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Szellemi Tulajdon Nemzeti Hivatala(11) Lajstromszám: **E 026 320**(13) **T2****EURÓPAI SZABADALOM**
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Kaparópengék tartására szolgáló szerkezet

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.

Description

DEVICE FOR RETAINING DOCTOR BLADES

[0001] The invention relates to a device for retaining doctor blades with a support element and a retaining finger having the doctor blade pocket, wherein the doctor blade is inserted between the support element and the retaining finger.

[0002] A scraping device or scraper blade, also referred to as a doctor blade, has the task, among others, to clean the surface of a roller or a cylinder. In the case of a paper machine, such a doctor blade has the effect that the paper web guided across the respective roller of the paper machine is not wound up on the roller in the event of a web break, but exits the roller at the predetermined position to reach, for example, a collection tray. The doctor blade must ensure that this task is performed with 100% certainty, since otherwise considerable failures would occur in the papermaking process, possibly even damage of the paper machine. The doctor blade also has the task to clean the surface of the roller so that the paper web is not marked. For this reason, the doctor blade attached to its holder must be in contact with the roller as uniformly as possible over its entire length. For pressing the doctor blade onto the roller surface, the holder is generally constructed in two parts and has a bottom plate which is typically attached on the machine frame. A top plate is pivotally attached on this bottom plate, so that the doctor blade can be lifted off the roller surface, respectively placed onto it and pressed against it (EP 1 567 715 B1, DE 195 08 298 C2 and WO 2009/076 128 A1).

[0003] Furthermore, US 3854162 A shows a device for retaining doctor blades, wherein at a support element a

retaining finger is arranged as separate component. Between the support element and the retaining finger the doctor blade is inserted.

[0004] The production of this retaining device is, however, very time-consuming and therefore connected with high costs. In addition, a large number of components must be managed, such as cover plates, bottom plates, screws, etc. The assembly is time-consuming, because the many components must be screwed together and adjusted.

[0005] Based on the US 3 854 162 A, it is therefore the object of the invention to provide a device for retaining doctor blades which can be more easily manufactured and assembled.

[0006] This object is attained with a device of the aforementioned type according to the invention by forming the support element and the retaining finger from a single bent sheet metal part, that the bent sheet metal part possesses a uniform thickness and the retaining finger is welded with the support element in the region, especially laser welded, in which the retaining finger lifts off from the support element or is removed from it.

[0007] By the one-piece embodiment of the retaining device the essential advantage is achieved that the number of components is drastically reduced, and thus the assembly is simplified. The storage is substantially easier, as well.

[0008] According to the invention, the support element and the retaining fingers are formed by a bent sheet metal part. Here, one sheet metal section forms the support element and the other sheet metal section forms the retaining finger abutting the support element. The support element and the

retaining finger are produced by bending the sheet metal strip by 180°.

[0009] Advantageously, the retaining finger and the support element are welded together, in particular laser-welded, in the region before the retaining finger lifts off from the support element. The welding beam advantageously passes through the gap between the free end of the retaining finger and the support element.

[0010] A retaining device produced in this way according to the invention can be easily cut to the desired length, for example by sawing.

[0011] The retaining finger has a free end that is spaced from the support element. The scraper pocket, into which the scraper blade is inserted and is retained there, is located behind this gap. The scraper pocket is formed on three sides by the retaining finger and on one side by the support element.

[0012] Moreover the distance between the free end and the support element has a defined width. The width of the distance is advantageously adjusted by a saw cut extending parallel to the plane of the support element and is, for example 4.5 mm.

[0013] According to a further development of the invention, it is provided that the support element and the retaining finger have apertures for receiving adjusting screws and/or fastening screws. These are advantageously punched after the bending operation.

[0014] Preferably, the end opposite of the doctor blade, where the support element transitions into the retaining finger, is finish-machined and a pinch edge is removed.

[0015] In an advantageous exemplary embodiment of the invention, the free end of the support element has on its top side facing away from the retaining finger a chamfer which is formed by pressing down. This chamfer is used to effect that dirt is diverted and does not accumulate in front of the retaining device.

[0016] Further advantages, features and details of the invention result from the dependent claims and from the following description in which a preferred embodiment is described. Moreover the features shown in the drawing and mentioned in the description and in the claims may be essential for the invention severally or in any combination.

[0017] In the drawing is shown:

[0018] Figure 1 a cross section through the retaining device according to the invention;

[0019] Figure 2 a first retaining device of the prior art according to DE 195 08 298 C2;

[0020] Figure 3 a second retaining device according to the prior art, and

[0021] Figure 4 the retaining device according to Figure 1 in installed condition and inserted doctor blade.

