Aug. 19, 1958 S. G. RITTERSON 2,847,698

SCRAPER BLADE FOR WAX FLAKER

Filed March 19. 1953

Fig. 1

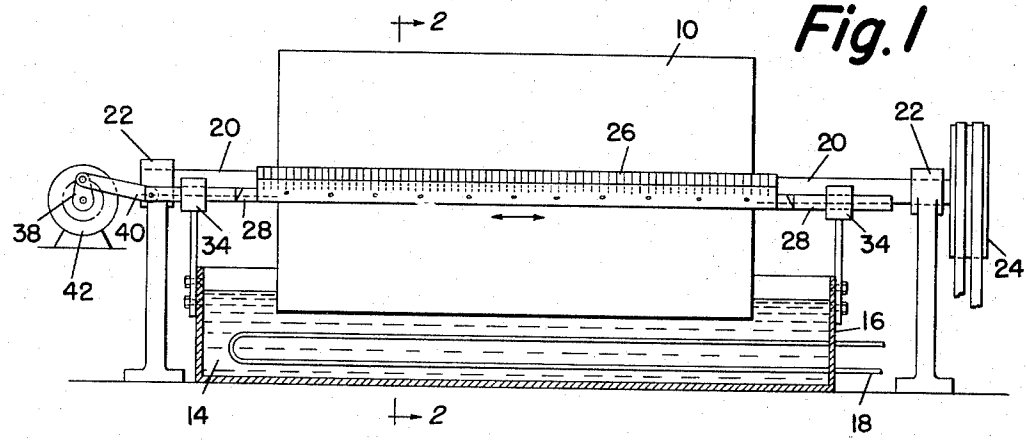


Fig. 4

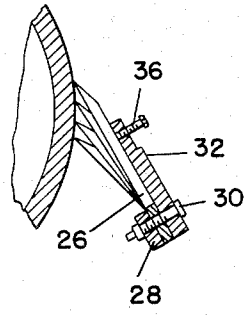


Fig. 2

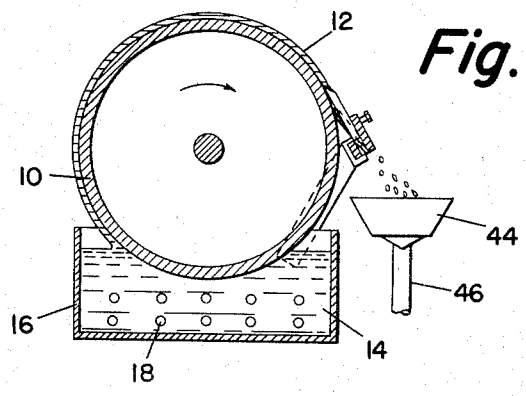
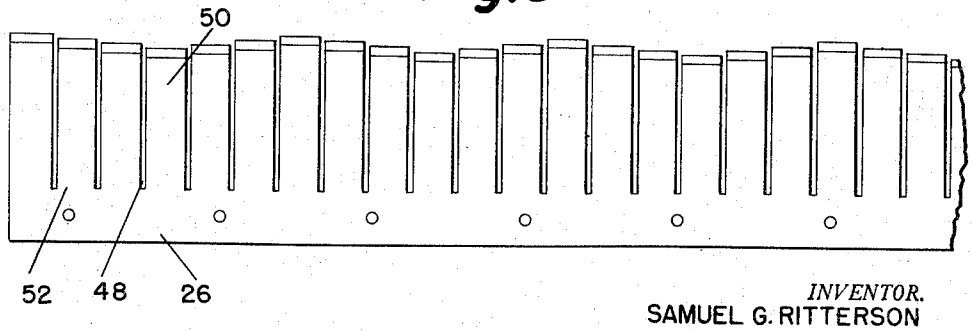


Fig. 3



INVENTOR.
SAMUEL G. RITTERSON

BY Robert D. Spindle

ATTORNEY

United States Patent Office 2,847,698 Patented Aug. 19, 1958

2,847,698

SCRAPER BLADE FOR WAX FLAKER

Samuel G. Ritterson, Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Application March 19, 1953, Serial No. 343,287

5 Claims. (Cl. 18—1)

This invention relates in general to improvements in apparatus for processing wax and specifically in the scraper blades used to remove chilled wax from moving collecting surfaces.

An important object of the invention is to disclose a scraper blade in which lateral movement for rapid and efficient removal of wax from a moving chilled surface can be accomplished with minimum force and without undue operational wear.

A further object of the invention is to disclose a scraper blade capable of long and continuous operation yet sufficiently flexible to make desired scraping contact.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view of the device in use.

Figure 2 is a section of Figure 1 along the lines 2—2.

Figure 3 is an enlarged detail of the scraper blade.

Figure 4 is an enlarged detail of the device positioned as in Figure 2.

In Figure 1 of the drawing, the chilled surface of the drum **10** used to collect a wax sheet **12** from a molten wax mass **14** represents one well known arrangement for this purpose. A bath **16** holding the molten wax **14** in position for the collecting action is maintained at proper temperature by heat pipes **18** or their equivalent. The chilled drum **10** supported by trunnions **20–20** in bearings **22–22** is rotated by a pulley arrangement as at **24**. A coolant, usually water at reduced temperature, is circulated through the drum and trunnions to maintain the surface in a chilled condition. As other moving chilled surfaces, such as belts or discs with distinctive chilling mechanism, can also be used, none of which are claimed specifically, this element is shown diagrammatically and not further detailed.

