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ALABAMA COOPERATIVE EXTENSION SERVICE/AUBURN UNIVERSITY/AUBURN, ALABAMA

S H R I M P F I S H I N G

with

T W I N T R A W L S

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T W I N T R A W L S

In the 1950's many of the shrimp boats along the Gulf of Mexico began using two smaller trawls--one off each side of the boat--rather than a single large trawl. Many shrimp fishermen maintain that two smaller nets with the same combined mouth opening will outproduce a large net. Smaller nets can be made much shorter so they require less netting. There is less weight and less drag. The boat can go faster and nets sweep over more area. It is generally felt that the double-rigged boats marked a major improvement in fishing efficiency.

Recent developments in the Gulf of Mexico shrimp fishery suggested that another change in trawling is taking place. This involves the towing of two trawls, or twin trawls, on a single cable (Fig. 1). The most obvious modifications are the use of a sled, or "dummy-door", in between the two nets and the addition of a third wire to the bridle.

About 1958 shrimp fishermen experimented with the use of twin trawls. They were unable to perfect the method because of difficulties in rigging and retrieving the gear. During the past few years, Texas shrimpers resumed working with these trawls. The University of Georgia Sea Grant program also began refining the system for the shallow water shrimp fishery in the South Atlantic. Practical systems have been developed and shrimp fishermen throughout the Gulf of Mexico and the South Atlantic are now changing over to the twin trawl system. Results thus far indicate that these rigs are 10% more productive than conventional

nets. Some fishermen have even reported an 18% increase. Fuel savings were found to be 20%.

A top view of the twin trawl with the standard doors on the outside of the two nets and the dummy-door or sled between the nets is shown in Figs. 3 & 4. Another method of towing twin trawls is to use weights between the two nets called bowling balls or bullets. Twin trawls can be towed by the conventional single-rigged boats or from each outrigger on a double-rigged boat. The nets are smaller than the single ones, but the actual sizes and the size of the doors varies according to the size of the boats engines, preference of the boat operator and other considerations.

DUMMY DOORS. -- Two different types of dummy-doors are shown in Figs. 3 & 4. In both types the length of the sled and the height of the after-end is the same as the main trawl doors. According to a rule of thumb used by Texas fishermen, the towing point on the upper edge of the dummy-door is where the distance to the bottom edge is one half the height of the after-end. This is apparently satisfactory for the Texas boats which fish in relatively deep water, but proved to be impractical for the shallow-water shrimping done in Georgia. The Georgia trawl's sled is constructed with the towing point moved further forward. The single-frame dummy-door shown in Fig. 3 is designed for use with trawl doors measuring five feet long by 30 inches high, and is towed from a fixed towing plate on the upper edge. Several holes in the towing plate permit shifting the position of the towing point to adjust for different conditions.

A double-frame dummy-door is recommended for use with larger main doors and larger nets. The one shown in Fig. 4 is for use with doors measuring six feet long by three feet high. The double-frame is further

strengthened by additional bracing on the upper edge and the after-end. The door is towed from a removable towing plate which can pivot vertically. Several sets of holes permit changing the position of the entire plate. For ease of maintenance, the towing plate can be built with a grease fitting.

The three bridle wires come to a point about 40 fathoms in front of the doors, where they are spliced and shackled to the main tow wire. If the three bridle wires are the same length, the main doors would tend to be ahead of the dummy-door when the gear is being fished. To make up for the spread of the main doors and to keep the wings of the nets even, make the leg-lines behind the main doors about one and one-half to two feet longer than those behind the dummy-door.

On the smaller dummy-door (Fig. 3), the net leg-lines are attached by shackles to the padeyes on the top and bottom. On the larger door (Fig. 4), attachment of the leg-lines is much simpler. The leg-line thimbles are placed in the brackets on the top and bottom, and are held in place by four bolts which act as pins. Retaining nuts are not necessary because gravity and the strain on the leg-lines keep the bolts in place.

Attaching a short length of chain to the middle bridle wire and leadline towing plate has improved the system in Georgia. These changes take the strain off the sled and place more on the corkline. This allows the sled to tend bottom and ski over it better.

