June 13, 1933. J. VICIC 1,913,574

ABRADER OR POLISHER FOR AUTOMOBILE BODIES

Filed Feb. 25, 1932 2 Sheets-Sheet 1

Fig. 1.

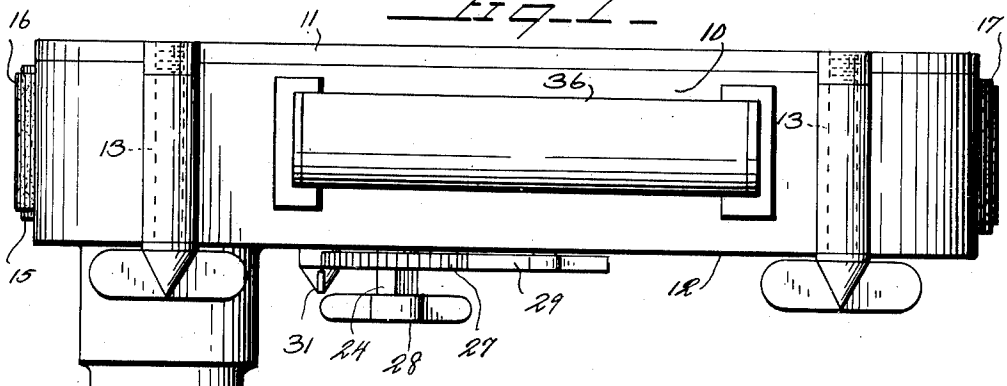


Fig. 3.

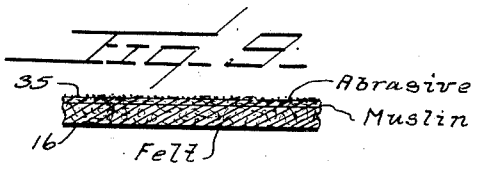


Fig. 2.

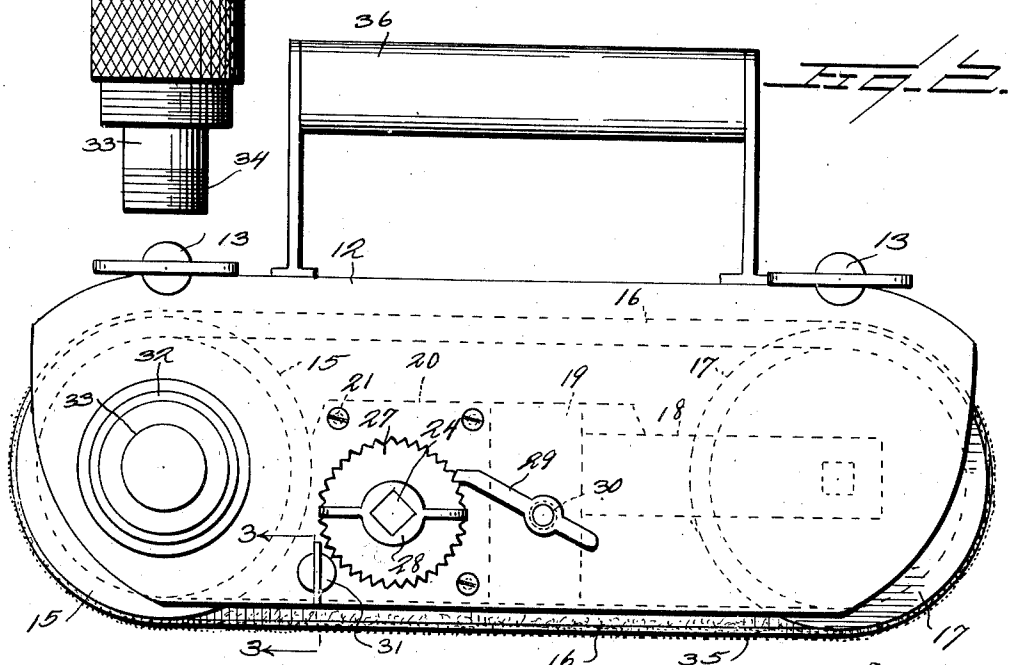
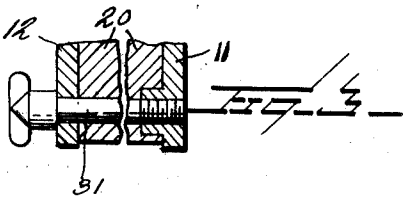


Fig. 4.



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Filed Feb. 25, 1932 2 Sheets-Sheet 2

Fig. 4.

