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(54) **Saw blades.**

(57) The present invention provides a saw or saw blade having a cutting edge which comprises at least one major tooth, the major tooth being of greater height than neighbouring teeth of the same group and adapted to cut when the blade is moved in a direction opposite from the cutting direction of, the other teeth in the group.

This invention relates to saw blades and is particularly, but not exclusively, concerned with saw blades for use in cutting through wooden workpieces.

5 Materials, such as wood, have a grain which is formed by substantially aligned tough fibres forming the grain. In the case of wood, the fibres, which are formed from a tough organic material known as lignin, are held together relatively weakly. Accordingly, cutting a wooden workpiece transverse to the direction of the grain which involves cutting through the tough fibres is more difficult than cutting with the grain which
10 involves parting the fibres. Hitherto, a worker wishing to cut a wooden workpiece both transversely and with the grain, had had to use two separate saws each having different teeth arrangements, namely a cross-cut saw and a rip saw. The use of two different saws for the reason stated is not only a time consuming disadvantage but also requires a woodworker to constantly
15 adjust his sense of balance and feel when using the different saws.

The applicant is aware of the following prior art, none of which discloses the subject matter of the present application.

GB1,117,908 (The Stanley Works) discloses a circular saw blade comprising spaced groups of neutral teeth (i.e adapted to cut when the
20 blade is driven in either direction) of constant pitch separated by tooth groups each comprising first and second teeth adapted to cut when the blade is rotatably driven in alternate directions.

GB1,086,152 (Herman and Savage) discloses a folding saw having a cutting edge and possessing a similar arrangement of cutting teeth to that
25 described in GB1,117,908.

GB707,727 (Jonsson) discloses a saw blade comprising consecutive groups of two neutral dust grinding (raker) teeth between two opposed cutting teeth of the same pitch.

5 GB522,283 (Owen) discloses a saw blade including a series of main tooth groups each group comprising first and second opposed pairs of teeth adapted to cut when the blade is driven in opposite directions and separated by pairs of raker teeth having a smaller pitch.

10 GB433,260 (Campbell) discloses a double handed cross cut saw having a cutting edge comprising opposed groups of cutting teeth, which gradually reduce in pitch towards the respective ends of the blade and considered with respect to a central pair of raker teeth.

GB236,099 (Matson) discloses a saw blade having a series of groups of major teeth, separated by deep debris clearing slots, each group comprising two pairs of oppositely-inclined teeth of constant pitch.

15 It is an object of the invention to mitigate the foregoing disadvantages associated with conventional saws and saw blades.

According to one aspect of the invention there is provided a saw blade comprising spaced faces and a cutting edge in which the cutting edge comprises groups of cutting teeth in which each group comprises at least
20 one major tooth, the major tooth being of greater height than neighbouring teeth of the same group and adapted to cut when the blade is moved in a direction opposite from the cutting direction of, the other teeth in the group.

25 A saw blade and a saw in accordance with the invention will now be described, by way of example only, with reference to the accompanying Figs 1 & 2 in which:

Fig 1 is an elevation of a circular saw blade in accordance with the invention.

Fig 2 is an elevation of a hand saw in accordance with the invention.

The circular saw blade 10 shown in Fig. 1 comprises spaced flat faces 12 and 14 (14 obscured), and a toothed edge 16, having spaced groups of teeth eg 18. The groups of teeth are separated by saw-dust clearance slots, eg 19. In use, the blade 10 is drivably mounted on, for example, the drive shaft of a circular saw which is passed through a central circular aperture 18.

The group of teeth 19 will now be described in detail, the other groups having corresponding features. Group 19 comprises a large-pitch cutting tooth 22 on a leading edge of the group which is adapted to cut when the blade is driven in a clockwise direction; and five smaller teeth eg 24 of equal pitch, extending toward the opposite end of the group, which are adapted to cut when the blade is driven in the opposite direction. Although the smaller pitch teeth are of equal pitch it is envisaged that teeth of varied pitch may be substituted therefor.

As mentioned above, in use, the saw blade 10 is drivably mounted on the drive shaft of a circular saw. In order to cut a wooden workpiece along its grain and then across the grain the blade is first driven at highspeed to cut the workpiece with the large pitch teeth eg 22. Then, to cut the wood across the grain the blade is driven at high speed in the opposite direction, i.e. anticlockwise, to cut the wood across the grain with the smaller pitch teeth 24.

