A. A. CLARKE.

SURFACE TREATING DEVICE.

APPLICATION FILED NOV. 23, 1918. RENEWED DEC. 22, 1919.

1,352,582.

Patented Sept. 14, 1920.

2 SHEETS—SHEET 1.

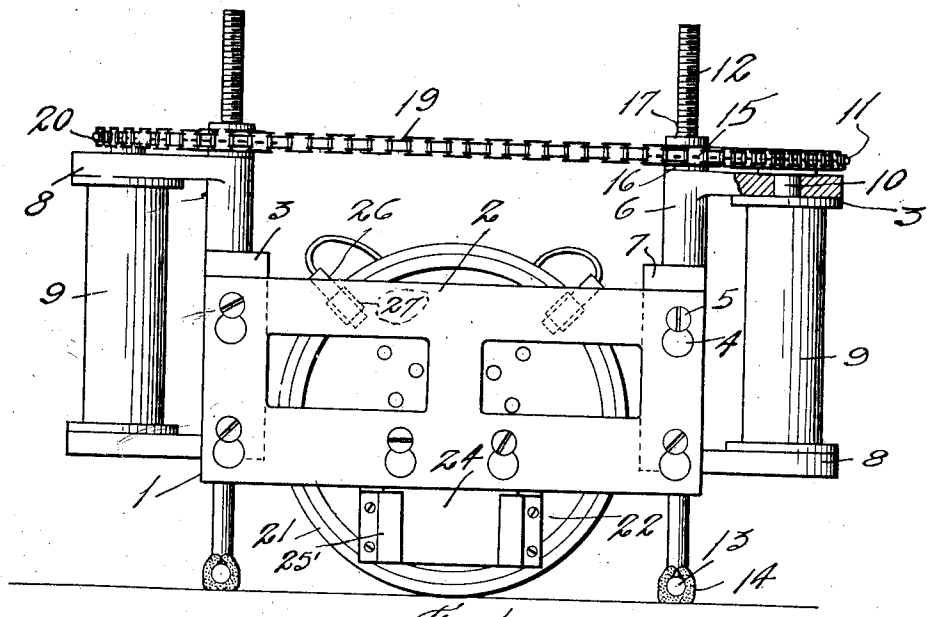


Fig. 1

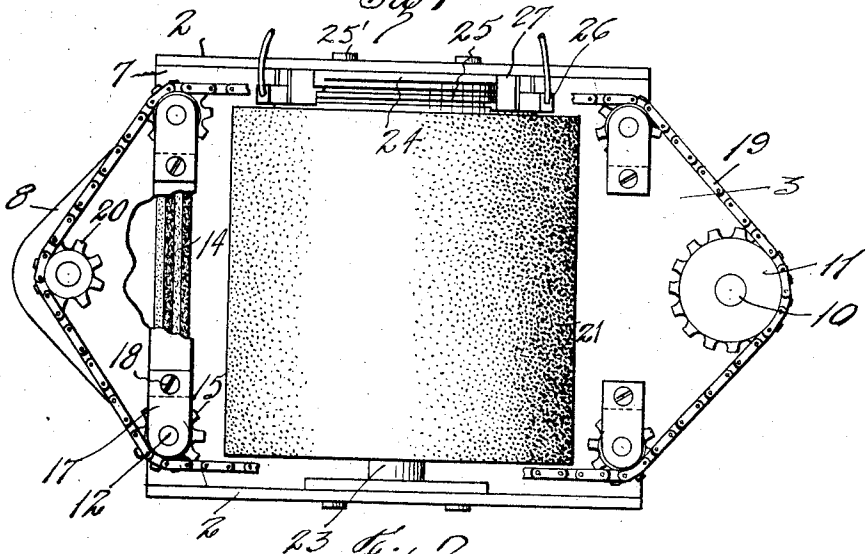


Fig. 2.

