A. A. CLARKE.

SURFACE TREATING DEVICE.

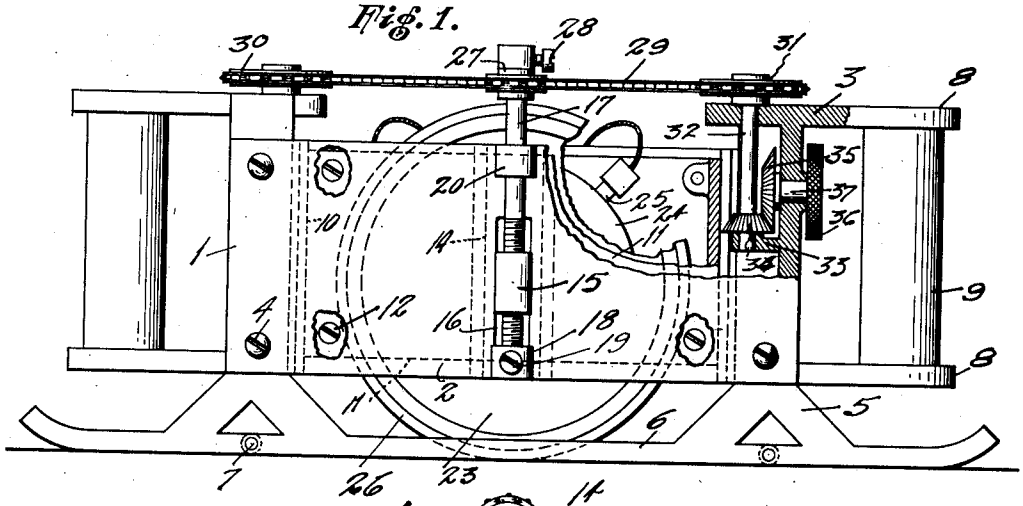
APPLICATION FILED APR. 24, 1919.

1,356,338.

Patented Oct. 19, 1920.

3 SHEETS—SHEET 1.

Fig. 1.



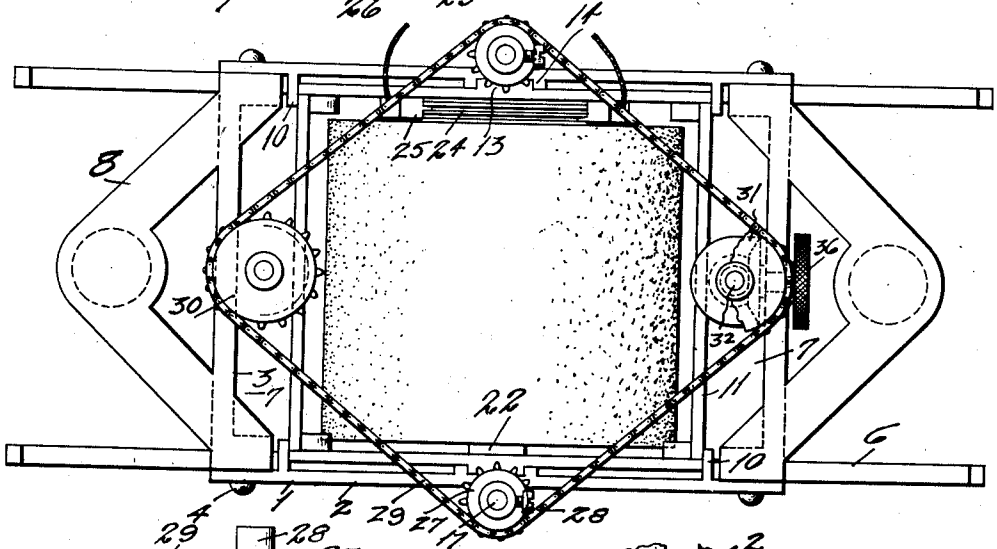


Fig. 2.

