A MACHINE FOR WINDING TRAWL CABLE

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An inexpensive device was developed to facilitate the frequent transfer of steel trawl cable between fishing vessel winches and storage reels. It has three components: reel lifter-stand, axle, and drive unit. The device can be readily transported because it is compact and weighs about 250 pounds.

The reel lifter-stand (Fig. 1) has two frames of schedule No. 40 steel tubing, galvanized after fabrication, and two bearings. The stiffener atop the handle is a 30-inch piece of $\frac{1}{4}$-inch steel plate, which tapers from 1 to 2 inches wide. The bearings are removable and easily replaced. A 2-inch piece of 4-inch outside diameter tube is machined to $2\frac{7}{8}$-inch inside diameter to mate with the bearing surface of the axle. The tubing is then sawed longitudinally to give two semicircular bearings, and each bearing is welded to an 18-inch stem of $1\frac{1}{2}$-inch pipe. The bearing stem is dropped into the riser, open upper end of the lifter-stand. Height of the axle may be adjusted by inserting a pin into holes in the lifter stand.

The axle (Fig. 2) is a 5-foot piece of $2\frac{1}{2}$-inch schedule No. 80 tubing with bearing surfaces machined near the ends. A flange is welded on one end and a drive sprocket bolted to the inside of the flange. The drive arm is a 12-inch piece of 1- by 2-inch steel channel with a slot, butt welded to the axle 7 inches from the sprocket. The slot in the drive arm permits the attachment of different steel reels to the arm by a $\frac{1}{2}$-inch machine bolt. A

