

Dec. 8, 1936.

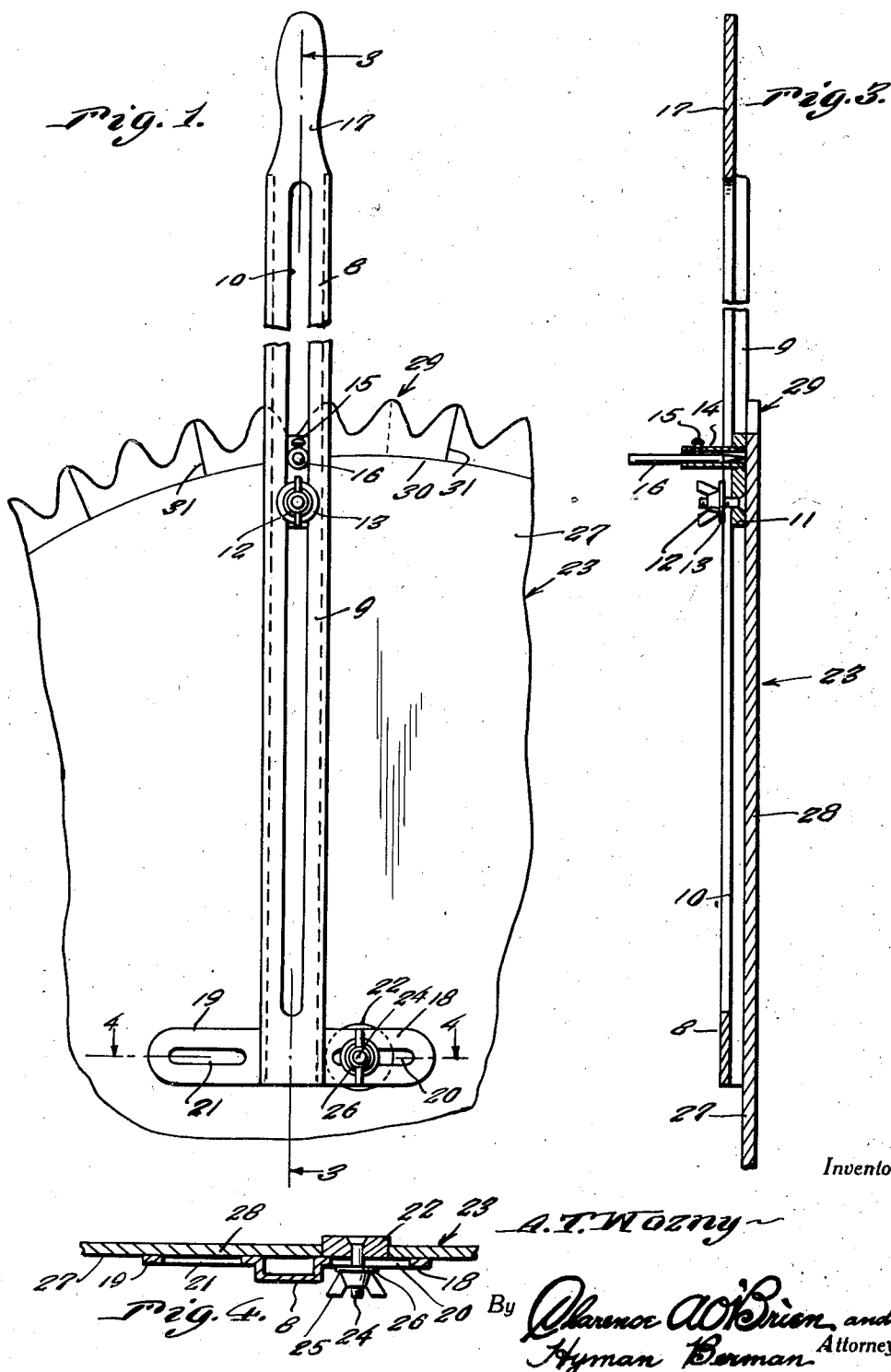
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2,063,776

