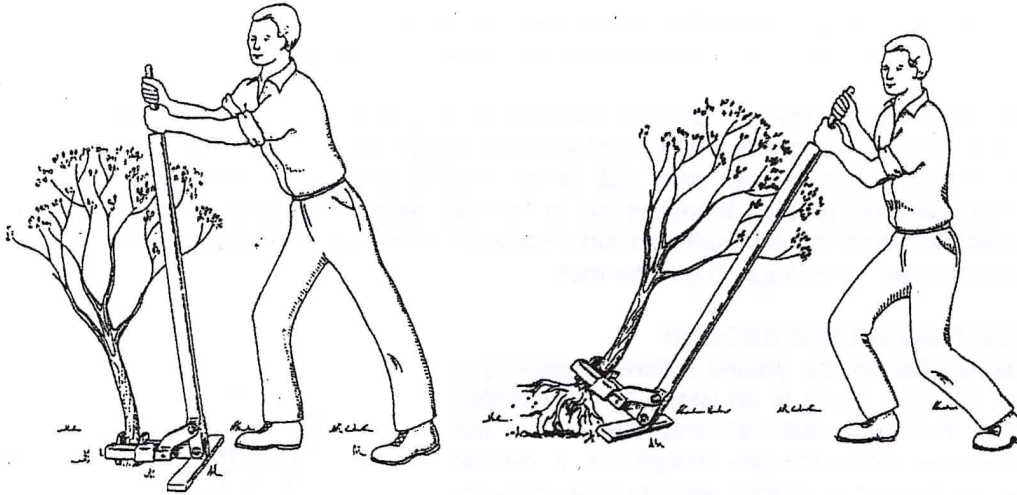


TIPS FOR WEED WRENCH USERS



Basic operation is simple, but here are a few cautions and tips it will help to know. First, the safety rules:

WATCH OUT BEHIND YOU. Always be prepared for the plant you are pulling to break loose suddenly when the roots break free, a branch breaks off, or a bad jaw placement slips off. Brace yourself to avoid falling backwards, or be sure that if you do fall, it isn't over a bank or onto a sharp object.

WATCH OUT AROUND YOU. When working with or carrying a Weed Wrench, be careful of people nearby. It's safest to carry it with the head behind you and the long lever arm in front where you can see its swing.

WATCH OUT FOR YOUR EYES. Always be cautious when pulling plants that have thorns or stiff branches at eye-level; wear eye protection if necessary.

WATCH OUT FOR YOUR FINGERS. The jaws have tremendous gripping force. Keep your fingers out of them, and away from anyplace else on the head where pinching or scissoring actions are occurring.

Now that we've scared you with all the ways you could hurt yourself operating a Weed Wrench, in practice everybody seems to know instinctively to avoid these things and nobody's getting hurt. In fact Weed Wrench is the safest of all alternative methods (blades or chemicals).

Now for the operating tips:

PLACING THE JAW: Open the jaw until the jaw-catch engages. Place the jaws around the stem and disengage the jaw-catch by putting your foot on top of the lifter arm behind the jaw and giving the grip handle a tug. If the jaw shows any tendency to slip upward instead of gripping the stem, keep pressure with your foot on the lifter arm until the jaw is solidly clamped on.

If the plant is one that spreads at ground level and has branches interfering with good placement of the jaw, you can grab the interfering branch with the Weed Wrench and rip it off to gain access to the stronger stem. Or, you can use a pair of loppers or a pruning saw to get the offending part out of the way. When working with a plant that has needles or thorns it may be desirable to saw it off a few inches above ground before pulling the root; then you don't have the top stabbing you while you work the Weed Wrench.

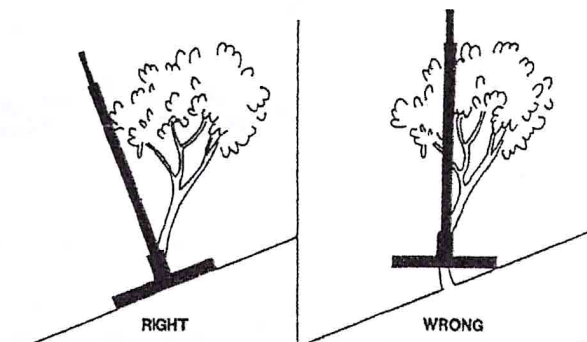
EXTRACTING THE PLANT: Once the jaw is clamped on, give a reasonably hard pull to determine whether it's going to be an easy or hard root to extract. If it's easy, just keep pulling. If it's hard, don't try to pull it in one heroic stroke but begin "pumping" the handle instead, rhythmically pulling hard, then relaxing the pull. This will usually fracture the soil a little more with each pump, the ground will begin to heave, and finally you will hear a muffled "pop" deep underground when the tap root breaks. *This technique is the most important thing you can learn for defeating stubborn plants.* In a worst case, dig around the plant with a series of pick or mattock strokes to break the surface soil and some of the lateral roots, then try pumping the handle again. (In practice, you rarely need to resort to this last method.) The pumping technique is also useful to gently coax a root out of the soil when a weak stem would otherwise break before the root pulls free.