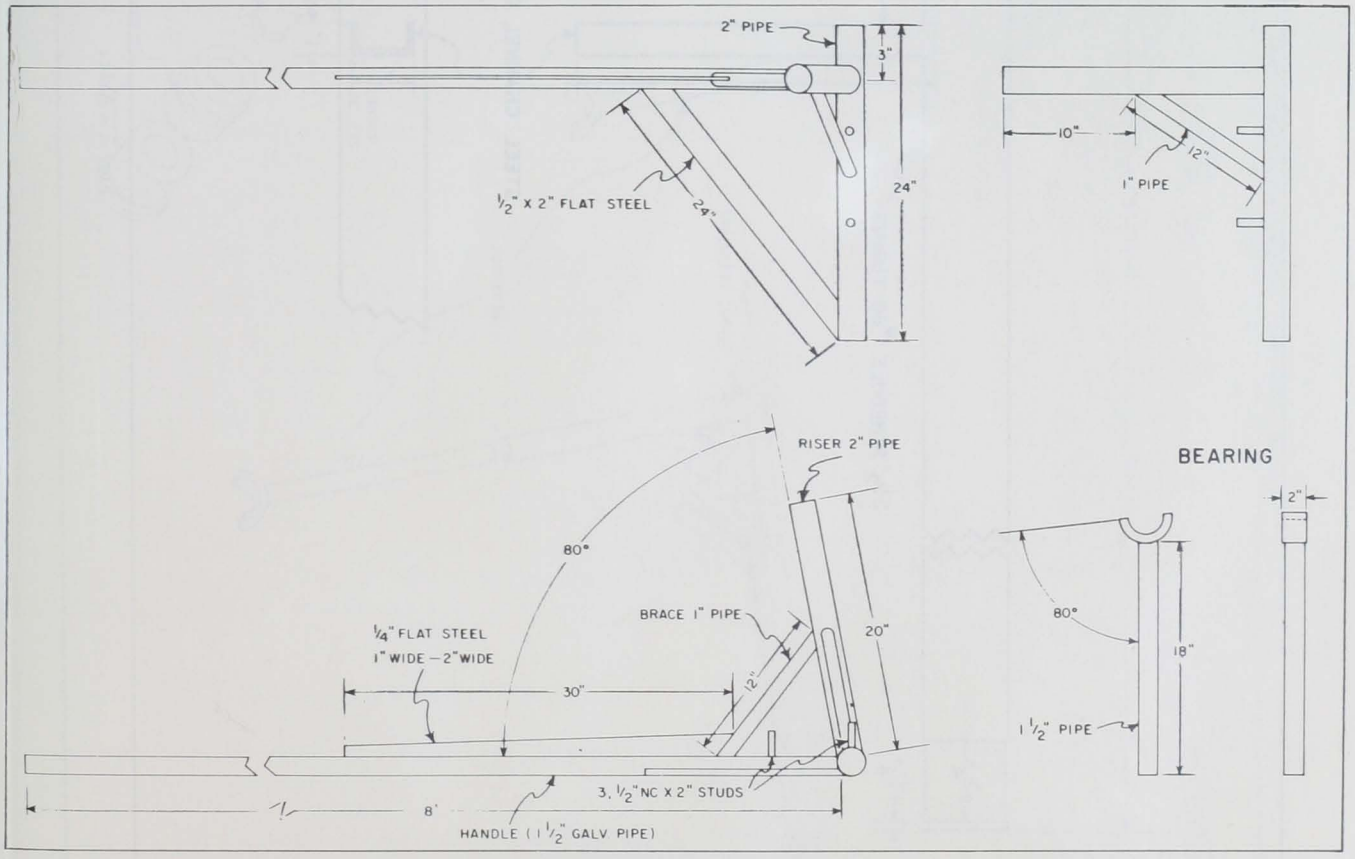

Fig. 1 - Reel lifter stand. Complete unit includes one frame as shown and one mirror image frame.

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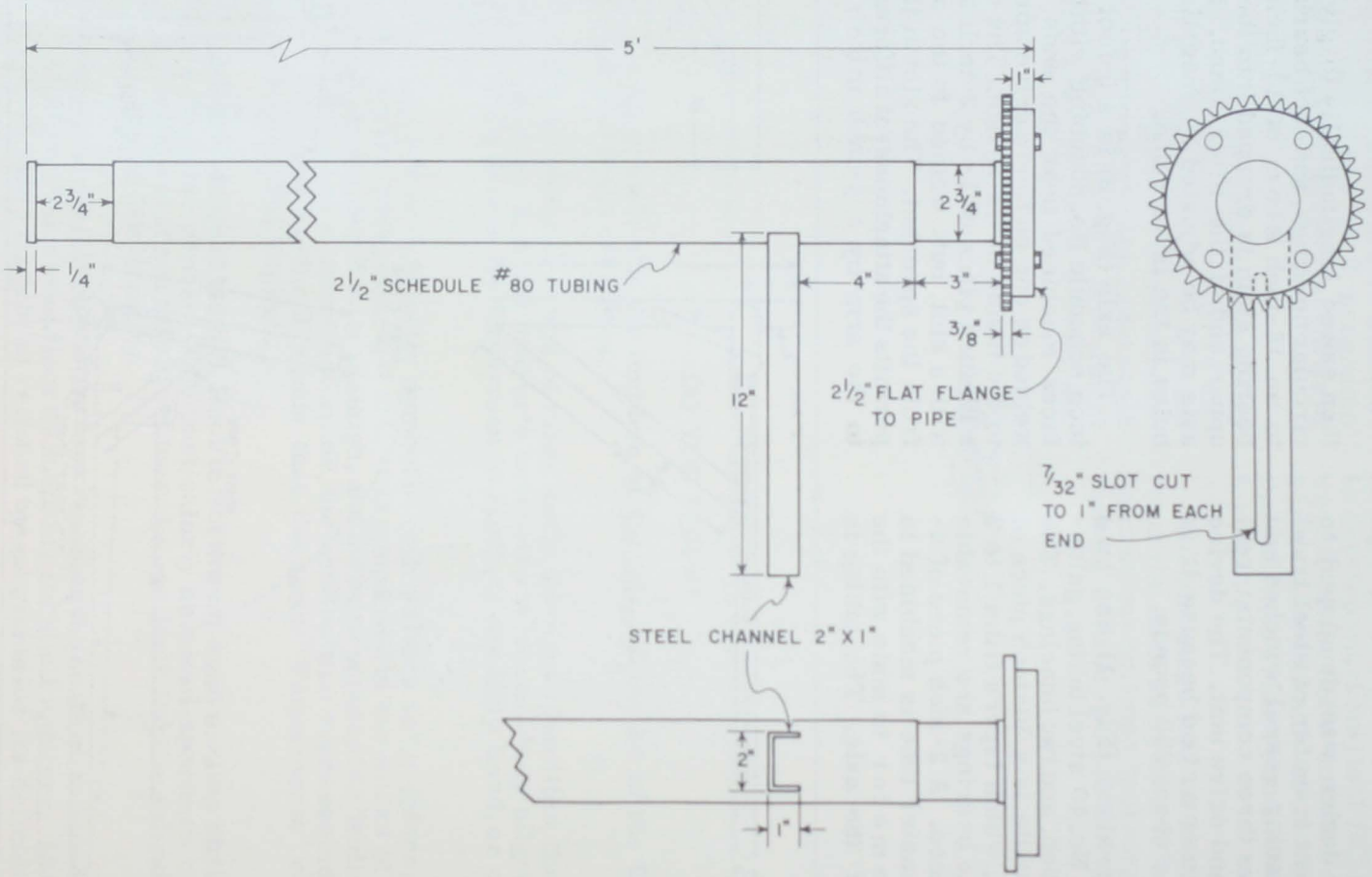
5'
1"
2 3/4"
2 3/4"
1/4"
2 1/2" SCHEDULE #80 TUBING
4"
3"
3/8"
2 1/2" FLAT FLANGE TO PIPE
12"
7/32" SLOT CUT TO 1" FROM EACH END
STEEL CHANNEL 2" X 1"
2"
1"

