E. LUX.

PORTABLE, POWER WOOD SURFACER.

APPLICATION FILED FEB. 21, 1917.

1,224,943. Patented May 8, 1917.

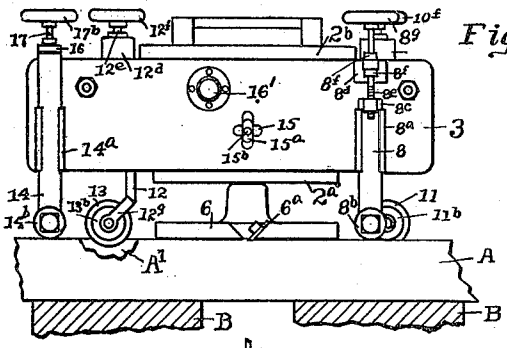


Fig. 1

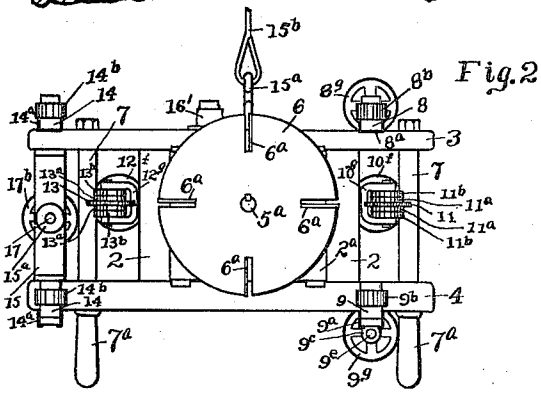


Fig. 2

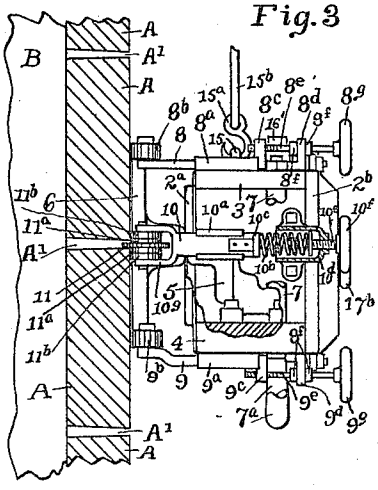


Fig. 3

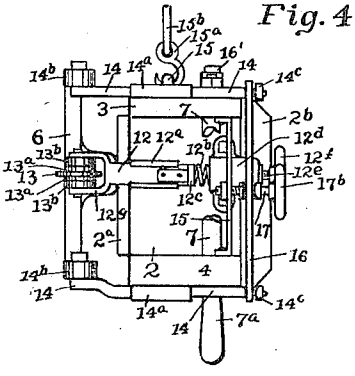


Fig. 4

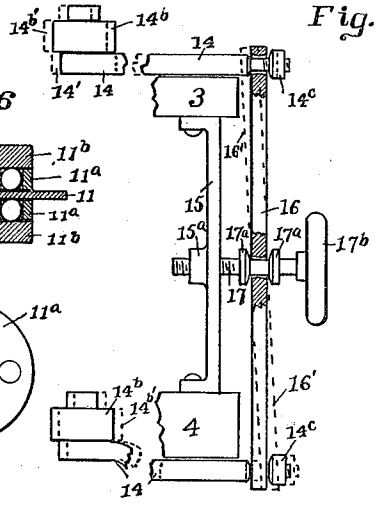


Fig. 5

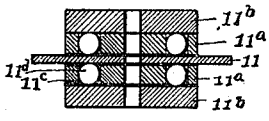


Fig. 6

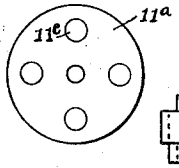


Fig. 7

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ENGELBERT LUX, OF BELLINGHAM, WASHINGTON.

PORTABLE, POWER WOOD-SURFACER.

1,224,943. Specification of Letters Patent. Patented May 8, 1917.

Application filed February 21, 1917. Serial No. 150,087.

To all whom it may concern:

Be it known that I, ENGELBERT LUX, a citizen of the United States, and resident of Bellingham, in the county of Whatcom and State of Washington, have invented certain new and useful Improvements in Portable, Power Wood-Surfacers, of which the following is a specification.

My invention relates to improvements in portable, power wood surfacers in which a revolving face plate having cutters is passed over the surface to be smoothed; and the object of improvement is to provide a power surfacer suited to finish the surface of the hulls of wooden ships, which is sufficiently portable to be moved over said surface by hand control while in operation.