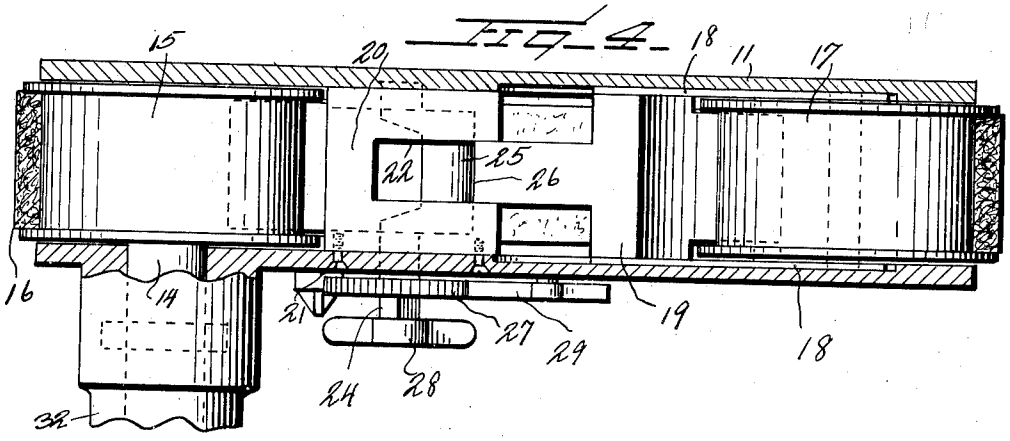


Fig. 6.

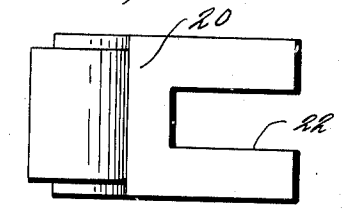


Fig. 7.

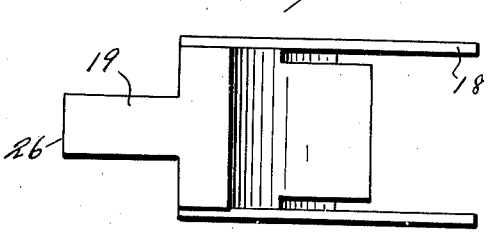


Fig. 5.

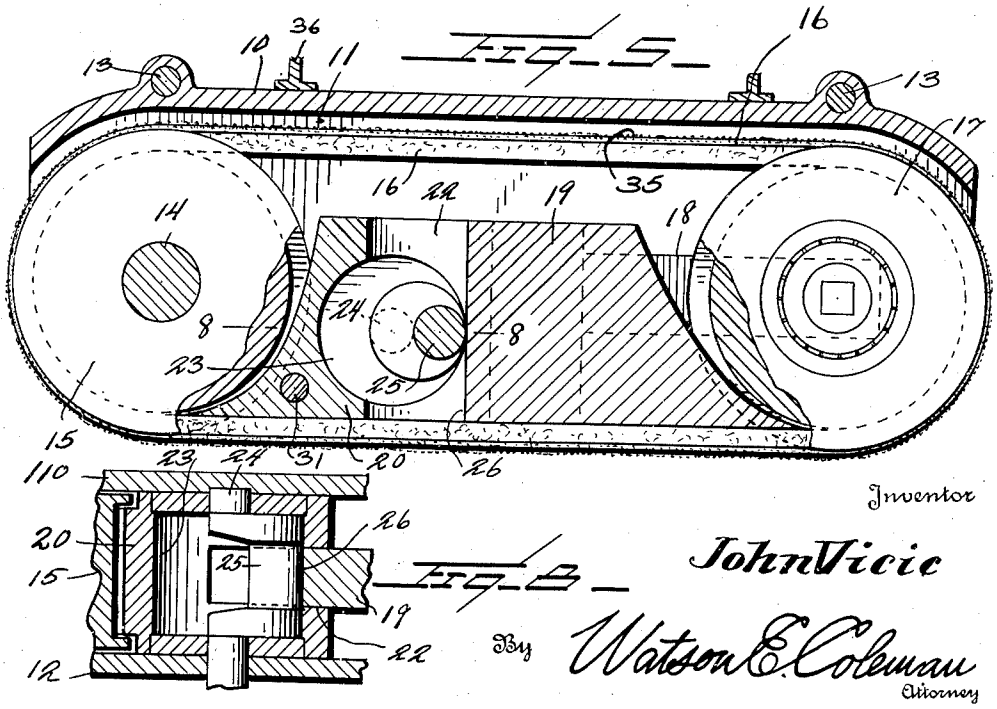


Fig. 8.

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UNITED STATES PATENT OFFICE

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ABRADER OR POLISHER FOR AUTOMOBILE BODIES

Application filed February 25, 1932. Serial No. 595,171.

