Finnish inventor rethinks design of the axe

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(Phys.org) —Finnish inventor Heikki Kärnä is the man behind the Vipukirves Leveraxe, which is a precision tool for splitting firewood. He designed the tool to make the job easier and more efficient, with no

need for an external source of energy. In short, he has redesigned the axe. This is a lever-based axe. The axe head is attached to the handle from the side and not through the center. This results in the center of gravity of the axe head being to one side of the center line of strike. Leveraxe is based on a lever mechanism and rotational action.

"Everybody who has tried splitting wood with a traditional axe knows that it takes a lot of power to penetrate and split the wood," according to the axe-maker, but with Kärnä's invention you must loosen your grip when the axe, with its birch handle, hits the log, to allow for its levering movement. Each swing of the axe splits a piece of wood. The axe does not get stuck in the wood and holds it steady for the next swing. "You can easily and safely start splitting suitably sized logs from the sides by striking closer to edges. No more needing the futile first heavy strikes just to get the log split in two."

The log website promotes safety features. The Leveraxe does not bounce wildly as might happen with a traditional axe, said the company. The axe changes the kinetic energy to rotational motion and is easier to control. As important, "the Leveraxe head cannot go ballistic."

Should the axe head of a traditional detach from the handle and take off on a ballistic trajectory, there could be dangerous consequences. The inventor sought to eliminate that possibility, making the axe handle hole and handle asymmetric. He inserted the handle through the axe from the opposite direction than normally done, as a safety feature.

The videos that show his axe demonstrate how wood-splitting is done using a log-holding tire, for better ergonomics. (With a traditional axe, the site noted, using the tire on top the chop would be awkward and dangerous.) "When using a chopping block with a tire setup you can achieve a burst of strikes at a frequency of 100 strikes a minute. Thus, as an example, using 10 strikes to chop a log would take 6 seconds." One of the questions in his FAQ, though, is if one always needs a car tire around the chopping block when using the Leveraxe. The answer is No, one can chop on rock or asphalt."The best location is a half a meter (1.6 feet) tall chopping block. You can improve the result by using a tire in

conjunction with the chopping block. You can fill the tire with logs and start chopping them one by one. This way the logs will stay stationary while chopping and you can lift them all at once and move them to dry in a pile. By using the tire technique you'll save time, trouble and your back. It is best to use an extra wide tire in order to fit more and larger logs in it."

As for electrical hydraulic splitters, yes, they are handy; one just needs to press a button, but he pointed to their shortcomings, being they require electricity availability and often needing long electrical extension cords and residual current circuit breaker (RCCB).

More information: www.vipukirves.fi/english/