FLOAT AND WEIGHT RIG -- Another method of towing twin trawls is the float and weight rig, or "bowling ball" rig. This arrangement eliminates the need for a sled and allows higher opening of the trawls. The rig shown is Fig. 5 uses weights to keep the leadline on the bottom and

the float allows the corkline to be trawled higher. The rig does require a fourth bridle wire. This wire is spliced 25 feet up into the third--or middle--bridle wire which was used to tow the sled. The fourth wire leads to a float approximately eight inches in diameter. About 100 lbs. of weight is attached to the third bridle wire. The float and weight are attached to the twin trawl system by an extension. The extension Y in Fig. 5 should be the same length as the distance (X or Z in Fig. 5) from the attachment point of the leg-line to a point along the trawl board perpendicular to its towing point. A similar system called a bullet is being developed in Texas.

TROLLEY BLOCK SYSTEM--- For twin trawls a trolley block system should be used to ease the handling of doors from the outriggers to the deck and back. The tickler chains on the twin trawls are much shorter than on the standard rigs, and fouling of the chains can be cleared much more easily.

The end of an outrigger with the trolley block arrangement, as seen from the stern, is shown in Fig. 6. The trolley block just below the main towing block has two lines attached to it. The door-lifting line leads either to a double block, or to one of two fat-boy blocks on the overhead stay in the same location as the standard doorstrap block. An individual door-lifting line services each outrigger. The ends of these lines are secured to the pinrail. The retrieving line passes through an idler block and is used only to position the trolley block. This system is useful not only on double-rigged boats using twin trawls, but also would be practical on the standard double-rigged boats. It eliminates the use of hook poles and door straps.

LAZY-LINE ARRANGEMENT FOR BRINGING THE TWIN BAGS ON BOARD--The enlarged insets in Fig. 2 show how the two bags on each side are brought on board at the same time. The inside net simply has a strap with a ring on each end (A, Fig. 2). The lazy-line passes through the ring and is tied off on the outside net (B, Fig. 2). As the lazy-line is being hauled in, the knot on the outer bag snatches up on the ring of the inside net, and both bags are brought alongside. They are then secured and brought on board in the usual way.

The length of the lazy-line is critical. If the line is too long, it will tend to loop over the outside bag. If too short, it will choke off the bag. One formula for determining the lazy-line is:

Length of lazy-line = a + b + c

a = the maximum spread of one net including legs
b = the length of one net from the door down the top seam
c = 3 fathoms

This is a good length to begin using, but adjust the length if the need arises.

The twin trawl system seems to be the next step in Gulf trawling and new developments will come about in the near future. The Sea Grant Advisory Service will try to keep you informed as these developments occur.

