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2,990,093

SHOE FOR A CATERPILLAR WITHDRAWING DEVICE

Filed Sept. 11, 1959

Fig. 1

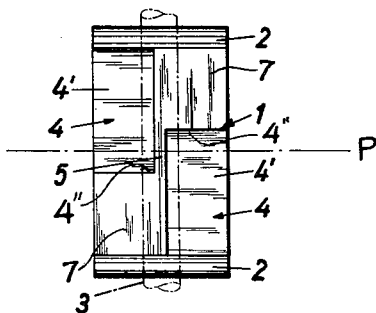


Fig. 2

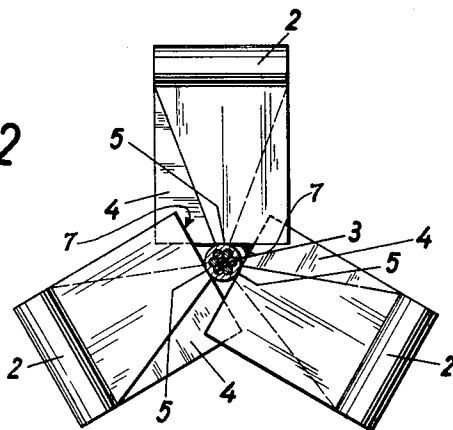
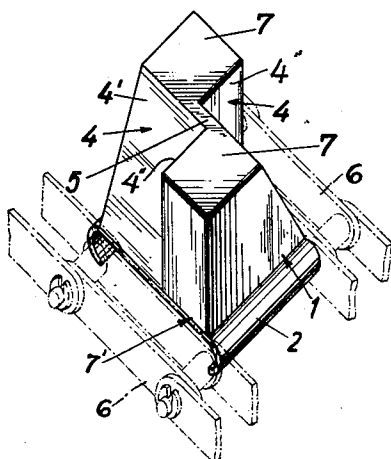


Fig. 3



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SHOE FOR A CATERPILLAR WITHDRAWING DEVICE

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3 Claims. (Cl. 226—200)

The present invention relates to caterpillar withdrawing devices for withdrawing strand material or the like from stranding machines and, more particularly, is directed to a shoe for such caterpillar withdrawing devices.

Such caterpillar withdrawing devices comprise two, three or more caterpillars with shoes arranged radially with regard to each other for grasping the strand material therebetween. Such shoes are preferably made of rubber. The greater the number of caterpillars in excess of two and the smaller the diameter of the strand material, the narrower will be the space available to the shoes for grasping the strand material. Therefore, it may happen that the shoes at the strand engaging surface are reduced to a narrow web or even a narrow edge. Such shoes, however, are not suitable for properly and safely grasping the strand material and exerting the necessary grasping pressure thereupon because the strand material will easily slip off from the narrow surface, particularly since due to the narrow cross section of the strand engaging surface of the shoes the pressure conveyed through said narrow section must be kept within relatively low limits.

It is, therefore, an object of the present invention to provide a shoe for a caterpillar withdrawing device having three or more caterpillars, which will overcome the above mentioned drawback.

It is another object of this invention to provide a shoe of the type set forth above for use in connection with a caterpillar withdrawing device having three or more caterpillars, which will make it possible firmly and safely to grasp also strand material of small diameter.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing, in which:

FIG. 1 is a top view of a shoe according to the invention when looking upon the strand engaging surface of said shoe.

FIG. 2 shows a cross section through a cable grasped by three shoes connected to three caterpillar chains offset with regard to each other by 120°.

FIG. 3 is a perspective view of a shoe according to the invention and also shows a portion of the chain carrying said shoe.

The shoe 1 according to the invention is characterized primarily in that the shoe which has a substantially rectangular cross section has two cut-outs 4 located diagonally opposite to each other. These cut-outs extend from the back or second end face 7' of the shoe, where it is connected to the caterpillar chain 6, at an incline toward a first end face or strand engaging surface 5, 7 of the shoe in such a way that a narrow web surface 5 is formed which extends to both sides of the central transverse plane P of the shoe and interconnects the diagonally oppositely located remaining strand engaging end surfaces of the shoe.

