

Oct. 27, 1931.

P. C. NEILSEN

1,829,531

SCRAPER

Filed Jan. 9, 1930

Fig. 3.

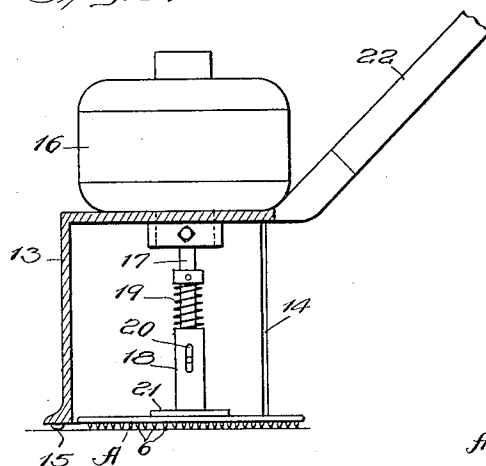


Fig. 2.

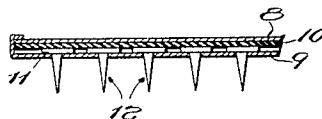


Fig. 1.

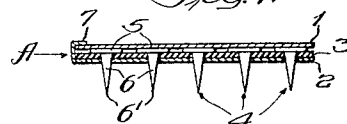


Fig. 4.

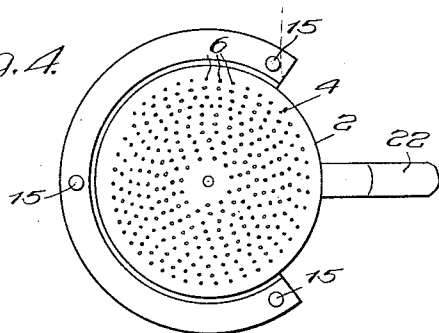


Fig. 6.

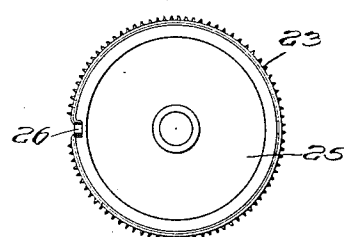


Fig. 8.

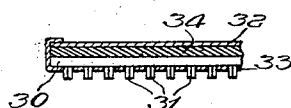


Fig. 7.

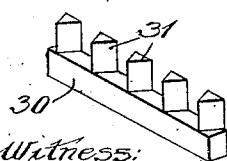


Fig. 5.

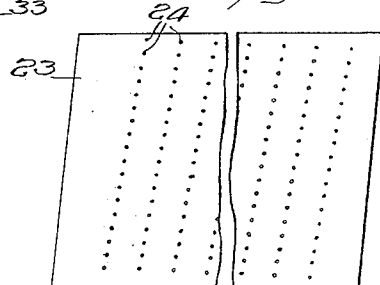
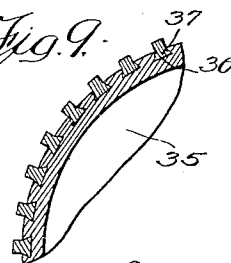


Fig. 9.



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UNITED STATES PATENT OFFICE

PETER C. NEILSEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWENTY-FIVE PER CENT TO CHRISTIAN STOKHOLM AND TWENTY-FIVE PER CENT TO OLE K. SIMONSEN, BOTH OF CHICAGO, ILLINOIS

SCRAPER

Application filed January 9, 1930. Serial No. 419,719.

This invention relates generally to scrapers, and particularly concerns the novel means of constructing or producing a scraper which will quickly accomplish the results of leveling wooden surfaces of uneven or irregular contour, and also for removing by ripping, tearing or otherwise cutting, old varnish, shellac or other foreign substances from surfaces desired to be scraped, and which it is to be understood that the surface may be subsequently smoothed by the use or application of other suitable agencies familiar to those experienced with this art, the surface later being refinished by the application of any suitable protective covering, if so desired. The article may also be used to advantage in leveling and to some extent, smoothing concrete, mosaic floors and the like.