Fig. 2 - Axle.

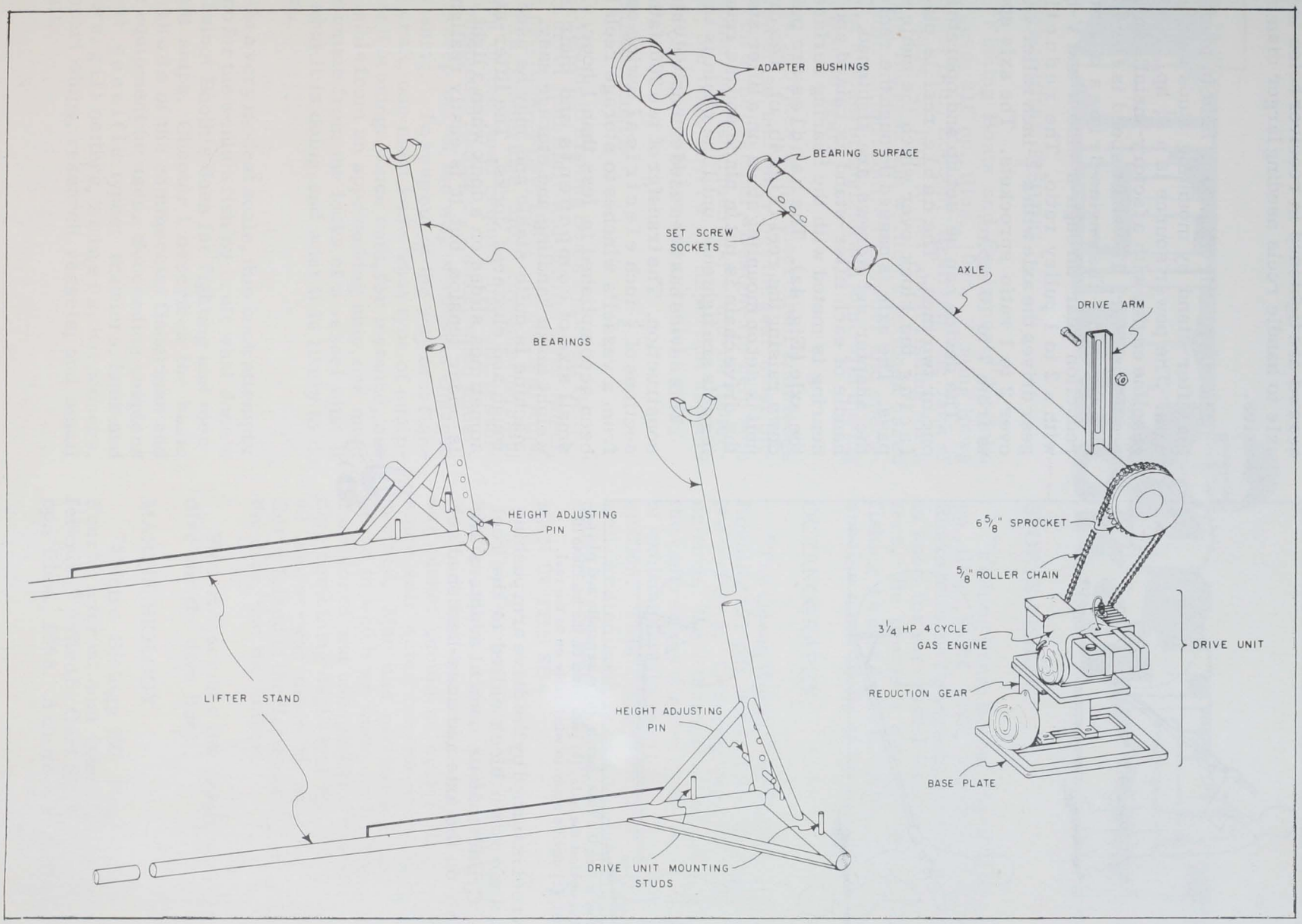

Fig. 3 - Complete assembly for winding cable, exploded view.