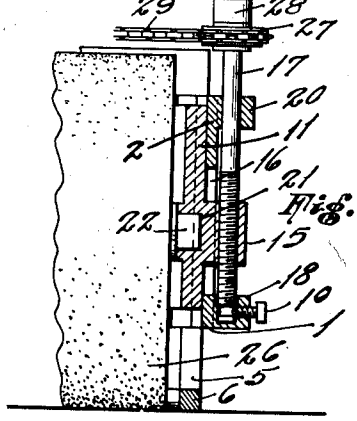


Fig. 3.

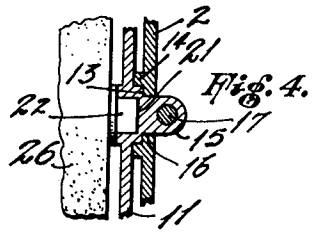


Fig. 4.

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3 SHEETS—SHEET 2.

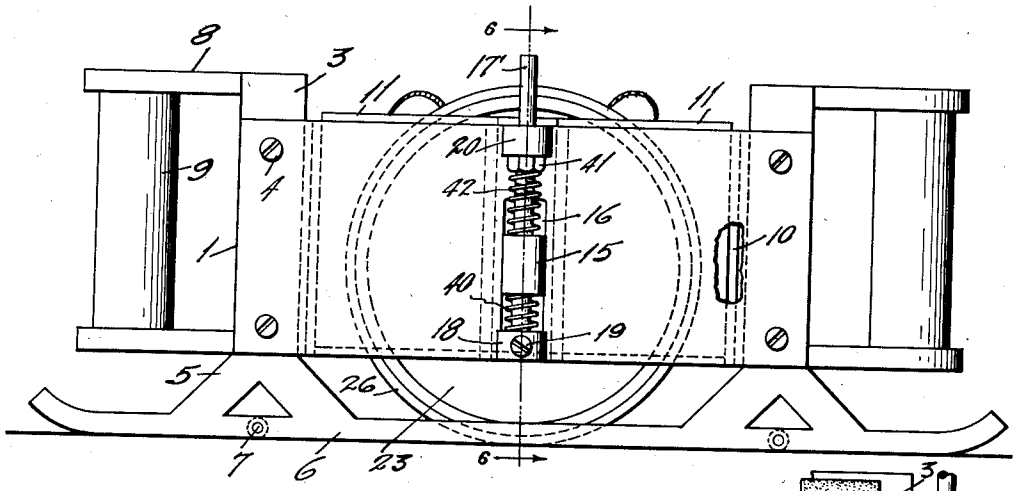


Fig. 5.

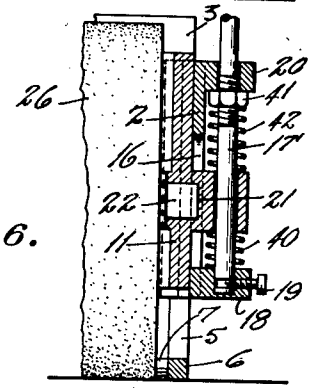


Fig. 6.

