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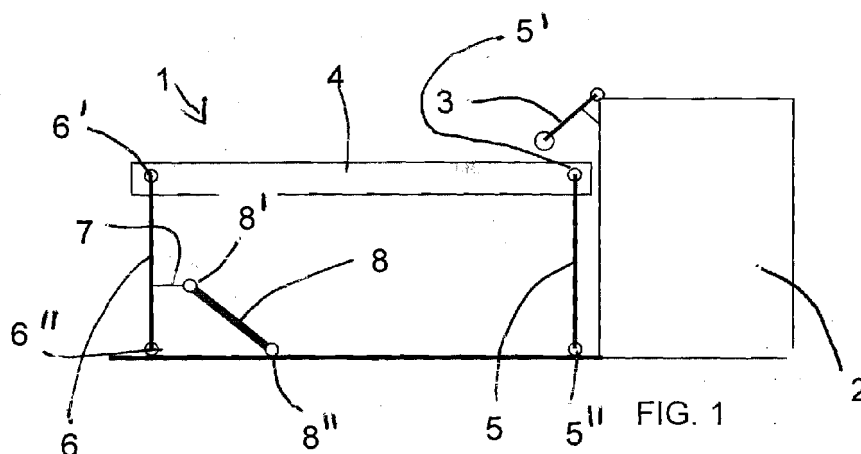
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(54) **Method and apparatus for firewood processor**

(57) The present invention concerns a method and device in a firewood processor. According to the inven-

tion, the feeding table (4) of the firewood processor (1) is of the type that can be lifted and lowered to ensure easy placement of the log (10) onto the feeding table.



Description

[0001] The present invention concerns a method and an apparatus in a firewood processor that is designed for making firewood out of logs.

[0002] It is known that the wood burnt in fireplaces, firewood, is made from limbed logs with different types of firewood processors made for the purpose. To produce firewood, logs of various thickness are used and the firewood is usually made with firewood processors that have a feeding table on which the log to be processed is set and fed for cutting, either by hand or by a mechanism integrated to the feeding table that usually operates hydraulically. The cutting process is usually performed with a chainsaw that cuts the log with a downward motion. Usually the log to be cut is lifted onto the feeding table either physically by the operator of the processor or by a separate wood lifter that is attached to the firewood processor.

[0003] Because the logs that are cut can be quite heavy, it is clear that the physical strength of one person is not always adequate to lift the log. In that case, people often resort to using all sorts of ancillaries, such as levers, that are not only difficult but also dangerous to use. The risk of accidents is strongly present in such scenarios. When handling heavy loads, also direct physical muscle and other such injuries are common.

[0004] When separate additional lifters are used with a firewood processor, it is clear that at least part of the injuries can be prevented. However, separate lifters are accessories that clearly raise the price of a firewood processor. Naturally, it is desirable to avoid additional parts that raise the price of a processor.

[0005] The purpose of this invention is thus to avoid the disadvantages associated with the state of the art, and to provide a method and device that can be used to provide smooth and safe performance in a firewood processor without extra costs.

[0006] The previously mentioned and other benefits and advantages of this invention have been made possible as characterized in the enclosed patent claims.

[0007] The invention is described in more detail as follows by reference to the enclosed drawings showing the operation of the method and device according to the invention in a simplified manner in a series of four pictures.

Figure 1 represents a simplified picture of the structure of the firewood processor in a side view and in its regular storing position without wood;

Figure 2 represents the same processor in a position where the sawed log is taken onto the feeding table;

Figure 3 for its part represents a situation where the log has been positioned on the feeding table; and

in Figure 4, the log is in position for cutting and the apparatus is ready to be operated.

[0008] In figure 1, all the essential parts of the invention are shown. A method according to the invention is disclosed along with the description of the device. Device 1 comprises the means for cutting and splitting a log within the framework marked with reference number 2. More detailed description has been left out because cutting and splitting are conventional technology that is commonly used in devices in the relevant art.

[0009] The feeding table referred to by reference number 4 is an essential factor from the point of view of the invention. To be able to cut the log of the tree into desired lengths, the device has to include a feeding table, which in the solutions according to prior art is a fixed construction onto which the piece of wood is brought in one way or another.

[0010] In contrast to the fixed feeding table construction of the prior art, the feeding table 4 according to the invention has been supported with rods 5 and 6. Rods 5 and 6 have been pivotally joined to the frame 5', 6" of the processor and to the feeding table 5' and 6'. Feeding table 4, rods 5 and 6 and the lower part of the frame form essentially a parallelogram.

