

G. A. DICKIE.
 PLANER FOR THE SURFACES OF SHIPS.
 APPLICATION FILED FEB. 27, 1918.

1,294,426.

Patented Feb. 18, 1919.
 4 SHEETS—SHEET 1.

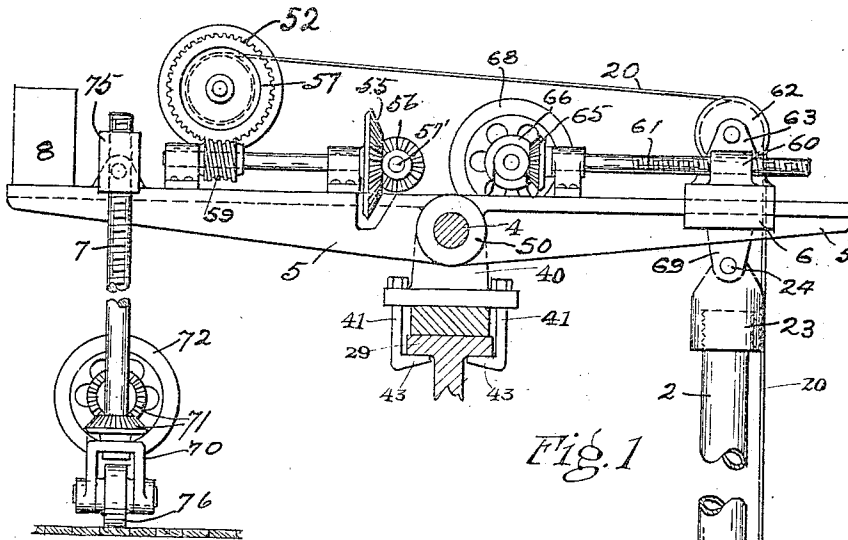


Fig. 1

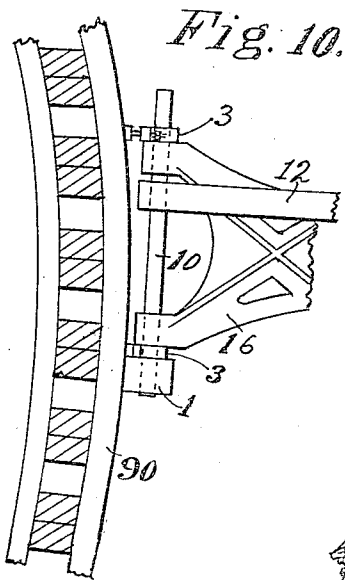
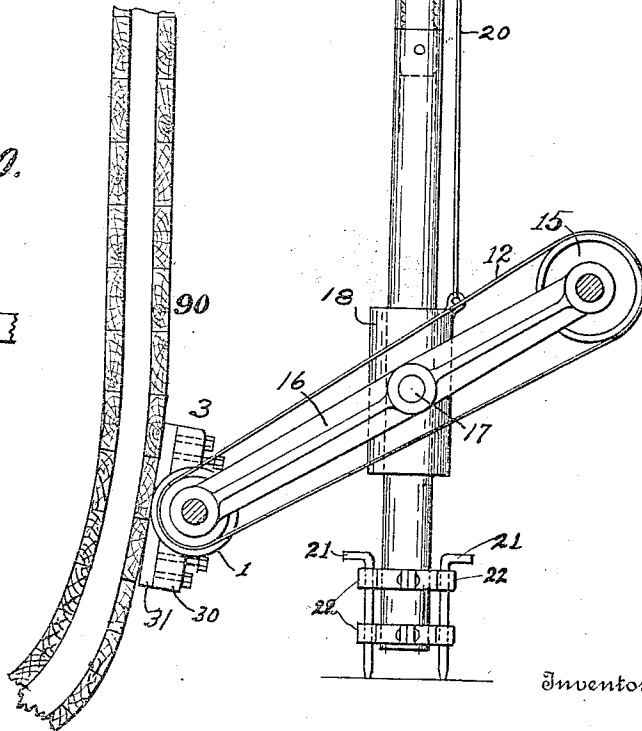


Fig. 10.



