

A SAW BLADE FOR WOOD



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TECHNICAL FIELD OF THE INVENTION

The present invention relates to a saw blade for cutting of wood. In particular it relates to a saw blade comprising teeth, all of which having sharp front and rear lateral edges, and said edges meeting at a sharp point or tip alternately on the right and the left side of the saw blade. The teeth are arranged in recurrent groups of six teeth.

BACKGROUND OF THE INVENTION

It has long been known to make saw blades for wood where each tooth has front and rear edges chamfered and sharpened to cutting edges by grinding or filing, the edges being located on the same lateral side of each tooth and meeting to form a sharp point, said points being located alternately on the right and left sides of the saw blade, and said teeth being set alternately to that side where the sharp point is located. Such saw blades are simple to maintain by resharpening with a file, and are efficient for cross-cutting at least of dry wood, and are operative in both directions of movement.

From DE 854 570 and SE 9002836-6 it is known to make saw blades for wood where all of the teeth have sharp points formed by edges meeting. The sharp points are then located alternately on the right and the left side of the saw blade. In the saw blades of DE 854 570, some teeth, called cutter teeth, are set and serve to cut the wood fibres, and other teeth, called raker teeth are not set and serve to transport sawdust from the kerf. The straight raker teeth have their points alternately on the right and left sides.

It is also known from DE 854 570 and US 2,072,624 to arrange the teeth in recurrent groups of cutter and raker teeth with different pitch distances (the distance between the top point of two adjacent teeth), which serves to minimize the vibration when sawing and produce smoother cut surfaces.

Saw blades with the described teeth have been shown to cut particularly fast and efficiently in moist wood. However, they all have one disadvantage in common, which is that they have proven to be difficult to produce and maintain, since they comprise teeth with different size, different height, different shape and/or differ-



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ent edge angles. In particular this makes them difficult to resharpen since they necessitate different filing angels.

SUMMARY OF THE PRESENT INVENTION

5 The purpose of the present invention is to remedy the above mentioned disadvantages by proposing a saw blade for sawing of wood, especially moist wood, which combines a low cost of manufacture since all teeth have the same height and shape before setting, and with high efficiency and reduced vibrations in operation.

10 This is achieved by means of a saw blade according to the present invention, which includes the features defined in the characterizing part of patent claim 1.

15 Accordingly, the saw blade is characterized by each recurrent group of six teeth being divided into two subgroups comprising three teeth each, and by the first tooth in the first subgroup being set to one side and the first tooth of the second subgroup being set to the opposite side. To continue, one of the teeth in each subgroup is an unset tooth and the other two teeth in each subgroup are set respectively to that side where the sharp point is located. By having the leading tooth of the respective subgroups being set to opposite sides, the advantage is obtained that any lateral forces that occur will outbalance each other and the saw will saw with a straight cut. By having an unset tooth in each subgroup, a straight cut is also promoted. If all of the teeth have the same height before setting, then the set teeth will become slightly lower after setting which means that the unset tooth will be slightly higher and cut into the wood before the set teeth. Consequently, the straight unset tooth will work to steer the saw to a straight cut.

25 The setting pattern of the first subgroup can advantageously be defined as being a mirror image of the setting pattern of the second subgroup.

30 According to another advantageous feature, the distances between the subgroups are longer than the distances between teeth within the subgroups. Also, the distances between the teeth in one of the subgroups are preferably shorter than the distances between the teeth in the other subgroup. This design with different distances between the teeth has the advantage of working against and neutralizing any vibrations that may have a tendency to occur.

 According to a first embodiment, the saw blade of the present invention is characterized by the second tooth in each subgroup being an unset tooth. Accord-

ing to a further characterizing feature, the first tooth and the third tooth in each subgroup are set teeth and both these set teeth are set to the same side.

According to a second embodiment, the saw blade of the present invention is characterized by the third tooth in each subgroup being an unset tooth. According to a further characterizing feature, the second tooth in each subgroup is a set tooth, which is set to the opposite side compared to the first tooth in each subgroup.

Within each group of six teeth in both embodiments, one of the two teeth set to the left follows behind an unset tooth (which may be the last tooth of the preceding group of six teeth) and one follows behind a tooth set to the right (which may also be the last tooth of the preceding group of six teeth). To continue, one of the two teeth set to the right follows behind an unset tooth and one follows behind a tooth set to the left. This ensures that within a group of six teeth, the lateral forces are symmetrical and their sum is as close to zero as possible, resulting in very straight-line cutting

Finally, the saw blade of the present invention is preferably characterized by having a constant width and being adapted for mounting in a bow saw.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described in further detail, with reference being made to the accompanying schematic drawings, illustrating preferred embodiments thereof, and in which:

- Figure 1 shows a schematic lateral view of a first embodiment of a saw blade, according to the present invention,
- Figure 2 shows the same saw blade as illustrated in figure 1, seen in the plane of the saw blade, and
- Figure 3 shows a schematic lateral view of a second embodiment of a saw blade, according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As is illustrated in figures 1, 2 and 3, showing two embodiments of the present invention, the teeth of the saw blade are preferably arranged in recurrent groups of six teeth, where each group consists of two subgroups of three teeth each. All of the teeth are originally of equal height, i.e. before setting, they have the same size and shape and the same edge angles.

