

[54] PORTABLE OVERHEAD POST AND RAIL SPLITTER

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[58] Field of Search 144/193 R, 193 A, 193 K, 144/34 R, 3 D, 309 R, 326 R, 323, 193 D, 193 E, 193 F, 320, 321; 254/104; 81/52.3

[56] **References Cited**

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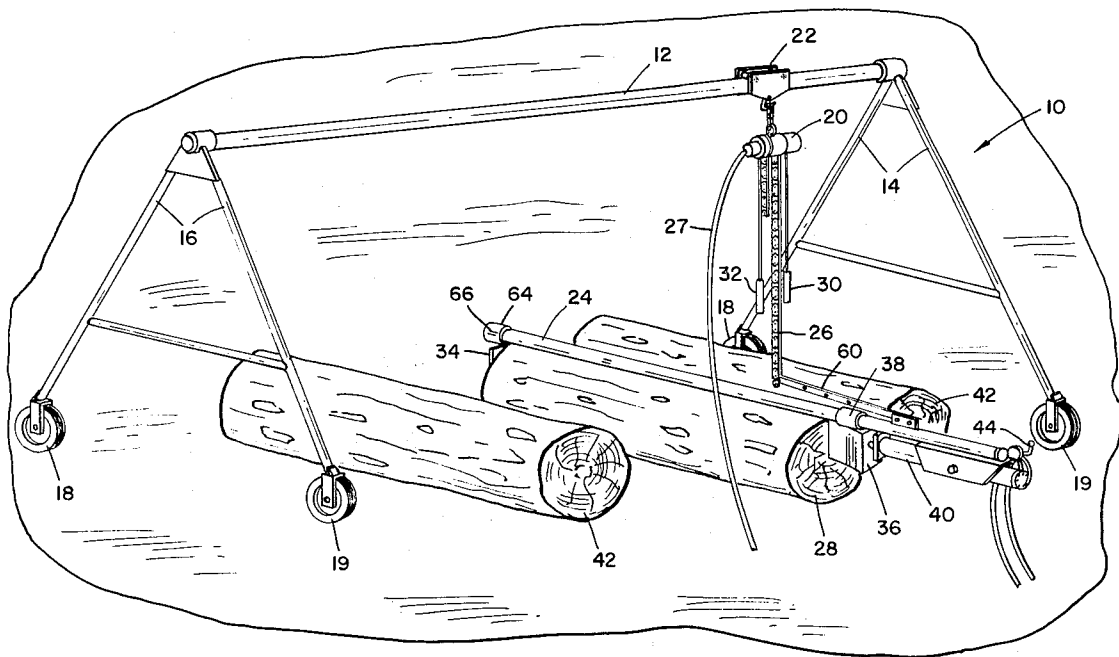
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Primary Examiner—Andrew R. Juhasz
 Assistant Examiner—W. D. Bray
 Attorney, Agent, or Firm—Townsend and Townsend

[57] **ABSTRACT**

Apparatus which can be used to split logs lying on the ground into posts and rails of a desired size is disclosed. The apparatus includes an overhead track mounted on a mobile carriage. A horizontal beam is suspended from a hoist which moves along the overhead track so that the beam can be lowered into position over a particular log to be split. The beam has a depending plate near one end and a depending blade near the other end so that the log to be split is disposed between the plate and the blade. The blade is attached to a sleeve which fits over the beam so that the blade can slide along the beam. A hydraulic actuator is used to force the blade into the log while the plate prevents movement of the log to split the log along the grain thereof.

