1	
A	GB 2 208 236 A (ARGELICH TERMES Y CIA SA) 15 March 1989 (1989-03-15) * abstract; figures 1,2 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) D06B
Place of search THE HAGUE		Date of completion of the search 31 March 2000	Examiner Goodall, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 61 0071

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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31-03-2000

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82