[0011] In a known manner, the parallelogram formed by the points 5', 5", 6' and 6" can change its shape freely as illustrated by the figures 2 and 3. It is possible to deduce from the picture that the parallelogram is equilateral i.e. the rods 5 and 6 are essentially equal in length. If required, for example, that the feeding table be left slightly slanted in the situation illustrated by the figure 2, it can be easily done by varying the lengths of the rods 5 and 6. It should be noted that depending on the construction, the rods can be set on only one side of the feeding table, or if so required, one on each side.

[0012] The movement of the feeding table 4 is controlled preferably with a hydraulically operated cylinder 8. The cylinder 8 is attached to the frame of the device at its lower end via an articulating joint 8" and at its upper end to the end of the intermediate rod 7 that is connected to the rod 6 via an articulating joint 8'. There can be a single cylinder 8, or if required two separate cylinders can be used.

[0013] The process starts from the initial position illustrated by figure 1 with lowering the feeding table into the position illustrated by figure 2. This is done by using the hydraulic cylinder 8, that when extended moves the table 4 in the figures from right to left by the length of the rods 5 and 6 and at the same time lowers it onto the level of the underlying base. The extension of the cylinder 8 is illustrated by the protruding rod 9 of the hydraulic cylinder piston in the figure 2. Now the feeding table is on the level of the base and moving the log 10 onto the cutting table to be cut is an easy task.

[0014] The next step is reversed compared to the step described above. By using the hydraulic cylinder 8, the feeding table is lifted to the working height so that the log 10 can be moved on towards the sawing point 2 either manually or using existing means.

[0015] A noteworthy point that has not been discussed

previously is the device 3 that is a rod 3 that is made for the purpose of automatically pressing the log 10 and thus holding it in place. The rod 3 can be for example spring loaded and provided with a suitable mechanism, for example roller 3', at the end that touches the log. When the feeding table with the log on it is lifted to working height, the rod 3 engages the upper surface of the log 10 close to the top position of the table 4, holding the log in place.

[0016] It is clear that the actuator, meaning the hydraulic cylinder 8, can be attached directly to the feeding table 4 instead of attaching it to the rod 6. Its mode of operation is nevertheless identical to that in the disclosed solution.

[0017] According to the invention, the problem that has troubled the prior art can be solved in a practical and sufficiently simple and economical manner. The solution is also particularly useful from the point of view of work ergonomics.

[0018] A device according to the invention can be made of materials that are generally available and affordable. Dimensioning and material choices are made in accordance with the particular implementations.

[0019] It is clear, that the simplified solutions provided above can be achieved in several different ways that fall under the scope of protection of the enclosed patent claims and the basic idea behind the invention.