SAW-TOOTH PROTRACTOR

Filed March 2, 1936

2 Sheets-Sheet 1



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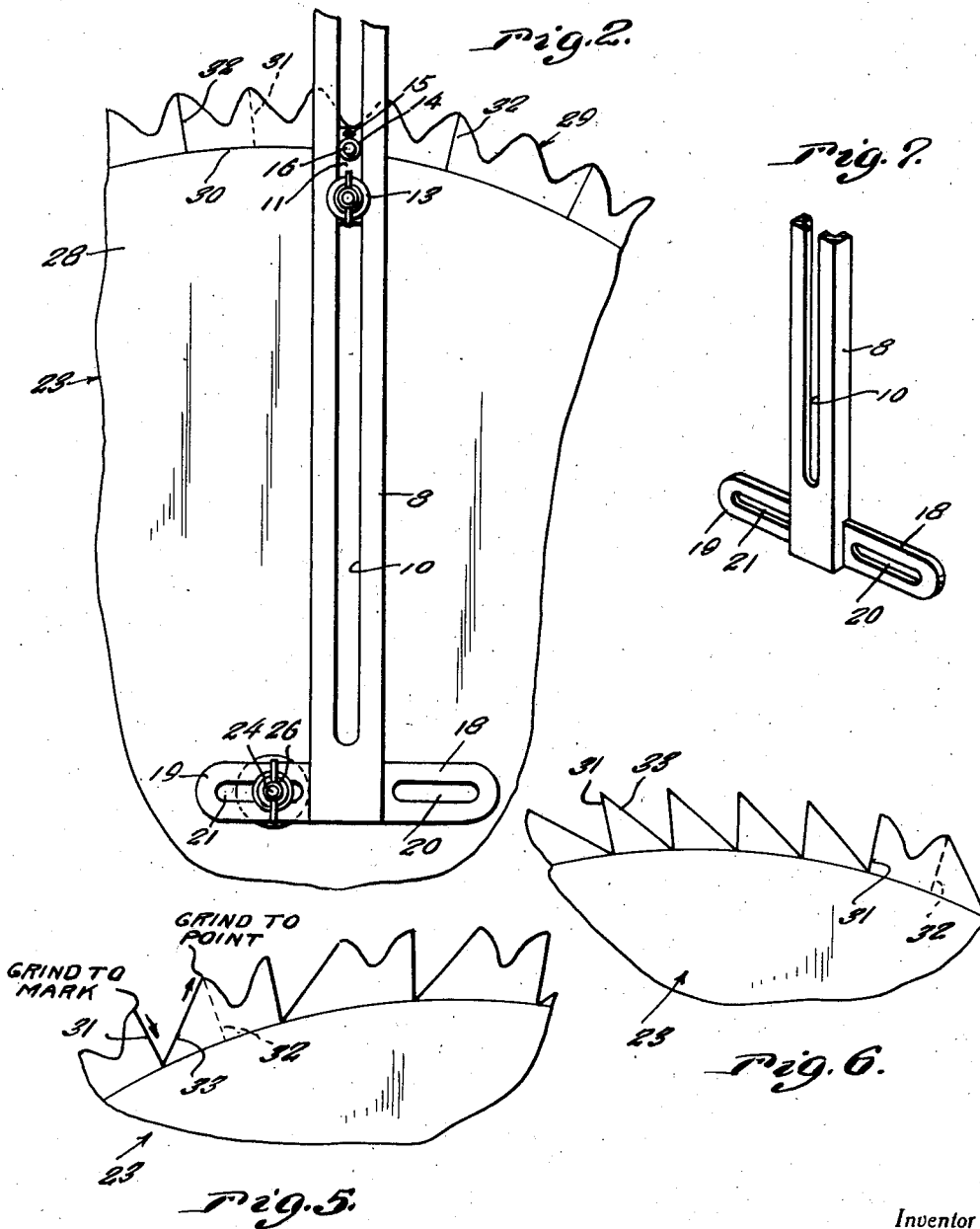
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SAW-TOOTH PROTRACTOR

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4 Claims. (Cl. 33—27)

This invention relates to scribing tools and implements and has reference in particular to a novel method and means of planning and laying off predetermined areas of a rotary disk saw to expedite accurate and uniform grinding of the marginal cutting teeth.