The principal object of the invention is in the provision of means comprising super-imposed plies of certain materials of which the outer are preferably resilient or flexible and the inner ply a compressible one, and a plurality of scraper elements associated therewith and interposed in such a manner that the pins are adapted to rotate and oscillate when contacting or engaging a surface during the scraping operation, and upon being brought out of engagement with the surface, the elements will return to their original or normal position. The advantage of such wobbling movement or oscillation will tend to prevent the points of the elements from flattening, and will also cause, to some extent, the points of the elements to be self-sharpening during the scraping operation.

Another object of the invention is in the particular materials used which comprise the article whereby it is possible to economically produce the article on a commercial scale.

A further object of the invention permits the application of the article or material to the ordinary drum of common types of sanding machines, and also permits the article with a few slight modifications, to be attached to scrapers of the rotary disk type.

Another important object of the invention lies in the fact that the article does not gum up or otherwise become clogged with varnish, shellac or other substances as is generally the

case or result when a sanding machine is used to carry out the object for which this invention is intended.

Other objects and advantages of the invention will be evident after considering the detailed description hereinafter set forth in conjunction with the accompanying drawings.

Referring to the drawings wherein certain views or figures disclose the principles of construction underlying this invention;

Fig. 1 is a sectional view in elevation showing the construction, arrangement and assembly of the elements which comprise my invention;

Fig. 2 is a sectional view in elevation showing a modified form of construction and arrangement of the elements;

Fig. 3 is a view in elevation, partly in section, showing a rotary disk type scraping machine with the novel scraper article attached thereto in operative position;

Fig. 4 is a bottom plan view of the machine shown in Fig. 3 and clearly illustrates one of the many arrangements in which the scraper elements may be positioned in the plies;

Fig. 5 illustrates a sheet of the scraper article constructed similarly to the embodiments as shown in Figs. 1 or 2, but in this instance is adapted for positioning around a drum;

Fig. 6 is an end view in elevation of a drum showing the article such as is shown in Fig. 5 secured thereto;

Fig. 7 is a perspective view showing a modified construction of scraper means which may be used to accomplish the results desired;

Fig. 8 is a sectional view in elevation showing a modified construction and assembly with the metal scraper bars shown in Fig. 7 associated with the metal plies; and

Fig. 9 is another modified form of construction showing a drum and a plurality of metal scraper bars removably mounted adjacent the periphery of the drum.

Referring particularly to Fig. 1 wherein the elements comprising my improved scraper construction are disclosed, numerals 1 and 2 represent respectively, top and bottom

resilient or flexible plies of suitable metal alloy, and numeral 3 represents a ply of a suitable compressible material interposed between the first said plies and secured by means of glue or other suitable adhesive to ply 2, and said compressible ply is preferably made of rubber, although it is to be understood, that any suitable material such as cloth, canvas, paper, or fiber and the like may be satisfactorily employed to accomplish the purpose for which the compressible or inner ply is intended. Numerals 4 indicate pointed scraper elements preferably tempered or hardened and arranged between the ply 1 and the inner ply 3 in such a manner that the heads 5 of the scraper elements 4 are interposed therebetween, and with the body portions 6 of the scraper elements 4 projecting through the plies 3 and 2, with the pin points 6' lying substantially in a common plane. The plies may be secured together by any suitable means; however, in this particular embodiment shown, the outer edge of the ply 2 is curled or rolled up and then clamped down as indicated by numeral 7 to engage or contact the ply 1 so as to hold or secure the plies and scraper elements in assembled relation.

From the description thus far, it will be evident that the scraper elements 4 upon being brought into contact with a surface which is to be scraped, will be rotated and oscillated and upon being brought out of contact or engagement with the surface, will return to their normal or original position. It will further be evident that in this particular embodiment, the plies 1 and 2 serve as stiffening agents and tend to limit or restrict the movement of the elements after they have reached a predetermined position, or in other words after the scraper elements have reached a position allowed by the compressible ply 3, the plies 1 and 2 serve in preventing further movement or bodily displacement of the scraper elements.

It is to be understood that various designs or types of scraper elements may be satisfactorily employed, and that the shape of the cutting points may be varied, depending on the kind of surface that is to be scraped. It might be mentioned that for practical purpose ordinary tacks which have been tempered have been satisfactorily used. Obviously, the scraper elements may be arranged in any suitable pattern within the plies to accomplish the result for which the article is intended. Disks or sheets of the scraper article may also be constructed having scraper elements with different degrees of hardness.