To alter the direction in which the blade is driven the blade may be demounted from the drive shaft and replaced facing in the opposite direction whereby when the shaft is rotated the blade will turn in the opposite

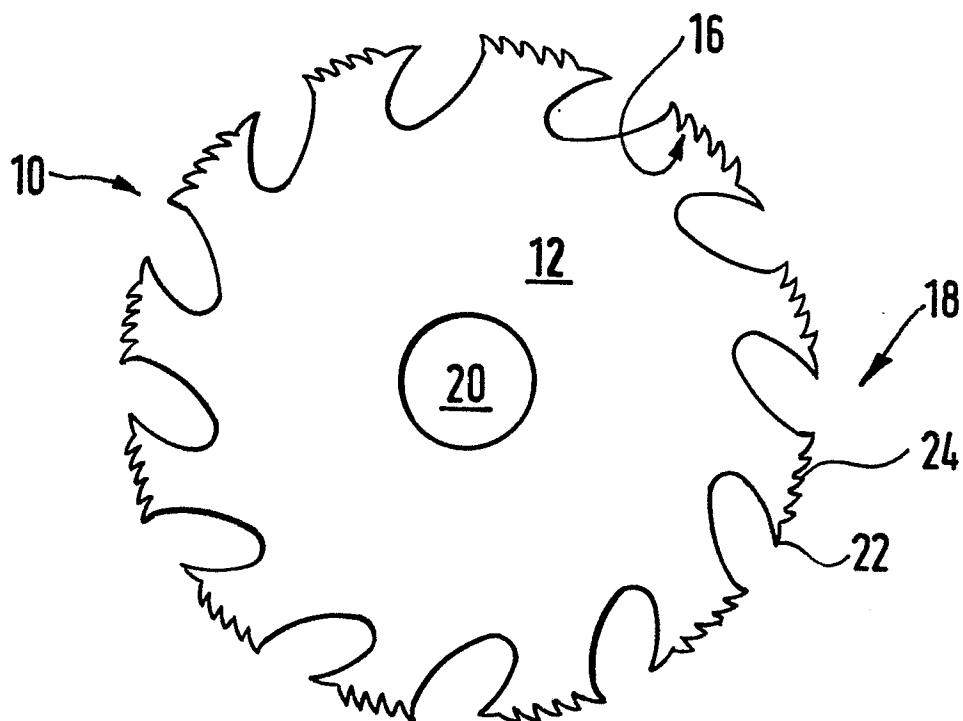
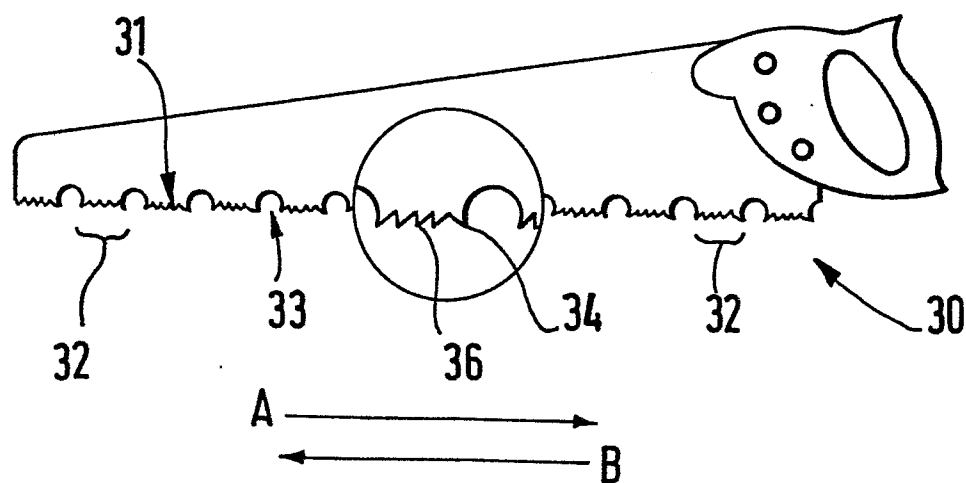
direction. Alternatively, the circular saw may be provided with a switching device which allows the drive shaft to be driven in different directions thus avoiding the need to demount the blade from the drive shaft.

The hand saw 30 shown in Fig. 2 has a similar cutting edge 31, to that described for the saw blade 10 in that it comprises spaced groups of teeth eg. 32, divided by saw-dust clearance notches eg 33. Each group of teeth comprises a tooth 34 of greater height on a leading edge of the group and four smaller teeth eg 36 extending to the other end of the group.

The large pitch tooth 34 is adapted to cut when the blade is drawn in the direction of the arrow A, and the smaller pitch teeth are adapted to cut when the blade is drawn in the direction of arrow B, i.e. in the opposite direction.

CLAIMS

1. A saw blade having a cutting edge which comprises groups of cutting teeth in which each group comprises at least one major tooth, the major tooth being of greater height than neighbouring teeth of the same group and adapted to cut when the blade is moved in a direction opposite from the cutting direction of, the other teeth in the group.
2. A saw blade according to claim 1 in which each major tooth is shaped to cut when the blade is moved in one direction only.
3. A saw blade according to any preceding claim in which all teeth in each group are shaped to cut in one direction only.
4. A saw blade according to any preceding claim in which the groups of teeth are spaced apart in the direction of cutting.
5. A saw blade according to claim 4 in which the groups of teeth are spaced by debris clearance means.
6. A saw blade according to claim 5 in which the debris clearance means comprises a notch extending radially inwardly from the cutting edge and disposed between adjacent tooth groups.
7. A saw incorporating a saw blade in accordance with any preceding claim.
8. A saw blade constructed and arranged substantially as shown in Fig. 1.
9. A saw constructed and arranged substantially as shown in Fig 2.

*Fig. 1.**Fig. 2.*