

IMPROVED HARVESTING METHODS

EQUIPMENT SURVEY NOTES

SINGLE LINE CONTINUOUSLY MOVING CABLE SYSTEMS

In addition to the Wyssen aerial transportation system reported in Equipment Survey Note No. 27, simple single line cable systems are used in European and other countries to transport chemical wood, pulpwood, and cordwood from cutting areas to landings. Because of their simplicity and ease of erection they are also well suited for harvesting thinnings and top wood in mountainous areas. Although details of construction differ, the basic principles of operation are the same -- a single endless cable makes a circuitous route through the woods serving both for load carrying and motivation.

Typical installations use about 6,500 feet of cable with a hauling distance slightly less than half that amount and are laid out as shown in figure 1. The cable travels clockwise to log area number 1, and is then reversed to log area number 2, after which a new set is made. Spacing or width of strips is determined by the ease and method of moving wood to the cable.

Specially designed guide pulleys and brackets are placed on trees or posts along the selected location. Design of these is the principal difference in the various systems; for example, a spurred pulley (fig. 2) is used on the Lasso system to permit passage of the load hooks, whereas meshed gears (fig. 3) are used on the Girardin-Maitre system.

Since these attachments are placed only high enough on trees 5 inches in diameter and up for loads to clear the ground, guys and braces are seldom necessary. Spacing of the attachments is closer on the incoming (load carrying) portion than on the outgoing portion of the cable, and ranges from 50 feet to 130 feet.

Cable size varies, but reports indicate 3/8 to 5/8 inch in diameter is commonly used at a speed of 100 to 300 feet per minute. Loads are hooked on to the cable at intervals of 16 to 30 feet and two hangers are used to support both ends of long wood. Empty hooks are sent to the woods in bundles on the return portion of the system.

Small motors of from 4 to 14 horsepower are sufficient to drive the gypsy drum and operate the system. Although operation is satisfactory on irregular ground it has not proved satisfactory for slopes of more than 45 degrees.

In one instance a system of this kind was set up in one day by 9 inexperienced men, and about 60 tons of wood per day were transported. Another operation transported an average of 39 cubic feet of fuelwood per man-hour. Size of wood, efficiency of the crew, and other factors determine the output.

Although more elaborate than single span gravity systems developed in Canada this system permits longer operating distances and is not limited to uniform slopes.

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† Maintained at Madison, Wisconsin in cooperation with the University of Wisconsin
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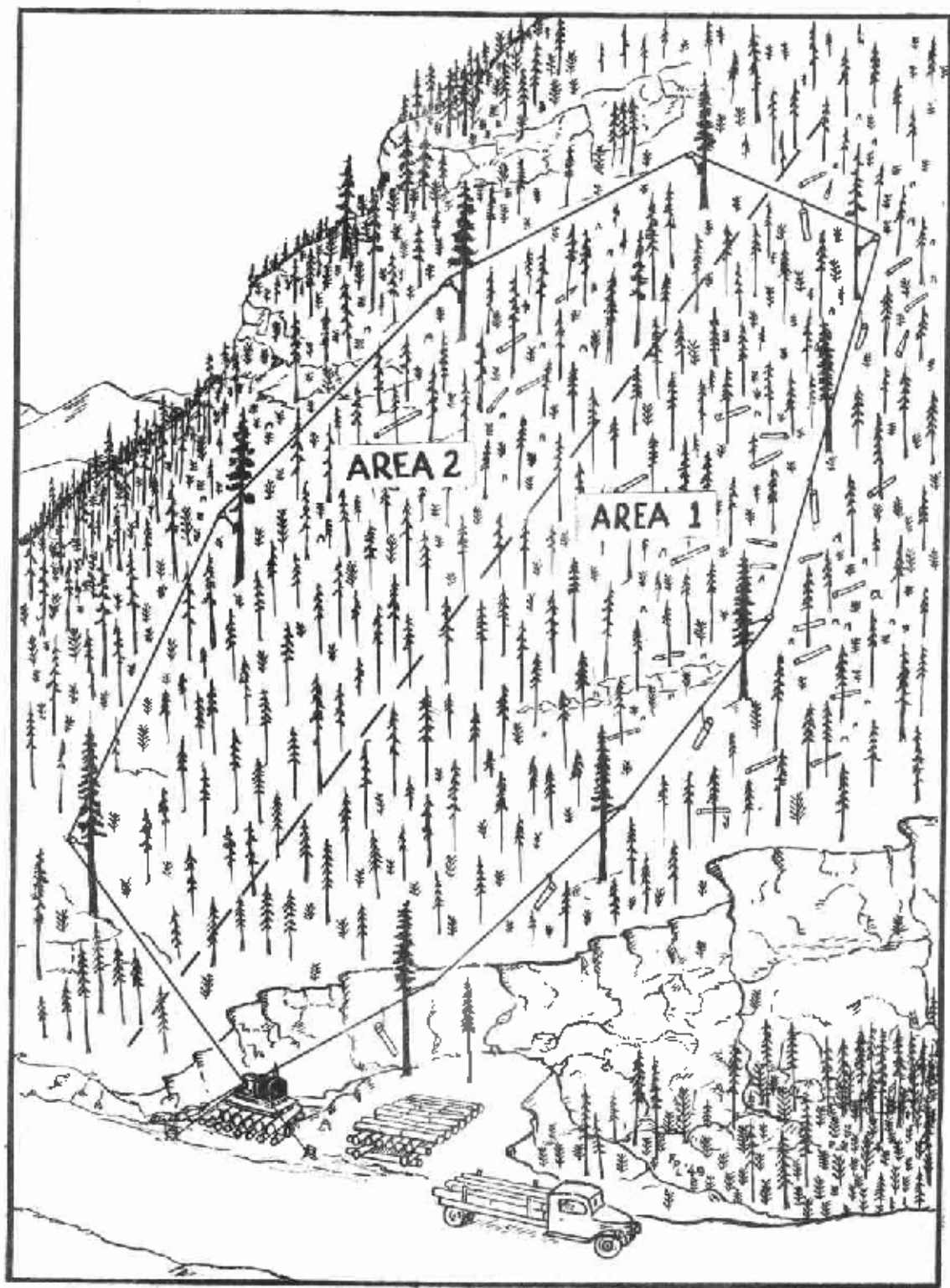


