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(72) Inventor: **Fochesato, Edoardo**
37035 San Giovanni Ilarione (VR) (IT)

(74) Representative: **Savi, Alberto**
c/o CON LOR SPA,
Via Amatore Sciesa, 9
37122 Verona (IT)

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(71) Applicant: **FOX s.a.s. di Fochesato Edoardo &C.**
37030 Montecchia di Crosara (Verona) (IT)

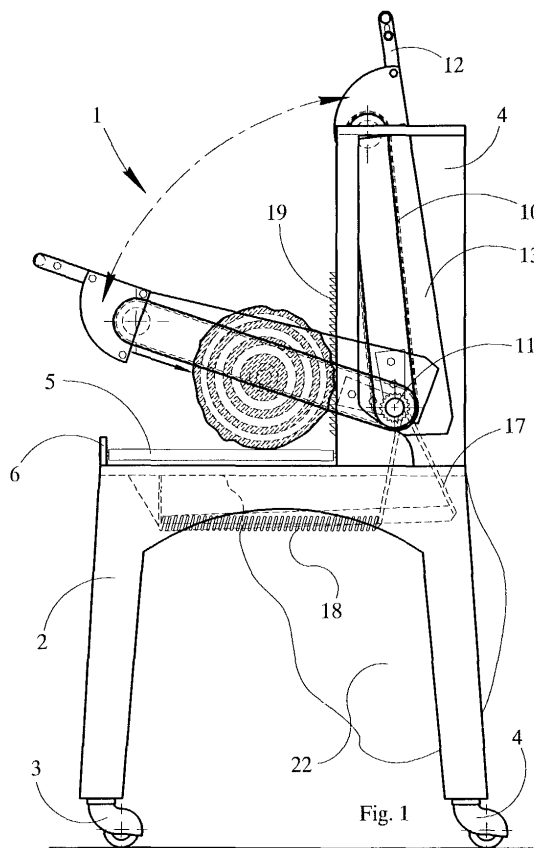
(54) **Electric chain type cutting-off bench-machine for the dissection of wood trunks or the like**

(57) The present cutting-off machine permits to cut off wood pieces such as tree trunks, logs or the like in a very quick, practical manner. Till now, this operation has been performed by utilizing less suitable tools which involve several difficulties.

In general, the cutting-off machine according to the present invention consists of a base (2) which rests on castors (3) and a top on which wood pieces are laid and fed.

In addition, there is provided a vertical support (4) which includes a cutting unit.

The cutting unit comprises a chain type tool (10) which is pivoted on a driving shaft (11) in the lower part and extends upwards to a handle (12) which is provided with driving means.



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Description

[0001] The present invention proposes an electric chain type cutting-off bench-machine for the dissection of wood trunks, logs or the like. In particular, this bench-machine is designed for a domestic and agricultural use, for instance to cut firewood or other.

[0002] The cutting-off machine in question permits to cut off wood pieces such as tree trunks, logs or the like in a very quick, practical manner. Till now, this operation has been performed by utilizing less suitable tools which involve several difficulties.

[0003] The present invention offers the important advantage of facilitating the cutting of wood pieces. Thus, the work of the wood-cutter becomes much easier.

[0004] As is known, in many operative fields and activities there exists the necessity of cutting off or dissecting wood pieces, for instance trunks, beams, poles, trees etc.

[0005] For instance, there are many domestic or agricultural uses such as the cutting of firewood. In building sites it is often necessary to cut beams or poles so as to bring them to the wished size for ceilings or floorings. In carpenters workshops or related workshops it is necessary to reduce trunks, trees, poles or other to a certain size.

[0006] In all the above-mentioned cases, the users must utilize quite empirical tools, for instance portable cutting tools which are ineffective when there is a great quantity of work to be done or the wood pieces to be cut are very great.

[0007] In these cases, it is better to make use of cutting tools of the bench type such as the circular saws.

[0008] However, as is known the aforesaid equipments are very dangerous because the cutting tool projects upwards from the table plane and can provoke a throwing of wood fragments or much more dangerous effects in case a person should get in touch with the saw blade.

[0009] The aim of the present invention is to conceive and carry out an equipment which eliminates or at least reduces the aforesaid drawbacks by utilizing an electric chain type cutting-off bench-machine for the dissection of trunks, logs or the like, which equipment is structured to dissect wood trunks, logs or the like of any diameter and is realized with accident-proof principles.

[0010] The first important advantage of the present invention consists in utilizing a very functional cutting-off equipment which fits to any need in the field of the dissection of trunks, beams or trees of any diameter.

[0011] The aforesaid functional equipment can be used in many activities and operative fields and is provided with a versatile, complete tool which offers the advantage of a complete safety as concerns the accidents.

[0012] Any of the above described specific aims, advantages and functions is achieved according to the present invention through an electric chain type cutting-off bench-machine for the dissection of wood trunks,

logs or the like, characterized by the fact of consisting of a bench which rests on directional castors or the like and comprises a top on which wood pieces to be cut off are laid and fed on rollers and a vertical support which includes a cutting unit which comprises a chain type tool which is pivoted on a driving shaft in the lower part and extends upwards to a handle which is provided with driving means.

[0013] The present equipment is utilized as follows:

Wood pieces are positioned on the working roller plane. Then, the cutting-off tool is gradually lowered on the wood piece according to an angular rotation so that the wood piece can be cut off.

Further features and details of the present invention can be better understood from the following specification which is given as a non-limiting example on the hand of the accompanying drawing wherein:

- Fig. 1 shows a schematic side view of the chain cutting-off equipment according to the present invention as a whole;
- Fig. 2 shows a schematic front view of the electric chain type cutting-off bench-machine according to the invention from which it appears the motor unit and the trunk supporting unit.