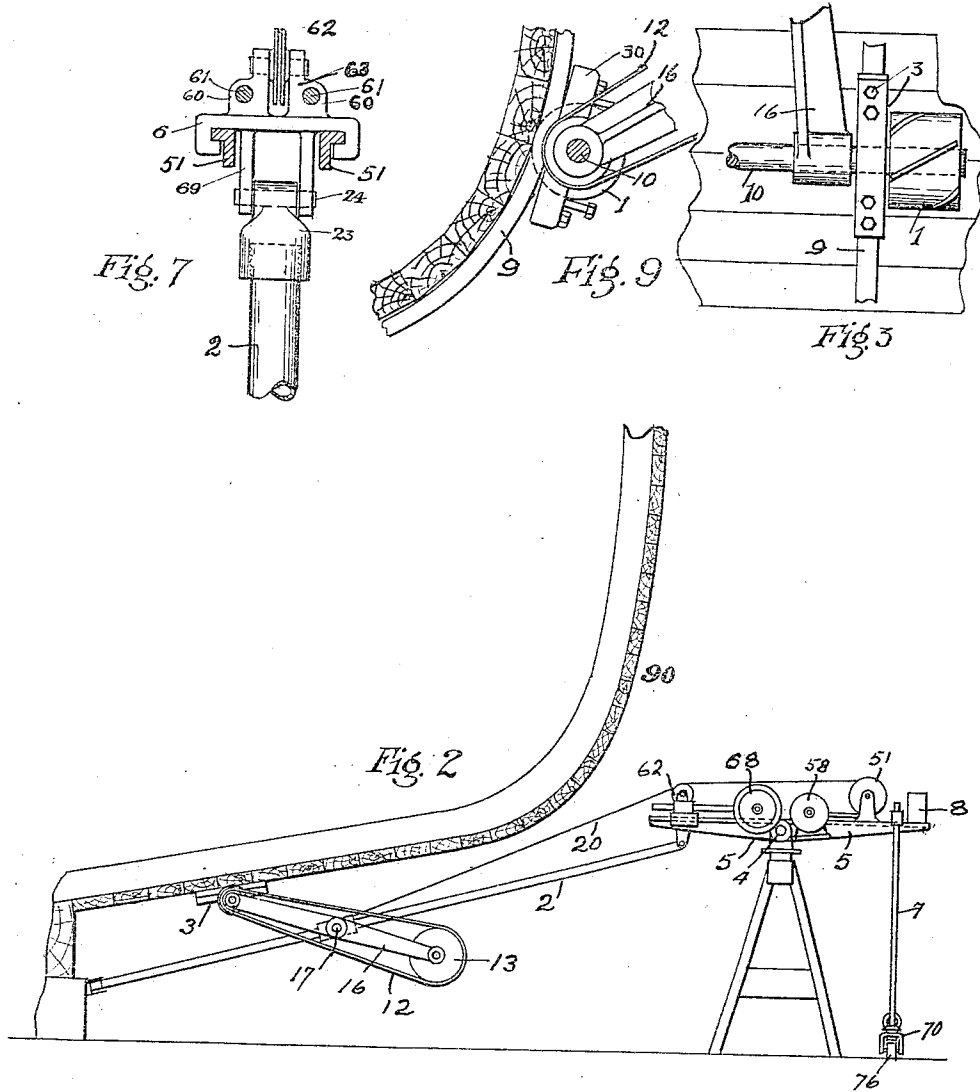
Inventor

George A. Dickie.
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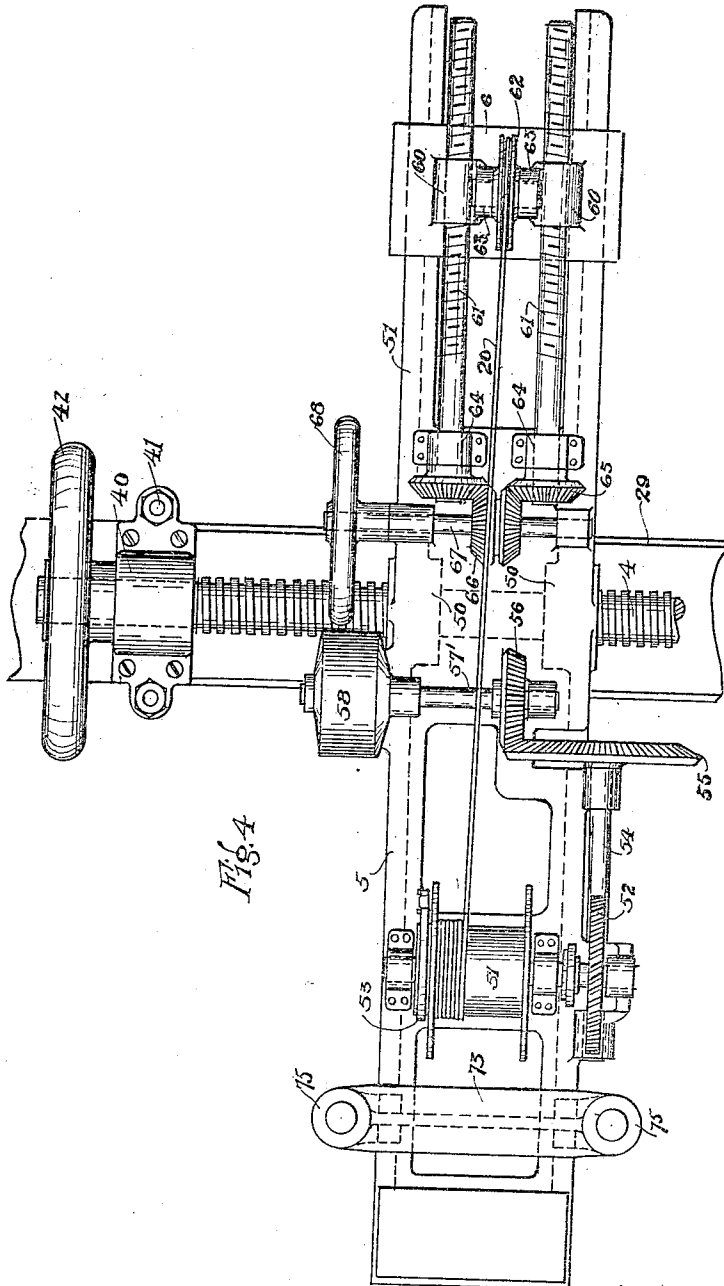
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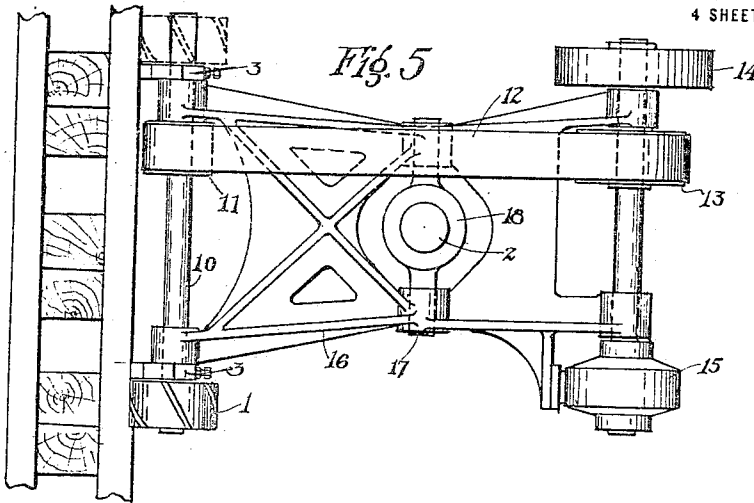