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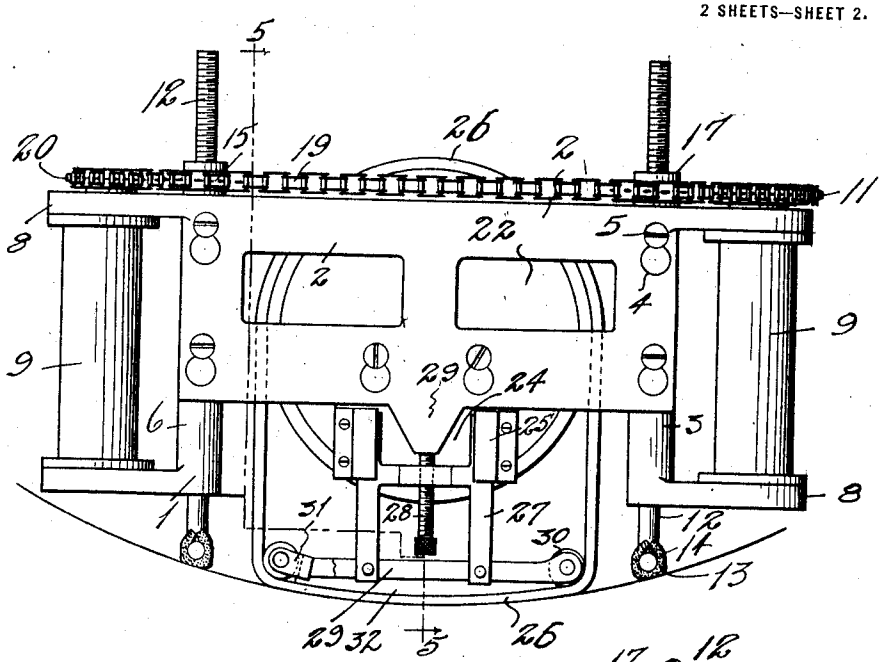


Fig. 4.

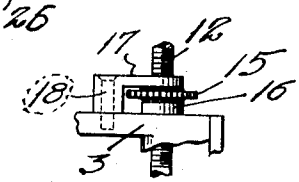


Fig. 5

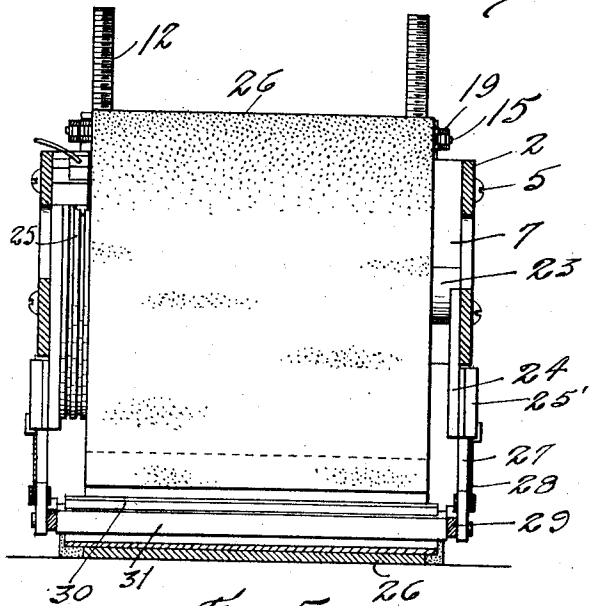


Fig. 5

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SURFACE-TREATING DEVICE.

1,352,582. Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed November 23, 1918, Serial No. 263,813. Renewed December 22, 1919. Serial No. 346,773.

To all whom it may concern:

Be it known that I, ALEX A. CLARKE, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Surface-Treating Devices, of which the following is a specification.

This invention relates to new and useful improvements in surface treating devices.

The idea involved in this invention is to provide a continuously moving surface treating member and support the same in such a manner that its application to the work may be adjusted to a minute degree and controlled by the operator while the device is in operation and without removing the device from the work while the adjustment is being made. This is a particular advantage as the operator may instantly observe the results of the adjustment and thus save considerable time and obtain better results than where it is necessary to displace the device and then replace it upon the work to determine the effect of the adjustment. Such an arrangement permits an adjustment while the device is in operation and gives the operator full control of the device.

In carrying out the invention simplicity of construction is one of the dominating features and I have therefore evolved a supporting frame or structure in which a surface treating member and a motor for driving the same are mounted in such a way as to present the surface treating member to the work. The frame or supporting structure is provided with adjustable work supports extending on each side of the surface treating member and adjusted by a common adjusting element. The frame is provided with handles by which it may be manipulated and positioned and one of these handles is connected with the adjusting element so that the operator may manipulate said element to adjust the work supports and thus control the relative projection or retraction of the surface treating member so that the depth of the cut or pressure of said member is minutely regulated.