Countless ways and means have been devised along both makeshift and scientific lines to expedite precise and uniform results in this particular line of endeavor. The present invention, therefore, has reference to what is believed to be another and improved scribing method and an especially designed multiple purpose tool or protractor carefully worked out to accomplish what is desired in a reliable and satisfactory manner.

Thoughtful experimentation and painstaking effort have revealed to me the hereinafter specifically described methodical routine constituting the new method and repeated tests have proved the dependability of the discovery and efficiency of the protractor tool exemplary of the preferred embodiment of the invention.

The sequential steps resorted to and followed, as well as the specific tool itself will become more readily apparent from the succeeding detailed description, accompanying illustrative drawings, and concluding definitions in the form of claims.

In the drawings, wherein like numerals are employed to designate corresponding details of parts throughout the same:

Figure 1 is a view looking at one side of the circular saw and showing how the tool or protractor is used in marking off the marginal radial lines for what may be said to be the front of the saw;

Figure 2 is a view looking at the back or reverse side of the saw illustrating how the reverse operation is undertaken to lay off the radial lines on this side;

Figure 3 is a vertical or longitudinal sectional view through the tool taken centrally on the plane of the line 3—3 of Figure 1;

Figure 4 is a horizontal section at right angles to Figure 3 taken on the line 4—4 of Figure 1;

Figure 5 is a fragmentary diagrammatic view showing the sequential steps followed in grinding the ragged teeth to finished shape or formation;

Figure 6 is a view showing the finished operation;

Figure 7 is a fragmentary perspective view of the T-head formation of the inner end of the tool.

By way of introduction it is to be pointed out briefly that the protracting tool is so designed as to permit it to be used first on one side and then on the other side of the saw. In order to accomplish the desired offset marking result, the tool per se may be said to be of general T-shaped form. Thus, it comprises a shank or stem portion and a cross-head portion. The shank is denoted by the numeral 8 and is here shown as constructed of light-weight metal which is channel-shaped in cross-sectional form, the flanges being denoted by the numerals 9. The web portion is formed with a longitudinal slot 10. This makes convenient provision for the slide or block 11 which is longitudinally slidable in the channel between the flanges. The block is provided with a bolt and thumb nut 12 and a retention washer 13 and also, as shown in Figure 3, it has at one end a socket 14 with a set screw 15 holding the scribing pin or marker 16 removably in place. The numeral 17 merely designates a suitable hand-grip. Incidentally, this shank may be of various lengths to accommodate the different diameters of circular or disk saws.

As shown in Figure 7, the so-called T-head comprises a pair of duplicate outstanding adapter brackets 18 and 19 having longitudinal slots 20 and 21 for selective use. The surfaces of the adapters which contact the faces of the saw are flush with the edges of the flanges 9 which ride in movable contact with the saw. This is brought out to advantage in Figure 7. The slots 20 and 21 are obviously at right angles to the slot 10.

The adapter mounting means as shown in section in Figure 4, comprises a circular plug 22 for removable reception in the existing arbor hole in the saw 23. This hole in different type saws obviously varies and for this reason there will be a number of these plugs 22 to fit the different sizes. The plug is provided with a bolt 24 carrying a wing nut 25 and a clamping washer 26. The bolt extends through either one of the slots 20 or 21 and the washer spans the slot as shown in Figures 1 and 2.

For convenience of explanation of the method, the so-called front face of the saw is distinguished by the numeral 27 and the reverse or back face is indicated at 28. The ragged teeth, of indescribable undulated form, are conveniently referred to by the numeral 29 and it is these teeth which are to be ground down to the formation depicted in Figure 6. Any suitable grinding wheel or device (not shown) is utilized

for the purpose. It might be mentioned in this connection that the invention is primarily designed for use in small shops and similar establishments where more elaborate machinery and tools are not generally available. Obviously, therefore, the tool is especially helpful to the farmer and others having occasional use for an invention of this general character.