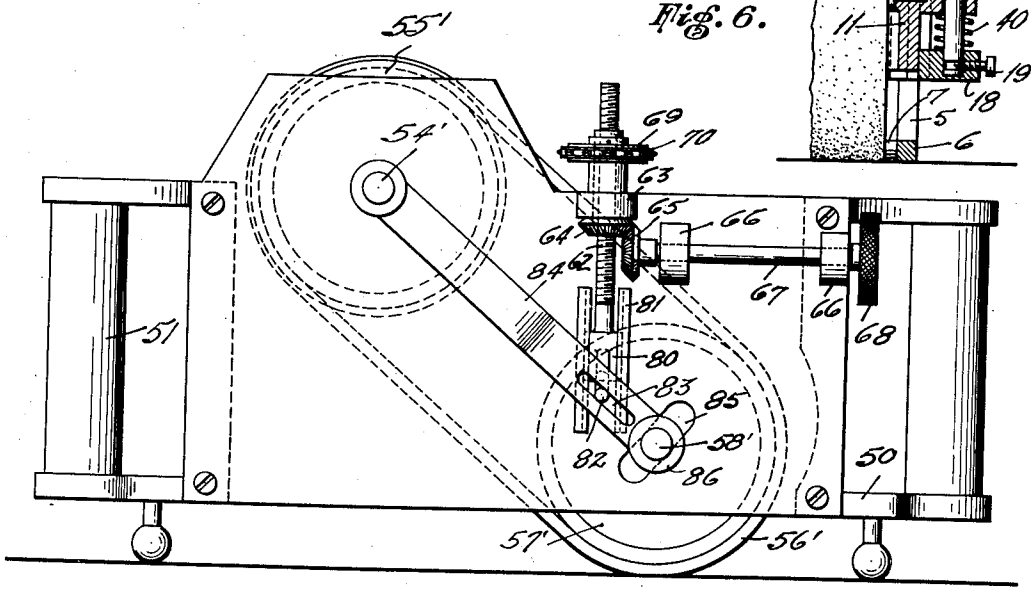


Fig. 10.

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3 SHEETS—SHEET 3.

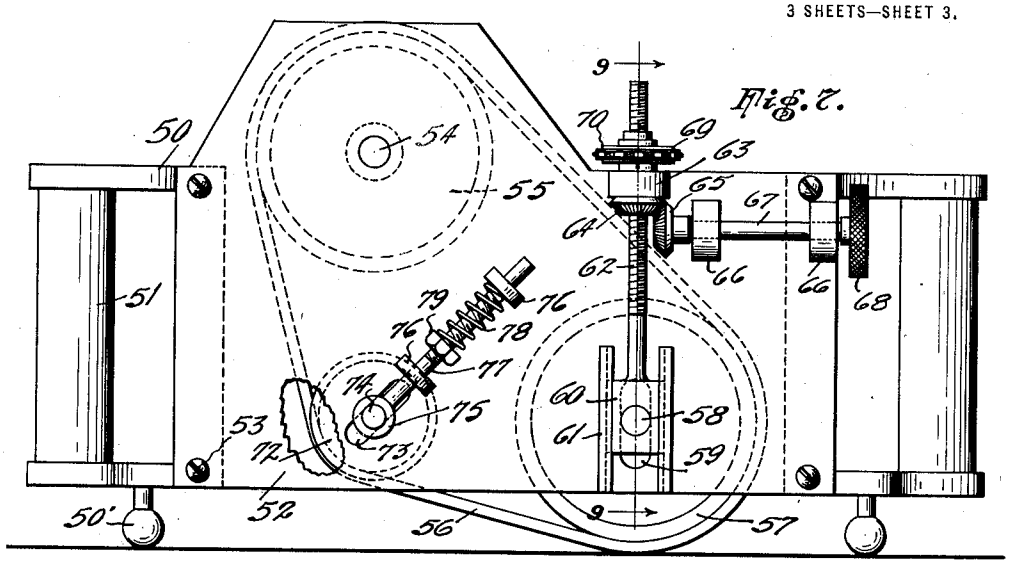


Fig. 7.