It is also proposed to construct the frame in such a way that the surface treating member may be mounted directly on the housing of the motor and thus applied to the work or by means of an attachment. The surface treating member may be made in the form of a belt and driven from the housing of the motor over a flexible support by which it will be applied to curved and irregular surfaces.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is illustrated, and wherein

Figure 1 is a side elevation of a device constructed in accordance with this invention,

Fig. 2 is a plan view of the same,

Fig. 3 is a detail of one of the adjusting sprockets and its keeper.

Fig. 4 is a side elevation of a modified form of the device, and

Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 4.

In the drawings the numeral 1 designates a supporting frame which is composed of side plates 2 connecting end members 3. The side plates are provided with keyhole slots receiving screws 5 mounted in the end members so that by loosening the screws and displacing the plates upward the latter may be removed from the end members and the frame disassembled. The end members comprise upright sleeves 6 at each side, each having an outwardly directing boss 7 extending part of its length. The plates 2 lie against the faces of these bosses and the screws 5 are threaded into said bosses.

Each end member has its sleeves connected at their upper and lower ends by offset brackets 8. Between each pair of brackets a vertical handle 9 is disposed at the longitudinal center of the frame. These handles are cylindrical and somewhat in the form of a spool. One of said handles is free to rotate and carries a shaft 10 which extends up through one of the brackets 8; while the other handle is fixed. The shaft 10 receives a sprocket 11 which is mounted on the bracket through which the shaft passes.

Each sleeve 6 receives a vertical post or standard 12 which projects below the same, as is shown in Fig. 1. The posts at each end of the frame are united by transverse foot bars 13 which are covered or incased in fabric shoes or sleeves 14, said shoes being formed of felt or some other non-abrading material. Each post has its upper portion screw-threaded and passes through a sprocket 15 which is threaded thereon. The sprockets have depending hubs 16 bearing on the end members and each is confined by

a keeper 17 penetrated by the post and bearing on the upper side of the sprocket. Each keeper is fastened in position by a screw 18 so as to be removed when desired. A sprocket chain 19 passes around the sprocket 11 and over the sprockets 15 as well as an idle sprocket 20 mounted over the stationary handles 9. It is obvious that by rotating the movable handle the chain 19 is propelled and each of the sprockets 15 rotated in unison and equally. The post being threaded in the sprockets will cause the latter to be lifted or lowered on the post according to the direction of travel of the chain. The frame 1 being attached to the sprockets 15 will thus be elevated or lowered, the shoes 14 constituting a fixed support for the frame.

The frame 1 carries a surface treating member which I have shown in Figs. 1 and 2 in the form of a cylindrical sleeve 21. This sleeve 21 may have an abrading surface or it may be in the nature of a buffer. The sleeve is fitted on a cylindrical motor housing 22. This housing carries the usual fields (not shown) and revolves around a fixed armature 23 which is supported by plates 24 fastened to the inner side of the plates 2. The revolving motor housing carries collector rings 25 which are engaged by brushes 26 supported in brackets 27 projecting from the inner side of one of the plates 2. The brushes are connected with a source supplying current of electricity whereby the motor is driven.

The motor and its surface treating member engages the surface to be worked upon between the shoes 14 which also bear or rest on said surface. The member being fixed it is obvious that by adjusting the posts 12 the shoes are projected or withdrawn and the surface treating member is positioned with relation to the working surface. The shoes may be adjusted so as to permit the member to barely touch the working surface or allow it to cut into and remove a portion of the surface.

In using the device the operator grasps the handles 9 and after applying the tool to the working surface so that the shoes 14 engage the same he rotates the movable handle 9 so as to traverse the chain 19 and adjust the sprockets 15 on the posts 12 whereby the frame 1 is moved relatively of said posts. The surface treating member is revolving and consequently the operator can determine just what effect it is having on the working surface. It is understood that the operator moves the device longitudinally over the surface with the shoes 14 in contact with the latter. If he wishes to adjust the surface treating member he simply has to rotate the movable handle 9 and can observe the effect of the adjustment without stopping the work or removing the device from the surface. In this way a minute and satisfactory adjustment may be expeditiously had, and as the adjustment is made while the device is in transit the surface will not be dished or routed out as would be the case if the device was removed, adjusted and then replaced. By means of the chain each post is given the same adjustment and the device cannot be distorted by adjusting one post in advance of the others.

