Jan. 5, 1960 S. KRONHAUS 2,919,763

MARINE SCAFFOLD

Filed Nov. 22, 1954

FIG. 1.

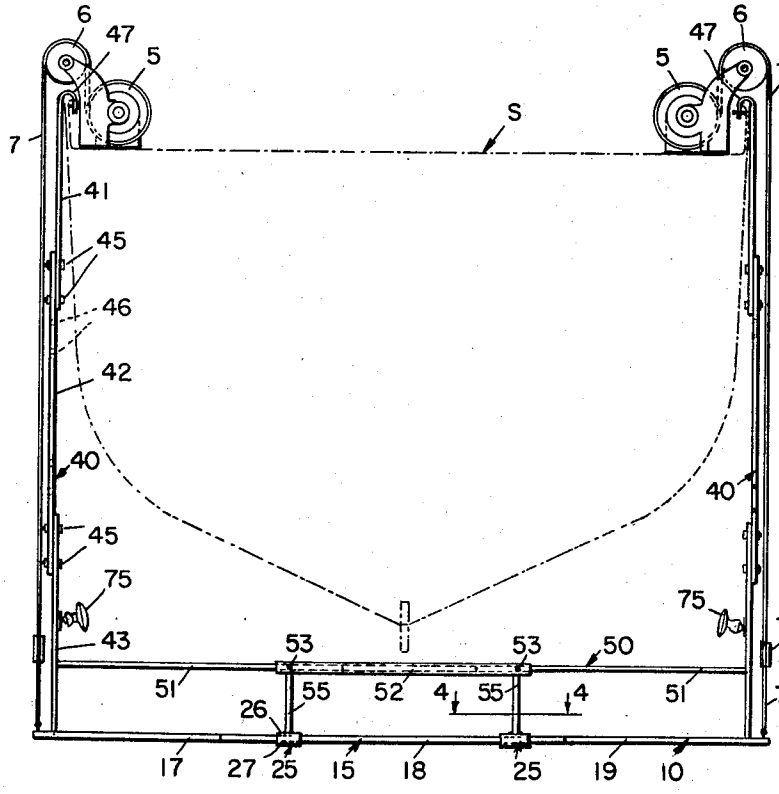


FIG. 2.

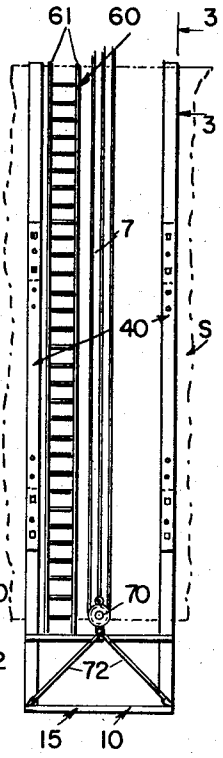


FIG. 3.

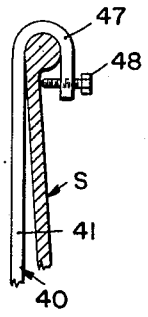


FIG. 4.

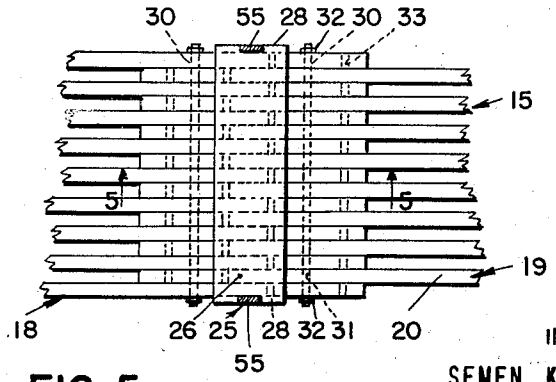
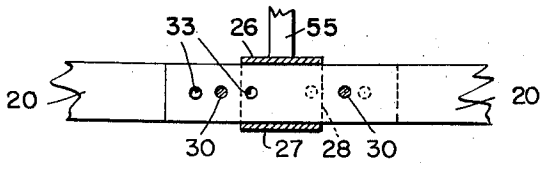


FIG. 5.



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United States Patent Office 2,919,763 Patented Jan. 5, 1960

2,919,763

MARINE SCAFFOLD

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Application November 22, 1954, Serial No. 470,202

1 Claim. (Cl. 182—112)

My invention has to do with scaffold devices adapted as attachments for ships and is peculiarly suited for underwater work either in servicing a floating ship, or for carrying out underwater exploration work, such as in locating and examining sunken ships or in geophysical exploration work, or for untangling anchor chains which often become entangled with a ship's rudder, or for repairing leaks in the hulls of ships, or in marine salvage work.

According to conventional practices, such work has heretofore been carried out by divers wearing very heavy diving equipment. However, such heavy diving equipment seriously hampers the movements and work of the diver. This is particularly true where there are strong underwater currents or muddy bottoms because, in such cases, the diver, laden with such heavy equipment, has great difficulty in walking, causing him to become physically exhausted after only a short time. While heavy diving bells have been used to some extent in some of such work, such devices are extremely heavy, bulky and costly, are difficult of manipulation and do not allow the occupant the necessary freedom and access to perform the work. Also, in various kinds of ship servicing work, it has been necessary to place the ship in a drydock, which is very expensive and time-consuming, often requiring that the ship be towed for a long distance to an available drydock.

It is an object of my invention to provide an adjustable marine scaffold which overcomes those difficulties.

It is a further object to provide a scaffold of this character which may be attached to and adjustably suspended from the bulwarks of a ship to support workmen equipped only with very light diving apparatus, and which is suitable for use either as a work platform or as an observation platform.

