Feb. 13, 1923. 1,445,133

S. H. DRAKE

ROTARY SCOURING IMPLEMENT

Filed Mar. 17, 1921

Fig.1.

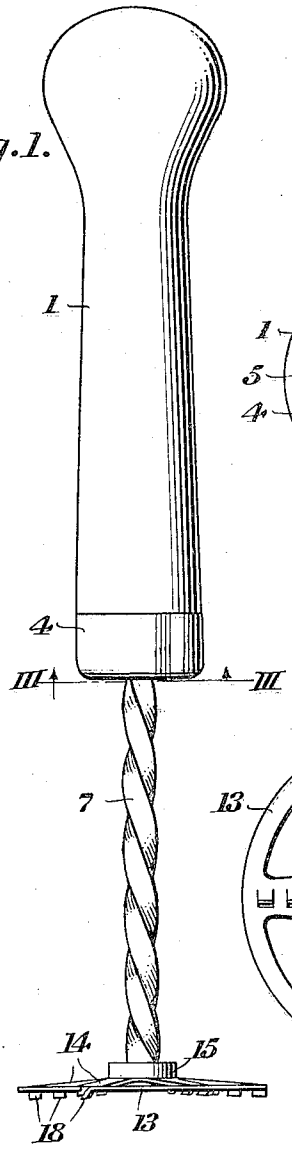


Fig.3.

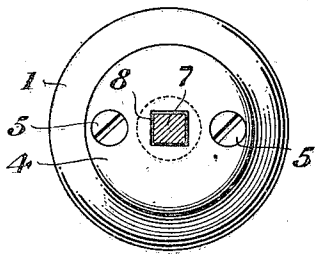


Fig.4



Fig.5.

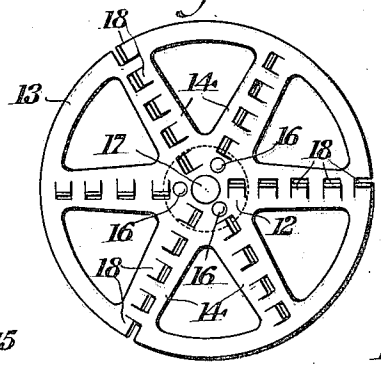


Fig.2.

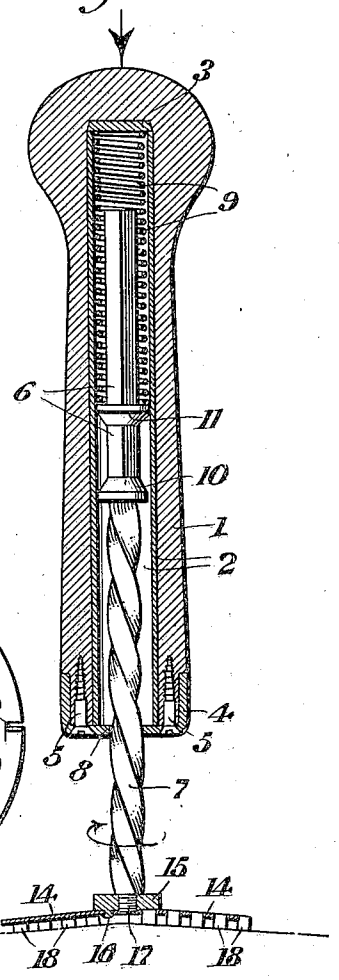
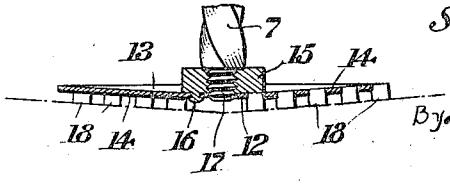


Fig.6.



Inventor

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UNITED STATES PATENT OFFICE.

SAMUEL H. DRAKE, OF GROTON, NEW YORK.

ROTARY SCOURING IMPLEMENT.

Application filed March 17, 1921. Serial No. 453,016.

To all whom it may concern:

Be it known that I, SAMUEL H. DRAKE, a citizen of the United States, and resident of Groton, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Rotary Scouring Implements, of which the following is a specification.

This invention relates to improvements in rotary scouring implements for cleaning or scraping pots and pans or other surfaces.

One object of the invention is to provide a simple, durable and inexpensive implement having a rotary cleaning head operable by a reciprocable handle.

Another important object of the invention is to provide a rotary scraper head adapted to effectually clean concave, convex, or irregular surfaces as well as plane surfaces.

A further object of the invention is to provide a light, flexible, sheet metal scraper head having scraping teeth.

Another object of the invention is to provide a rotary toothed scraper so constructed as to be self sharpening.

Another object of the invention is to provide a rotary scraper which will effectually clean the entire surface of a pot or pan bottom and will not pound or bind against the side walls of the pan or pot.

In the drawings,

Figure 1 is a side elevation of the device;

Fig. 2 a vertical sectional view thereof;

Fig. 3 a horizontal section on the line III—III of Fig. 1;

Fig. 4 a fragmentary side elevation of the scraper head;

Fig. 5 a bottom plan view of the scraper head; and

Fig. 6 a detail vertical sectional view showing the scraper head flexed to conform to a concave surface.

The operating handle 1 comprises a cylindrical wooden body having an enlarged rounded upper end portion and a central longitudinal bore in which is mounted a metal tube or barrel 2. A metal impact receiving disk 3 is held at the upper end of the bore in handle 1 by tube 2. A cup-shaped metal ferrule or end cap 4 fits over the lower end of handle 1 and is detachably held in place by screws 5. Cap 4 serves as a nut for imparting a rotary motion to a metal rod or shaft 6, said cap being provided with a square central aperture 8 through which the spiral portion 7 of rod 6 passes. The driving rod 6 is preferably formed from a length of metal stock square in cross section, the portion 7 of the rod being twisted to form a spiral shank.