More specifically, the rear surface of the shoe, i.e. the surface which is provided with clasps 2 for connection with the chain 6 (FIG. 3) is of substantially rectangular contour. The shoe is provided with two cut-outs 4 located substantially diagonally with regard to each other. One surface 4' of each cut-out extends from the rear

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surface or second end face 7' at an incline toward the front surface or first end face 5, 7 of the shoe, i.e. the strand engaging surface, but both inclined surfaces 4' intersect the first end face 5, 7 in spaced relationship to each other so that a narrow web surface 5 remains which extends to both sides of the central transverse plane P of the shoe and interconnects the thus remaining front surface portions 7 of the shoe. The width of the web surface 5 will be selected in conformity with the diameter of the strand material to be handled by the shoes. It will be appreciated that the smaller the diameter of the strand material, such as a cable 3, will be, the farther the shoes must be moved radially toward each other, and the narrower will be the space for the strand material engaged by the web surface 5. The second surface 4'' of each cut-out is located in a transverse plane passing through the inner lateral end of inclined surface 4'.

As will also be evident from the drawing, the web formed by adjacent portions of the two oppositely located inclined surfaces 4' is narrow only within the immediate range of the web surface 5 and increases in thickness continuously toward the second end face 7' of the shoe so that considerable pressure will be withstood by the thus formed web and, consequently, considerable pressure can be conveyed through web surface 5 upon the strand or cable to be handled. In this way, it will be assured that the cable will not slip off from the shoe, even if the cable should not be located along the central transverse line of the web surface 5.

FIG. 2 clearly shows how the shoes 1 of the three caterpillars extend into each other. The play between the cut-outs 4 and those portions of the respective adjacent shoe which extend into said cut-outs is still sufficient to assure that also strand material of small diameter will properly be grasped by the shoes without said shoes interfering with each other. It is, of course self-understood that the strand or cable engaging surfaces 5, 7 of the three separate shoes are not offset in axial direction of the strand or cable but are located alongside the same transverse plane with regard to the strand or cable in order to be able to exert the necessary counter pressure to each other. This is made possible by the above mentioned cut-outs 4 in each shoe 1, or, expressing it differently, by the fact that a portion of each shoe enters a cut-out of the respective adjacent shoe.

It is advantageous exchangeably to connect the shoes to the caterpillar chains and to keep a stock of shoes of different dimensions, particularly of different width of the web surface 5, so that the caterpillar withdrawing device will be able to handle strand material of different diameters.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawing but also comprises any modifications within the scope of the appended claims. Thus, while the shoes according to the present invention are preferably made of rubber in which instance the clamps may be vulcanized thereto, it is, of course, also possible to make the shoes of other resilient material, for instance of plastics.

What I claim is:

1. A shoe for use in connection with the withdrawal of strand material from stranding and cable producing machines, which includes: a first end face forming a strand material engaging surface area, a second end face located opposite said first end face and having a larger area than said first end face, two inclined surfaces respectively arranged on opposite sides of said shoe and inclined toward each other while extending from diagonally opposite portions of said second end face to said first end face and intersecting said first end face in spaced

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relationship to each other, said inclined surfaces respectively extending from opposite sides of said shoe in the direction toward but ending and thus forming its inner lateral end in spaced relationship to the respective other side of said shoe while extending beyond that central plane of the shoe which extends in transverse direction thereof, and two additional surfaces respectively located in two planes transverse to said shoe and passing through the inner lateral end of said inclined surfaces whereby said shoe will be provided with diagonally oppositely located recesses and said first end face will be provided with a relatively narrow surface area for engagement with the strand material while the ends of said narrow surface area merge with wider surface areas located in said first

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end face and respectively extending to opposite sides of the shoe.

2. A shoe according to claim 1, in which said second end face has a substantially rectangular contour and is substantially parallel to said first end face.

3. A shoe according to claim 1, which includes means connected to said second end face for detachable connection with a chain.

References Cited in the file of this patent**UNITED STATES PATENTS**

1,759,105 Evans May 20, 1930