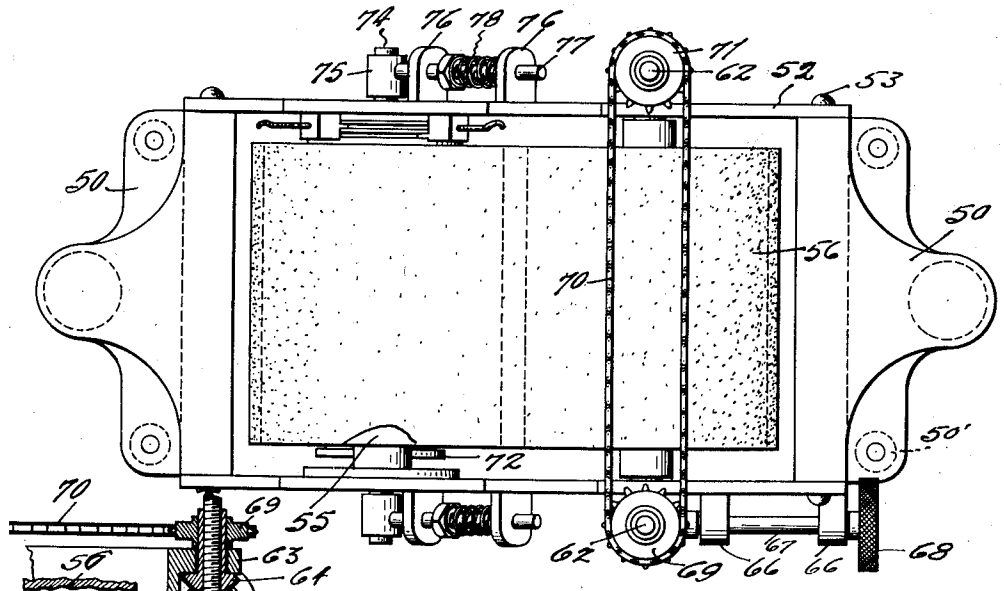


Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

ALEX A. CLARKE, OF DALLAS, TEXAS.

SURFACE-TREATING DEVICE.

1,356,338. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed April 24, 1919. Serial No. 292,512.

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 machines.

The idea involved in this invention is to provide a continuously moving surface treating member which is bodily adjustable in a suitable support.

The particular feature resides in a motor driven surface treating member which is adjustably supported in a frame which is provided with handles for moving it over the work, said member either being positively adjusted with relation to the work or resiliently sustained and applied to the work so as to be self-adjusting.

In carrying out the invention a supporting frame is provided and equipped with work traversing shoes or runners. Suitable means as handles may be provided on the frame for manipulating the same. A motor driven surface treating member is adjustably mounted in the frame. The surface treating member may either assume the form of a sleeve fitting around a self-propelled motor housing or a belt having one end supported on a motor driven housing and the other on an adjustable roller which applies the belt to the work. The belt may also travel over a belt tightener which affords slack for adjusting the roller. Means for adjusting the sleeve or belt to the work may be employed and reduced to practice in various ways.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which examples of the invention are shown and wherein:

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

Fig. 2 is a plan view of the same,

Fig. 3 is a vertical sectional detail of the adjusting means,

Fig. 4 is a cross-sectional detail of the armature support,

Fig. 5 is a side elevation of a modified form,

Fig. 6 is a sectional view of the same on the line 6—6 of Fig. 5.

Fig. 7 is a side elevation of another form,

Fig. 8 is a plan view of the same, Fig. 9 is a sectional view on the line 9—9 of Fig. 7, and

Fig. 10 is a side elevation of another form.

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 fastened on the end members by screws 4. The end members at each side are supported on standards 5 which are mounted on runners or skids 6 connected at the standards by cross bars 7.

Each end member includes upper and lower brackets 8 directed outwardly and connected by upright handles 9 at each end of the frame. The side plates have vertical guide ribs 10 on their inner sides adjacent the end members between which guides an adjustable frame 11 is disposed. This frame has its sides and ends fastened together by screws 12 and at the center of its sides carries vertical exterior bosses 13 engaging in vertical guideways 14 on the inner sides of the side plates 2. On each boss a laterally extending lug 15 is provided and these lugs project through vertical slots 16 in the side plates and are screw-threaded to receive vertical adjusting shafts 17. The shafts are mounted in ears 18 at the bottom of the side plates and are grooved to receive the ends of set screws 19 mounted in said ears. The shafts are rotatably confined and by turning the same the lugs are elevated or lowered on the shafts, thus adjusting the frame 11. The shafts extend up through ears 20 on the top of the frame.