The method comprises the scribing or marking of marginal circles 30 on opposite sides 27 and 28 and alternate radial or oblique-angled grinding lines 31 and 32 on opposite sides of the teeth to be ground. It also consists in initially grinding inwardly from the starting point or mark as indicated in Figure 5 and then grinding outwardly on an acute angular line to determine the respective front and back cutting edges of the teeth. By first grinding inwardly on the lines 31 or 32 as the case may be this obviates taking the temper out of the metal as would be undesirably accomplished by grinding from the circular line 30 outwardly. The cutting edge 33, however, due to the presence of a greater quantity of metal in the next adjacent jagged tooth can be ground outwardly as indicated by the arrow in Figure 5.

In practice the adapter mounting or plug 22 is inserted into the existing hole at the center of the saw 23 as indicated for example in Figure 1. The plug is adjusted in the slot 20 until its marginal portion is substantially even with the stem or shank 8. The thumb nut is then tightened whereby to provide an eccentric or off-center pivot for the tool as a unit. Then the user measures in from the point of the longest tooth the desired distance such as for example about one inch and a half or one inch and three quarters and makes a mark to indicate the position of the concentric circles 30. By adjusting the scribing pin 16 to register with this starting point the tool is swung around in a complete circle and the line 30 is thus marked thereon. Then the tool is removed and placed against the opposite side of the saw and without readjusting the pivot, a corresponding circle is made on the last-named side of the saw. These constitute the primary or basic markings. By putting the tool back in the position shown in Figure 1 the handle portion is swung around to line up with every other tooth and the radial lines 31 are laid off by the same scribing pin or other instrument. Then the tool is reversed to the other side 28 as shown in Figure 2 and in so doing the pivoting adapter plug 22 is placed in the opposite adapter extension 19 and the intervening teeth on this side are marked off with the lines 32. Thus we have alternate markings 31 and 32 on opposite sides radiating from the marginal circles 30. When the saw is thus laid out the grinding operation can be carried on as shown in Figure 5 and as heretofore explained and of course the eccentricity of the handle can be varied to regulate the "rake" or angularity of the lines 31 and 32. The edges of the handle

constitute straight edges to facilitate drawing straight lines 31 and 32 as is obvious. Thus the tool is in every sense a correct guide to insure proper ordination of lines for precision results.

It is thought that the description taken in connection with the drawings will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

1. In a tool of the class described, a longitudinally elongated slotted handle, a slide block carried thereby, a scribing tool mounted on said block, a pair of right angularly disposed oppositely arranged longitudinally slotted adapter members connected to the inner end portion of said handle, an attaching and pivoting plug, and clamping and adjusting means for selectively connecting said plug with either of said adapter members in the manner and for the purposes described.

2. A protractor of the class described comprising a longitudinally elongated handle, longitudinally adjustable scribing means mounted for operation on said handle, an anchoring plug adapted for removable reception in an existing centrally disposed arbor hole in a circular saw, said plug being provided with a pivoting stud and clamping nut carried by said stud, and means on one end of said handle for adjustable eccentric connection with said plug through the instrumentality of the stud and clamping nut.

3. A protractor tool of the class described comprising a T-shaped body including a longitudinally elongated slotted handle forming and guide member, scribing means slidably adjustable on said handle, the head portion of said body including duplicate outstanding adapter members and said members being provided with slots disposed at right angles to the longitudinal dimension of the handle, and temporarily usable anchoring and pivoting means selectively cooperable with said slotted member.

4. A protractor tool of the class described comprising a substantially T-shaped member, the stem portion thereof constituting a longitudinally elongated handle, and the head portion thereof embodying oppositely disposed duplicate members provided with slots disposed at right angles to the longitudinal dimension of said handle, an anchoring plug of general circular design adapted for removable reception in existing centrally disposed arbor holes in a circular saw, said plug being provided with a pivoting and connecting stud selectively engageable with said slots, a clamping nut carried by the stud, and a scribing device longitudinally adjustable on said handle.

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