I attain these objects by the mechanism illustrated in the accompanying sheet of drawings, in which Figure 1 is a plan view of my machine shown in operative relation to a portion of a ship's hull; Fig. 2 is a front elevation of Fig. 1, in which said portion of the hull is not shown; Fig. 3 is an elevation view of the right-hand end of Fig. 2, also showing said portion of a ship's hull; Fig. 4 is an elevation view of the left-hand end of Fig. 2, confined to said left-hand end; Fig. 5 is a separate view of a portion of Fig. 1, drawn on a larger scale and having its central portion broken away for lack of room; Fig. 6 is a separate elevation view in cross section of one of the calk-seam rollers, and Fig. 7 is a plan view of one of the parts of said roller.

Similar characters refer to similar parts in the several views. Certain parts are broken away in order to show others hidden thereby.

More particularly: The main frame of the machine comprises side pieces 2, 2, top piece 3, bottom piece 4, front cover 2^a and rear cover 2^b, which unite to form a box to the bottom, 4, to which is fastened electric motor 5. Said top and bottom pieces, 3 and 4, extend beyond side pieces 2, 2, and provide hand holds. To said extensions are fastened handles 7, 7^a, 7, 7^a. A face plate 6, with mounted cutters 6^a, 6^a, 6^a, 6^a is rigidly fastened to motor shaft 5^a and revolves therewith. In the top frame piece 3, forward of the center, is fastened eye 15, with which hook 15^a of cable 15^b is engaged. Cable 15^b is passed over a sheave on an overhead trolley and has its other end weighted to counterbalance the weight of the surfacer. Said trolley operates on a suitable track attached overhead to the ship's hull. Neither said track, trolley sheave nor counter-weighted end of cable 15^b is illustrated.

A ball-bearing calk-seam roller, comprising the middle disk 11, ball-housing disks 11^a, 11^a, on each side of the same, and end disks 11^b, 11^b, is mounted for rotation on fork 10^a, of shank 10. The details of said roller are best shown in Figs. 6 and 7, where the balls, 11^d, are mounted in holes 11^c, in disks 11^a, 11^a. Said disks being thinner than the diameter of said balls. Shank 10 is mounted for longitudinal sliding in slide-way 10^a attached to right-hand side piece 2.

Flange bracket 10^c is rigidly attached to the rear end of shank 10. Spring housing, 10^d, is fastened to right-hand side piece 2; and in a tapped hole in its closed end is engaged adjusting screw, 10^e, having hand wheel 10^f. A spring, 10^b, in said housing operates between flange 10^c and a washer bearing on the end of screw 10^e. Flange 10^c bears against the rear end of slide-way 10^a when shank 10 is in its farthest forward position, and prevents said shank from leaving said slide-way.

Calk-seam roller 13, 13^a, 13^b, on shank 12 in slide-way 12^a, fastened to the left-hand side piece 2 (see Fig. 4) is in every way similar to calk-seam roller 11 and appurtenances above described. It is forced forward by spring 12^b in housing 12^d under pressure adjusted by screw 12^e, having handwheel 12^f.

Surface roller 8^b is mounted for revolution about a vertical axis on the forward end of shank 8. Said shank is mounted for forward and backward sliding in slideway 8^a rigidly fastened to the top of top piece 3 near its right-hand end, Fig. 1. The rear end of shank 8 terminates in a lug 8^c which has a threaded hole in which screw 8^e is engaged. Screw 8^e is mounted for revolution in bracket 8^d, attached to the top side of top piece 3, with the hole, in which said screw 8^e is mounted, registering with the said threaded hole in lug 8^c. Ring bosses 8^f, 8^f on screw 8^e prevent endwise movement of said screw in bracket 8^d. Handwheel 8^g is rigidly fastened to the outer end of screw 8^e. The described construction makes roller 8^b adjustable forward and backward by handwheel 8^g, in a line at right angles to the surface made by cutters 6^a. Surface roller 9^b is mounted on shank 9 in slideway 9^a, attached to the bottom of bottom piece 4.

Shank 9 has tapped lug 9^c in which is engaged adjusting screw 9^e, mounted in bracket 9^d and having handwheel 9^g. Surface roller 9^b is mounted and adjusted in every way similar to surface roller 8^b, above described.

On the left-hand end of the machine are two surface rollers 14^b, 14^b. Each is mounted for forward and rearward movement on a shank 14 engaged for sliding in a slideway 14^a. One of said slideways 14^a, is fastened to the top of top piece 3, near its left-hand end and the other is fastened to the bottom of bottom piece 4, near its left-hand end. The rear end of each of shanks 14 terminates in a threaded stud mounted in a countersunk slot in one end of evener-bar 16, Figs. 4 and 5. A bar 15, is fastened to and between top and bottom pieces 3 and 4, to register with and stand in front of evener 16. A threaded hole in boss 15^a on bar 15 registers with a countersunk hole in the middle of evener 16. Screw 17 is engaged in said threaded hole in bar 15 and mounted in said countersunk hole in evener 16. Ring bosses 17^a, 17^a on screw 17 prevent endwise movement of said screw in said evener.