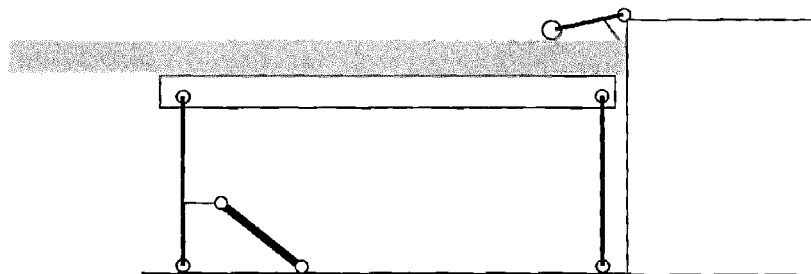
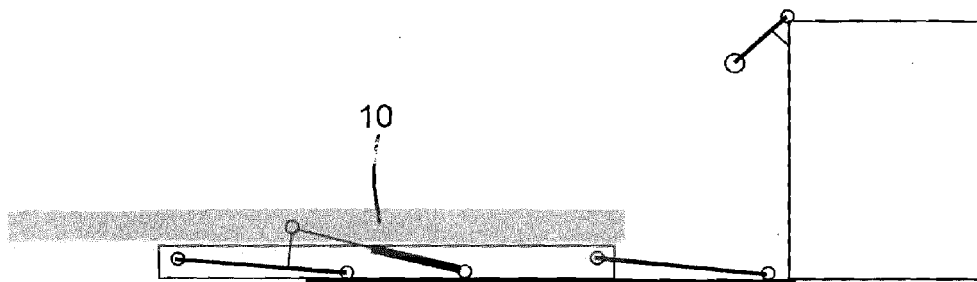
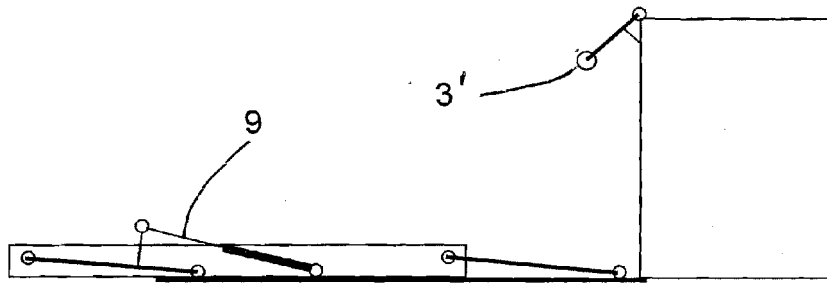
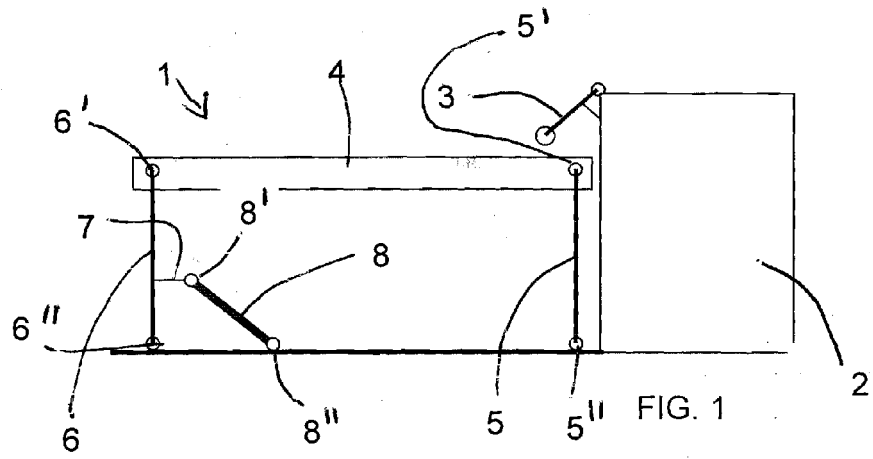
6. A device according to claim 5, **characterized in that** the actuator is a hydraulic cylinder (8) that is attached to the rod/rods (5, 6) or to the feeding table (4)

5 7. A device according to claim 5, **characterized in that** the rods (5, 6) together with the feeding table and frame of the processor essentially form a parallelogram.

10 8. A device according to any of the preceding claims 4-7, **characterized in that** it includes a pressing rod (3) that automatically supports the log (10) when the feeding table is in its working position.

Claims

1. A method for handling cut logs in a firewood processor (1), that comprises a feeding table (4) and means (2) to cut/split a log (10), **characterized in that** the feeding table (4) is essentially lowered to the level of the underlying base, the cut log (10) is moved onto the feeding table (4) and the feeding table is lifted to a working height for further processing of the log. 30 35
2. A method according to claim 1, **characterized in that** the feeding table (4) is provided with joint-equipped rods (5, 6) that connect it to the frame of the processor. 40
3. A method according to claim 1, **characterized in that** the feeding table (4) is lifted and lowered using a hydraulic cylinder (8). 45
4. A device for processing logs to be cut in a firewood processor (1), that comprises a feeding table (4) and means (2) for cutting/splitting a log (10), **characterized in that** the device comprises means (5, 6, 8) to lower the feeding table (4) essentially to the level of the base and to lift it to a working height for further processing of the log. 50
5. A device according to claim 4, **characterized in that** the means comprise of pivotally articulated rods (5, 6) connecting the feeding table (4) and the frame of the processor; and an actuator (8). 55





EUROPEAN SEARCH REPORT

Application Number
EP 13 39 7527

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 2 386 392 A2 (REIKAELEVY OY [FI]) 16 November 2011 (2011-11-16) * paragraphs [0001], [0008], [0009]; figures *	1-8	INV. B27L7/00
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X	----- DE 20 2008 004461 U1 (SCHWARZ ALOIS [DE]) 24 December 2008 (2008-12-24) * the whole document *	1,4	
			TECHNICAL FIELDS SEARCHED (IPC)
			B27L
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 October 2013	Examiner Garella, Mario
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 13 39 7527

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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29-10-2013

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