

(19)



(11)

EP 1 630 282 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
03.01.2007 Bulletin 2007/01

(51) Int Cl.:
D21D 5/16 (2006.01)

(21) Application number: **04255069.9**

(22) Date of filing: **23.08.2004**

(54) **A screen for a screen cylinder**

Sieb eines Siebzyllinders

Tamis d'un cylindre de tamassage

(84) Designated Contracting States:
DE FI FR SE

(43) Date of publication of application:
01.03.2006 Bulletin 2006/09

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Description

1. FIELD OF THE INVENTION

[0001] The present invention relates to a screen for a screen cylinder according to the preamble of claim 1. Such a screen is known from EP 0 499 154 A1.

2. BACKGROUND OF THE INVENTION

[0002] Headbox screens represent the last line of defense against contaminants before pulp is made into paper. In a headbox screen, the total structural integrity of the screen cylinder thereof is directly related to the aperture tolerance of the same, and both can have major affect on the resulting paper quality. In this regard, manufacturers have been making every efforts to improve the screen design and structural integrity of screen cylinder so as to achieve the requirements such as stable slot width

(i.e. smaller tolerance), assemble convenience and low maintenance.

[0003] FIG. 1 is a 3-D diagram showing a screen for screen cylinder according to prior arts. The screen cylinder 9 comprises a supporting bar 91 and a plurality of screen wires (92), wherein each screen wire is welded to a corresponding recess 93 of the supporting bar 91. The screen cylinder 9 formed by welding has poor structural integrity that the screen wire will be loosen and even fall off by negative pressure caused by the centrifugal force during a screening operation.

[0004] To improve the foregoing disadvantage, another screen cylinder 8 is provided as seen in FIG. 2. The screen cylinder 8 comprises a supporting bar 81 and a plurality of screen wires (82), wherein each screen wire is inset into a trough 83 which is further fixed by welding. However, the improved structure of screen cylinder 8 is still vulnerable to the negative pressure that can be drawn out of the trough and fall off.

[0005] To further enhance the joint strength between the supporting bar and the screen wire, an inset type screen cylinder is developed recently as seen in FIG. 3. the screen cylinder 7 comprises a supporting bar 71 and a plurality of screen wires 72, wherein the screen wire has a ball-shaped inset end 74 matched with the ball-topped trough 74 such that the joint strength between the supporting bar and the screen wire is enhanced. However, the screen cylinder 7 still has the shortcomings of large tolerance and weak structural integrity since the screen wire might not inset into the supporting bar deep enough and the ball-shaped inset end is still vulnerable to the negative pressure.

SUMMARY OF THE INVENTION

[0006] The primary object of the invention is to provide

a screen cylinder with better structural integrity and smaller tolerance. Since the screen cylinder of the present invention has screen wires inset into a supporting bar with sufficient inseting depth which each further has an inset end with a near-rectangle recess matched with a convex formed inside the trough of the supporting bar, the screen wires are fixed solid, the screen cylinder is durable with long life span and is easy to assemble without welding, and as the consequences that the manufacturing cost is reduced.

[0007] The abovementioned object is achieved by the characterizing features of claim 1.

[0008] Following drawings are cooperated to describe the detailed structure and its connective relationship according to the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a 3-D diagram showing a screen of a screen cylinder according to prior arts.

[0010] FIG. 2 is a 3-D diagram showing another screen of a screen cylinder according to prior arts.

[0011] FIG. 3 is a 3-D diagram showing yet another screen of a screen cylinder according to prior arts.

[0012] FIG. 4 is a sectional view of a screen of a screen cylinder according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] FIG. 4 shows a sectional view of a screen of a screen cylinder according to the present invention. The screen cylinder 1 of FIG. 4 comprises a supporting bar 11 and a plurality of screen wires 12. The supporting bar 11 has a predefined thickness L and has a plurality of troughs 13 arranged thereon with equal spacing I, wherein each trough 13 has a convex 131 therein. Although the convex 131 is formed in near rectangular shape, it can be formed in any geometry shape. The screen wire has an inset end 122 and an extending end 121. A side of the inset end 122 is arranged with a near-rectangle recess 123 such that the recess 123 can accept the convex 131 of the trough 13 while insetting the screen wire 12 into a corresponding trough 13 of the supporting bar 11. The extending end 121 is protruding outwardly from the surface of the supporting bar 11 and has a predefined width W, where the predefined width W is smaller than the spacing I between troughs of the supporting bar. In addition, the screen wire is inset into the supporting bar by a predefined depth D which is larger than a half of the predefined thickness, i.e. $\frac{1}{2}L$. Moreover, in a preferred embodiment of the present invention, the supporting bar 11 is a circular bar.