However, the pitch distance between the teeth varies, with a first greater distance 11, 41 between the last tooth 23,26; 33,36 in one subgroup and the first tooth 24,21; 34,31 in the following subgroup, and with a second smaller distance 12, 42 between adjacent teeth 21,22,23; 31,32,33 in one subgroup, and with a third intermediate distance 13, 43 between adjacent teeth 24,25,26; 34,35,36 in another subgroup.

According to the invention, each recurrent group of six teeth comprises two teeth set to the right, two teeth set to the left and two unset teeth. Each subgroup contains one unset tooth. Each set tooth is set to that side where the sharp point of the tooth is located.

In the preferred first embodiment shown in figure 1 and figure 2, the saw blade has a first subgroup consisting of the following teeth in order: one set to the left with point on the left 21, one unset with point on the right 22, one set left with point on the left 23, and a second subgroup with one set to the right with point on the right 24, one unset with point on the left 25, one set to the right with point on the right 26. The setting pattern of the first subgroup is thus a mirror image of the setting pattern of the second subgroup.

In the second preferred embodiment shown in figure 3, the saw blade has a first subgroup consisting of the following teeth in order: one set to the left with point on the left 31, one set to the right with point on the right 32, one unset with point on the left 33 and a second subgroup with one set to the right with point on the right 34, one set to the left with point on the left 35, one unset with point on the right 36. The setting pattern of the first subgroup is thus a mirror image of the setting pattern of the second subgroup.

From both illustrated embodiments it can be seen that the first set tooth 21;31 of the first subgroup 21,22,23; 31,32,33 is set to one side and the first set tooth 24;34 of the second subgroup 24,25,26; 34,35,36 is set to the opposite side. As mentioned above, this is an advantageous arrangement through which the advantage is obtained that any lateral forces that occur will outbalance each other and the saw will saw with a straight cut.

In both the illustrated embodiments it can also be seen that the set teeth are not set alternately to the left and to the right in a regular pattern. Instead they are actually set in pairs, two teeth to the left 21,23; 35,31 and two teeth to the right

24,26; 32,34, and with a straight unset tooth 22;36;25;33 between the two teeth of the pair.

A saw blade according to the invention can be provided with a handle to become a part of a handsaw. It is also especially suited to be mounted in a bow saw
5 to be used for cutting of firewood, and is then made as a narrow band, with symmetrical teeth having sharp cutting edges with equal slope in both directions, which allows reversing the saw blade or cutting in both directions. The saw is not only suitable for sawing moist wood but also dry wood. Furthermore, the unset tooth is illustrated as an ordinary straight tooth in both embodiments, but it could also be de-
10 signed as a raker tooth, for instance with two cutting edges.

The present invention shall not be considered as limited to the illustrated embodiments, given as examples only, but may be varied and modified in numerous ways within the scope of the appended patent claims.

PATENT CLAIMS

1. Saw blade for cutting of wood, said saw blade comprising teeth, all of which having sharp front and rear lateral edges, and said edges meeting at a sharp point alternately on the right and the left side of the saw blade, said teeth being arranged in recurrent groups of six teeth (21,22,23,24,25,26; 31,32,33,34,35,36), **characterized** by each group of six teeth being divided into two subgroups comprising three teeth each, by the first tooth (21; 31) in the first subgroup (21,22,23; 31,32,33) being set to one side and the first tooth (24; 34) of the second subgroup (24,25,26; 34,35,36) being set to the opposite side, by one of the teeth in each subgroup being an unset tooth (22,25; 33,36), and by the other two teeth (21,23,24,25; 31,32,34,35) in each subgroup being set respectively to that side where the sharp point is located.
2. Saw blade according to claim 1, **characterized** by the setting pattern of the first subgroup (21,22,23; 31,32,33) being a mirror image of the setting pattern of the second subgroup (24,25,26; 34,35,36).
3. Saw blade according to any one of claims 1-2, **characterized** by the distances (11; 41) between the subgroups being larger than the distances (12,13; 42,43) between teeth within the subgroups.
4. Saw blade according to any one of claims 1-3, **characterized** by the distances (12; 42) between the teeth in one of the subgroups being smaller than the distances (13; 43) between the teeth in the other subgroup.
5. Saw blade according to any one of claims 1-4, **characterized** by the second tooth (22, 25) in each subgroup (21,22,23; 24,25,26) being an unset tooth.
6. Saw blade according to claim 5, **characterized** by the first tooth (21; 24) and the third tooth (23; 26) in each subgroup (21,22,23; 24,25,26) being a set tooth and that both these set teeth are set to the same side.

7. Saw blade according to any one of claims 1-4, **characterized** by the third tooth (33; 36) in each subgroup (31,32,33; 34,35,36) being an unset tooth.

8. Saw blade according to claim 7, **characterized** by the second tooth (32; 35) in each subgroup (31,32,33; 34,35,36) being a set tooth, which is set to the opposite side compared to the first tooth (31; 34) in each subgroup.

9. Saw blade according to any one of the preceding claims, **characterized** by having a constant width and being adapted for mounting in a bow saw.