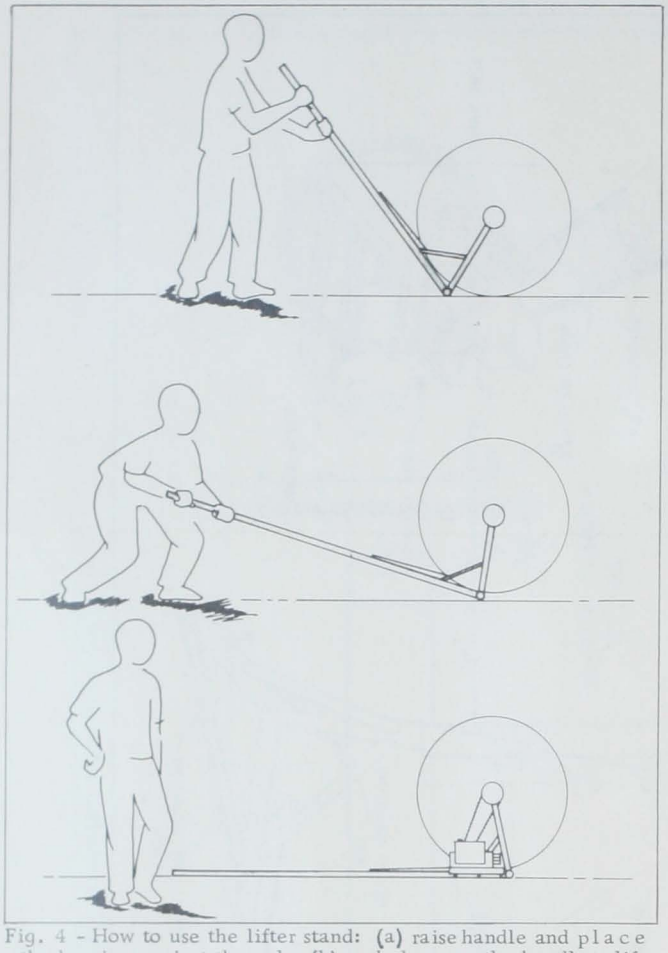

Fig. 4 - How to use the lifter stand: (a) raise handle and place the bearing against the axle; (b) push down on the handle to lift up the reel; (c) device ready to wind cable on to the reel.

wooden reel is turned by the drive arm pushing against a wooden block nailed to the reel flange. Cylindrical or conical adapters are slipped on the axle and case-hardened set screws are tightened in receiver holes in the axle to handle reels needing larger diameter axles.

The drive unit (Fig. 3) is held in place on the lifter-stand by mounting studs and wing nuts. The power source is a $3\frac{1}{4}$ hp., 4-cycle gasoline engine with a factory-installed 6 to 1 reduction gear. The shaft speed is from 300 to 400 r.p.m. The engine drives a 10 to 1 reduction gear through a clutch and V-belt with a 2 to 1 pulley ratio. The reduction gear drives the axle with a $\frac{5}{8}$-inch roller chain over 2 to 1 ratio sprockets. The axle speed is from 7 to 10 r.p.m.

The device can be set up and operated by one or two men. The cable reel is placed facing the block over which the cable will pass. The axle is passed through the reel and the adapter set screws are tightened. The handle of each lifter-stand is raised and the bearing is mated with the bearing surface of the axle (Fig. 4a). The handles are pulled down raising the reel (Fig. 4b, c). The drive unit is set on mounting studs on a lifter stand, the drive chain is put in place and the retaining nuts are tightened until the chain is taut.

This device has been used extensively since construction. The transfer of two 300-fathom sections of $\frac{5}{8}$-inch electrical towing cable from a vessel's winches to storage reels has been accomplished in less than 1 hour. The small size of components and their light weight make handling and storage easy. The machine is quite stable and may be used on rough and cluttered docks. The lifter-stand sometimes slides on a dock when a light reel is under tension, but it is easily realigned.