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(54) **Blanket clamping and sealing device**

(57) The device for clamping and sealing of the blanket of the roll of the extended nip press used in the papermaking industry is equipped with the flexible sealing ring mounted on the rotating sleeve between the clamping shields and the external sleeve. External sleeve has the plurality of the stretching pins and on its internal surface the corrugated ring is installed. The cross section of the flexible sealing ring has preferably the rhomboidal shape.

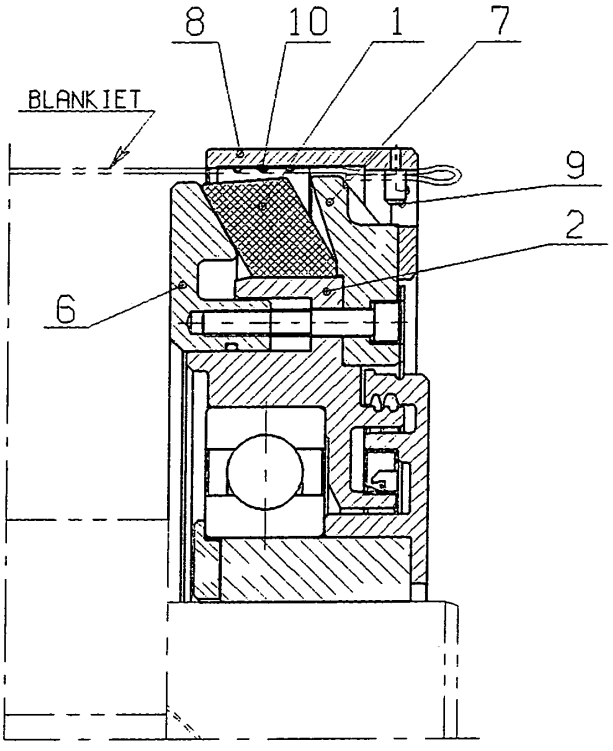

FIG.2

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Description

[0001] The subject of the invention is a device for clamping and sealing the edges of blanket of the press roll from the closed type extended nip presses, used for dewatering of product web in paper industry.

[0002] Extended nip presses are equipped with conventional press roll or controlled crown roll and pressing unit with stationary, profiling shoe. Web of paper is most often led on press felt, which is protected from the shoe's side by a movable blanket, moving on its surface with the same speed as felt and produced web. A liquid, preferably oil, is pumped between the working surface of the shoe and blanket, to create a lubricating film, protecting blanket as well as shoe from too early wear. Blanket is oil-proof and non-permeable for liquids.

[0003] Oil pumped on the shoe is drained off by a system of troughs. In order not to allow even a minimal amounts of oil to leave the press system, blanket is cylinder-shaped and its edges are clamped to face shields and protected from oil leaks by a set of sealing. As a result, oil rests which are left on the blanket's surface or get outside the system of pressing unit, gather in the bottom part of a cylinder created this way and can be pumped away from there.

[0004] There exists a number of design solutions of the blanket edge clamping and protecting the press roll from oil outflow. An example can be the solution presented in the patent description no. EP 1043446, where blanket edges are pressed in radial direction to the outer sleeve through a flexible clamping ring, serving at the same time as sealing.

[0005] Another example of sealing through clamping flexible elements presents the patent description no. EP 1291462.

[0006] In both cases sealing and clamping of blanket edge is realized through squeezing the flexible element between two parallel shield planes, thus the external diameter of this element increases.

[0007] Blanket edge clamping module and protecting the extended nip press roll from oil leaks is a crucial element of this device. The module design should provide an effective clamping of blanket edges and required tightness of the connection as well as the facility to assemble and disassemble it.

[0008] Known solutions undoubtedly provide safe and effective clamping and sealing of the blanket edges. Clamping of the elastic ring requires the use of considerable forces, because of the relatively large surface of the mating planes. On the other hand, strong clamping causes also a substantial deformation of the clamping ring, which may results in jamming of particular elements of the system, and as a result, problems with disassembling. To facilitate the assembling and disassembling a technical solution has been provided which consists in a ring of such a shape that the sealing through external diameter increase may be realized by the rotation of the ring's cross-section with only minimal deformation. The ring's cross-section should preferably be rhomboidal-shaped or close. However the surfaces working with the surfaces of internal and external shields may also have arched, elliptical or similar profile and the shapes of mating shields can be corrected respectively.