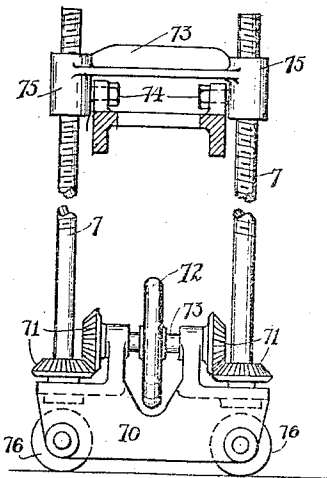


Fig. 6

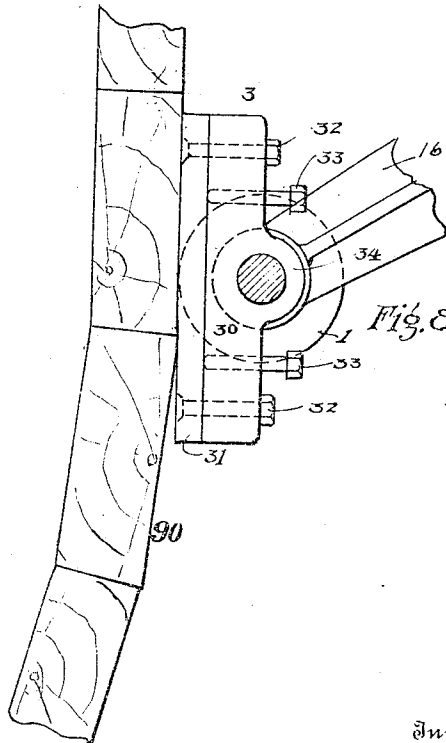


Fig. 8

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PLANER FOR THE SURFACES OF SHIPS.