In Fig. 2 the construction is similar to that as shown in Fig. 1, but differs therefrom in that the heads of the scraper elements are disposed between the lower metal ply and inner compressible ply instead of between the upper metal ply and the compressible one. In this construction, numerals 8 and 9 indicate

the outer resilient metal plies and numeral 10 an inner compressible ply, the compressible ply being secured to the metal ply 8 by means of a suitable adhesive. The heads 11 of the elements 12, as shown, are disposed between the lower or outer metal ply 9 and the inner compressible ply 10. It will thus be apparent from this modified form of construction that substantially the same result is obtained as is obtained by the construction as disclosed in Fig. 1.

With reference to Figs. 3 and 4, numeral 13 represents a casing or housing member, formed as shown, and preferably having the rear portion removed or open as indicated at 14. Adjacent the lower annular flange portion of the housing 13 are rollers or casters 15 of any suitable type. Mounted adjacent the upper portion of the housing 10 is a motor 16 having an elongated drive shaft 17 depending into the housing 13. Numeral 18 is a sleeve or tubular member arranged and adapted for movement with the drive shaft 17, and by means of the spring and slot arrangement 19 and 29, respectively, is also adapted for slight longitudinal movement relatively to the shaft 17. Secured adjacent the lower end of the sleeve 18 is a suitable flange or annular member 21, and removably secured to this annular member or washer by any suitable means is a scraper article A. If the scraper article is constructed in a disk form, the outer plies are preferably resilient whereby it is possible to flex the article, as such a construction will permit the article when rotated, to adjust itself and wear down and level a surface having an irregular contour. Numeral 22 is a suitable handle secured to the housing 13 in any desirable manner to enable the user to conveniently push or move the machine about the floor or surface to be scraped. Obviously, any suitable construction or type of machine may be employed to provide a supporting agency to which the scraper article may be removably affixed.

Referring to Fig. 5, numeral 3 indicates a sheet of scraper material formed of outer plies of metal and having an inner compressible ply, similar to the aforementioned constructions and has a plurality of elements 24 associated with the plies in any suitable formation to accomplish the result desired. In this instance, however, the elements are shown spaced in parallel rows which run at an angle relative the sides or edges of the material, the purpose of such arrangement being obvious.

In Fig. 6, the numeral 25 is an end view in elevation of an ordinary type of drum having a sheet of material attached thereto by any suitable means such as is indicated at 26. It is to be understood that when a sheet of material such as shown in Fig. 5 is used for positioning around a drum 25, the outer metal

plies are less resilient than when the material or article is constructed in disk form.

Considering the construction as shown in Fig. 7, numeral 30 is the body portion of the bar and is formed with a plurality of scraper elements 31 projecting therefrom. The elements of the bar may be of any desired shape and size suitable for the purpose intended.

Referring to the embodiment shown in Fig. 8, numerals 32 and 33 represent the outer metal plies and associated therebetween for restricted bodily movement is a plurality of metal scraper bars 30, arranged in such a manner that the elements 31 of the metal bars project through the metal ply 33 similarly to the elements as described in the embodiments of Fig. 1 or 2. Numeral 34 is preferably a ply of rubber or it may be any suitable compressible material, and the material may be arranged as shown in Fig. 1 or 2. It will be apparent from this arrangement of elements that the bar 30 will be adapted for restricted bodily movement relatively to the plies. It is to be understood that, if desirable, the compressible material may be poured in a molten mass around the body portions of the metal bars and that the metal ply 32 may afterward be positioned and secured in any suitable manner on the molten mass of compressible material. It will further be evident that the embodiment shown in Fig. 8 may be constructed whereby the same may be adapted for application to a rotary disk type of scraping machine or for application to a sanding machine drum.

A still further embodiment or method of constructing a scraper article is shown in Fig. 9. In this type of construction, the bars of scraper material are removably secured in slots or kerfs provided in the periphery of a drum. Numeral 35 is a drum of any suitable size provided with a plurality of dove tail keyways 36; and removably supported in the keyways are a plurality of metal scraper bars 37. The bars 37 may be constructed with points similar in shape to those shown in Fig. 7. However, it is to be understood that any shape or type of scraper elements may be formed integrally with the bar 37. It is also to be understood that the bars 37 may be secured by other suitable means than that which is shown in Fig. 9.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a device of the kind described and in combination, two spaced members, a plu-

rality of headed inflexible elements supported for a limited rocking movement by said members by reason of the heads of said elements being loosely engageable with said members, and means for engaging said elements to normally maintain them perpendicular to said members.