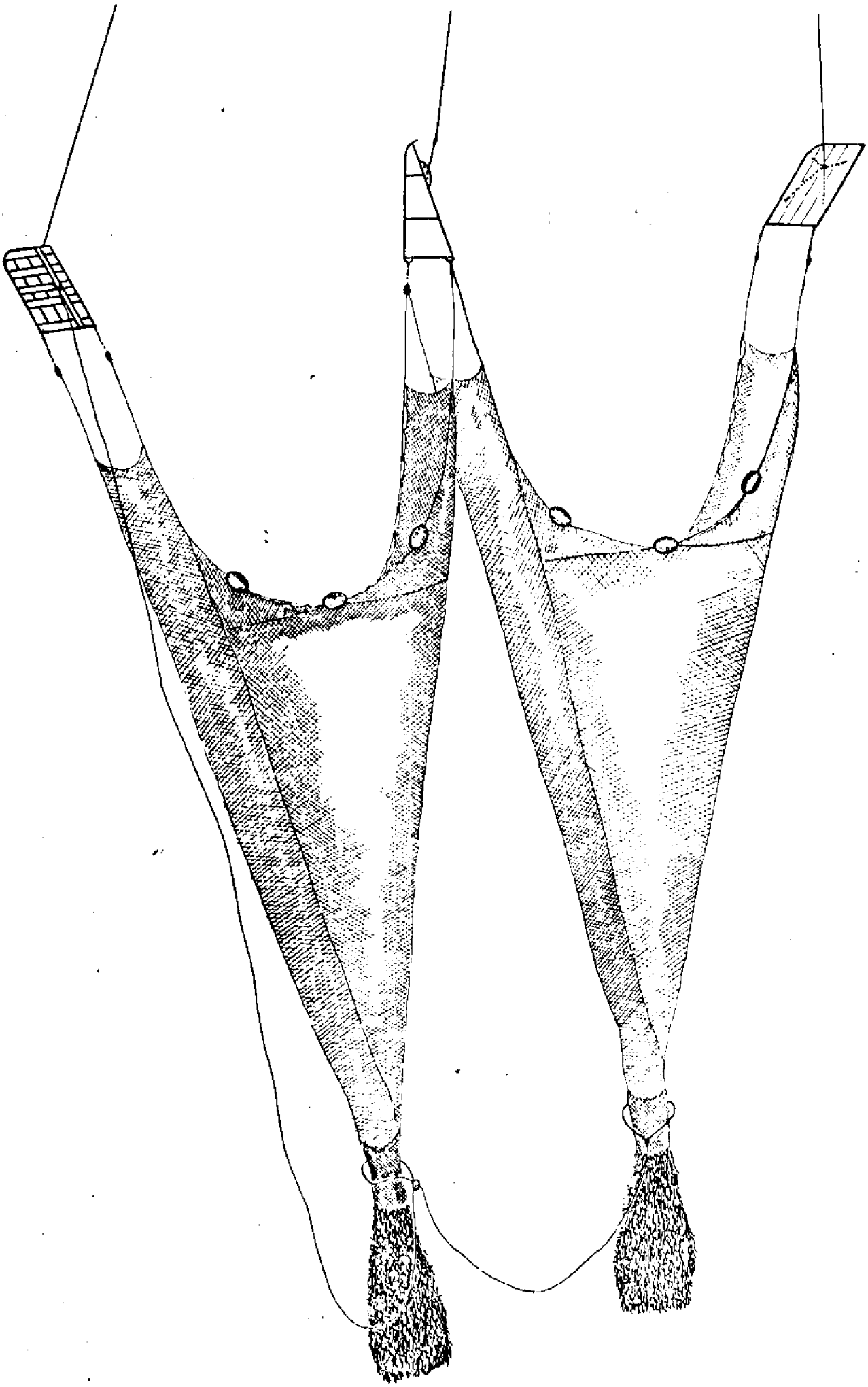

Fig. 1. Twin trawl system with a sled.

