To all whom it may concern:

Be it known that I, Joseph A. Steinmetz, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Landing and Transfer Nets for Use at Sea, of which the following is a specification, reference being had therein to the accompanying drawing:

The objects of this invention are to provide for the safe replacement on board a vessel at sea of aeroplanes sent out therefrom, even in rough weather, and further to provide for the safe transfer to small boats of persons on board ship when such ship is burning or likely to sink. Statistics show that such ships usually remain afloat for some time, often hours, after the seriousness of the conditions are fully recognized, and with smooth seas and a sufficient equipment of small boats escape from the ship is fairly well assured. But when the sea is rough, safe launching of small boats fully loaded is extremely difficult, and the near approach of boats from other ships is hardly less dangerous, for well known reasons. It follows that small boats free from the ship in distress often confine their efforts to saving such persons as have left the ship and have been able to remain afloat. To avoid or greatly lessen these evils is an end sought.

In the accompanying drawings, Figure 1 shows in side view a ship provided with my devices. Fig. 2 is a similar view illustrative of transferring persons from the same ship to small boats. Fig. 3 is a plan view of a portion of the ship and the devices connected therewith. Fig. 4 is a view similar to Fig. 2 suggesting the action of my devices under certain special conditions. Fig. 5 is a section on the line 5--5, of Fig. 3.

In these views, A represents a ship, head to the wind, having attached to its stern portion, near the plane of the deck, one margin of a broad, rectangular net B extending to a considerable distance from the vessel and having its outer margin sustained by a series of floats X joined to each other by spacing flexible connections Y. The net preferably consists of a series of parallel flexible cables D connected at their outer ends, and preferably at their inner ends also, by a flexible transverse cable D'. The cables D are laterally connected to each other by a downwardly bellying network E of small, ropes or cords forming a series of troughs. This structure when not in use is preferably stored in a receptacle plentifully supplied with oil so that when put in the water the oil tends to produce a smooth surface, lessening the waves over a considerable area. Preferably, the width of the net is approximately equal to the width of the vessel, while its length is materially greater.

The net in position affords a landing space of such extent that an aeroplane may readily come to rest therewithin, which it is comparatively free from waves and in position to be hoisted on board by ordinary means or to be drawn up by cables G extending from the aeroplane or from the outer margin of the net to the ship's deck and operated manually or by power, as may be desired. It may be observed that if the ship be advancing or if the ship be stationary and the wind be from the ship, the floats tend to keep the net fully extended. As indicated in Fig. 2, the same net serves as an inclined way for persons passing from the ship to small boats H brought near the rear portion of the net and temporarily held thereto by boat hooks or other suitable means. Obviously, the net automatically adjusts its inclination to any movements of the ship, as suggested in Fig. 4, and many persons may pass quickly down this incline to the boats, the trough-like channels making it practically certain that none will pass off the net and also tending to prevent missing of people at any point even should none keep their feet. At the same time, the margins of the net afford an excellent hold for any who may for any reason find themselves alongside the net. It is also plain that a large number of boats may be loaded at the same time, and that as fast as they are loaded they may leave the net, while in case the ship should sink before the last boat has cast off, the connection of such boat with the net may be instantly broken, the net of course following the sinking ship. The net is not necessarily attached to the stern, the upper davit stanchions and the like affording ample facilities for attachment at any point that circumstances may make the most favorable.

The ship's own boats may be launched without occupants other than suitable crews for rowing them to the net or for guiding them thereto as they drift astern if the ship be advancing, and thus the difficulty of safe launching is minimized and the crushing of
boats by their pounding against the ship's side while heavily loaded is entirely avoided.

What I claim is:

1. The combination with a ship, of a net having one margin attached to the ship near its deck and comprising a series of spaced approximately parallel cables gently curved in vertical planes, extending to and along the surface of the water to some distance from the ship and laterally connected by a flexible network forming from end to end of the cables trough-like ways along which persons while holding to the parallel cables may walk from the ship to the net's outer margin, and a series of floats spaced apart and sustaining the outer margin of the net.

2. The combination with a ship, of a net adapted for allowing persons to walk thereon, secured along one margin to the ship and having its distant opposite margin sustained by a series of floats, and a series of parallel cables secured to the net and running, above the body of the net, from the ship to said distant margin forming a series of narrow alleys along which persons may walk while holding fast to said cables.

3. The combination with a ship, of a net secured along one margin to the ship and composed of spaced parallel flexible cables having their outer ends connected by a transverse cable and all connected laterally by a continuous flexible network, and a series of floats connected to the outer side of the structure and joined in series by spacing flexible connections.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH A. STEINMETZ.

Witnesses:

E. M. CONREY,

H. G. VAN COURT.