1,294,426.

Specification of Letters Patent.

Patented Feb. 18, 1919.

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To all whom it may concern:

Be it known that I, GEORGE A. DICKIE, a citizen of the United States, and resident of Raymond, Pacific county, Washington, have invented certain new and useful Improvements in Planers for the Surfaces of Ships, of which the following is a specification.

My invention relates to apparatus for use in smoothing and dubbing off the outer surfaces of wooden ships and other like surfaces of large area, and comprises a planer head and the means for mounting and operating it so as to cause it to progressively travel over the surface of the ship and dress it down to a smooth evenly rounded surface.

The object of my invention is to provide mechanical means for doing this work, of such a design that it will automatically accommodate itself to many variations of conditions which will be found in doing the work and which shall be capable of covering a large area in a small time.

The features of my invention which are new and upon which I desire to obtain patent will be described in the following specification and then specifically pointed out in the claims.

In the accompanying drawings I have shown my invention as embodied in an apparatus designed for doing a specific work and under specific conditions. It will, however, suffice to illustrate the principles of my invention and a preferred manner of carrying it out under these conditions.

Figure 1 is a cross-sectional view of a side of a ship showing my device applied for the planing of its outer side surface.

Fig. 2 is a like figure showing its application to planing the bottom of a ship.

Fig. 3 is a view of a section of the outer face of a ship illustrating the manner of commencing the work of planing the outer surface of a ship.

Fig. 4 is a top plan view of the upper parts which form the supporting and traveling carriage.

Fig. 5 is a top plan view of the frame which carries the planer head and its driving motor.

Fig. 6 is an elevation of the supporting mechanism for the inner end of the cantaliver frame or carriage.

Fig. 7 is a cross section of the outer end of the cantaliver frame or carriage, showing the pivotal attachment of the guiding bar or post thereto.

Fig. 8 is a side view of the bearing or guide shoe and the relation of said shoe and the cutter head with the surface of the ship when in use.

Fig. 9 shows the manner of using a batten secured to the ship when starting the work upon a ship.

Fig. 10 illustrates the manner of compensating for curvature of the surface of the ship by adjustment of one of the shoes.

In wood ship building, after the planking has been put in place, it is customary to plane over the outer surface so as to secure a smooth, true and regular surface. Without doing this the surface would be irregular because of imperfect matching as to thickness along the meeting edges of planks; also because of the outer surfaces of the planks being planes where, in many places, the outer surface of the ship should be true and regular curves.

By my invention I provide a cutter head, mounted in a frame and in conjunction with a pair of shoes, one of which is alongside the cutter head, and means for moving this over the surface of the ship to smooth down its inequalities. The cutter head is carried by a pivoted frame which is counter weighted to hold the cutter head up to its work and this frame is moved along a guide which extends along but a short distance from the surface to be planed.

The cutter head 1, may be of any type which proves suitable for the work. The type which I now use is essentially the same as is used upon a tenoning machine. Using such a head the shaft 10 would be parallel with the surface of the ship.

The shaft is journaled in one end of a frame 16 which is pivoted upon trunnions 17 to form a horizontal axis. These trunnions are secured to a sleeve 18 which is mounted to slide and turn freely upon a guide bar 2. The frame 16 is supported and moved along the guide bar 2 in any suitable manner, as by a small wire cable 20.

The frame 16 is thus supported as if floating, being free to swing about both a hori-

zontal and a vertical axis. Its position is determined by engagement of shoes 3 carried by the inner end of the frame and pivoted thereon concentric with the axis of the cutter head and its shaft.

The shoes 3 are of a compound construction, consisting of a base 30 and a removable face bar 31. The shoe has a pivot eye 34. The face bar 31 should be of a thickness corresponding with the thickness of the batten which I use when starting the work of planing a ship's surface. At this time the bar 31 is removed.

This bar should preferably be secured so that the distance of its contact face from its pivot axis may be adjusted to conform to the radius of the cutter head. A convenient way to do this is to use securing bolts 32 and adjusting bolts 33.

The cutter head may be driven in any manner found suitable. I have shown it as driven from an air motor 15 carried by the opposite end of the frame 16 through a belt 12 and a pinion 11 secured on shaft 10. I also supply a fly wheel 14 to assist in maintaining rotation when the cutter strikes a treenail or other spot which is hard to plane.

