

TECHNICAL NOTE

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Locking Twitch Extension Bar

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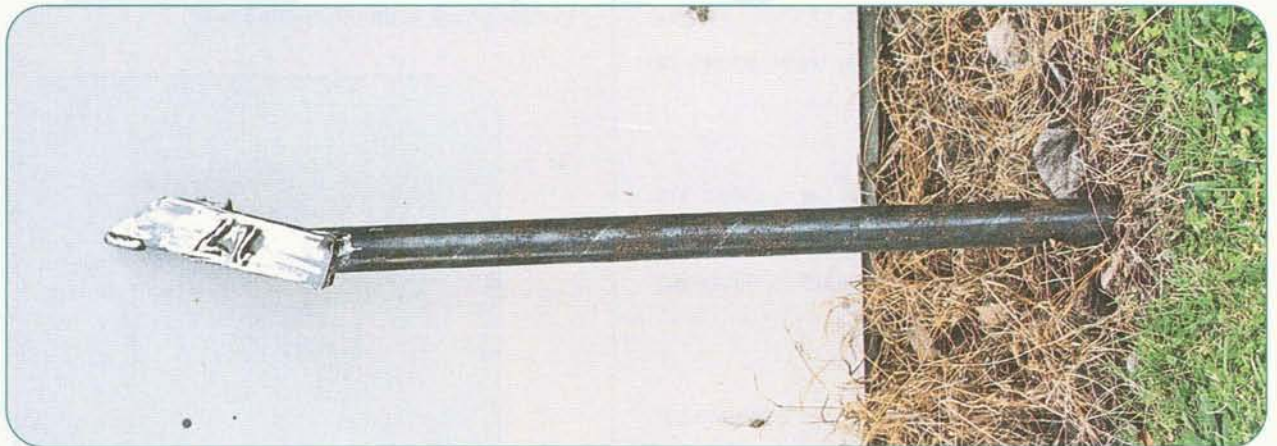


Figure 1 - Locking twitch extension bar

Introduction

The great "Kiwi" ingenuity attitude has struck once again. The No 8 wire simplistic design has developed a simple but effective solution to a small but very serious safety issue. A number of innovative and proactive log transport operators have produced a twitch extension bar. The bar locks on to the twitch reducing the risk of it slipping from the twitch.

Accidents



Figure 2 - Twitches

The Forestry Accident Reporting Scheme, administered and analysed by Liro, shows that during the period of August, 1988 to May, 1998 there were nine recorded incidents involving twitch handles. Pipe used as twitch extension bars can slip from the twitch handles resulting in the twitch handle springing back. Injuries sustained mostly occur to the head and include fractured noses, bruised or broken eye sockets, fractured jaws, lost teeth, as well as lacerations and sprains and strains. All of the injuries required treatment from a doctor or hospital, and time was lost due to the incident.

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Mechanism and Design

The bar consists of a straight 35 mm diameter pipe handle, and approximately 480 mm of flat plate, cut and welded as shown in Figure 3. The optimum extension bar length is 600 mm. Additional length will enable greater torque to be applied to the twitch. However, this is likely to overstress the twitch and chain, running the risk of chain breakage or twitch failure.

The angled handle, in the design shown, gives added ease of use as this helps the operator remove the bar from the twitch once it is locked in place. The angle is approximately 17.5° and ensures the bar is far enough away from the truck or trailer wheels to facilitate easy removal from the twitch.

The operational mechanism of the extension bar is simple but effective. The twitch is inserted into the bar as shown in Figure 4. The force acting down on the bar, as the twitch is tightened, effectively locks the extension bar to the twitch.

Once the twitch is locked in place, pressure on the extension bar can be released, and the extension bar can be easily removed from the twitch handle

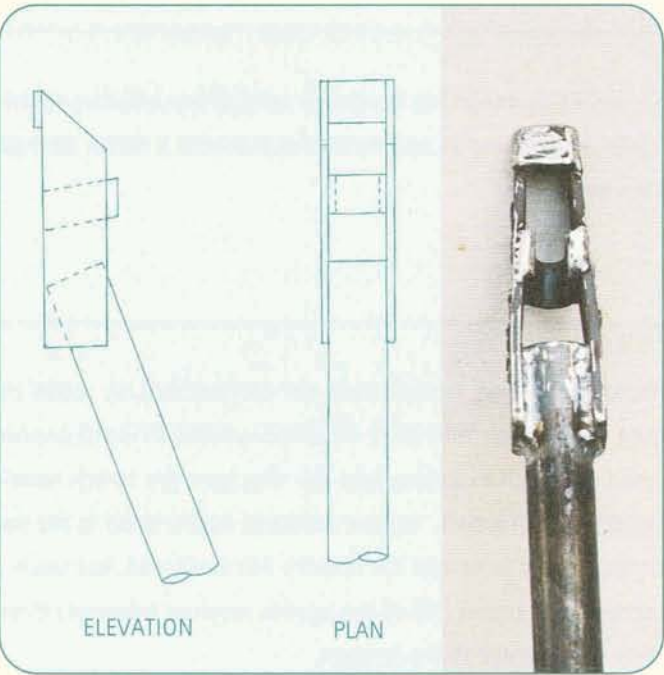


Figure 3 - Extension bar 'head' design

Cost

The overall cost of making the twitch extension bar is minimal. The material required costs approximately \$9.00, and approximately two hours labour time is required to complete the bar.

Staff Training

Additional staff training should also be used as a method of eliminating twitch related injuries. It is believed that the injuries sustained due to this type of accident are 100% avoidable, if simple safe operational practices are followed, and this type of twitch extension bar used.

Safe operational practices include, pulling the extension bar and twitch back towards you, instead of pushing the bar and twitch away from you. The risk of being hit by a twitch handle, if it were to spring back, is therefore eliminated.

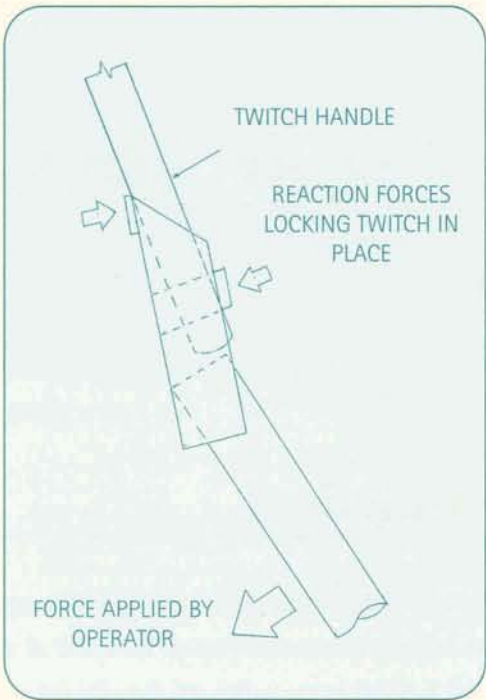


Figure 4 - Bar operation

Operator Comments

Drivers have praised the locking extension bar, citing the fact they eliminated the risk of bars slipping from the twitch during tightening. The angled handle offers additional safety aspects, allowing easy and free removal of the bar from the twitch once it is locked in place. This has eliminated the risk of the twitch being released during pipe removal. The modification to the original straight handle design was completed after suggestions from drivers.

Drivers who have used the bars have highlighted additional uses, including use as an extension to a wheel brace when tightening wheel nuts.