TOUGH ROOTS AND SOFT SOIL In rare situations a plant may be growing where the surface soil is soft but the roots are down into hard soil; this can cause the fulcrum to dig in instead of the plant coming out. Landscapers using Weed Wrenches to pull tree stakes have reported this problem, also. A scrap of plywood placed under the fulcrum solves it. Weed Wrench works well for pulling a tree stake, by the way; just nibble it out in a series of small bites so you don't break the stake by curving it too much. Pulling steel fence posts can damage the jaw facings, however.

DEFEATING SAWED-OFF STUBS Plants that have been cut off at ground level in previous attempts at removal present a more difficult, but not impossible, situation. The roots are now bigger and stronger than the top, and the new stems rip off easily. However, it takes a surprisingly small nub of the original stem to provide a good grip for pulling the root. Sometimes cutting the bushy re-sprouted branches out of the way helps, or digging a little soil away from the stem to expose enough to grab. Scraping the jaw back and forth sideways on the ground past the stem stump is frequently all it takes to dig the jaw faces down far enough to grip the root.

KEEP THE FULCRUM FLAT ON THE GROUND

Always have the fulcrum flat on the ground before attempting a pull. On level ground this isn't much of an issue, but on hillsides you might be tempted to take a pull with only one end of the fulcrum touching while you place the jaw straight on a vertical stem. Better to have the fulcrum in contact with the ground for its full width even if it means gripping the stem at an angle; it will still pull just fine. ***Failure to heed this will bend the fulcrum at the lifter arm, or in some cases bend the lifter arm at the fulcrum.*** This damage can be repaired, but it's much easier to simply avoid it. Weed Wrench has been used on all angles of terrain up to and including cliff faces; you can always find a way to pull effectively.



KNOW THE TOOL'S LIMITS Various factors can affect your success using the Weed Wrench: soil too hard, tap root lodged in bedrock, roots tangled with an adjacent plant's, or in the case of some tree species, what appears to be a sapling may be a root sucker attached to a large root from an adjacent mature tree. Savvy operators will know when to give up before they bend the tool. ***Don't*** put a cheater pipe on the grip handle for more leverage; it will only bend the handle. ***Don't*** put two people on it; it was designed to withstand the strength of one person, not a team.

MAINTENANCE The jaw facings will collect dirt and bark until eventually the gripping ability is reduced. It still works with the teeth clogged, it just works better with them clean. Pick the teeth clean with an ice pick, screwdriver, or similar sharp object. This is more safely and easily done in a shop with a vise to hold the tool than in the field. Wetting the jaw faces with water for ten minutes before you start cleaning is a big help. A little oil on the moving parts, especially during the break-in period or in wet climates, will help your Weed Wrench operate more smoothly. If the jaw catch ball-and-detente mechanism freezes after use in rain or mud, remove the Allen screw, spring, and steel ball to clean and lubricate them. When you re-assemble, adjust the Allen screw pressure on the spring so the jaw stays open against gravity when you lift the tool off the ground, but the jaw closes easily when you want it to.

GUARANTEE AND REPAIR Weed Wrench has proven to be extremely rugged and does not bend or break unless improperly used. If something breaks that you feel shouldn't have, please call us. If it isn't one of the four user-caused failures mentioned below, we'll fix it for free if you ship the damaged portion (head **or** lever arm) to us. The all-mild steel construction requires only the simplest welding equipment and most commonly available materials for effective repair. Any competent welding shop can fix any conceivable damage. If you don't like the price you're being quoted for repair locally, we can fix anything you can do to it for \$20 plus shipping costs. Should you prefer to prevent the damage, however, here is a list of all known failures and their avoidable causes, as mentioned in the text above:

BENT GRIP HANDLE: cheater pipe applied for more leverage.

BENT FULCRUM: fulcrum not flat on the ground when pulling.

BENT LEVER ARM: design strength exceeded, usually by two people.

DAMAGED MESH ON JAW FACES: pulling steel fence posts.

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