12 Claims, 3 Drawing Figures



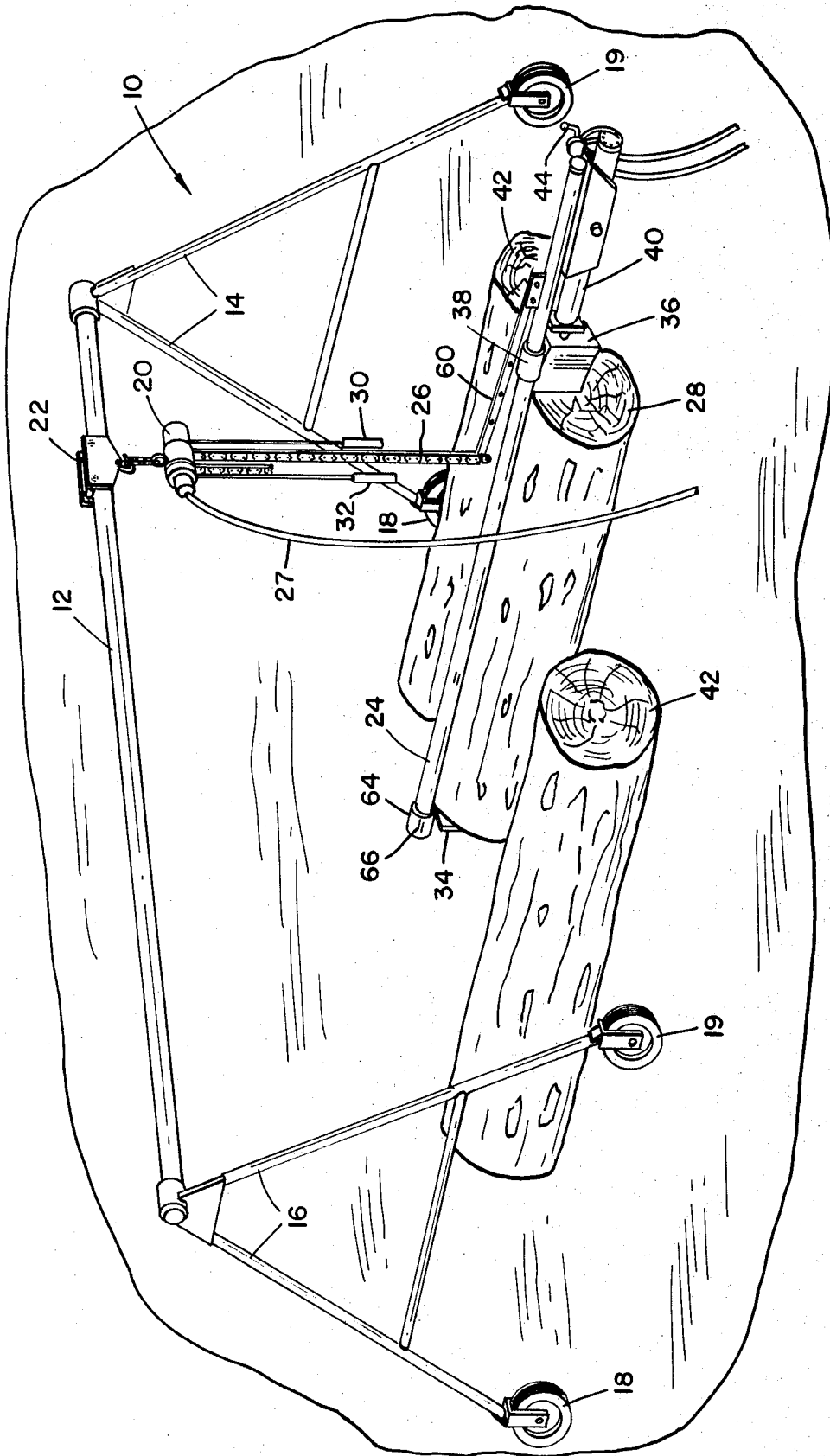