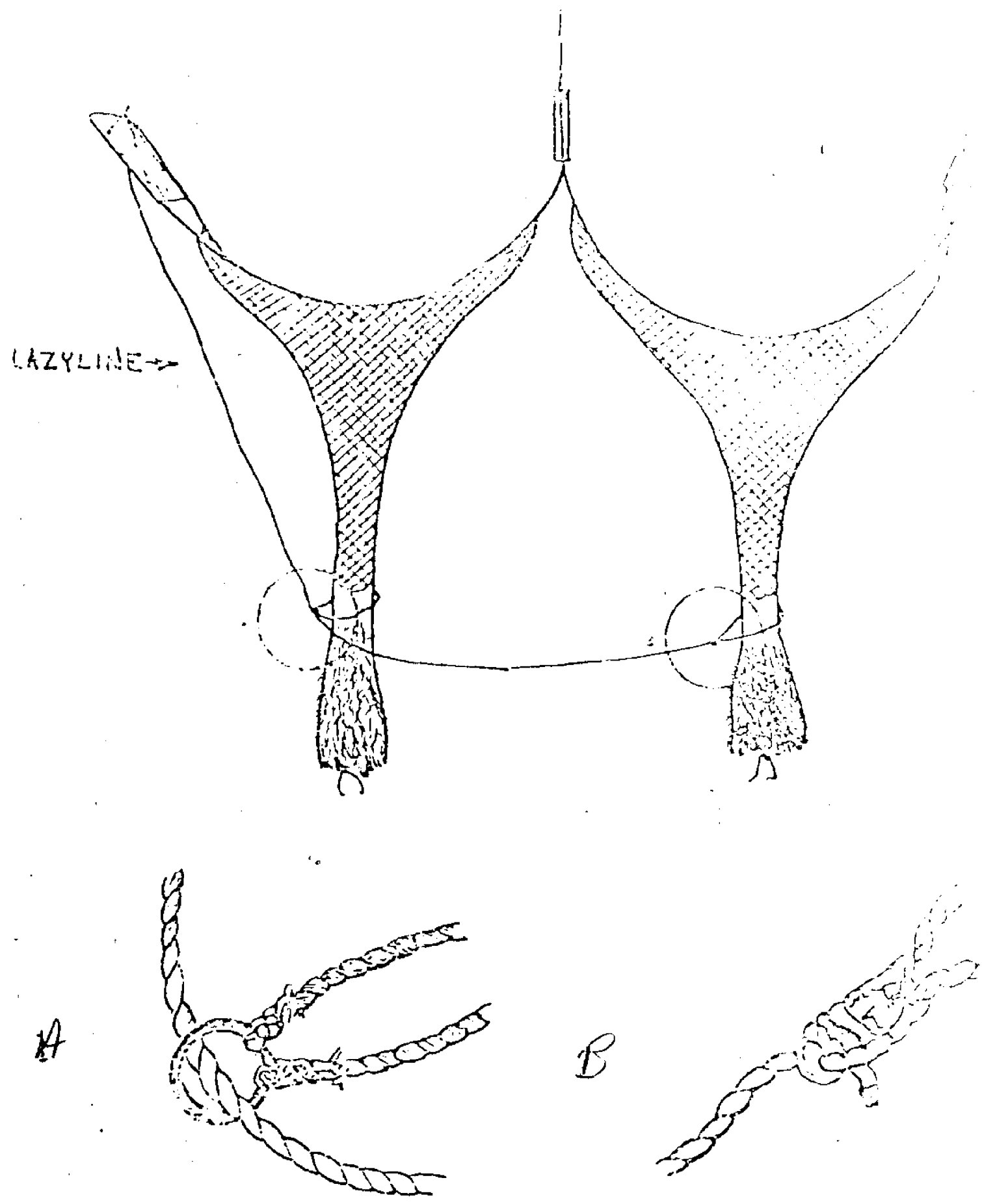

Fig. 2. Diagrammatic top view of the twin trawl rig with the dummy-door. Enlargement of the lazy-line passing through the stopper ring on the bag strap of the inside net. B) Enlargement of the stopper knot on the lazy-line on the outside net.

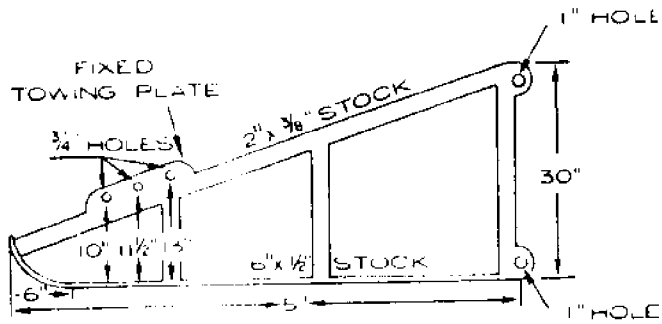

Fig. 3. Smaller single-frame dummy-door. The fixed towing plate and forward vertical bracing bar were moved more forward than in the original Texas-type doors.

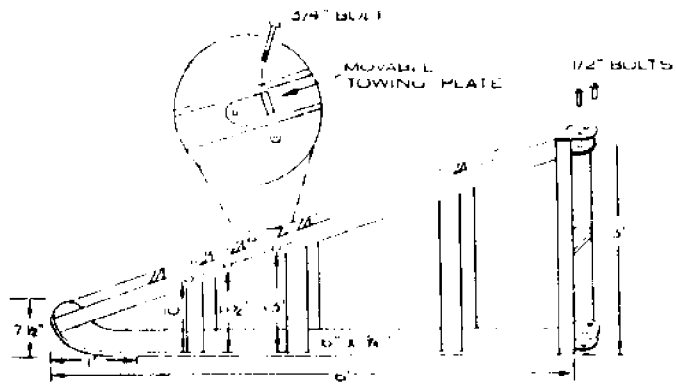

Fig. 4. Larger double-frame dummy-door. The towing points are placed more forward than in the original Texas-type doors.

Fig. 5 **FLOAT & WEIGHT RIG**