A helical compression spring 9 is confined in the upper portion of the metal barrel 2, and the upper end of rod 6 extends upwardly within the convolutions of said spring. A collar 10, formed on or rigidly held to rod 6 at the upper end of the spiral portion 7 of the rod, is adapted to engage cap 4 to limit the movement between the rod and handle in one direction, while the upper end of the rod is adapted to engage disk 3 to limit the relative movement between the rod and handle in the opposite direction and also to limit the compression of spring 9. A collar 11, formed on or rigidly secured to rod 6 above collar 10, slidably engages the inner surface of barrel 2 and serves to guide and steady rod 6 which also has a bearing at aperture 8. Collar 11 is engaged by the lower end of spring 9 and serves to compress the spring when handle 1 is forced downwardly about rod 6. When pressure on the handle is relieved the thrust of spring 9 on collar 11 and disk 3 forces the handle upwardly. It will be obvious that an up and down movement of the handle on rod 6 will cause an alternating rotary motion of the rod.

A rotary cleaning head or scraper is detachably held to the lower end of rod 6. Heads of various kinds may be employed. I prefer, however, to employ the form of head illustrated which is stamped from thin sheet metal tempered to render the head flexible and resilient. The head comprises a central hub 12 connected to an annular rim 13 by six radial arms 14. A metal nut 15 is rigidly secured to the upper face of hub 12, preferably by means of studs 16 passing downwardly through apertures in the hub and headed against the under face of the hub. Nut 15 is adapted to be screwed on the reduced threaded lower end portion 17 of rod 6.

The rotary head is normally bowed upwardly, that is the arms 14 normally extend downwardly and outwardly from hub 12 to rim 13. A row of teeth 18 is formed on each arm 14, said teeth being preferably stamped downward out of the arms intermediate the two side edges of the arms, as shown, to provide guards in front and rear

of each row of teeth. It will be obvious, however, that the teeth may be formed along the edges of the arms or stamped from a solid metal disk. It will also be obvious that long blades may be substituted for the rows of teeth. The free edges of the teeth are beveled off so that these edges 19 of the teeth will ride upon the surface being cleaned. This arrangement provides self-sharpening teeth as wear of ends 19 of the teeth will always maintain a sharp cutting edge 20 along the leading edges of the teeth. The body portions of the teeth extend upwardly and rearwardly from the leading edges of the teeth, and the teeth in each row are preferably staggered relatively to the teeth in the two adjacent rows, as shown, to increase the effective action of the teeth on the surface being cleaned. The end tooth at the outer end of every other row of teeth is stamped out of rim 13, the outer side edge of the tooth being located at the perimeter of the rim. This arrangement permits use of the head to scrape the bottom of a pan or pot around the junction of the side walls and bottom of the pan or pot.

The circular rim 13 prevents pounding or binding of the head or ends of arms 14 against the side walls of a pot or pan. The normally upwardly dished conformation of the head permits effective use of the head in scraping convex surfaces, as indicated in Fig. 2, while the resilient and flexible character of the head permits the head to conform automatically to irregular surfaces, concave surfaces, or flat surfaces, and also insures effective pressure on the outermost teeth of the scraper head. In Fig. 6 the head is shown flexed by pressure on the operating handle to conform with a dished surface.

What I claim is:

1. An implement of the class set forth comprising a thin resilient sheet metal head normally dished and provided with scraping teeth of uniform length on the dished face thereof, and means at the opposite face of the head and connected therewith axially of said head operable by opposing pressures on said means and the scraping teeth for rotating and flexing the head.

2. A head for rotary scrapers comprising a normally dished resilient sheet metal body portion provided with integral flat teeth arranged in rows radiating from the axis of rotation of the head, the teeth in alternate rows being staggered relatively to each other and all of said teeth being inclined toward their leading edges.

3. An implement of the class described comprising a scraper head provided with radially extending rows of teeth at one face thereof, the teeth in certain of said rows being staggered relatively to the teeth in the remaining rows, and means for rotating said head.

4. An implement of the class described comprising a sheet metal head having a multiplicity of inclined teeth stamped therefrom, the ends of said teeth being adapted to ride upon the surface to be cleaned, and means for rotating said head.

5. A scraper head for cleaning implements comprising a hub and rim connected by a plurality of radial arms, and a row of teeth carried by each arm, the teeth on alternate arms being relatively staggered.

6. A sheet metal scraper head for cleaning implements comprising a hub and an annular rim connected by integral arms each provided with a series of teeth extending longitudinally of the arms, said rim being provided with a plurality of circumferentially spaced teeth the outer edges of which are located at the perimeter of the rim.

7. A sheet metal surface-scraping member provided with integral self-sharpening teeth, the free edges of which are adapted to ride upon a surface being scraped and the body portions of which incline downwardly and forwardly to the leading edges of the teeth.

8. A resilient, laterally flexible, disk-like, rotary head for scraping appliances formed of sheet metal and provided at one face thereof with radial rows of integral flat teeth stamped therefrom, said teeth having their flat body portions lying in planes radiating from the center of the disk-like head and all inclined in the same direction around the head, and the leading edge of each flat tooth being disposed at an angle to the plane of the body portion to adapt the same to ride on a surface to be scraped.

In testimony whereof I hereunto affix my signature.

SAMUEL H. DRAKE.