[0009] The preliminary setting of the blanket edges has been realized through stretching on pins in a known way and the clamping is supported through a band, preferably metal, and corrugated, situated between blanket edges and the internal surface of the external sleeve.

[0010] The following figures show the examples of the implementation of the invention where:

Fig. 1 shows a schematic design of extended nip press equipped with pressing shoe

Fig.2 shows the cross section of the blanket clamping and sealing device

Fig. 3 shows an example of the sealing ring cross section

Fig. 4 shows a detail covering the cross section of the flexible sealing ring and surfaces of mating shields, internal and external, as well as the external sleeve and corrugated ring

Fig. 5 shows the detail of the cross section after the ring is clamped

Fig. 6 and 7 show the examples of other shapes of the sealing ring and surfaces of the mating shields.

[0011] The device, according to the invention, has the sealing ring 1 situated on the rotating sleeve 2 between the internal shield 6 and external shield 7. External sleeve 8, equipped with pins 9, is fastened to the external shield 7. On the internal surface of the sleeve 8 the corrugated ring 10 is located.

[0012] The solution, as in the invention, allows to effectively fasten the blanket edges and seal the roll from oil leaks, as well as to facilitate the disassembling of the roll unit because the unloading of the shields results in separating of the sealing ring from the blanket surface automatically.

Claims

1. Device for clamping and sealing of the roll blanket comprising: rotating heads equipped with internal and external shields; external sleeve with set of the stretching pins; corrugated ring and flexible sealing ring **characterized in that** the face surfaces of the sealing ring (3,4) and its external surface (5) are, advantageously, conical in shape whereas the cross section of this ring is similar to the rhomboid.

2. Device as claimed in Claim 1, further **characterized in that** the surface of internal shield (6) working with the sealing ring (1) is, advantageously, conical in shape with the angle of the cone close to the angle of the cone of the mating surface (3) of the sealing ring (1).

3. Device as claimed in Claim 1, further **characterized in that** the surface of external shield (7) working with the sealing ring (1) is, advantageously, in the shape of truncated cone with the dilation angle larger than the angle of the cone of the mating surface (4) of the sealing ring (1).

4. Device as claimed in Claim 1, further **characterized in that** the external surface (5) of the sealing ring (1) is in the shape of truncated cone and the larger base of the cone is facing toward the external shield (7).