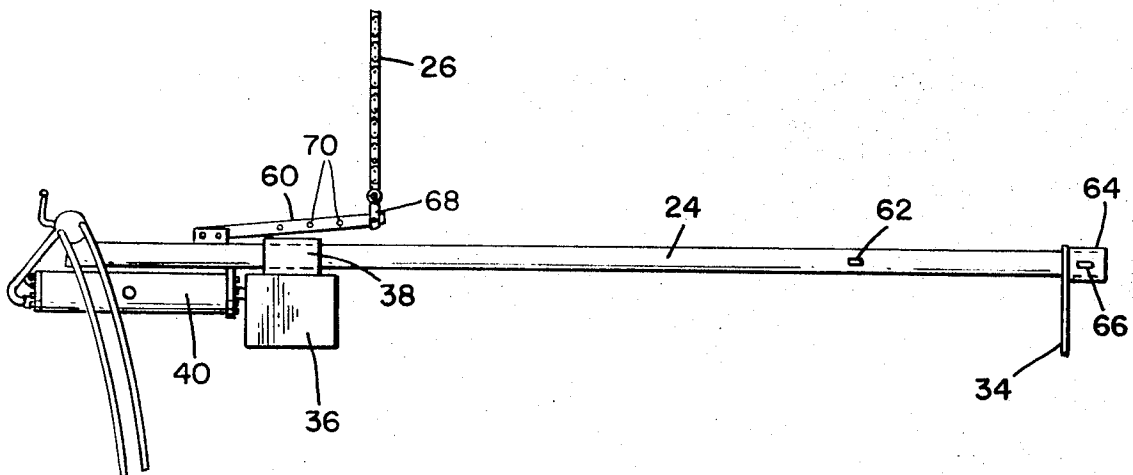
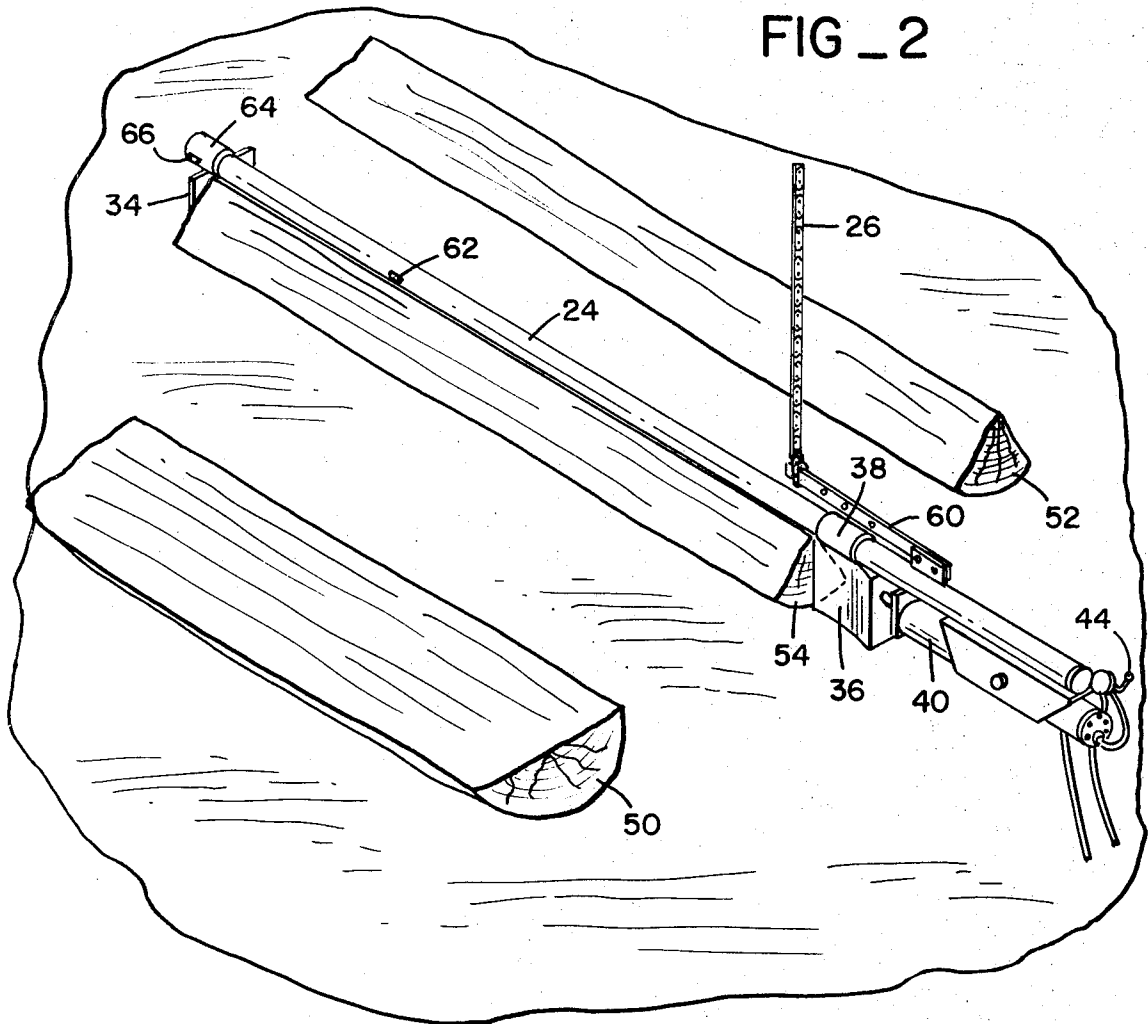