This invention relates to abrading machines and particularly to machines for sanding and smoothing automobile bodies and fenders and articles of this nature.

The general object of the invention is to provide a sander of this character which is very simple, which may be readily manipulated, which is of such character that it will fit the contours of automobile bodies and fenders, and in which the sanding belt may be tightened from time to time so as to take up any sag therein.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a top plan view of my abrading tool;

Figure 2 is a side elevation thereof;

Figure 3 is a fragmentary section on the line 3—3 of Figure 2;

Figure 4 is a longitudinal, horizontal sectional view;

Figure 5 is a longitudinal vertical sectional view;

Figures 6 and 7 are plan views of the extensible members whereby the belt rollers are shifted toward or from each other;

Figure 8 is a section on the line 8—8 of Figure 5.

Figure 9 is a fragmentary section of the belt or band.

Referring to these drawings, 10 designates the top plate of the housing or casing for the sander and 11 and 12 the side plates thereof. These side plates are connected to the top plate by means of screws 13 or in any other suitable manner. Mounted within one end of the housing formed of these side plates and the top plate is a shaft 14 mounted in suitable bearings in the side plates and more particularly mounted in a bearing in the plate 12, which shaft carries upon it the roller 15 flanged to engage an endless abrading belt or polishing belt 16. Coacting with this roller 15 for the support of the belt is a movable roller 17 disposed at the other end of the casing or housing. This is carried in bearings on a longitudinally shiftable yoke 18 shown in Figure 7, this yoke having a tongue 19. Coacting with this movable yoke is a fixed element 20 shown in Figure 6 held in place upon one of the sides, as for instance, the side wall 12 by means of nails or screws 21. This member 20 is bifurcated at 22 to receive the tongue 19 and is cut away at 23. Extending through this member and through the front wall 12 is a shaft 24 which is mounted in bearings in the fork 22, this shaft carrying upon it the crank or eccentric 25 which bears against the vertical wall 26 of the tongue 19. It will be obvious now that when the crank is turned to the position shown in Figure 5, the yoke 18 will be shifted in a direction to carry the roller 17 away from the roller 15 to thus tighten up the belt and that by adjusting the crank 25 to any desired extent from a position inward of the axis of the shaft 24 to a position outward of this axis that the band or belt 16 may be taken up to any extent required.

For the purpose of holding the crank 25 in any of its set positions, the shaft 24 is provided with the ratchet wheel 27 and with a key 28 whereby the shaft may be rotated, this key being detachable. Coacting with the ratchet 27 is the pawl 29 which engages the teeth of the ratchet wheel and prevents reverse motion of the crank. Any suitable spring may be connected to this ratchet, such a spring being indicated in dotted lines at 30 in Figure 2. Just below the ratchet wheel to one side thereof is disposed a thumb screw 21 which, as illustrated in Figure 3, extends entirely through the plate 12 and through the member 20 and has threaded engagement with the boss for the member 11. It will be noted that the cover plate 10 is in one piece with the side plate 12.

The side plate 12 is extended laterally as shown in Figure 1 to provide a handle 32 through which the shaft 14 or a driving extension thereof designated 33 may project. This shaft may be coupled by any suitable means, as by means of the screw-threads 34 to a shaft leading from a source of power.

It will be noted that the under faces of the elements 18 and 20, which elements in-

clude the eccentric means for the control of the traverse motion of the belt, form a guiding face for the belt, which belt comes in contact with the surface to be smoothed and prevents the belt from sagging in at the working section, thereby giving a perfectly smooth surface and making this smoothing or abrading device very readily controlled.

The belt or band 16 is preferably of felt which is impregnated with powdered emery or carborundum. Preferably, this belt is formed of hard felt impregnated with the abrading particles as heretofore stated and covered on its outer face with muslin. The felt used should not be harder than an average inner tube and preferably it will be softer. This felt will not properly hold the abrasive and hence is covered with muslin 35 as shown most clearly in Figure 9. The muslin is coated with glue and while the glue is still wet, the abrasive particles are dusted thereon. As before remarked, the belt 16 should be of felt as rubber is not of value for this purpose inasmuch as it will soften and lose its shape.

Preferably a handle designated generally 36 is attached to the top member 10 of the sander, as shown in Figures 1 and 2. This is necessary because of the fact that the sander gets too hot after using it for a while and the handle 36 does away with the necessity of the workman placing his hands upon the body of the sander.

