

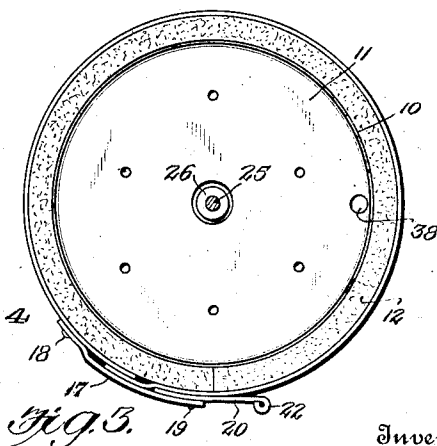
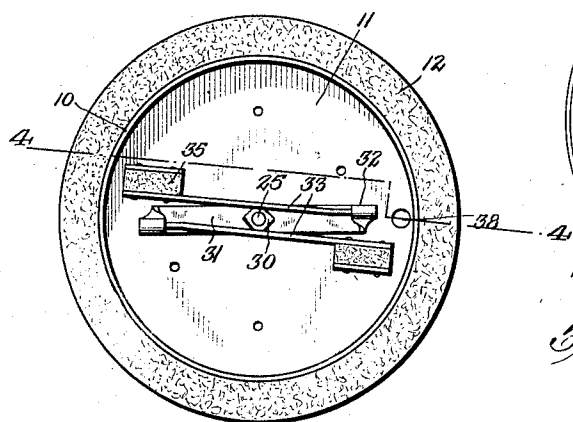
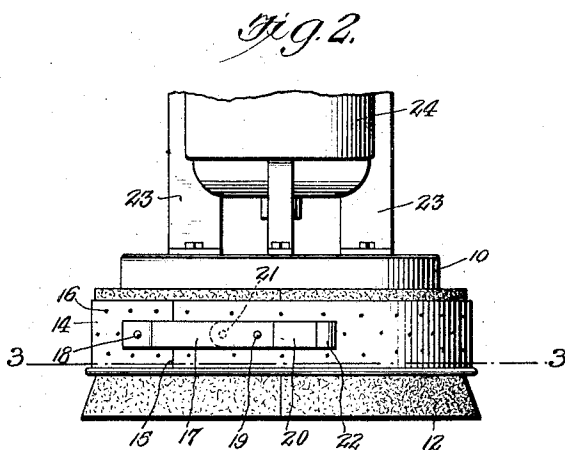
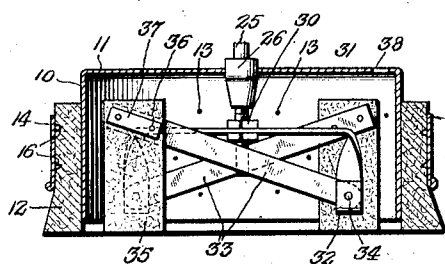
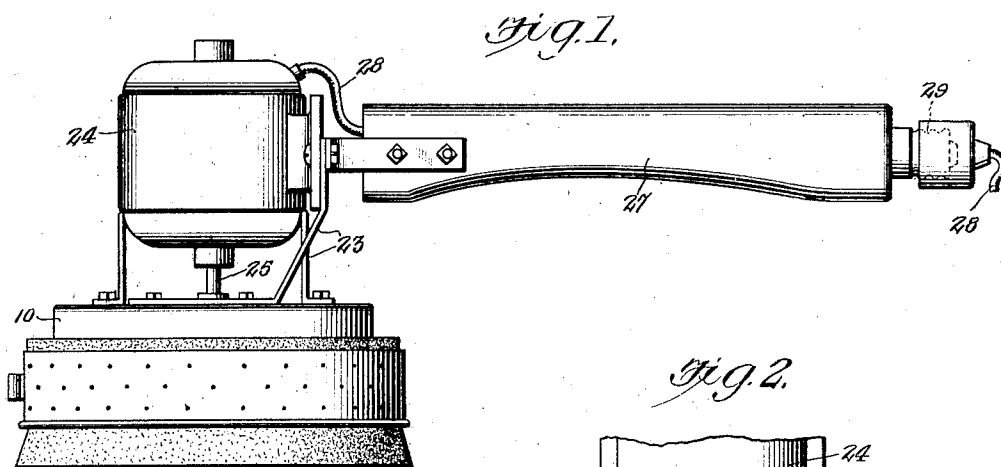
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1,581,855

E. MAY

SURFACE RUBBING MACHINE

Filed May 21, 1925



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UNITED STATES PATENT OFFICE.

ERNEST MAY, OF EAST ST. LOUIS, ILLINOIS.

SURFACE-RUBBING MACHINE.

Application filed May 21, 1925. Serial No. 31,912.