FIG - 1

FIG_2



FIG_3

PORTABLE OVERHEAD POST AND RAIL SPLITTER

BACKGROUND OF THE INVENTION

The present invention relates to post and rail splitters, and in particular to an overhead post and rail splitter which is adapted to split logs lying on the ground.

In the cutting of timber for fence posts and rails, it is customary to saw the timber into logs of the appropriate length, and then to split the logs into sections to form the desired rails and posts. It is not necessary to saw the logs themselves into rails and posts since exact uniformity is not required, and merely splitting the logs to the desired size is sufficient. The customary manner of splitting such logs has been to manually drive a wedge into the log with a large hammer. This is a very time-consuming and back-breaking task involving substantial labor costs and effort, but mechanical devices for splitting such logs have not achieved general acceptance.

A wide variety of mechanical log splitters are illustrated in prior art patents, examples being the patent to Bles, U.S. Pat. No. 3,319,675, the patent to Spanenberg, U.S. Pat. No. 3,280,864. However, these and other log splitters found in the prior art have one common feature, namely, the log must be lifted onto a bed or trough before it can be split. Such splitters are quite commonly used for splitting relatively short logs, approximately two feet in length, into firewood. However, the logs used to make posts and rails are 7 or 10 feet long and up to 6 feet in diameter, and lifting logs of this size into the bed is quite difficult and also dangerous. As a result, such devices are not commonly used to make posts and rails, and the traditional method of manually driving a wedge with a large hammer is still customary practice in the industry.

An object of the present invention is to provide an overhead log splitter which can be used to split logs which are lying on the ground. For this purpose, a horizontal beam is provided which can be lowered over the log to be split. The beam is suspended from a hoist which rides along an overhead track. The overhead track is supported at each end by a mobile carriage so that the track is portable and can be positioned over the logs on the ground. The beam has a depending end plate near one end and a depending blade near the other end so that the log to be split is disposed between the plate and the blade when the beam is lowered over the log. The blade is slideable along the beam, and a hydraulic actuator, also depending from the beam, acts to force the blade into the log while the end plate prevents movement thereof to split the log.

An advantage of the overhead rail and post splitter provided by the present invention is that the logs need not be lifted by means of a fork lift or other specialized equipment into the bed of a mechanical log splitter as required in the prior art. Rather, the logs can merely be dragged by a tractor underneath the overhead track of the present invention, and the beam lowered over the log. Logs of virtually any size can be split, and the larger logs make the best post and rails. The present invention can thus be used with available logging equipment, and represents a practical alternative to splitting the logs by hand. The requirement that the logs be lifted, which rendered prior mechanical splitters im-

practical, is completely eliminated by the present invention.

In using the present invention, several logs can be dragged beneath the overhead track at the same time, and the beam moved along the track to split each log in turn. Also, the mobile carriage itself can be moved to place the overhead track in position over the logs so that the logs themselves need not be moved. The mobile carriage of the present invention includes spaced legs mounted on the respective ends of the overhead track so that the track can be placed over a row of logs and each of the logs split in turn.

Another advantage of the present invention results when the log is initially split. The two calves of the log can be allowed to roll apart so that each half of the log is now located underneath the overhead track. The beam can then be moved along the overhead track and placed in position over each half log in turn to further split the logs. This process can be repeated until the log has been split into posts or rails of the desired size. In prior art devices, once the log had been initially split, one of the half logs would have to be removed so that the other half could be split. As each splitting operation took place, half of the split log or log section would have to be removed so that the other section could be further split. With the present invention, however, as each log section is split the halves separate so that they are in position to be further split.

The novel features which are believed to be characteristic of the invention, both as to organization and method of operation, together with further objects and advantages thereof will be better understood from the following description considered in connection with the accompanying drawings in which a preferred embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the overhead post and rail splitter of the present invention illustrating the splitting mechanism lowered into position for splitting a log;

FIG. 2 is a perspective view of the splitting mechanism of the present invention illustrating an intermediate step in the splitting of the log;

FIG. 3 is a side elevation view of the splitting mechanism of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The overhead post and rail splitter 10 of the present invention is illustrated generally by way of reference to FIG. 1. Overhead splitter 10 includes an overhead track 12 supported at each end by depending legs 14 and 16. Legs 14, 16 each have fore and aft wheels 18, 19 so that the overhead track 12 is portable. Legs 14, 16 are preferably of the A-frame construction illustrated with both forwardly and aftwardly directed members to provide a stable carriage for overhead track 12.