It will be noticed from Figure 5 that the curved ends of the members 19 and 20, which curved ends confront the rollers 17 and 15, are so shaped that the lower portions of the curved ends extend downward and inward nearer and nearer to the bodies of these rollers 15 and 17. These parts are so formed in order to temporarily hold any particles which may be detached from the belt. Then when the belt is removed, any particles which may have settled in the spaces between the members 19 and 20 and the adjacent rollers may be removed. If these particles could move over the wheels 15 and 17 and get between these wheels of the belt, they would tend to cut the belt and the wheels.

This sander is particularly adapted for use for smoothing ground and irregularities in sheet metal, parts of automobiles. Thus, for instance, a sheet metal part of an automobile which has been damaged is first hammered out as flat as possible but this does not make it perfectly smooth and after it has been hammered out, it is smoothed and the irregularities taken out by this sander. A round sander is used at the present time for this purpose but this will not bridge across a depression but if it gets in a depression it will tend to increase the depth of the depression. My sander bridges across the depression and brings the metal on each side of the depression downward until the whole sheet is perfectly smooth. Insofar as I know, no tool will produce the same effect except a file, but the action of the file is slow at the best and requires that the workman shall exert great strength.

One of the reasons why this sander is particularly effective is because the belt or band 16 moves beneath the blocks 19 and 20 which are perfectly straight for their entire length and which bear against the upper face of the lower flight of the belt so that there can be no possible give or sag to the belt. If there is any stretching in the belt, it can be readily taken up so as to keep the lower flight always perfectly straight or smooth and bearing against the members 19 and 20. The belt or band 19 is also a very important part of my machine as I have tried many different types of belts or bands and find that it should be of relatively heavy felt and the felt should be covered with muslin as described.

It will be understood, of course, that ball bearings may be used for the shafts of the rollers and for the driving shaft 14 and that these anti-friction means may be of any suitable character.

I claim:—

1. A sander or polisher of the character described comprising a casing having a top and side walls, one wall of the casing having a handle, a roller mounted within the casing and having a shaft extending out through the casing and adapted to be connected to a source of power, a member mounted fixedly within the casing adjacent said roller, a second member mounted within the casing and opposed to the first named member and shiftable longitudinally, a roller supported by the second named member and shiftable therewith, and an abrading belt extending over both of said rollers, the lower flight of said abrading element extending beneath said members, both of said members having flat faces bearing against the lower flight of the abrading element, manually operable means extending through one side wall of the casing for shifting the sliding member away from the fixed member to thus take up slack in the belt and means for holding said manually operable means against reverse motion.

2. A polisher or abrader of the character described comprising a casing having side walls but being open on its lower face and ends, rollers mounted within the casing adjacent the opposite ends thereof and projecting below the lower edges of the side walls of the casing, an abrading belt carried by said rollers, means for applying power to one of said rollers, and members disposed within the casing and directly above the lower flight of the belt, the members constituting an abutment against which the belt bears, said abutment having a straight lower face extending from a position close to one

roller to a position close to the other roller, said abutment having curved end faces extending downward and outward toward their respective rollers, the end faces as they extend downward extending nearer and nearer to the corresponding rollers.

3. A sander or polisher of the character described comprising a casing having a top and detachable side walls, a roller mounted within one end of the casing and having a shaft extending out through the casing and adapted to be connected to a source of power, a member mounted fixedly within the casing adjacent said roller, said member being bifurcated, a sliding member mounted within the casing and having a portion extending into the bifurcation of the first-named member, said second named member being forked at its outer end, a roller supported by said fork, an abrading band extending around both rollers and beneath the fixed and sliding elements, an eccentric carried by the side walls of the casing and within said fixed element and engaging the adjacent end of the sliding element, said eccentric being rotatably adjustable to shift the sliding element in a direction away from the first named roller to thus tighten the band, the eccentric having a shaft extending out through a side wall, and a handle whereby it may be rotated, a ratchet carried by said shaft on the exterior of the casing, and a pawl engaging said ratchet.

4. A sander or polisher of the character described comprising a casing having a top and two side walls detachably engaged with the top, the casing thus formed being open at its ends and bottom, a shaft passing through one of said side walls and adapted to be connected to a source of power for rotating it, a roller mounted upon said shaft, a fixed element disposed between the side walls and disposed adjacent said roller, a slidable element mounted in guides between the side wall and having sliding engagement with the first named element, and carrying a roller at its outer end, an abrading band passing around said rollers and bearing against the under face of the sliding and fixed elements, means for shifting the sliding element away from the fixed element, said means having an actuating shaft extending out through one side wall of the casing and provided with a handle, a ratchet wheel mounted upon said shaft, and a pawl mounted upon the exterior of the side wall and engaging said ratchet wheel.

In testimony whereof I hereunto affix my signature.

JOHN VICIC.