The cutter head 1 may be placed on either end of the shaft 10, but I do not contemplate ordinarily using a cutter head on each end, although this might be done if desired. I do, however, contemplate using two guide shoes 3, these being placed just inside the positions occupied by the cutter heads. As the frame 16 is free to move about a vertical pivot, the post 2, and has two bearings against the surface of the ship, thus giving a three point support, it will adjust itself to conform to change in outline of the ship.

The post 2 is made of pipe sections joined together in such manner as to leave a smooth outer surface. Its length may thus be adjusted to suit different situations. At its lower end it should be provided with means for securing it in position. I have shown dogs 21 carried by guides 22. These dogs may be driven into scaffolding planks or the ground, as is necessary.

To support the upper end of the post 2 and to provide means for adjusting the post and the frame 16 along the ship, I employ a mechanism which is shown in side elevation in Fig. 1 and in plan in Fig. 4.

Supported in horizontal position above and extending lengthwise the rail 29 is a threaded bar 4. The ends of this are journaled in strands or brackets 40 which bear upon the rail and are secured thereto, as by clamping bolts 41. These, as illustrated, have offset or hooked ends 43 which engage with the under side of the rail.

A cantaliver or carriage frame 5 has bearing lugs or bosses, 50, which are threaded to receive the bar 4 and the bar 4 has a hand

wheel 42, or other suitable means whereby it may be turned, to thereby cause a bodily movement of the frame 5 along the rail. The bar 4 also forms a pivot upon which the frame may rock.

The outer end of this frame has two side bars 51 adapted to act as guide rails for a carriage or sliding block 6. This block has standards 63 in which is journaled the shaft of a sheave 62 over which passes the rope 20 which sustains the frame 16 and the planing mechanism. This rope passes to a drum 57 carried by the other end of the frame 5. This drum has a brake 53 and preferably is driven through a worm gear 52 and worm 59, the latter being on shaft 54 which is connected through bevel gears 55, 56, with the shaft 57 of an air or electric motor 58.

The slide block or carriage 6, has ears 60 threaded to receive threaded shafts 61 which have beveled gears 65 meshing with like gears 66 carried by a transversely placed shaft 67, which is turnable by a hand wheel 68 to thereby cause the slide block 6 to move along the cantaliver frame 5 and thus adjust the position thereof relative to the side of the ship. The slide 6 has depending ears 69 in which, by a horizontal pin 24, is pivoted the head 23 with which post 2 is secured.

At the inner end of the frame 5 I provide means for supporting it, the same consisting of two threaded shafts 7 which engage threaded sockets 75 of a yoke 73 which is secured by horizontal pivots 74 from the end of the frame 5.

The lower ends of shafts 7 are rotatively fixed in a frame 70 which may be provided with supporting wheels 76. Bevel gears 71 connect the shafts 7 with a transverse shaft 73 upon which is a hand wheel 72. By these means the effective length of the posts formed by shafts 7 may be adjusted.

In using my machine, the cantaliver frame 5 is mounted on the rail of the ship and the guide bar 2 made of the right length by adding or removing sections. The support for the inner ends of the frame 5, namely the rods 7, are adjusted so that the wheels 76 will bear upon the deck planks. This inner end of the frame is provided with counterweights 8 which may be used or not as desired, and which support the outer end of the frame 5.

The carriage or block 6 may be moved outward or inward, as desired, to adjust the position of the guide bar 2, relative to the side of the ship. The lower end of bar 2 is secured by driving the spikes 20 into the boards of a scaffolding of a dock or into the ground.

In starting the wear plate 31 of the shoe is removed. To the surface of the ship is secured a batten or guide strip, 9, see Figs. 3 and 9, extending vertically. This should

be of a thickness corresponding with the thickness of the shoe 31. This batten is used as a guide for the shoe 3. Its outer surface is a smooth, regular curve and therefore, the surface cut by the cutter head will be a like curve. This dresses down the edges of the planks on the curves, more than their centers, and dresses down the thick planks more than the thin ones. After a smooth surface has thus been formed on the ship, the plate 31 is replaced and the guide strip or batten 9 is not used.

When one vertical cut has been made, the device is moved along an amount equal to the width of the cut. This is done by turning the shaft 4. The dogs or spikes 21 are withdrawn so that the bar 2 may move. The weight of this bar is normally suspended from the cantaliver frame 5.

