

# Warping Winch

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In small fishing trawlers, the fishing gear is handled by hand and the operation is very hazardous. A warping winch designed at the Central Institute of Fisheries Technology, Cochin makes the operation of the fishing tackle in such vessels easier. The winch consists of a worm-wheel, housed in a cast iron housing—two warp heads are keyed to the shaft of the wheel one at each end. The winch is driven by the engine by means of V-belt and through a jockey-pulley-gear or any other clutch. The winch weighs 108 kg. and the cost of fabricating it (including the jockey-pulley-gear) at Cochin is Rs 850.

**M**ECHANIZED trawlers use mechanical gear handling accessories like a trawl winch for operation of the fishing tackle. The trawl winch is usually driven by the main engine in the case of small vessels and by an auxiliary engine in the case of their larger counterparts. In the fishing boat mechanization programme initiated in the country many small boats-trawlers—boats below 30 ft in overall length and powered with 10-20 h.p. diesel engines—have been introduced at various centres. These engines are not powerful enough to run a conventional trawl winch and the fishermen resort to hand operation of the gear which is hazardous, laborious and time-consuming. A warping winch has been designed at the Institute which is highly useful in such vessels. The main difference between the ordinary trawl winch and a warping winch is that in the case of the former, power required to haul up the gear is provided by the engine in full whereas in the latter only part of the power is supplied by the engine and this is supplemented by the efforts of men on board the boat. The note presents the description and operational features of the warping winch.

## Description

The main features of the warping winch are shown in Fig. 1. It consists of a bronze worm-wheel (3) in a cast iron housing (2).

The bottom half of the housing is cast integral with the base (1) of the winch. The upper half of the housing is bolted to the lower half by means of 4 mild steel through bolts. Two cast iron warp heads (6) which are so shaped that the trawl warp will always slip to the centre of the warp head and never slip away during operation, are keyed to the main shaft (4) of the winch, which is suitably supported by means of 2 gunmetal bearings (5). The winch can be installed on the deck of the boat by means of 6 galvanized steel bolts on a simple wooden foundation. The winch is connected to the engine by means

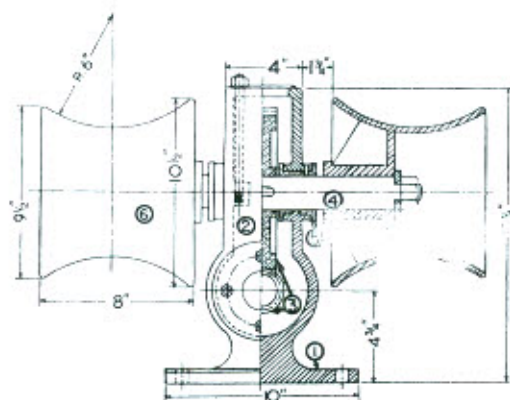


FIG. 1 — SECTIONAL ELEVATION OF THE WARPING WINCH

of a V-pulley or alternatively by means of a jockey-pulley-gear with flat belt which will transmit power from the engine and act as a clutch as well.

### Operation

When the clutch is engaged the warp heads rotate at a speed which is governed by the reduction ratio of the worm-wheel (42 : 1 in this case), the size of the pulleys used and the r.p.m. of the engine. These factors are so adjusted to obtain 25-30 r.p.m. on the warp heads. The trawl warps (which are generally vegetable fibre ropes in small nets) are wound round the warp head for two or three turns. The free ends of the warps are held by two persons one at each end to keep tension in the warp and the warp is slowly pulled assisted by the warping winch. During

actual trials it was found that it required only two persons to haul in the fishing net with this winch as against at least 4-6 persons without the winch.

The winch which measures  $23 \times 16\frac{1}{2} \times 15\frac{1}{2}$  in. weighs 108 kg.; the total cost of fabricating the winch (including jockey-pulley-gear) at Cochin works out to Rs 850.

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## Compressed Wood from Indian Timbers

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**R**ESULTS of investigation on the strength properties of compressed wood made from 12 species of Indian timbers have been reported earlier [*Res. & Ind.*, 6 (1961), 439]. The present note gives the results of investigations on compressed wood from 9 Indian species. Using the same techniques of preparation and testing of compressed wood blocks as described in the earlier communication, 7 new species namely, *Albizia lebbek*, *Albizia stipulata*, *Homa-*

*lium*, *Dipterocarpus macrocarpus*, *Acrocarpus fraxinifolius*, *Eucalyptus citriodora* and *Albizia lucida* and two species namely *Albizia procera* and *Dalbergia latifolia* partially reported in the previous note were studied.

### Results

The properties of compressed wood from the different species of timbers tested are given in Table 1. For comparison, strength values