Figure 1.--Layout plan for single cable system.

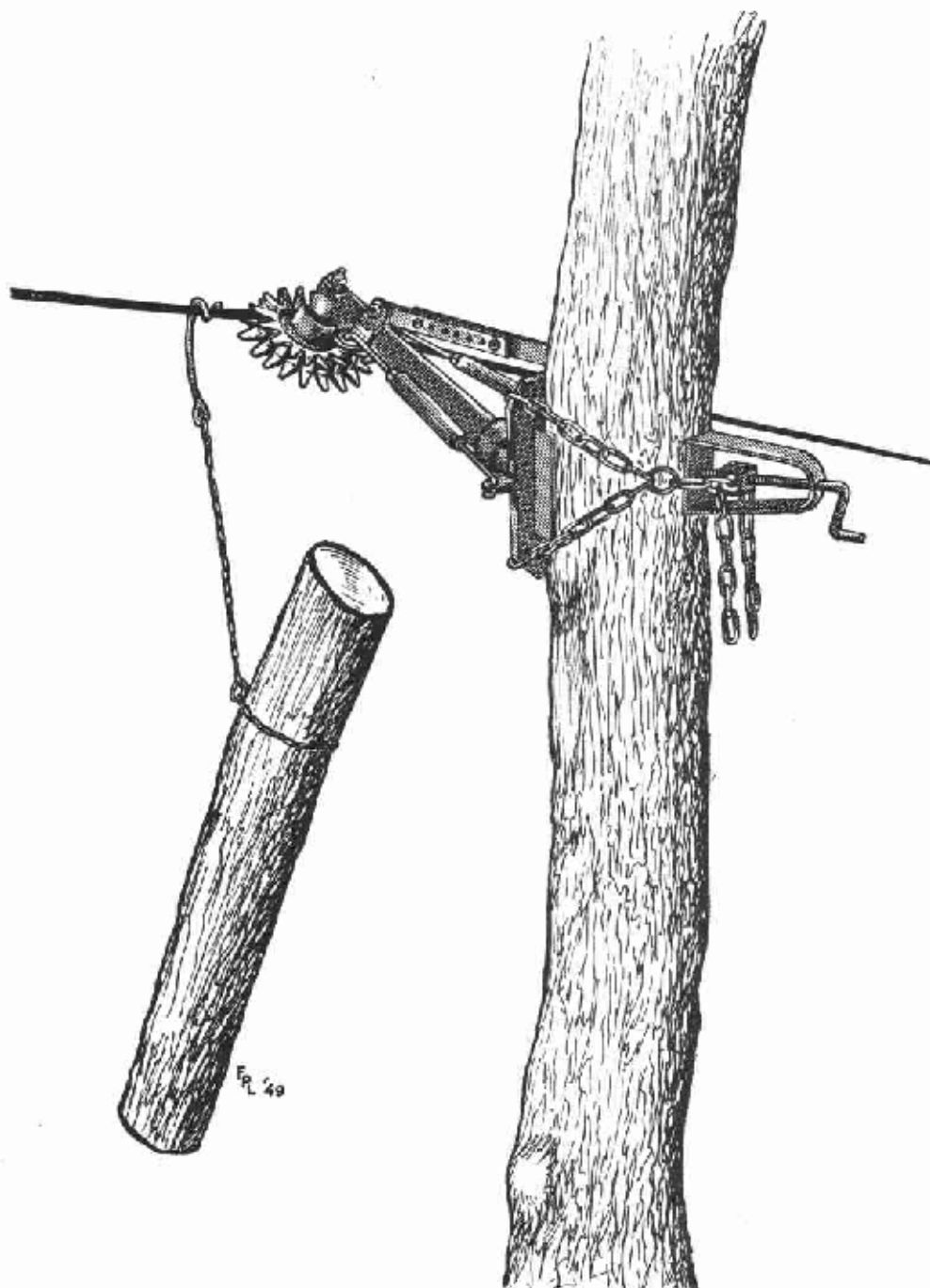


Figure 2.--Lasso cable system -- pulley, bracket and load hook.