[0022] Figures 2 and 3 each show a respective retaining device 10, as it became known from the prior art. The retaining device 10 includes an upper support element 12 and a lower component 14 having a U-shaped cross-section. One U-leg 16 of the component 14 is not only longer, but also substantially thicker than the other U-leg 18. The one U-leg 16 of the component 14 is permanently connected to the strip-shaped support element 12 through rivets 20 or equivalent

elements, such as screws 22. Both create in conjunction a scraper pocket 24 open to the right in the drawing, which accommodates the free end 28 of a scraper blade 30 facing away from a roller 26 (see Figure 4). The free end 28 may advantageously be provided with spring elements 32, formed for example as leaf springs or shackle springs, which are preferably supported on the bottom side of the strip-shaped support element 12 and thereby retain the scraper blade 30 without allowing movement. As can be clearly seen, the retaining device 10 is composed of a plurality of discrete elements, namely a support element 12, a component 14 and several rivets 20 or screws 22.

[0023] Figure 1 shows an exemplary embodiment of a retaining device 10 according to the invention with a support element 12 and a retaining finger 36 which are both formed from a single sheet-metal strip 38. The sheet-metal strip 38 is a bent sheet-metal part 40 having a uniform thickness and made for example of stainless steel. In a first section 42, the support element 12 and the retaining fingers 36 abut each other and are welded together at the transition 44 to a second section 46, e.g. by using a laser. The free end 48 of the leg 18 has a distance 50 to the support element 12, which has a precise dimension. This dimension is adjusted by a saw cut parallel to the support element 12 and between the support element 12 and the free end 48. It is also apparent, that apertures 52 and 54 (e.g. in the form of drilled holes) are provided in section 42, into which adjusting screws 56 and fastening screws 58 are inserted. With the fastening screws 58 the retaining device 10 is attached to a machine frame 60 and the retaining device 10 can be slightly tilted with the adjusting screws 56, whereby the doctor blade 30 can be matched, for example, to a camber of a roller 26.

[0024] Finally, it is also observable that the free end 62 of the support element 12 is provided with a chamfer 64 formed

by pressing. Moreover, it is ensured that the dirt scraped off by the doctor blade 30 is diverted. The squeezed edge 66 was finish-machined, for example by grinding, so that the retaining device 10 rests fully and flat on the machine frame 60.

KAPARÓPENGÉK TARTÁSÁRA SZOLGÁLÓ SZERKEZET

SZABADALMI IGÉNYPONTOK

1. Szerkezet (10) kaparópengék (30) tartására támasztótaggal (12) és egy kaparózsebbel (24) ellátott tartókarral (36), amely támasztótag (12) és tartókar (36) közé be van tolva a kaparópenge (30), továbbá a támasztótag (12) és a tartókar (36) egy darabban van kialakítva, azzal jellemezve, hogy a támasztótag (12) és a tartókar (36) egyetlen lemezhajlító alkatrészből (40) vannak kialakítva, hogy a lemezhajlító alkatrésznek (40) egyenletes a vastagsága, és a tartókar (36) a támasztótaggal (12) azon a területen, amelyen a tartókar (36) a támasztótagtól (12) elemelkedik vagy eltávolodik, össze van hegesztve, különösen lézerhegesztéssel van összehegesztve.

2. Az 1. igénypont szerinti szerkezet, azzal jellemezve, hogy a tartókar (36) rendelkezik egy szabad véggel (48), amelynek van egy távolsága (50) a támasztótagtól (12).

3. A 2. igénypont szerinti szerkezet, azzal jellemezve, hogy a távolság (50) nagysága meghatározott.

4. A 3. igénypont szerinti szerkezet, azzal jellemezve, hogy a távolság (50) nagysága egy, a támasztótag (12) síkjával párhuzamos fűrészvágással van beállítva.

5. Az előző igénypontok egyike szerinti szerkezet, azzal jellemezve, hogy a támasztótag (12) és a tartókar (36) el van látva nyílásokkal (52, 54) beállítócsavarok (56) és/vagy rögzítőcsavarok (58) befogadására.

6. Az előző igénypontok egyike szerinti szerkezet, azzal jellemezve, hogy a kaparópengével (30) ellentétes vég, amelyben a támasztótag (12) átmegy a tartókarba (36), utómegmunkáláson megy keresztül, és egy esetlegesen szétzúzott él (66) eltávolításra kerül.

7. Az előző igénypontok egyike szerinti szerkezet, azzal jellemezve, hogy a támasztótag (12) rendelkezik egy szabad véggel (62), amelynek a tartókartól (36) elfelé néző felületén egy ferde levágása (64) van.

8. A 7. igénypont szerinti szerkezet, azzal jellemezve, hogy a ferde levágás (64) összenyomással van előállítva.

9. Az előző igénypontok egyike szerinti szerkezet, azzal jellemezve, hogy a lemezhajlító alkatrész (40) 180°-kal meg van hajlítva.