A hoist 20 depends from a wheeled carriage 22 which rolls along overhead track 12 so that the hoist can easily be moved along the track. A beam 24 is suspended in a substantially horizontal position by the chain 26

from hoist 20. Hoist 20 can be pneumatic or electric and power is supplied by cord or line 27. In order to conveniently operate the hoist as the beam 24 is being lowered over a log 28 to be split, hoist 20 is controlled by means of depending lines 30 and 32.

Beam 24 has a depending plate 34 adjacent one end adapted to abut one end of the log 28 to be split. Plate 34 is moveable along beam 28 to adjust to logs of different lengths, as will hereinafter be more fully illustrated. A wedge-shaped splitting blade 36 is located adjacent the other end of beam 24. Splitting blade 36 is suspended from beam 24 by means of a sleeve 38 which is slideable along the beam. A hydraulic actuator 40 of a type known in the art is utilized to force splitting blade 36 along the beam in the direction of plate 34 to split the log 28 disposed therebetween.

Since overhead track 12 is supported on a mobile carriage comprising legs 14 and 16, the entire apparatus 10 can be moved into position over a plurality of logs as illustrated in FIG. 1. The logs can be lying on the ground, or a cement slab or other planar surface. Alternatively, overhead track 12 can remain immobile and logs 28, 42 dragged underneath the track by means of a tractor. Relatively small logs 28, 42 are illustrated, but larger logs, up to 6 feet in diameter, are preferred for making posts and rails, and these logs can be split with ease with the present invention. Since it is customary logging procedure to move logs of this size by means of a tractor, the latter method does not require specialized equipment for the placement of such logs in position to be split. The tractor can then be used as a source of energy for actuator 40. Controls 44 for the actuator are located on the end of actuator 40 so that the operator can simultaneously control splitting blade 36 but is not endangered by the log as it is split.

An intermediate step in the splitting of a log into posts or rails is illustrated by way of reference to FIG. 2. The log has been split into sections 50, 52 and 54. When the log is initially split in half, the halves will tend to roll away from each other so that each half comes to rest with the flat side up as illustrated by half 50. Furthermore, when the half log is split, the quarter sections also roll away from each other with the apex of each section 52, 54 in a vertical position. In this manner, splitting the log on the flat surface of the ground allows the log sections to automatically separate themselves and be in position to be further split. Hence, as an entire log is being split into multiple small sections, there is no requirement to move any of the individual sections of the log. Rather, beam 24 can be moved along overhead track 12 into position over each log section 50, 52, 54 for further splitting of each section.

The configuration of the splitting mechanism itself is illustrated by way of reference to FIG. 3. Beam 24 is suspended in the horizontal position by means of chain 26 from the hoist (not visible). To allow free movement of sleeve 38 supporting splitting blade 36 along beam 24, chain 26 is attached to beam 24 by means of an arm 60. Arm 60 is attached to beam 24 adjacent hydraulic actuator 40 which is immovable along the beam.

Timber to be used in making posts and rails is ordinarily cut into either 7 foot lengths for making posts or 10 foot lengths for making rails. Hence, the length of beam 24 is such that the distance between the tip of splitting blade 36 prior to actuation and plate 34 at the end of beam 24 is slightly greater than ten feet. In order to adapt the beam for splitting seven foot logs into

posts, plate 34 can be moved along beam 24 to station 62 at which a hole is provided in the beam. Plate 34 depends from a sleeve 64 which is moveable along beam 24. Sleeve 64 has an aperture 66 corresponding to holes in the beam at the end of the beam and at station 62 so that the plate 34 can be fixed in either position. While logs other than either seven feet or ten feet are unusual in making posts and rails, it is apparent that beam 24 can readily be adapted to logs of different lengths by simply providing more stations at which the end plate 34 can be fixed or lengthening the beam. Movement of the end plate 34 along the beam is compensated by moving clevis 68 at the end of chain 26 into engagement with the appropriate aperture 70 in arm 60 to maintain the horizontal balance of the beam.