[0014] With reference to the accompanying drawing, number 1 denotes a cutting equipment as a whole according to the present invention for the dissection of trunks, logs or the like, which equipment is structured to dissect wood logs, trunks or the like of any diameter and is realized with anti-accident principles.

[0015] The cutting equipment 1 is formed by a base 2 which rests on castors 3, a surface on which wood pieces are laid and fed and a vertical support 4 which includes the cutting unit.

[0016] The surface for the support and translation of the wood pieces comprises a series of horizontal, parallel rollers 5 which are arranged between a fore profile 6 and the vertical support 4.

[0017] At a side of the machine there is provided an extension device 7 with roller 8. This extension is used when the trunk to be dissected is longer than the bench surface. The extension device 7 is mounted on a horizontal extractable shaft 9.

[0018] The vertical support 4 includes a cutting unit which comprises a chain type tool 10 which is pivoted on a driving shaft 11 in the lower part and extends upwards to a handle 12 which is provided with driving means.

[0019] More precisely, the cutting tool consists of a chain which is provided with sharp teeth. The chain is arranged between pulleys, a first pulley being mounted on the driving shaft 11, the second pulley being mounted on the end of a support 13. The support 13 rotates angularly around the same axis of the shaft 11 which acts therefore as a fulcrum.

[0020] A handle 12 is fixed on the free end of the support 13 and comprises a fixed grip element 14 as well as a movable element 15. The movable element 15 sets in motion a connecting rod which is connected with the driving means of the chain tool.

[0021] Thus, the chain tool is set in motion by the shaft 11 through a motor 16 and suitable belt transmissions and relevant pulleys.

[0022] The cutting-off unit 10 can effect angular displacements around the axis of the shaft 11 but it is then returned to its upward position by a lower tie rod 17 which is kept in tension by a lower spring 18.

[0023] The equipment is provided with anti-rotation toothed bars 19 which are arranged vertically on the fore surface of the support 4. These toothed bars 19 prevent the trunks from rotating during the cutting phase.

[0024] There is provided a control device 20 which operates an electronic switchboard and the safety components thereof. In addition, there is provided a lubricant tank 21 because a lubricant is necessary to always keep the chain and the actuating components thereof lubricated.

[0025] Finally, a sack 22 is positioned in the lower part of the bench to gather and contain sawdust and cutting residues falling from upper part and cutting chain.

[0026] In order to use the so-described cutting device it is sufficient to position a tree trunk on the rollers 5. If necessary, the extension 7 can be extracted. Then, the button of the control device 20 is pressed to actuate the device itself and the handle 12 is gripped with a hand so as to swing the cutting tool downwards against the thrust of a spring 18.

[0027] The rotary motion of the chain is controlled through the actuating bar 15 which must be always kept in tension during the cutting phase in order to satisfy the anti-accident principles.

[0028] Once the cutting phase is concluded, the tool is released, the rotation of the cutting chain stops and the chain returns to its upward position in antagonism with the spring 18.

[0029] As an advantage, the chain 10 is provided with an essentially C-shaped protection in order to prevent the user hands from coming in touch with the chain itself. This protection is so arranged that it rises only when the tool penetrates the wood piece during the cutting phase.

[0030] As can be noted, the present cutting equipment offers the important advantage of facilitating the dissection of wood pieces so that the work of the users is made easier.

[0031] A skilled artisan of this field can make changes and variants in the so-described equipment and obtain solutions which are to be considered as included in the scope of protection of the present invention as defined by the following claims.

Claims

1. Electric chain type cutting-off bench-machine, **characterized in that** for consisting of a bench (1) which rests on directional castors (3) or the like and comprising a top on which wood pieces to be cut are laid and fed on rollers (5) and a vertical support (4) which includes a cutting unit which comprises a chain type tool (10) which is pivoted on a driving shaft (11) in the lower part and extends upwards to a handle (12) which is provided with driving means.
2. Electric chain type cutting-off bench-machine as claimed in the foregoing claim, **characterized in that** the said cutting chain type tool (10) includes means permitting an angular swinging thereof in respect to the driving shaft (11) around which the tool is pivoted.
3. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** the surface for the support and translation of the wood pieces comprises a series of horizontal, parallel rollers (5) which are arranged between a fore profile (6) and the vertical support (4).
4. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** at a side of the machine there is provided and extension device (7) with roller (8), which extension is used when the trunk to be dissected is longer than the bench surface, the extension device being mounted on a horizontal extractable shaft (9).
5. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** the cutting tool consists of a chain which is provided with sharp teeth, the chain being arranged between two pulleys, a first pulley being mounted on the driving shaft (11) and a second pulley being mounted on the end of a support (13), which support can rotate angularly around the same axis of the shaft (11) acting as a fulcrum.
6. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** a handle (12) is fixed on the free end of the support (13) and comprises a fixed grip element (14) as well as a movable element (15) which sets in motion a tie rod which is connected with the driving means of the chain tool, which is set in motion by the shaft (11) through a motor (16) and suitable belt transmissions and relevant pulleys.
7. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** the cutting unit (10) can effect angular displacements around the axis of the shaft (11) but it

is then returned to its upward position by a lower connecting rod (17) which is kept in tension by a lower spring (18).

8. Electric chain type cutting-off bench-machine as claimed in the foregoing claims, **characterized in that** the equipment is provided with anti-rotation toothed bars (19) which are arranged vertically on the fore surface of the support (4), which toothed bars (19) prevent the trunks from rotating during the cutting phase, there being provided a control device (20) which operates an electronic switchboard and the safety components thereof, there being provided a lubricant tank (21) which is necessary to always keep the chain and the actuating components thereof lubricated.

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