(A meghatalmazott)

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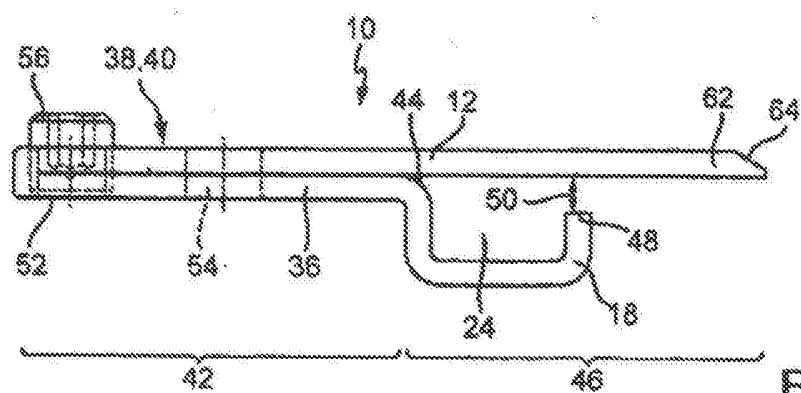


Fig. 1

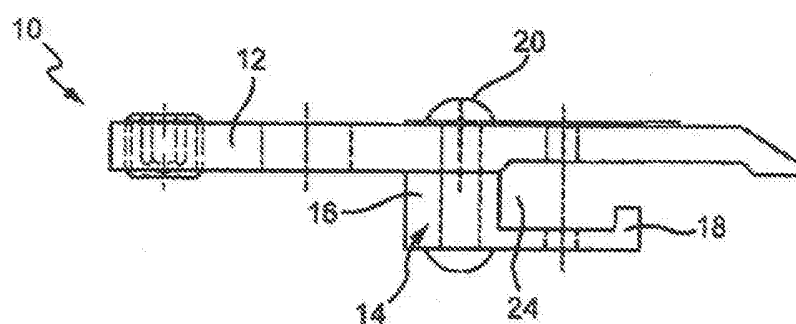


Fig. 2

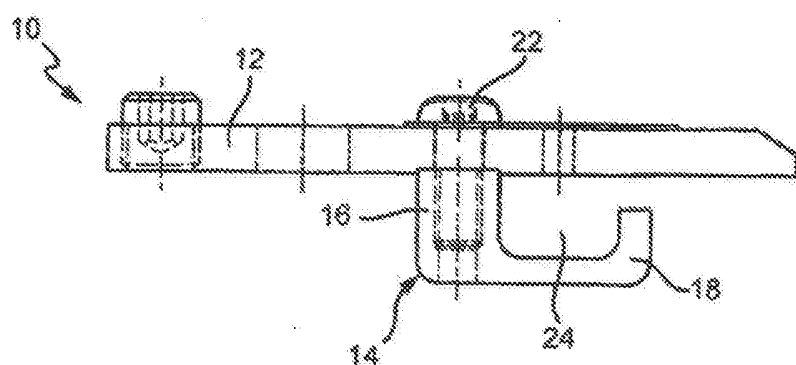


Fig. 3

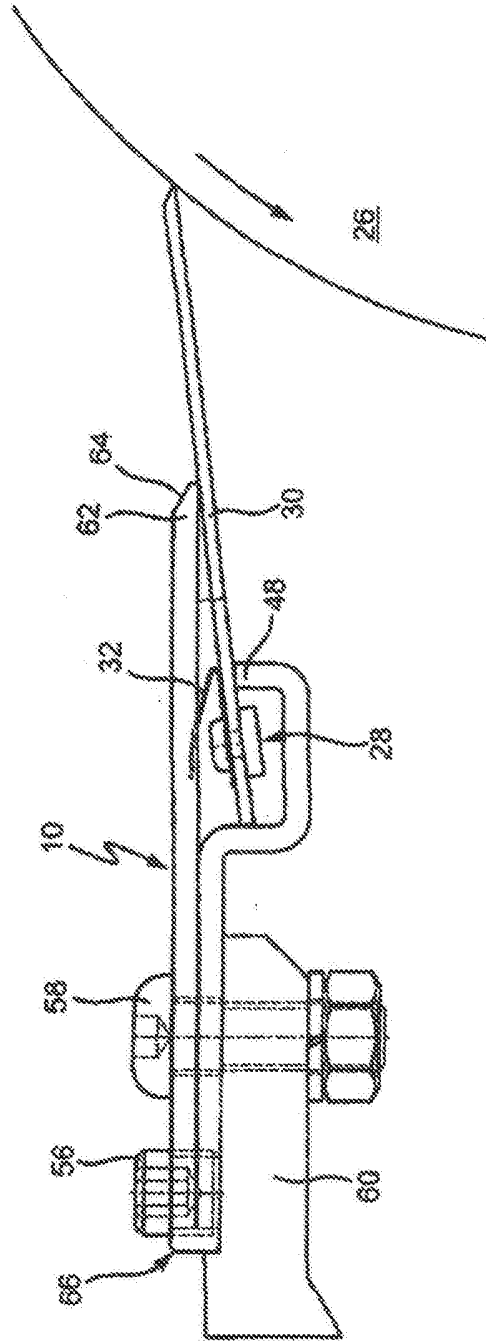


Fig. 4