The sides of the frame 11 at the bosses 13 are recessed as indicated at 21 (Figs. 3 and 4) to receive the square ends of a fixed armature 22 on which a motor housing 23 is suitably mounted to revolve. This housing carries the usual fields (not shown). The motor housing is cylindrical and carries collector rings 24 engaged by brushes 25 supported on the frame 11, said brushes being connected with a suitable source of electrical current supply.

The shafts 17 may be rotated in various

ways but it is essential that they be rotated in unison to evenly adjust the frame 11. On the cylindrical housing a sleeve or band of surface treating material 26 is snugly fitted. This material may have an abrading or buffing nature. The sleeve 26 constitutes a surface treating member. As a means of rotating the shafts 17 I have shown sprocket wheels 27 fastened on the upper ends thereof by screws 28. A sprocket chain 29 passes around the wheels 27, also around an idler sprocket wheel 30 and a propelling sprocket wheel 31. The wheel 30 is mounted on one member 3 and the wheel 31 is secured to the upper end of a vertical shaft 32 carried by the other end member 3. The shaft 32 is supported in a bracket 33 at its lower end and carries a bevel pinion 34 which is driven by a bevel gear 35. An adjusting wheel 36 has its shank 37 engaged in the gear 35 and adjacent the handle 9.

The operator grasps the handles 9 and traverses the machine over the work on the skids 6. The wheel 36 is in such a position as to be readily grasped between the thumb and fore-finger and turned by the operator, whereby the chain 29 is propelled and the shafts 17 rotated so that the frame 11 and surface treating member 26 are adjusted to the surface of the work. The chain could be otherwise propelled. A minute adjustment may be had and the adjustment effected while the machine is in operation. The runners act to support the frame 1 and the surface treating member when working on the margin of a surface.

By withdrawing the screws 19 and 28 the shaft 17 on one side may be screwed upward and disengaged from the lugs 15, after which the screws 4 may be removed and the side plate 2 taken off. Then by removing the exposed side of the frame 11 the sleeve 26 can be taken off of the housing 23 and another sleeve replaced therein, after which the parts may be restored to their normal position.

In Figs. 5 and 6 I have shown a modification in which the adjusting chain and its connections are omitted. The lugs 15 are slidable on shafts 17′ which have their lower ends fastened in the ears 18 by screw 19 and are held against rotation. A coiled spring 40 surrounding each shaft rests on the ear 18 and supports the lug 15. This is a sustaining spring and supports the housing 23. Each shaft has an adjusting nut 41 bearing against the underside of the ear 20. A coiled spring 42 surrounds the shaft between each nut and the lug 15 below. The springs 42 force the lugs and thus the housing downward. By adjusting the nuts the tension of the springs 42 are varied and the application of the housing 23 to the work regulated. It will be seen that the housing 23 is resiliently sustained and cannot be adjusted while the machine is in use. The springs 42 force the member 26 into contact with the work and there is no positive adjustment of the drum.

In Figs. 7, 8 and 9 I have shown another form comprising end members 50 provided with handles 51. The end members are supported on feet 50′ and are connected by side plates 52 fastened thereto by screws 53. The plates extend above the end members and support therebetween a fixed armature 54 on which a motor housing 55 revolves. A surface treating belt 56 has its upper end supported on and driven by the housing while its lower end travels around a pressure drum 57 projecting below the frame. The drum has trunnions 58 projecting through slots 59 in the side plates and engaging in adjusting blocks 60, disposed between vertical guides 61 on the outer sides of said plates.

Shafts 62 extend upward from the blocks and each is screw threaded. One of the shafts carries a beveled pinion 64 confined against an ear 63 through which the shaft passes. The pinion is engaged by a beveled pinion 65 secured on the end of a horizontal shaft 67 mounted in ears 66 and having a thumb wheel 68 adjacent one of the handles. As shown in Fig. 9 the hub of the pinion 64 extends up through the ear 64 and is fastened in a sprocket 69 which drives a sprocket chain 70 extending across the frame and driving a second sprocket 71 screw threaded on the other shaft. When the shaft 67 is turned to revolve the pinions motion is imparted to the sprockets and the shafts uniformally adjusted vertically, whereby the drum is adjusted and the application of the belt to the work controlled.