[0014] In this regard, while this embodiment is operating in high-speed rotation, since the overall structural integrity is enhanced such that the screen wire is stably fixed, the tolerance (I-W) of the screen cylinder is not going to vary accordingly that a constant flow can be maintained.

Claims

1. A screen for a screen cylinder comprising:

a supporting bar (11) with a predefined thickness (L), the supporting bar (11) being provided with a plurality of equispaced troughs (13), each trough (13) having a convex protrusion (131) formed therein, and a plurality of screen wires (12), each having an inset end (122) and an extending end (121), **characterized in that** one side of each inset end (122) is formed with a near-rectangle recess (123) complementing the convex protrusion (131) of a corresponding trough (13), and each extending end (121) protrudes outwardly from the surface of the supporting bar (11), wherein each screen wire (12) is inset into the supporting bar (11) over a predefined depth (D) which is at least half of the predefined thickness (L).

2. A screen as claimed in claim 1, wherein the predefined depth (D) is larger than half of the predetermined thickness (L).

3. A screen as claimed in claim 1 or claim 2, wherein the extending end (121) of each screen wire (12) has a predefined width (W) which is less than the spacing (I) between adjacent troughs (13).

4. A screen as claimed in any one of claims 1 to 3, wherein the supporting bar (11) is a circular bar.

Patentansprüche

1. Sieb für einen Siebzylinder mit:

einem Trägerstab (11) mit einer vorbestimmten Dicke (L), wobei der Trägerstab (11) eine Mehrzahl von gleichmäßig beabstandeten Vertiefungen (13) besitzt, wobei jede Vertiefung (13) einen in ihr ausgebildeten konvexen Vorsprung (131) aufweist, und mit einer Mehrzahl von Siebdrähten (12), von denen jeder ein Einsetzende (122) und ein verlängertes Ende (121) aufweist, **dadurch gekennzeichnet, dass** eine Seite jedes Einsetzenden (122) eine nahezu rechtwinklige Ausnehmung (123) aufweist, die komplementär zum konvexen Vorsprung (131) einer entsprechenden Vertiefung (13) ausgebildet ist und dass jedes verlängerte Ende (121) nach außen von der Oberfläche des Trägerstabes (11) vorsteht, wobei jeder Siebdraht (12) in den Trägerstab (11) über eine vorbestimmte Tiefe (D) eingesetzt ist, die wenigstens der Hälfte der vorbestimmten Dicke (L) entspricht.

2. Sieb nach Anspruch 1, bei dem die vorbestimmte Tiefe (D) größer als die Hälfte der vorbestimmten Dicke (L) ist.

3. Sieb nach Anspruch 1 oder 2, bei dem das verlängerte Ende (121) jedes Siebdrahtes (12) eine vorbestimmte Breite (W) aufweist, die kleiner als der Abstand (I) zwischen benachbarten Vertiefungen (13) ist.

4. Sieb nach einem der Ansprüche 1 bis 3, bei dem der Trägerstab (11) ein kreisförmiger Stab ist.

Revendications

1. Tamis d'un cylindre de tamisage comprenant :

une barre de support (11) dotée d'une épaisseur prédéfinie (L), la barre de support (11) étant pourvue d'une pluralité de goulottes équidistantes (13), chaque goulotte (13) présentant une protubérance convexe (131) formée dans celle-ci, et une pluralité de fils de tamisage (12), présentant chacun une extrémité insérée (122) et une extrémité en extension (121), **caractérisé en ce qu'un** côté de chaque extrémité insérée (122) est formé avec un évidement (123) presque rectangulaire complétant la protubérance convexe (131) d'une goulotte (13) correspondante, et chaque extrémité en extension (121) dépasse vers l'extérieur de la surface de la barre de support (11), dans lequel chaque fil de tamis (12) est inséré à l'intérieur de la barre de support (11) au-dessus d'une profondeur prédéfinie (D) qui est au moins la moitié de la profondeur prédéfinie (L).

2. Tamis selon la revendication 1, dans lequel la profondeur prédéfinie (D) est supérieure à la moitié de l'épaisseur prédéterminée (L).

3. Tamis selon la revendication 1 ou 2, dans lequel l'extrémité en extension (121) de chaque fil de tamis (12) présente une largeur prédéfinie (W) qui est inférieure à l'espacement (I) entre les goulottes (13) adjacentes.