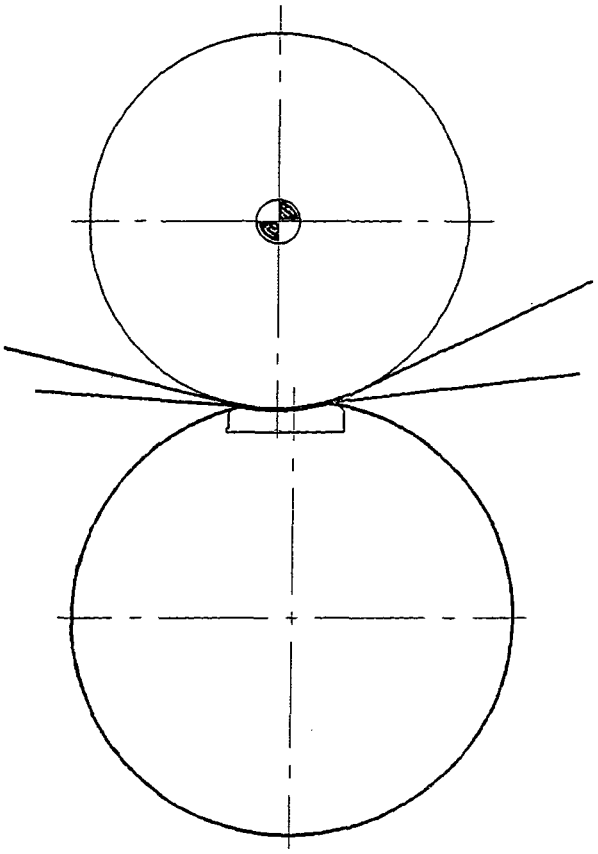

FIG.1

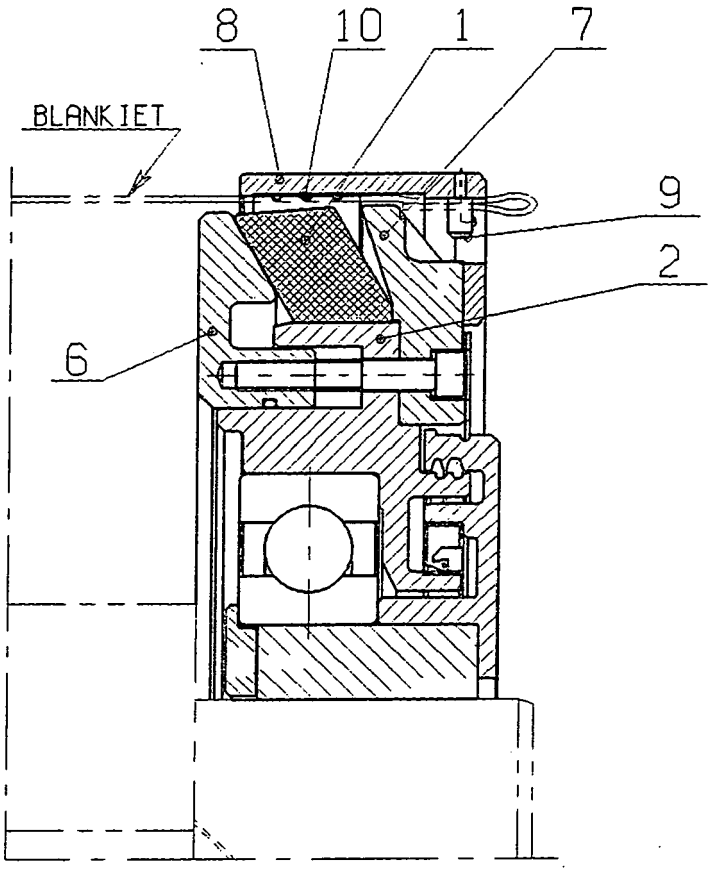

FIG.2

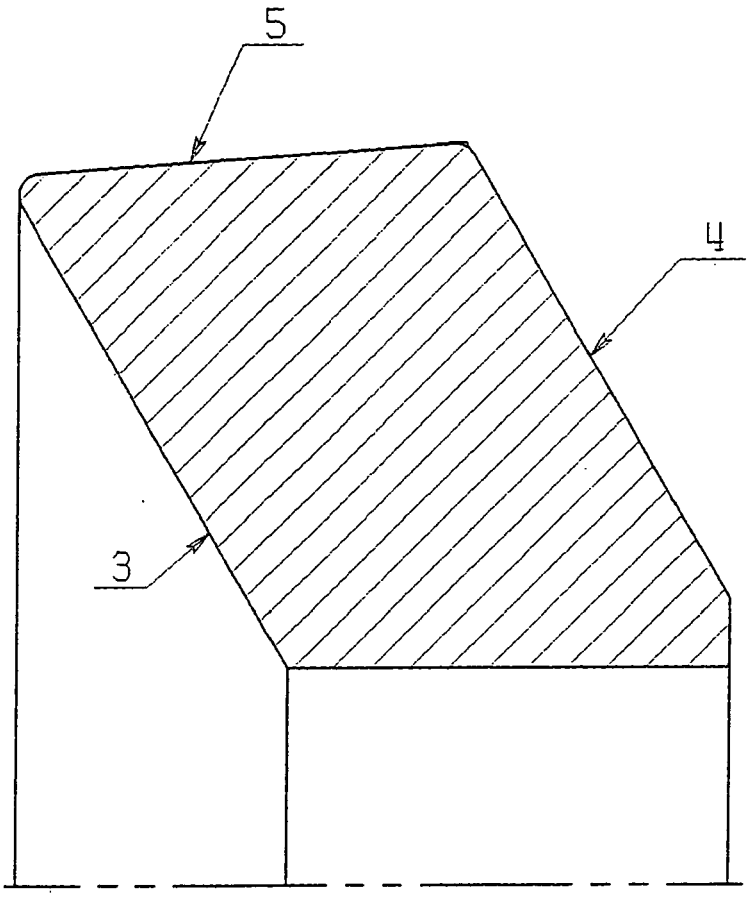

FIG.3

