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R. M. WESTPHAL
MACHINE FOR POUNDING, LOOSENING, AND
REMOVING PAINT, SCALE AND THE LIKE

2,525,250

2 Sheets-Sheet 1

Fig. 1.

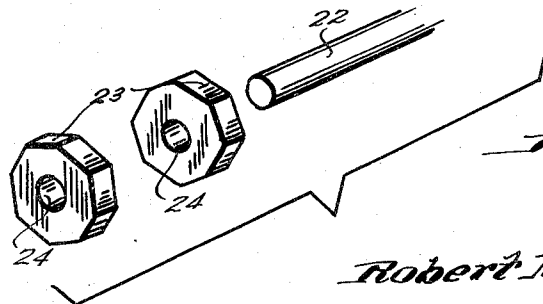
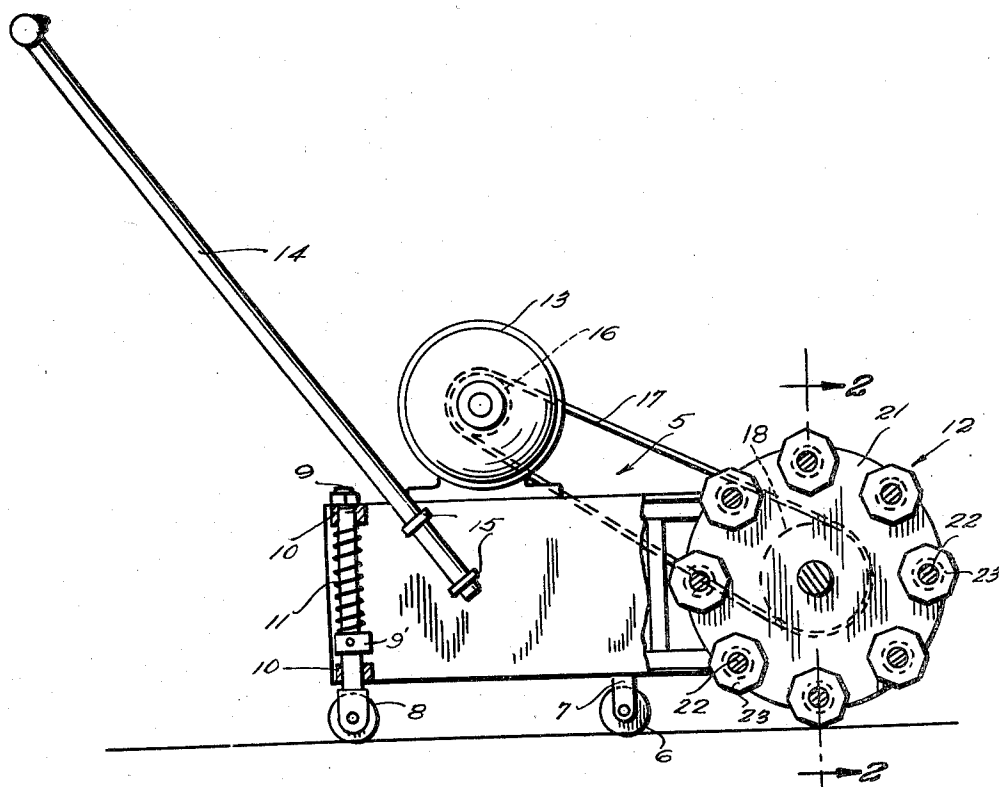


Fig. 4.

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2 Sheets-Sheet 2

Fig. 2.

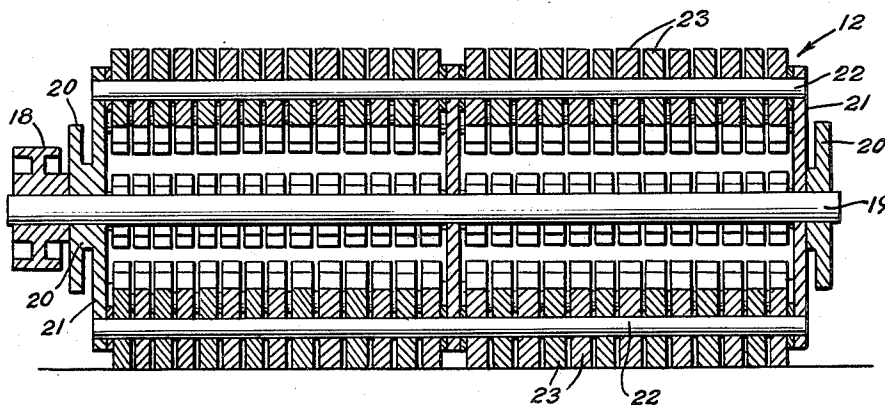
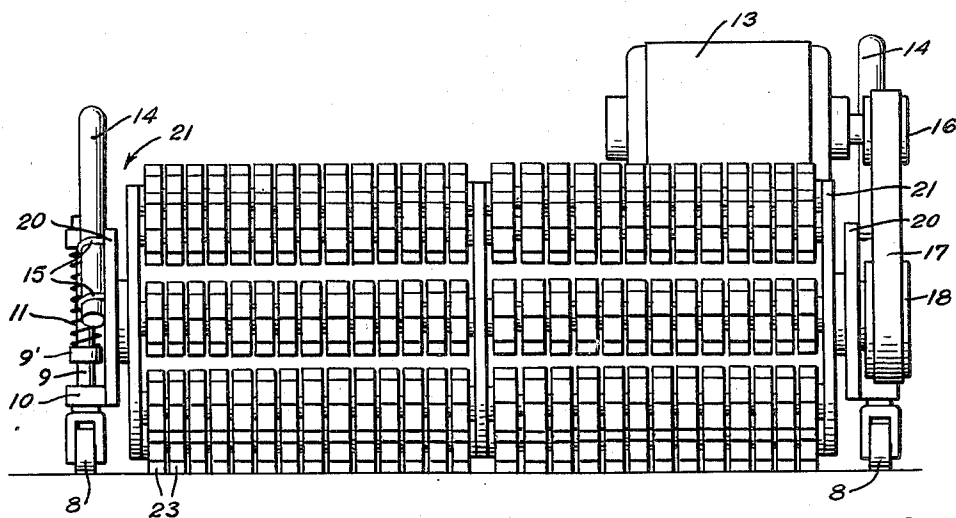