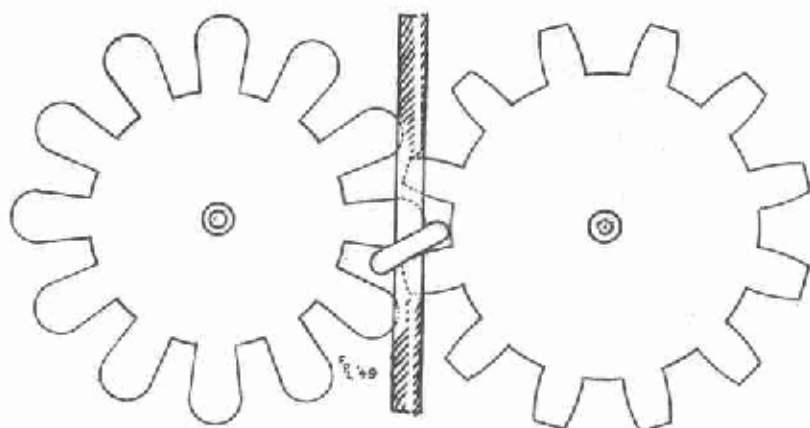
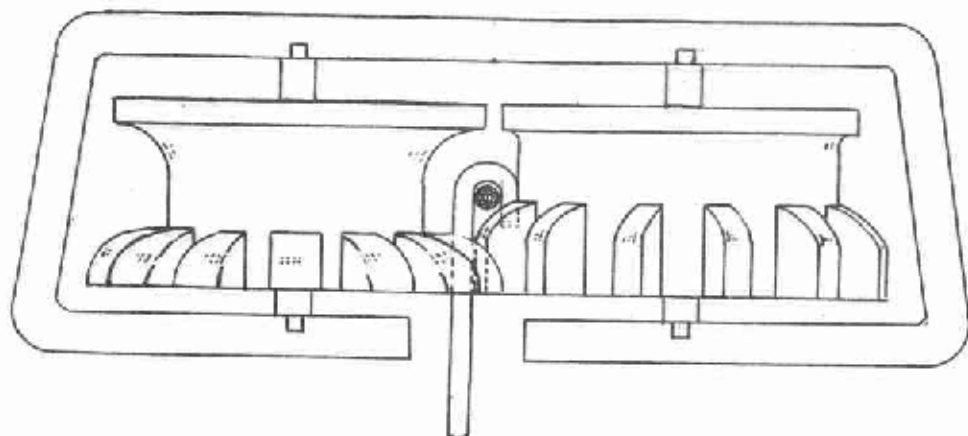


Figure 3.--Girardin-Maitre system gear assembly (French Patent 323,193).