4. Tamis selon l'une quelconque des revendications 1 à 3, dans lequel la barre de support (11) est une barre circulaire.

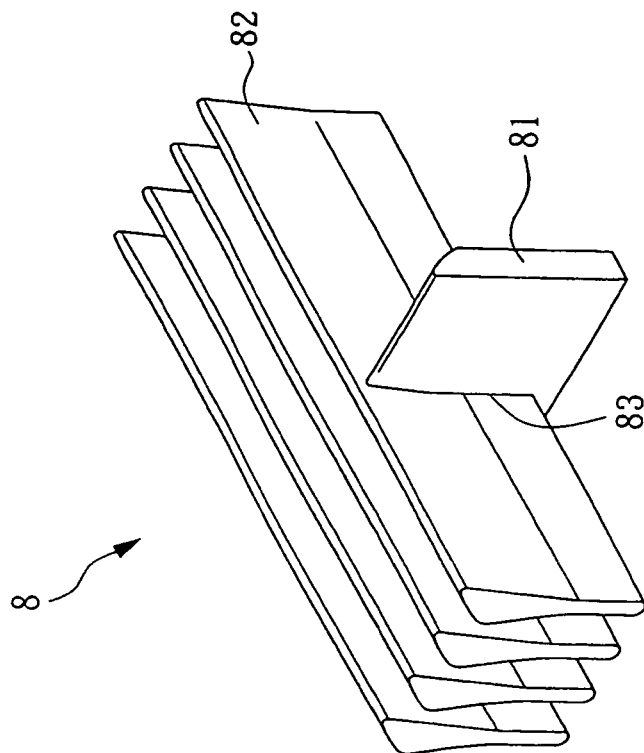


FIG. 2
(PRIOR ART)

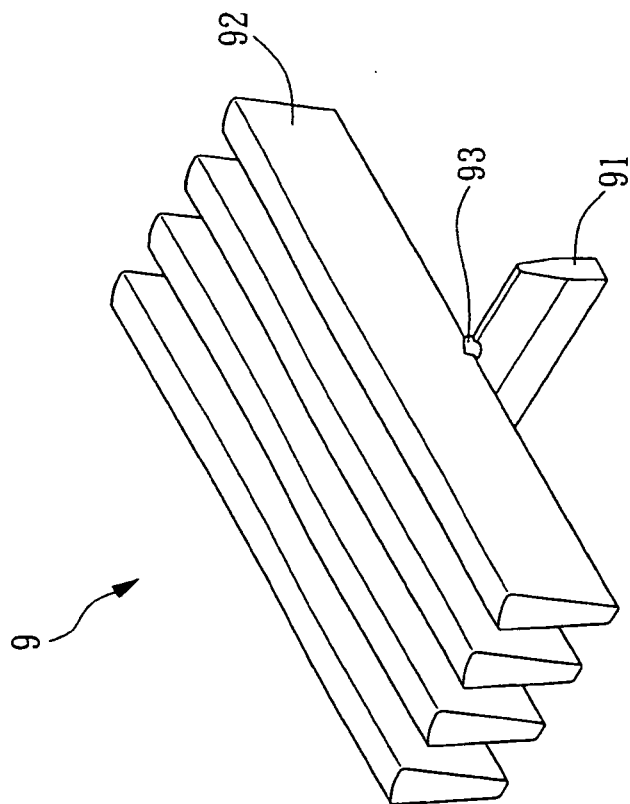


FIG. 1
(PRIOR ART)