When it is desired to plane the bottom of the ship the apparatus will be set up as shown in Fig. 2, with the guide bar 2 extending to the bottom of the ship. In this case the standards which carry the bar 4 would be supported on a scaffold or trestle.

What I claim as my invention is:

1. A device for planing the exterior of ships comprising a round guide bar adapted to be secured to extend along the face to be planed and a short distance away from it, a sleeve mounted to slide and turn upon said bar, a frame pivoted upon said sleeve about an axis at right angles to that of the sleeve, a planer head carried by this frame, a driving motor carried by the other end of the frame and acting to hold the planer head against the ship, a shoe pivoted on the frame to engage the ship and control the action of the planer head, and means for moving said sleeve and the part carried thereby along the guide bar.

2. The combination with a device as in claim 1 of means for supporting the guide bar from its upper end and for moving it lengthwise the strip, and means for anchoring the lower end of said guide bar.

3. In a device for planing the exteriors of ships, in combination, a supporting bar adapted to be placed upon and to extend lengthwise of the ship's rail, a frame mounted to move lengthwise of said bar and to extend outward from the ship's rail, a guide bar carried by and depending from this arm, and a planer mechanism mounted to travel back and forth upon this guide bar and to dress off the ship's exterior.

4. A device as in claim 3, having an arm pivotally supported from the said guide bar and having the planer head carried by an end thereof, and means for yieldingly holding the planer head against the ship's exterior.

5. In a device for planing the exterior of ships, in combination, a frame mounted for

movement along the ship's rail and having an arm extending outwardly therefrom, a guide bar suspended from said arm a short distance from the ship's side, a planing mechanism carried upon and movable along said guide bar, and means for yieldingly holding the cutting member of the planing mechanism against the exterior of the ship.

6. In a device for planing the exterior of ships, in combination, a supporting bar mounted upon the rail of the ship and extending lengthwise thereof, a cantaliver frame pivotally supported upon said bar and movable lengthwise thereof, a guide bar connected with the outer end of said frame and extending downward along the side of the ship, supporting posts adjustably connected with the inner end of said frame, a slide member carried upon the guide bar, a planer mechanism hingedly supported from said slide and means for yieldingly holding the cutting member of the planing mechanism yieldingly against the exterior of the ship.

7. A planing mechanism for the exterior of ships comprising a cantaliver frame, a bar extending transversely of said frame and constituting a support and guide therefor, means for supporting said bar above the ship's rail, means for supporting the inner end of said cantaliver frame, a guide bar suspended from the outboard end of the cantaliver frame and extending downwardly adjacent the exterior of the ship, a planing mechanism having a sliding engagement with said guide rod, a hoisting mechanism upon the cantaliver frame and connected with the planer mechanism to raise and lower it, and means for yieldingly holding the cutter head of the planing mechanism against the exterior of the ship.

8. In a device for planing the exterior surfaces of ships, a cantaliver frame, means for supporting it above and to be moved lengthwise of the ship's rail, a slide mounted upon the outer end of said frame, a guide bar hinged to the slide and a planing mechanism mounted to slide upon said guide rod.

9. In a device for planing the exterior surfaces of ships, a cantaliver frame, means for supporting it above and to be moved lengthwise of the ship's rail, a slide mounted upon the outer end of said frame, a guide bar hinged to the slide, a slide upon said guide bar, an arm hinged upon said slide and a planer mechanism carried upon said arm.

10. In a device for planing the exterior surfaces of ships, a cantaliver frame, means for supporting it above and to be moved lengthwise of the ship's rail, a slide mounted upon the outer end of said frame, a guide bar hinged to the slide, a sleeve mounted to turn and slide upon the guide bar, a frame hinged upon said sleeve, a planing

head carried by one end of said frame, a pivoted shoe alongside the planing head and adapted to engage the ships exterior, means for hoisting and lowering the sleeve and the planing mechanism carried thereby, and means for yieldingly holding the planing head and shoe against the ship.

11. A device for planing large surfaces comprising a guide member adapted to be secured near one edge of the surface to be planed, a carriage frame mounted for move-

ment on said guide, a guiding bar pivoted to said carriage and extending across and removed from the surface to be planed, a counter-weighted frame mounted for movement along the guiding bar and a planer head carried by one end of said counter-weighted frame.

Signed at Seattle, Washington, this 21st day of February, 1918.

GEORGE A. DICKIE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."