Fig. 3.



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MACHINE FOR POUNDING, LOOSENING,
AND REMOVING PAINT, SCALE, AND
THE LIKE

Robert M. Westphal, Milwaukee, Wis.

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3 Claims. (Cl. 15—93)

1

This invention relates to a portable handle and motor-equipped machine having especially constructed and arranged surfacing conditioning means for satisfactorily acting on painted platforms, boat decks and other surfaces in a manner to properly impact same to loosen paint, scale and rust and to thus pave the way for ready removal thereof.

More specifically, the principal novelty is predicated upon an electric motor-driven rotor or drum, this characterized by a structural assemblage having circumferentially spaced rods revolvable through an orbital path, said rods having mounted thereon surface impacting elements and said elements having individual rotation on said rods to thus provide a sort of a planetary motion in which the elements move through the same orbital path as the rods but rotate on their own axes to produce the desired results.

In carrying out the principles of the invention, I prefer to use impact elements resembling hexagonal nuts, the marginal surfaces, that is the intervening flat and corner portions, providing the progressive and successive surface pounding and scraping steps desired.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings:

Figure 1 is a side elevational view, partly in section, of a surface conditioning machine constructed in accordance with the principles of the instant invention.

Figure 2 is a section taken on the plane of the line 2—2 of Figure 1.

Figure 3 is a front end elevation of the machine shown in Figure 1.

Figure 4 is a perspective view showing one of the rods and a pair of the surface contacting, pounding and scraping elements.

Referring now to the drawings, by distinguishing reference numerals, I touch briefly and broadly on the frame structure of the machine, this being denoted by the numeral 5 and being of any appropriate construction to accommodate the essential parts. It is provided on its under side adjacent the front with stationary wheels or rollers 6 on fixed brackets 7. Swiveling rollers 8 are provided at the rear, the yoke portions of these having vertical axes or spindles 9 which extend up through projecting bearings 10 on the side members of the frame to provide the desired traction and swiveling action. It will be observed that a coiled spring 11 surrounds the stem 9 and is interposed between the bearings to allow a yieldable action at the rear end portion of the frame structure. More specifically, spring 11, at its upper end, engages and rests against the upper bearing lug and,

2

at its lower end, bears against an adjustably mounted stop collar 9' carried by the axle 9. It follows that the surface conditioning drum or device 12 on the forward end is given an accommodating or compensating position due to this frame and roller or wheel assembly. The frame also serves to support a suitable motor 13 and handles 14 are provided on opposite sides, these having suitable hand-grips and being anchored in place in any appropriate manner as indicated at the points 15. The motor pulley 16 drives the belt 17 which in turn is trained over a pulley 18 on the surface conditioning drum structure 12. The drum is provided with an appropriate axle 19 journaled in bearings 20.

The drum structure is characterized by suitably constructed frame disks 21 these being longitudinally spaced at required intervals as shown in Figures 2 and 3. These disks in turn, are provided at marginally spaced points with relatively fixed or stationary rods 22. Or, to put it otherwise, the rods are anchored in the disk elements at circumferentially spaced points as brought out best in Figure 1. The rods serve to accommodate the multiplicity of surface impacting and conditioning elements 23. Although these could be, in an emergency, in the form of stock nuts, they are preferably made of suitable stock and the central holes or hub-portion 24 are smooth. In fact, the diameter of the holes is proportioned so that the rod 22 coacts snugly therewith. Of course, the marginal edge portions of said elements can be six-sided or eight-sided, as desired. I have found it practicable to use hexagonal surfaces.