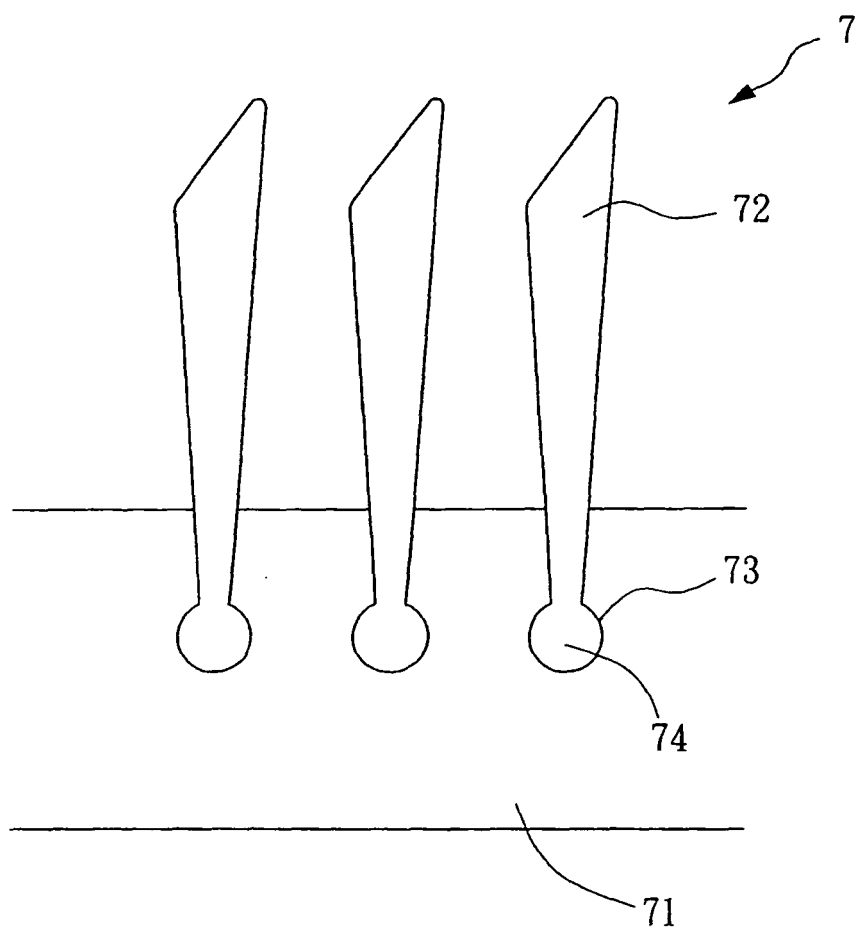


FIG. 3
(PRIOR ART)

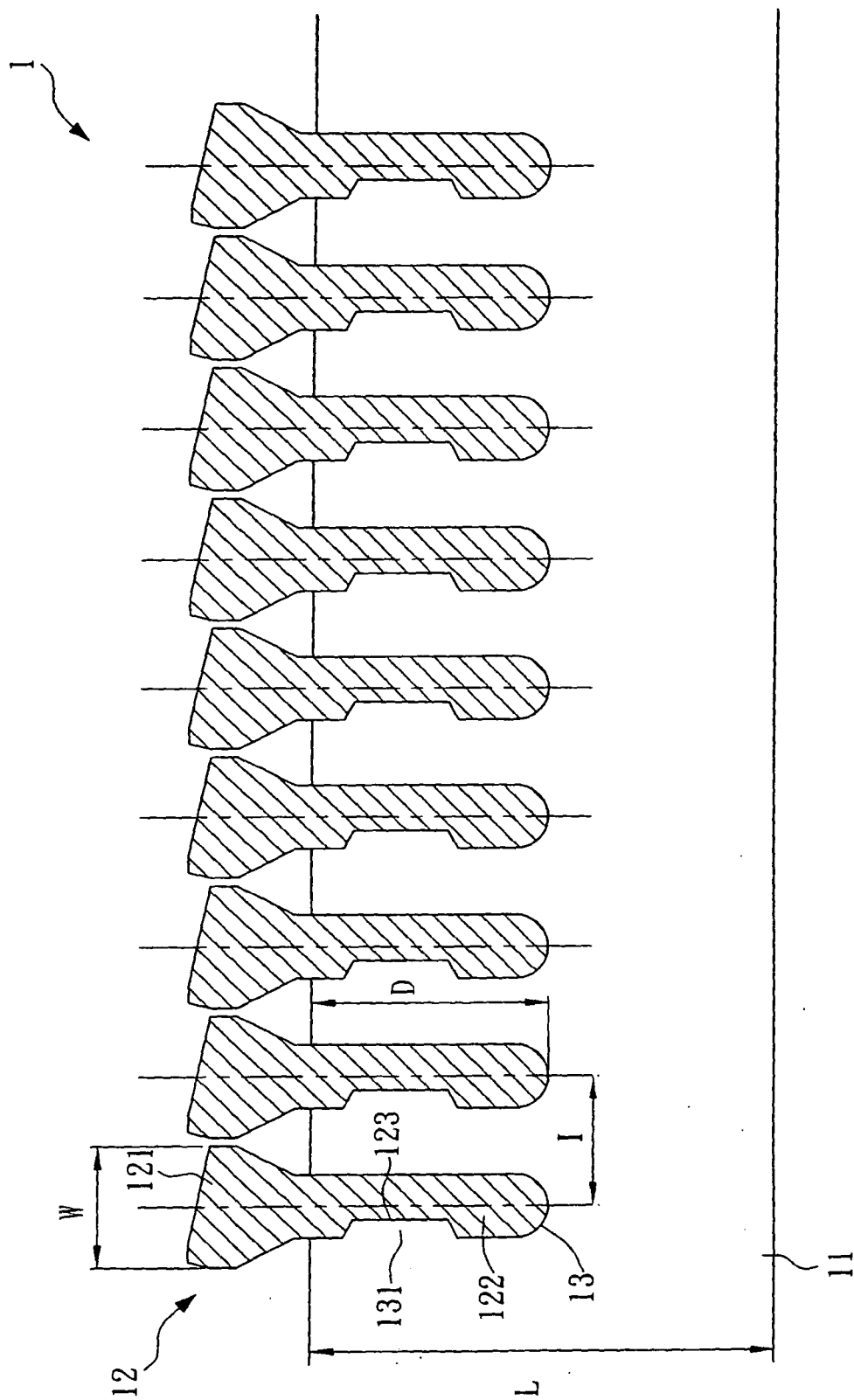


FIG. 4