In operation, either the overhead track 12 can be moved over the logs to be split or the logs can be dragged underneath the track. Hoist 20 can be moved along track 12 until the beam 24 is in position above the log to be split. Beam 24 is then lowered over the log so that the log is disposed between end plate 34 and splitting blade 36. Hydraulic actuator 40 is then activated to force splitting blade 36 in the direction of end plate 34. Splitting blade 36 is wedge-shaped so that movement of the blade partially into the log will split the entire log. As the log is split into sections, the sections will roll apart as discussed above so that each section may be further split in turn.

While a preferred embodiment of the invention has been illustrated in detail, it is apparent that modifications and adaptations of that embodiment will occur to those skilled in the art. However, it is to be expressly understood that such modifications and adaptations are within the spirit and scope of the present invention as set forth in the following claims.

What is claimed is:

1. Apparatus for splitting logs which are lying on the ground or other planar support, said apparatus comprising:

a beam adapted to be placed over a log to be split; means for suspending the beam in a substantially horizontal position, said suspending means operable to lower said beam to place the beam over the log to be split; a downwardly projecting plate adjacent one end of the beam and adapted to abut one end of the log to be split; a splitting blade slideably mounted on the underside of the beam adjacent the other end so that the log to be split is disposed between the blade and the plate; and means for forcing the blade along the beam in the direction of the plate to split the log disposed therebetween.

2. Apparatus as recited in claim 1 wherein the means for suspending the beam comprises an overhead track, and a hoist moveable along said track and suspended therefrom, said hoist having a depending chain connected to the beam adjacent the center of gravity of said beam and adapted to controllably move said beam in a vertical direction to lower said beam over the log to be split.

3. Apparatus as recited in claim 2 wherein the overhead track is mounted on a mobile carriage.

4. Apparatus as recited in claim 1 wherein the means for forcing the blade along the beam comprises a hydraulic actuator depending from said beam and adapted to force the blade in the direction of the plate.

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5. Apparatus as recited in claim 1 wherein the position of the plate along the beam adjacent said one end is adjustable to adjust the spacing between said plate and the splitting blade to logs of different lengths.

6. A method for splitting logs which are lying on the ground or other planar support surface, said method comprising the steps of: lowering a suspended beam into a position over a log to be split so that the log to be split is disposed between a plate depending from the beam adjacent one end and a splitting blade depending from the beam proximate the other end, and forcing the splitting blade along the beam toward the plate to split the log disposed therebetween.

7. A method as recited in claim 6 and additionally comprising the steps of suspending the beam from a hoist moveable along an overhead track, and placing the overhead track over a row of logs so that the beam can be serially lowered over each log in turn for sequentially splitting each said log.

8. A method as recited in claim 6 and additionally comprising the step of adjusting the position of the plate to adjust the spacing between said plate and the splitting blade to logs of different lengths.

9. A method as recited in claim 6 and additionally comprising the steps of allowing the two halves of the split log to roll apart, lowering the suspended beam into position over one of the halves of the split log so that said one half log is disposed between the depending plate and the depending blade, and forcing the splitting blade along the beam toward the plate to split said one half log disposed therebetween.

10. Apparatus for splitting logs which are lying on the

ground or other planar support surface, said apparatus comprising: a mobile frame having a raised elongate track portion supported at each end by depending legs so that the track can be disposed over at least one log intermediate the legs, each said leg having fore and aft wheels for movement of the frame along the ground; a hoist moveable along the overhead track and suspended therefrom; and log splitting means suspended from said hoist so that said log splitting means can be lowered into position over the log disposed below the overhead track, said log splitting means adapted to split a log located on the underside of said splitting means.

11. Apparatus as recited in claim 10 wherein the depending legs each comprise an A-frame structure attached to the elongate track portion at the apex of said structure, each said structure including forwardly and aftwardly directed members extending downwardly from said apex, and a cross member interconnecting said forwardly and aftwardly directed members, and wherein the wheels are attached to the respective forwardly and aftwardly directed members at the lower extremities thereof.

12. Apparatus as recited in claim 10 wherein the log splitting means comprises a beam placeable over a log to be split, a depending plate adjacent one end of the beam, a blade depending from the beam proximate the other end of said beam so that the log to be split is disposed between the plate and the blade, and means for forcing the blade along the beam in the direction of the plate to split the log disposed therebetween.

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