Handwheel 17^b is attached to the rear end of screw 17. The described construction permits of simultaneous forward and rearward adjustment of surface rollers 14^b, 14^b, by handwheel 17^b, and the evener 16 permits of automatic forward and backward movement of upper roller 14^b simultaneous and equal with relatively reverse movements of lower roller 14^b, as indicated in dotted lines in Fig. 5.

A screw socket 16′ is attached to top piece 3 and constitutes the terminals of the wires of electric motor 5.

In Figs. 1 and 3 are shown portions of the ribs B, B and planks A, A, A, of the hull of a wooden ship. The calk-seams between the edges of said planks are shown at A^1, A^1, etc.

In building wooden hulls the abutting edges of the planks are usually out of the desired hull surface, while the longitudinal middle of the outer side of said plank is in said surface. The proper surfacing of said edges is the work which my machine is designed to do.

My machine operates as follows: Face plate 6 is placed against the ship's hull with calk-seam rollers 11 and 13 in one of calk-seams A^1, as shown in Figs. 1 and 3.

Right-hand surface rollers 8^b and 9^b are adjusted by handwheels 8^g and 9^g, to allow face plate 6 to lie in the desired curvature of the hull at this place, when said protruding edges of the planks shall have been removed to this curve. Pair of surface rollers 14^b, 14^b are adjusted by handwheel 17^b to retain the left-hand end of the machine in the position it would occupy if said pair of rollers were replaced by one surface roller running on the properly finished surface of the plank's edges midway between said pair of rollers. The surface roller assumed as in effect replacing evener surface rollers 14^b, 14^b, would occupy one vertex of a triangle, the other two vertices of which are occupied by surface rollers 8^b and 9^b, respectively.

Because of the spring mounting of calk-seam rollers 11 and 13, they are not effective in controlling the depth of cutting done by cutters 6^a. Suitable electrical power connections between a source of electricity and the socket 16 are established and motor 5 caused to revolve cutter face plate 6. The weight of the machine is counterbalanced, as previously described. Said machine is now grasped by the operator, using the extended ends of top and bottom pieces 3 and 4, or handles 7, 7 and 7^a, 7^a, as most convenient for this purpose, and the machine is pushed forward by hand along a calk seam while pressing the machine to cause the surface rollers 8^b, 9^b, 14^b and 14^b to bear against the approximate longitudinal middle lines of planks A, A. The cutters 6^a, 6^a, etc., will remove the protruding edges and shape the abutting parts of the planks to the desired surface.

As the machine is moved along said seam to parts of the hull having a different curvature, proper adjustment of said surface rollers, as described, will cause the cutters to remove the proper amount of wood. In this way each seam is followed by the machine until the whole hull is finished to the desired curvature.

By using another set of rollers differently located, I make my machine suitable for surfacing the ribs of wooden ships. But it is not intended to further describe this use in the present application.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a power surfacer for wooden ships' hulls, in combination, a set of revoluble surface cutters, power means to revolve said cutters, two calk-seam rollers, and a plurality of surface rollers.

2. In a power surfacer for wooden ships' hulls, in combination, a set of revoluble surface cutters, power means to revolve said cutters, two calk-seam rollers automatically adjustable at right angles to the surface made by said cutters, and a plurality of surface rollers.

3. In a power surfacer for wooden ships' hulls, in combination, a set of revoluble surface cutters, power means to revolve said cutters, two calk-seam rollers automatically adjustable normal to the surface made by said cutters, two surface rollers independently adjustable at right angles to the surface made by said cutters, and two surface

rollers automatically adjustable at right angles to the surface made by said cutters, but in relatively reverse direction.

4. In a power surfacer for wooden ships' hulls, in combination, a set of revoluble surface cutters, power means to revolve said cutters, two-calk-seam rollers automatically adjustable normal to the surface made by said cutters, two surface rollers independently adjustable at right angles to the surface made by said cutters, and two surface rollers automatically adjustable at right angles to the surface made by said cutters, but in relatively reverse direction, also manually simultaneously adjustable normal to said surface in the same direction.

Signed at Bellingham, in the county of Whatcom and State of Washington, this 15th day of February, A. D. 1917.

ENGELBERT LUX.

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