two cutting teeth 14 shown in the drawing represent the preferred tooth spacing for a saw of the diameter shown. Although the exact tooth spacing is not critical to accomplishing the desired results, the arcuate spacing between adjacent cutting teeth 14 is approximately equal to the radius of the saw.

Between each two successive cutting teeth 14 the periphery of the saw is formed with a multiplicity of fan-like projections 16 which are narrower than the cutting teeth 14 and have their extremities offset radially inwardly from the radial extremities of the teeth 14 (see dimension X). Therefore as the saw passes through a kerf, the projections 16 never actually touch the material. They merely blow air through the kerf in between the cutting action of the teeth 14 in the manner described in the foregoing.

In the saw chosen for illustration, teeth 14 are relatively wide tungsten-carbide teeth inset into notches 17 in the periphery of the saw in accordance with conventional techniques known to those skilled in this art. For this service, carbide teeth are advantageous because they are quite durable. The profile of the teeth are the same as that conventionally used in carbide saws, the back clearance angle (the angle between a tangent at the extremity of a cutting tooth and the peripheral face of the tooth leading backward from the extremity) and the hook angle (the angle between the leading face of the cutting tooth and a radius of the blade to the extremity of the tooth) being about 10–15 degrees.

The projections 16 may be of any desired shape, provided they are formed in a manner which does not unduly weaken the saw structurally, and they do not themselves engage the work piece. It is particularly convenient to make this saw from a disc of appropriate saw steel which has its periphery rough milled into a toothed profile to receive either carbide teeth, or other form of edged cutting teeth. In this case, the saw blank or disc is then sharpened or tipped for cutting, as the case may be, only at the locations of the cutting teeth 14 and the roughed milled teeth between the accurately spaced teeth 14 are merely left unfinished and blunt to serve as the fan-like projections 16.

The cutting teeth 14 may be of any suitable profile and instead of using separate tips, the periphery of the blade may be sharpened and set at the accurately spaced locations noted to provide the cutting teeth. In other respects the saws are made according to the traditional art of saw-smithing, including heat treating and grinding the saws and hammering them to the proper tension.

Saws made according to the foregoing description with six carbide teeth 14 spaced at equal arcuate intervals around a saw disc of 14 inches diameter and with ten or more projections in the form of blunt rough milled teeth between successive teeth 14 are suitable for cutting the plastics noted in the foregoing. These saws have been particularly effective for cutting bars of transparent methyl methacrylate compositions known commercially as “ Plexiglas” with a clean burr-free dimensionally accurate kerf.

In general, the higher the heat deformation temperature of the particular plastic, the closer may be the arcuate spacing of the actual cutting teeth for successful cutting. In any event, for plastics which deform below about 225 degrees Fahrenheit, there should be multiplicities of fan-like projections between the cutting teeth. Preferably there will be in the order of about 5 to 15 projections between successive teeth where the projections have approximately the same profile as the cutting teeth as is the case in the saw illustrated.

1. A circular saw comprising a metal disc having cut-
ting teeth at the periphery thereof at widely spaced arcu-
ate locations, and a multiplicity of fan-like projections
on the peripheral regions of said disc intermediate the
cutting teeth, the lateral sides of said projections lying
entirely within the parallel cutting planes of said cutting
teeth which define the lateral sides of the kerf in a work
piece and the outermost extremities of said projections
being offset radially inward from the outermost extremiti-
es of said cutting teeth which define the bottom of the
kerf in a work piece, said projections thereby being pro-
portioned to direct a stream of ambient air through the
kerf between the passage of successive cutting teeth there-
through without contacting the work piece.

2. A circular saw according to claim 1 wherein said
cutting teeth are arcuately spaced apart on the periphery
of the saw for a distance approximately equal to the
radius of the disc.

3. A circular saw according to claim 2 wherein there
are from 5 to 15 fan-like projections between successive
cutting teeth.

4. A circular saw according to claim 1 wherein said
cutting teeth are tungsten-carbide inserts.

5. A circular saw according to claim 1 wherein said
fan-like projections are rough milled but unsharpened
projections having a profile shaped like said cutting teeth.

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