The rotary cutter-head, if it may be called such, needs no sharpening and is driven a great deal slower than other types. As a general rule, five or six hundred turns per minute has been found sufficient. It has a scraping action coupled with a rotary pound and as the rotor turns around or revolves, the hexagonal or octagonal elements turn on their own axes. This affords the aforementioned planetary action such as has been found to work satisfactorily until the corners, that is the sharp corners on the marginal edges of said impact elements are worn down and said elements become substantially ring-like or round. While it has been found that the head will not work on soft substances, it is substantially fool-proof on steel and once the cutter head has been adjusted it needs no further tampering. In practice, it has been found that it is sturdy power and impact and pounding and not speed, which does the work. Irregularities in the deck or other surface are compensated for by the self-accommodating spring wheel mounts at the rear of the frame. It has also been discovered that almost anyone, that is anyone without experience, can operate a machine of this

type and do a satisfactory job. In use, it has been proved to clear rust and scale and paint quickly. Hand scraping devices, and other so-called motor-driven portable machines which have to be held against the surface, cause fatigue and require self-regulation of the depth of the cut made. In fact, there are many objections to types of machines with which I am familiar, and I have found that this one is simple, without intricate parts, and that there is nothing to break or become easily thrown out of gear or order. The entire over-all structure is exceedingly simple and expedient and aptly fitted for the purposes intended.

The greatest differences are the shapes of the so-called surface conditioning elements, the reduction of wear between said elements and their rods by proper fitting coaction and that the structure is sufficiently self-contained and all-inclusive in purposes and results to achieve the desired aims.

It is thought the persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:

1. A portable wheel-supported surface-impacting machine for scarifying, loosening, scraping and dislodging paint and scale for ready and convenient removal from a painted surface, for example, the deck of a boat, comprising a horizontally elongated frame, a surface-impacting, scarifying and paint-loosening head in the form of a horizontally elongated drum, said drum being mounted transversely on the forward outer end of the frame, being revolvable through a complete circular path, having circumferentially spaced horizontally disposed rods, and scarifying elements strung tightly but for limited rotation on said rods, a prime mover mounted atop the frame, an operating connection between the prime mover and said surface-impacting head, forward wheels disposed beneath the under frontal portion of said frame, said frame being rockable and vertically tiltable on said wheels, said head being fore in relation to said wheels and the prime mover being aft in relation to said wheels so as to permit the frame and head to be bodily and unitarily rocked and tilted, using the wheel journals as fulcrum means, pairs of outstanding upper and lower bearing lugs on the rear end portion of said frame, vertical axles mounted for rotation in said bearing lugs, surface-engaging wheels carried by the lower ends of said axles, and cushioning and adjustable springs coiled and surrounding and operatively connected to each of the axles between co-acting and adjacent bearing lugs.

2. A portable wheel-supported surface-impacting machine for scarifying, loosening and dislodging paint and scale for ready and convenient removal from a painted surface, for example, the deck of a boat, comprising a horizontally elongated frame, a surface-impacting, scarifying and paint-loosening head in the form of a horizontally elongated drum, said drum being mounted transversely on the forward outer end of the frame, being rotatable through a complete circular path, having circumferentially

spaced horizontally disposed rods, and scarifying elements mounted for free rotation on said rods, a prime mover mounted atop the frame, an operating connection between the prime mover and said surface-impacting head, forward wheels disposed beneath the under frontal portion of said frame, said frame being rockable on said wheels, the head being fore in relation to the wheels and the prime mover aft in relation to said wheels so as to permit the frame with the head to be rocked and tilted using the wheels as a fulcrum, outstanding upper and lower bearing lugs on the rear end portion of said frame, vertical axles mounted for rotation in said bearing lugs, surface-engaging wheels carried by the lower ends of said axles, and cushioning and adjustable spring means comprising a coiled spring surrounding and operatively connected to each of the axles between the adjacent bearing lugs, and a shoulder-high push-pull handle structure rigidly attached to the upper rear portion of the frame between the vertical wheel axles and prime mover so as to facilitate pushing the machine back and forth and tilting it up and down according to conditions and surface requirements.

3. A portable wheel-supported surface-impacting machine for scarifying, loosening, scraping and dislodging paint and scale that same may be readily and conveniently removed from a painted surface, for example, the deck of a boat, comprising a horizontally elongated frame, a horizontally elongated drum mounted transversely on the forward end of said frame and revolvable through a circular path and provided with independently rotatable scarifying elements mounted on the periphery thereof, a prime mover mounted atop the frame, an operating connection between the prime mover and surface-impacting drum, forward wheels disposed beneath the forward end of said frame, said frame being rockable and vertically tiltable on said wheels, said drum being fore in relation to the wheels, and the prime mover being aft in relation to said wheels to permit the frame and drum to be bodily and unitarily rocked and tilted, using the wheel journals as fulcrum means, outstanding upper and lower bearing lugs on the rear end portion of said frame, vertical axles mounted for rotation in said bearing lugs, surface engaging wheels carried by the lower ends of said axles, and cushioning and adjustable springs coiled, surrounding and operatively connected to each of the axles between the coacting and adjacent bearing lugs, together with handle means connected rigidly to the upper rear portion of the frame rearwardly and outwardly of said prime mover.

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