To all whom it may concern:

Be it known that ERNEST MAY, a citizen of the United States, residing at East St. Louis, in the county of St. Clair and State of Illinois, has invented certain new and useful Improvements in Surface-Rubbing Machines, of which the following is a specification.

The present invention relates to surface rubbing machines and has for an object to provide a machine adapted particularly for rubbing down painted surfaces, or other surfaces to render the same smooth preparatory to application of paint and the like for fine finishes on automobiles and the like.

Another object of the invention is to provide in a compact machine a source of power, rubbing members adapted to be moved against the surface, and a container enclosure for housing the rubbing members and holding a quantity of abrasive, such as powdered pumice stone mixed with water, the whole device being arranged for manipulation and application by hand, so that it may be moved over the surface being rubbed at the will of the operator and in a convenient manner.

A further object of the invention is to provide a machine of this character which is equipped with a pad or brush holder arranged to maintain the rubbing elements in such position within the casing that they will be held in place ready for application and operation at all times, particularly when the machine is lifted from the surface and applied again thereto or to a different surface, thus eliminating the necessity of manual adjustment or the exercise of care in applying the device to the surface.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a side elevation of a surface rubbing machine constructed according to the present invention.

Figure 2 is a fragmentary outer end elevation of the same.

Figure 3 is a transverse section through the lower part of the machine taken substantially on the line 3—3 of Figure 2 and

with the pad holder and other parts removed.

Figure 4 is a vertical section taken through the casing and enclosed parts of the machine, substantially on the line 4—4 of Figure 5, and

Figure 5 is a bottom plan view of the machine.

Referring to the drawing the machine comprises a casing or body part 10, which is of substantially cylindrical form and having a closed top 11, but being open at its bottom. The casing 10 is provided thereabout with a detachable and adjustable packing ring 12 of felt or the like which completely encircles the lower end portion of the casing 10 and is adapted to project therebeyond a suitable distance for engagement with the surface to be treated, the distance being such as to permit of the necessary compression and expansion of the packing ring 12 and at the same time maintaining the lower end of the casing 10 out of contact with the surface.

To hold the packing ring 12 in place the annular wall of the casing 10 may be provided with a number of outwardly extending projections or prongs 13 which may be formed by punching the metal outwardly to a more or less extent for binding engagement in the inner surface of the ring 12. The ring 12 is held about the casing 10 by a clamping band 14 which encircles the ring 12 and is of such length that when its free ends 15, shown in Figure 2, are brought into proximity to each other, the ring 12 will be compressed sufficiently for holding it firmly to the casing 10.

The band 14 is provided with a plurality of inwardly punched or pressed prongs or depressions 16 adapted to bite into the outer surface of the packing ring 12 for holding the band thereon and maintaining the ring in fixed position about the casing. A suitable contracting clamp is carried by the band 14 and comprises a strap 17 pivoted at one end, as at 18 to one end portion of the band 14 and which is offset outwardly from the band and adapted to overlap the opposite end of the band. The free end of the strap 17 is secured by a pivot 19 to the second strap 20 intermediate the ends thereof, and one end of the strap 20 is attached by the pivot 21 to the opposite end of the band 14. The strap 17 is adapted

to swing in an edgewise direction into overlapping engagement with the pivoted end of the strap 20, and the free end of the latter is preferably provided with an outwardly projecting finger hold 22 serving as a handle by means of which the strap 20 may be swung upon its pivot as a lever. The strap or lever 20 may thus be swung into the position shown in Figure 2 in order to longitudinally aline the straps 17 and 20 and to thus contract the band 14 into its closed position about the ring 12. To release or adjust the packing ring 12 it is only necessary to swing the strap or lever 20 upwardly to move the strap 17 backwardly and separate the ends of the band 14 sufficiently to release the packing ring 12 and permit of the freeing of the band from the packing ring.

The top 11 of the casing is provided with a suitable bracket 23 which may be of any adaptable construction to meet conditions of manufacture and use and upon which is supported an electric motor 24 of suitable type provided with a shaft 25 disposed coaxial with the casing 10 and projecting outwardly through the top 11 thereof into the casing. The shaft 25 is centered by a bushing 26 or the like which may be mounted on the shaft or casing in such manner as to permit of the free turning of the shaft 25. The bracket 23 is also provided with a handle 27 projecting to one side of the motor 24, or in such other position as may be found convenient for grasping in the hands to support the machine and apply and hold it to the work. The electric current for operating the motor 24 may be carried thereto through wires 28 which as shown are extended through the handle 27, and a detachable coupling or socket 29 may be provided at the outer end of the handle 27, or any other suitable electric devices convenient for manipulating and controlling the machine.