The belt must be kept taut and a tension roller 72 is employed. The roller has trunnions 74 projecting through slots 73 in the side plates. These trunnions are rotatably confined in eyes 75 on the lower ends of plungers 77 slidable in ears 76 on the outer sides of the plates. The plungers carry coiled springs 78 between the ears and adjusting nuts 79 against which the springs bear and thus tend to force the plungers down, whereby the roller is forced downward and the slack taken out of the belt.

In Fig. 10 I have shown a form somewhat similar to that of Figs. 7 and 9 except that the lower ends of the shafts 62 are engaged with blocks 80 vertically slidable in guides 81 and carrying studs 82 which project into the slots 83 of adjusting arms 84. The arms 84 have their upper ends pivoted on the ends of the armature 54′ of the motor housing 55′ which supports the upper end of the surface treating belt 56′. The lower end of the belt is supported on the drum 57′ whose trunnions 58′ project through slots 85 in the side plates, concentric to the armature. The

arms have eyes 86 at their lower ends in which the trunnions are rotatably confined. It will be seen that by adjusting the shafts 62 the arms are swung and the drum raised or lowered.

It is pointed out that in each form illustrated the surface treating member and the cylindrical member by which it is applied to the work are adjustable or yieldable with relation to the work, while the main frame is not adjustable.

What I claim, is:

1. In a surface treating device, an upright supporting frame, handles secured to the frame to move the same over the work, supports depending from the frame to travel upon the surface being treated, a vertically adjustable rotatable member arranged within the supporting frame, a surface treating member engaging the rotatable member, and means associated with one handle to vertically adjust the rotatable member.

2. In a surface treating device, an upright supporting frame, handles secured to the ends of the frame to move the same over the work, supports depending from the frame to travel upon the surface being treated, a vertically adjustable rotatable member arranged within the supporting frame, an element arranged near one handle, means operated by the element to vertically adjust the rotatable member, and a surface treating member engaging the rotatable member.

3. In a surface treating device, an upright supporting frame, vertical handles arranged near and spaced from the ends of the frame and connected therewith to shift the frame over the work, supports depending from the frame to travel upon the surface being treated, a vertically adjustable rotatable member arranged within the supporting frame, means to vertically adjust the rotatable member including a rotatable element arranged inwardly of and in alinement with one vertical handle, and a surface treating member engaging the rotatable member.

4. In a surface treating device, an upright supporting frame, handles secured to the frame, supports depending from the frame, a vertically adjustable rotatable member arranged within the supporting frame, means to vertically adjust the rotatable member including a pair of upstanding vertical screw-threaded shafts, sprocket wheels carried by the shafts, a sprocket chain connecting the sprocket wheels, and a surface treating member engaging the rotatable member.

5. In a surface treating device, an upright supporting frame, vertical handles arranged near and spaced from the ends of the frame and connected therewith, supports depending from the frame, a vertically adjustable frame arranged within the upright supporting frame, a movable surface treating member carried by the vertically adjustable frame, lugs secured to the vertically adjustable frame and having vertical screw-threaded openings, vertical shafts pivotally connected with the upright supporting frame and having screw-threaded portions engaging within the lugs, sprocket wheels secured to the upper ends of the shafts, a vertical shaft arranged near one handle and connected with the supporting frame, a sprocket wheel connected with the last named shaft, a sprocket chain connecting all of the sprocket wheels, and means including a rotatable element to drive the last named shaft, said element being arranged inwardly of and in alinement with one handle.

In testimony whereof I affix my signature.

ALEX A. CLARKE.