2. In a device of the kind described and in combination, two spaced flexible metal members, a plurality of headed inflexible scraper elements loosely supported by said members, the size of the heads of said elements and the space between said members being of a character to permit said elements to rock a limited distance, and means consisting of a sheet of compressible material arranged between said spaced members for engaging the heads of said elements to normally maintain said elements perpendicular with respect to said members.

3. In a device of the kind described and in combination, a pair of members, a compressible material arranged between said pair of members, a plurality of pointed scraper teeth supported by said members, said teeth provided with circular heads loosely arranged between one of said pair of members and said compressible material in a manner to permit said teeth to rock a limited distance, and said compressible material providing means for engaging the heads of said teeth to normally maintain them perpendicular with respect to said members.

4. In a device of the kind described and in combination, a pair of members, a compressible material arranged between said pair of members, a plurality of pointed scraper teeth extending through one of said members and said compressible material, heads formed on said teeth, the said heads being loosely supported by said members to permit said teeth to rock a limited distance, and said compressible material providing means for engaging said heads to normally maintain said teeth perpendicular to said members.

5. In a device of the kind described and in combination, a pair of members, a compressible material arranged between said members, a plurality of inflexible teeth extending through one of said members, heads formed on said teeth, said teeth being loosely supported for a limited rocking movement by reason of said heads being arranged between said compressible material and one of said members, and said compressible material providing means for normally maintaining said teeth erect with respect to said members.

6. In a device of the kind described and in combination, a pair of members, a compressible material arranged between said pair of members, a plurality of metal bars having inflexible scraper elements projecting there-

from, said bars being loosely connected between said members with the scraper elements extended in a functionally operative position to permit said bars to rock a limited distance, and said compressible material providing means for engaging said bars to normally maintain said scraper elements perpendicular to said members.

7. In a device of the kind described and in combination, a pair of members, a compressible material arranged between said pair of members, a plurality of bars having teeth projecting therefrom, said bars being loosely connected between said members with the teeth extended through one of said members and said compressible material in a functionally operative position to permit said bars to rock a limited distance, and said compressible material providing means for engaging said bars to normally maintain said teeth perpendicular to said members.

8. In a device of the kind described and in combination, a back portion and a face portion, headed inflexible teeth supported by said portions with the heads caught between said portions and the teeth extended through said face portion, said teeth which by reason of their connection are adapted for a limited rocking movement, and means arranged between said portions for engaging the heads of said teeth to maintain same erect with respect to said portions.

9. In a device of the kind described and in combination, two spaced members, a plurality of headed scraper teeth supported for a limited rocking movement by said members by reason of the heads of said teeth being loosely engageable with said members, and means secured to one of said spaced members for engaging said teeth to normally maintain them perpendicular with respect to said members.

10. In a device of the kind described and in combination, two spaced members, a plurality of headed scraper teeth supported for a limited rocking movement by said members by reason of the heads of said teeth being loosely engageable with said members, and resilient means for engaging said teeth to normally maintain them erect with respect to said members.

11. In a device of the kind described and in combination, a pair of members, resilient means arranged between said pair of members, a plurality of bars having teeth projecting therefrom, said bars being loosely connected between said members with the teeth extended through one of said members in a functionally operative position to permit said bars to rock, and said resilient means providing means for engaging said bars to normally maintain said teeth perpendicular with respect to said members.

12. In a device of the kind described and in combination, a pair of members, a resilient

material arranged between and secured to one of said members, a plurality of metal bars having inflexible scraper elements projecting therefrom, said bars being loosely connected between said members with the scraper elements extended in a functionally operative position to permit said bars to rock a limited distance, and said resilient material providing means for engaging said bars to normally maintain said scraper elements perpendicular with respect to said members.

In witness whereof, I hereunto subscribe my name this 4th day of January, A. D. 1930.

PETER C. NEILSEN.

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