In some cases it is desirable to apply the abrading member over a greater area than is possible with the sleeve 21, and this is particularly true on curved surfaces. In Figs. 4 and 5 I have shown an arrangement for this purpose. The plates 24, as shown in all the figures except Fig. 3, depend below the plates 2 and carry angular guides 25′. In attaching the parts shown in Figs. 4 and 5 the keepers 17 are removed together with all the sprockets and the posts 12 are withdrawn from the sleeve. The side plates 2 are removed and the end members 3 inverted. When the side plates are removed the motor housing is disconnected so that the sleeve 21 may be removed.

After the end members have been inverted the posts 12 are inserted therein and the sprockets 15 screwed down on to the same and confined by the keepers, the end members having holes for receiving the screws 18. The sprocket 11 is also mounted on the shaft 10 which is driven through the handle so as to receive said sprocket, the same is true of the sprocket 20. When the end members are inverted the screws 18 are elevated so that the plates 2 will be located at a greater elevation with relation to the bottom of the frame 1.

Before the last plate 2 is fastened in position a surface treating belt 26 is placed over the motor housing 22 and depends from the same. H-shaped standards 27 are engaged under the guides 25′ and each carries an adjusting screw 28 engaging a block 29 lying against the plate 24 and the underside of the plate 2. Each standard 27 has its lower ends fastened to a longitudinal side bar 29ª. Rollers 30 are journaled between the ends of the side bars; while yokes 31 are pivoted on the journals of the rollers between the side bars. A flexible pressure plate 32 has its ends secured to these yokes and extends between the side bars. The belt 26 passes over the rollers 30 and across the underside of the pressure plate 32. By adjusting the screws 28 the slack is taken out of the belt 26 and the parts put under tension. The plate 32 is given a slight depending curve and owing to its flexible nature will conform itself to curved and irregular surfaces thus applying the belt smoothly to such surfaces.

It will be seen that a device of this character may be rapidly shifted back and forth or in one direction only over the surface to

be treated. It is useful in removing varnish, paint and the like or in smoothing a surface to be finished. By changing the surface treating member it may be used as a polishing or buffing tool. It may be used advantageously in removing rough surfaces from woodwork or for smoothing seams and for various other purposes which may present themselves.

What I claim is,

1. In a surface treating device, a supporting frame, said frame having handles whereby it may be manually moved over the work, a motor propelled surface treating member projecting from the frame, supporting elements projecting from the frame on each side of the surface treating member and adjustable in said frame for positioning the surface treating member with relation to the work, and means operated by one of the handles for adjusting the supporting elements.

2. In a surface treating device, a supporting frame, said frame having handles whereby it may be manually moved over the work, a motor propelled surface treating member projecting from the frame, supporting elements projecting from the frame on each side of the surface treating member and adjustable in said frame for positioning the surface treating member with relation to the work, means for adjusting the supporting elements, and a common operator for operating said adjusting means in unison, said operator being traversed by one of the handles.

3. In a surface treating device, a supporting frame, a motor propelled surface treating member projecting from the frame, work supporting elements adjustable in the frame and projecting from the same, said work supporting elements being individually adjustable with relation to the frame and surface treating member for controlling the application of said member to the work, and means for adjusting the work supporting elements in unison and to the same degree.

4. In a surface treating device, a supporting frame, handles at each end of the frame, a surface treating member mounted to revolve in the frame and projecting therefrom, supporting posts passing through the frame, foot bars connecting the posts at each end of the frame, shoes on the foot bars, sprockets threaded over the upper portions of the posts and confined in the frame, a sprocket chain engaging all of the sprockets of the posts for operating the same in unison, a master sprocket engaging the chain for driving the same, said master sprocket being rotated by one of the handles.

In testimony whereof I affix my signature.

ALEX A. CLARKE.