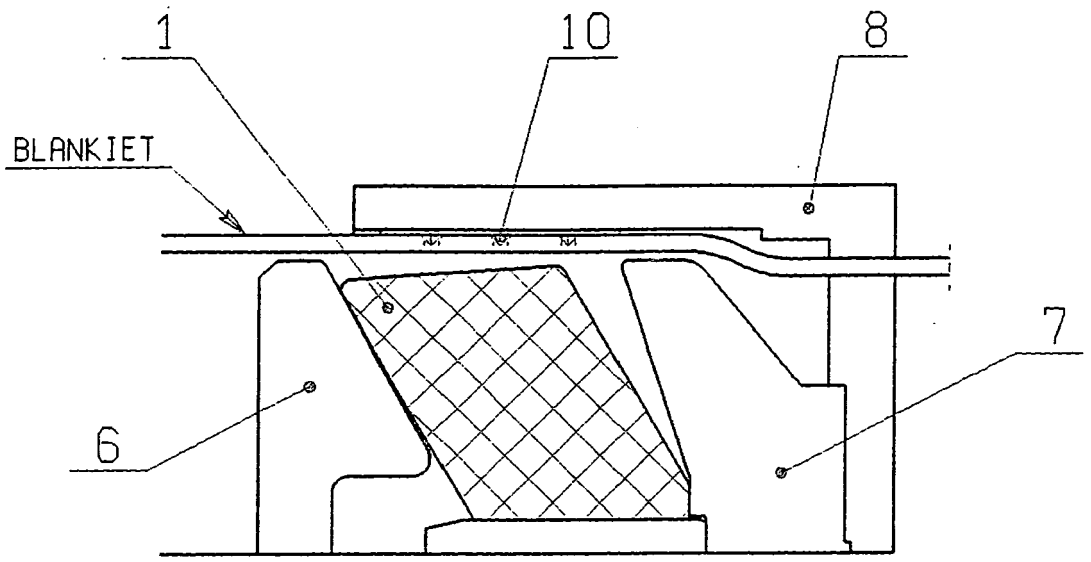

FIG.4

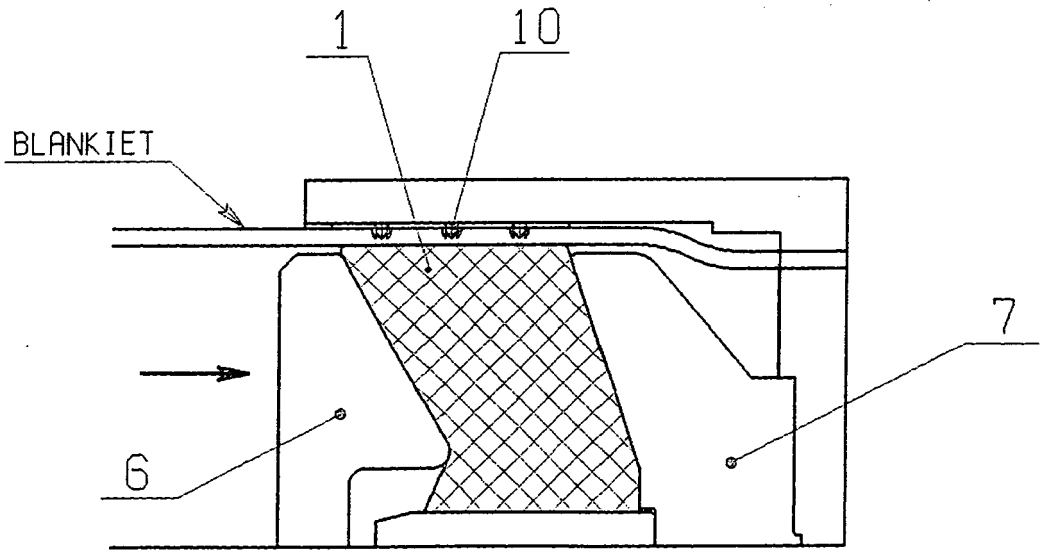

FIG.5

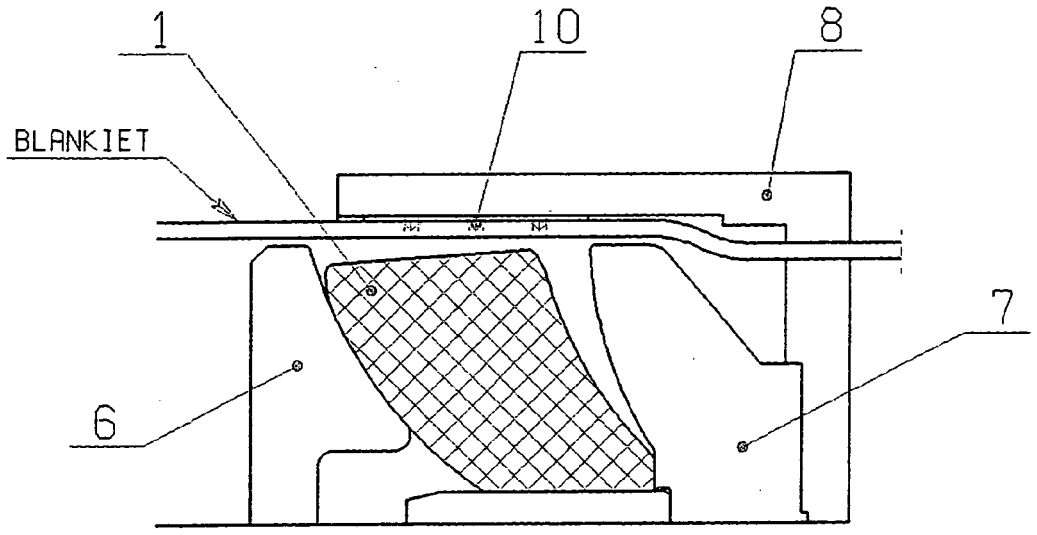

FIG.6