The shaft 25 extends into the casing 10 but a short distance and carries upon its inner end a pad holder which may be mounted in any convenient manner upon the shaft. In the present instance the shaft 25 is threaded at its inner end and is provided with a pair of jam or lock nuts 30 adapted to engage against the opposite sides of the head 31 of the pad holder. The head 31 in the present instance is in the form of a metallic strip of sufficient rigidity, and which has its opposite ends bent outwardly toward the open end of the casing 10 and twisted intermediately at substantially right angles to the lower face of the strip 31 and overturned upon themselves to provide sockets 32 closed at their outer ends and open at their inner ends for the reception of the inner ends of a pair of arms 33. The arms 33 are pivoted

at their inner ends in the sockets 32 by bolts 34 or the like, which hold the arms 33 in the sockets and permit of the free swinging of the same inwardly, but which limit the outward swinging of the arms by engagement of the outer edges of the same against the closed ends or bottoms of the sockets 32. The closed ends of the sockets are arranged to hold the arms 33 from swinging outwardly beyond a predetermined extent, so that when the casing 10 is applied against a surface to be rubbed the arms 33 are in such position that they may be easily swung back into the casing into operative position, and so that when the casing 10 is lifted with its lower end lowermost the arms 33 cannot swing outwardly into a dead center position, or into such position that they cannot be easily swung back for operation merely by pressure of the surface worked upon and against the same.

Each arm 33 carries a rubbing pad 35 of painters' felt or the like similar to the packing ring 12, and which may be clamped upon one side of the arm 33 by small bolts 36 or the like, and a retaining strap 37 may be secured across the outer side of the pad opposite to the arm 33. The bolts 36 pass through the strap 37 and also through the arm 33. The pads 35 are elongated and extend outwardly from the arms and are of sufficient width to engage over a material area of the surface to be rubbed and the arms 33 extend entirely across the head 31 from one socket 34 into a position at one side of the opposite socket 32; the arms 33 being slightly bent or offset, as shown in Figure 5 to escape the sockets 32. By means of this construction the rubbing pads 35 swing into arcs of a relatively long radius, so that the wearing of the pads is more nearly uniform and a better adjustment of the same is effected.

The top 11 of the casing is provided at one side and preferably near the annular wall of the casing with an opening 38 into which may be poured from time to time a quantity of a grinding or polishing substance, such as powdered pumice stone or the like mixed with water for introducing the same into the casing during the operation of the machine.

The packing ring 12 is adapted to fit closely against the surface being treated and to seal the casing 10 thereagainst so that the grinding material cannot escape from the casing, and so that the particles ground or removed from the surface may be retained in the casing and the latter cleaned out from time to time. The pads 35 may be renewed by removing them from the arms 33, and the packing ring 12 may of course be adjusted to meet conditions, or may be easily renewed from a strip of painters' felt or the like as occasion demands.

The machine may be grasped by the handle 17 and moved over the surface into different positions thereon and may be readily adjusted to uneven surfaces, the electric cord or wiring 28 being flexible to permit of this portable operation of the machine.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

15 What is claimed is:—

1. A surface rubbing machine comprising an enclosing casing open at its bottom, a packing ring fitting about the lower end of the casing and projecting below the same for contact with the surface to be rubbed, a clamping band detachably secured about the packing ring for binding the same against the casing, said casing and band having projections upon their inner opposite surfaces for biting engagement in the packing ring to hold the same in position, a motor mounted on the casing having a shaft projecting into the casing, a pad holder in the casing connected to the shaft for rotation thereby, and a handle for supporting the motor and casing for manipulation of the machine.

2. A surface rubbing machine comprising a casing, a motor on the casing having a

shaft projecting into the same, a head strip in the casing connected to said shaft at an intermediate point and having its ends bent outwardly and twisted at right angles to the strip, said bent and twisted ends of the strip having their extremities overturned to provide sockets closed at their outer ends, an arm pivotally mounted at one end in each of said sockets and extending lengthwise of the strip into a position adjacent to the opposite socket, said arms being adapted to engage the closed ends of the sockets when the arms are swung outwardly to limit the outward swinging of the arms, and rubbing pads secured to the free ends of said arms and extending outwardly therefrom.

3. A surface rubbing machine comprising a casing open at one end, a motor on the casing having a shaft projecting through the closed end of the casing, a head secured across the shaft in the casing and having its ends extending outwardly toward the open end of the casing and provided with stop shoulders on said ends, arms pivoted on said ends of the head near said stop shoulders, said stop shoulders being adapted to limit the swinging of the arms beyond the open end of the casing, said arms extending transversely in the casing in overlapping and crossed relation to each other, and rubbing pads mounted on the outer ends of the arms.

In testimony whereof I affix my signature.

ERNEST MAY.