It is a still further object to provide a device of this character which is adjustable to ships of various sizes, as well as adjustable to various depths.

Still further objects and advantages will appear hereinafter.

While I shall point out in the appended claims those features which I believe to be new, I shall now, for the purpose of rendering my invention clearly understandable to those skilled in the art, describe in detail a presently preferred embodiment thereof, for which purpose I shall refer to the accompanying drawing, wherein:

Fig. 1 is a side elevational view of my scaffold suspended from a ship;

Fig. 2 is an end elevation of the device;

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is an enlarged plan view taken on line 4—4 of Fig. 1; and

Fig. 5 is a section taken on line 5—5 of Fig. 4.

Referring now to the drawing, I show in broken lines a section of a floating ship S carrying power driven winches 5 and supported sheaves 6 for the purpose of taking up and letting out cables 7, the purpose of the

winches, sheaves and cables being to facilitate raising and lowering, and for supporting some of the load of, my scaffold device, generally denoted by the numeral 10 and now to be described.

My scaffold device 10 comprises a floor or platform 15 preferably composed of intermeshed or telescoping, longitudinally adjustable sections 17, 18, and 19, each section preferably being composed of transversely spaced timbers or bars 20. The timbers or bars of the central section 18 intermesh at their ends with the timbers or bars of the end sections 17 and 19, as best shown in Fig. 4 so that the sections telescope relative to each other, a guide member 25 being provided adjacent each end of the central section. Each of the guide members comprises a top plate 26, a bottom plate 27, and end plates 28. Retaining rods 30 extend through transversely registering holes 31 in the timbers 20, the rods being threaded at their ends to receive nuts 32. Thus it will be apparent that the floor or platform may be telescopically adjusted in length, one or more additional rows of registering holes 33 being provided in the timbers 20 in spaced relation to the holes 30 to permit of such adjustment.

At each end, the floor 15 is suspended from the bulwarks of the ship by a pair of uprights 40, each consisting of a plurality of links 41, 42, 43, longitudinally adjustably interconnected by bolts 45 which pass through registering holes in the links. The center link 42 is preferably provided with additional spaced holes 46 for adjustment purposes. The top link 41 is formed into a hook 47 to be engaged over a bulwark, a set screw 48 being threaded through the end portion of the hook to lock the same to the bulwark (Fig. 3).

A hand rail 50 is provided longitudinally of the floor on each side thereof. Each hand rail comprises end rods 51, telescopically engaging in a center tube 52 and locked in position as by set screws 53. The hand rails are secured at their ends, as by welding, to the respective uprights 40, and are supported intermediate their ends by posts 55 extending upwardly from the guide members 26.

To enable helmeted workmen to descend from the deck of a ship to the floor 15 and to return at will, I provide a ladder 60 which is preferably hooked at its top end 61 over the bulwarks.

Each of the lifting cables 7 is arranged about a block and tackle 70 connected to the floor by links 72.

For illuminating the work, I may provide electric lights 75 which are conductively connected by wiring, not shown, to a suitable source of electricity, not shown.

From the foregoing description, it will be apparent that my scaffold can be lowered over the end of a ship after being adjusted to the width of the ship by means of the longitudinally adjustable floor and hand rails, and may also be adjusted as to the depth by means of the longitudinally adjustable uprights 40. Thus the floor 15 may be occupied by helmeted workers for the purpose of scraping or repairing the submerged hull of a ship, or for repairing the rudder or propeller, or untangling the anchor chain, or it may be used to support observers of underwater conditions, submerged objects and the bottom, while the ship is moving along the water, and may be used for various other underwater work.

Also, my scaffold device, which may be disassembled and carried as part of the ship's equipment, is useful in the event of ship collisions at sea, such, for instance, as where one ship rams into the side of another ship. In such a case the ramming ship should not reverse its direction to pull away from the rammed ship because, by so doing, the hole resulting from the ramming will be exposed to admit water to the interior of the rammed vessel. By lowering my scaffold to the point of the hole, the ex-

tent of the damage can be readily observed and a determination may be made of the steps which should be taken to prevent sinking of the rammed ship or to permit the ships to be moved to shallow water before being separated. In fact, my scaffold finds great usefulness in most any kind of underwater work in connection with a ship.

I claim:

An adjustable scaffold adapted to be suspended from the bulwarks of a ship, comprising a longitudinally telescopically adjustable platform, relatively adjustable substantially rigid links secured at their lower ends to the end portions of said platform and having hook members at their top ends for engagement with said bulwarks, said links having means for securing the same in relatively adjusted position, and platform supporting and adjusting means independent of said links for raising and lowering said platform into adjusted position below the ship from which it is suspended and for supporting said platform in adjusted position while said links are being secured in relatively adjusted position, comprising cables secured at their bottom ends to the end portions of said platform and

means at the other end portions of said cables disposed to be carried by said ship for taking up and letting out said cables.

References Cited in the file of this patent

UNITED STATES PATENTS

651,337	Brooksbank	June 12, 1900
783,276	Hughes	Feb. 21, 1905
789,650	Berg et al.	May 9, 1905
1,506,114	Donaggio	Aug. 26, 1924
1,929,325	Masterson	Oct. 23, 1933
2,067,344	Ringe	Jan. 12, 1937
2,570,076	Sims	Oct. 2, 1951
2,598,730	Thompson et al.	June 3, 1952
2,600,199	Brewster	June 10, 1952
2,639,950	Wheeler	May 26, 1953
2,669,490	Kaufman	Feb. 16, 1954

FOREIGN PATENTS

862,165	Germany	Nov. 20, 1952