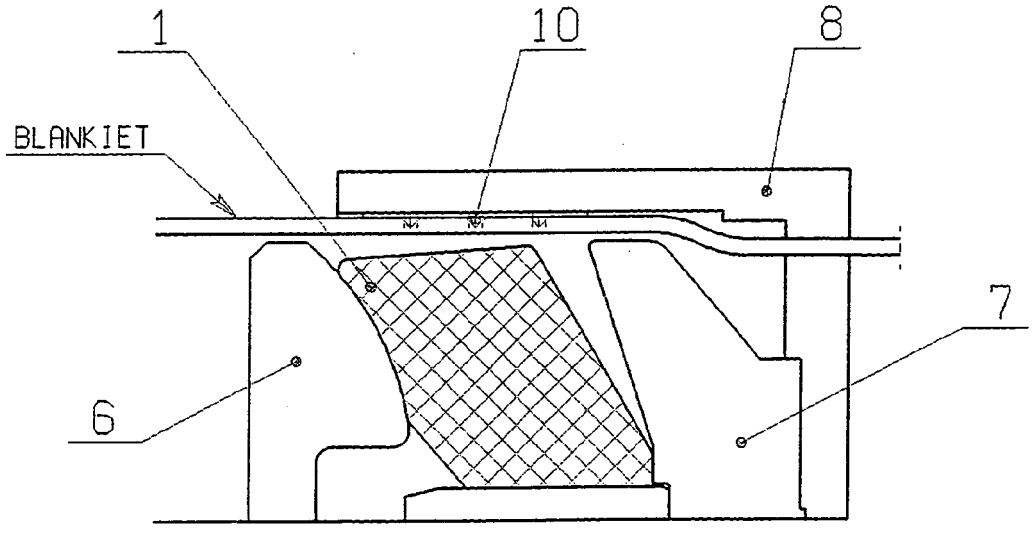

FIG.7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1043446 A **[0004]**
- EP 1291462 A **[0005]**