The scraper blade **26** of this invention, detailed later in describing Figure 3, is positioned in operating engagement with the drum surface as shown in Figures 1 and 2. A support member **28** is attached to the blade **26** by bolts **30** passing through a backing plate **32** thereby holding the scraper in proper tilted position to engage the moving surface for the illustrated operation. Bearings **34** slidably engage the support member **28** and hold the scraper at the proper elevation relative to the rotating drum.

In addition to mounting the scraper blade **26** at the proper elevation relative to the chilled moving surface, it is necessary to insure contact of the blade with the surface along its entire length. This is assured by mounting adjustable pressuring means such a bolts **36** through support member **28**, as shown in Figure 4, at critical points along the blade length. For the specifically detailed blade **26**, described later as Figure 3, there is an adjustable means for each articulate section. This structure assures full contact between the blade and the collecting surface and affords operating advantages discussed later.

To move the scraper blade **26** laterally with a reciprocating motion, an eccentric **38** is connected by the lever arm **40** to one end of the support **28**. A motor **42** or other reciprocating means supplies the necessary movement to the eccentric **38** at any desired speed. By this sawing action, the wax sheet is released from the drum surface and broken into pieces in a colleceting means such as hopper **44** and transmitted for further operations through a pipe **46**.

One form of scraper blade **26** particularly well adapted to the purpose is shown in Figure 3. Contrary to the thin, flexible continuous blade, usually made of metal, found in use for such purposes, a sheet of rigid composition such as micarta, Bakelite or similar reinforced plastic is used. The sheet of micarta used in the example here described is slit by very narrow curfs **48** into a plurality of separate blades or fingers **50**. The curf is not carried through the sheet to separate each blade but is stopped short on a line **52** in coincidence with the upper edge of the support member **28**. Each finger **50** is, therefore, a part of the homogeneous blade structure yet is made semi-rigid and sufficiently resilient by being separated from the adjoining fingers. The lateral or reciprocating movement requires the blade to be extended beyond the ends of the collecting surface as shown in Figure 1, in order to clean the deposited material therefrom in all positions of reciprocation.

The resistance presented by the contacting edge of the blade, which is sufficiently great in existing scrapers to make lateral movement impracticable, is reduced by staggering the contact edge of each finger relative to adjacent fingers. As shown in Figure 3 the length of the finger is duplicated in every seventh section. This may be increased or decreased in number and the increment of variation in length and measurement may be varied to obtain the best working combination. As a result of the varying length of the scraping fingers, it is necessary to locate the adjustable pressuring bolts **36** to cooperate with each finger. The result of this combination is shown in Figure 4. The principle demonstrated is to break the single line of contact which presented almost insurmountable resistance, so great as to be prohibitive of the reciprocative action, into a plurality of broken, staggered contacts each of greatly reduced resistance. The result is a blade readily moved against the chilled surface, of flexible performance, yet of strong, semi-rigid, durable material. Further, by use of such material, damage and wear to the surface which picks up the molten wax are greatly reduced.

As indicated, many variations of the disclosed scraper are possible both as to material and design. Further, the means used to move the scraper laterally may assume the form of a piston operating in a cylinder or like mechanism and may be synchronized with the move ment of the chilled surface or not, as desired, to gain maximum efficiency. Although wax is noted as the exemplary substance which adheres to the collecting surface and is to be removed by the disclosed device, it will be evident that the scraping elements shown may be used for many materials such as desiccated eggs, glue, resins, milk, plastics and many others. All these and additional changes can be made without departing from the scraper and principles of the invention as announced and disclosed. No limit is placed on this device relative to the exact arrangements and combinations of the elements discussed, nor is it confined to the exact details of the construction of such devices in general.

Having thus described my invention, what I claim is:

1. In an apparatus for converting a material from

fluid to solid form and removing said solid material including means to support a mass of the fluid, a movable collecting means in operating engagement with the fluid mass to remove limited amounts of said material as a solid, and scraping means to remove the solids from said collective means, the improvement in said scraping means comprising a blade member partially slit transversely to provide a plurality of scraping fingers, said fingers varying in length with each adjacent finger, blade supporting means engaging said blade at the partially slit portion being positioned to assist the flexibility of the separate fingers and a backing plate connected thereto extending partially along the extended lengths of the fingers, separate pressuring means cooperating between the backing plate and each finger to regulate the operating engagement thereof with the collecting means, bearings positioning said blade supporting means for operating engagement between the blade and the collecting means, and reciprocating means connected to the blade support to slide the blade across said collecting means to remove the solids thereform.

2. In that type of apparatus in which a drum turnable on its axis collects from a reservoir a film of material which, in the rotation of the drum, is solidified and scraped therefrom, the improvement in the means for scraping such material from the rotating drum which comprises a scraping blade extending in a direction parallel to the axis of the drum and reciprocable in that direction, said blade being slit transversely from its scraping edge through the greater part of the width of the blade to thereby form a multiplicity of narrow fingers extending transversely of the blade, said fingers being cut to varying lengths with their scraping edges adjoining the drum surface along lines, parallel to the axis of the drum, circumferentially spaced apart, thereby both permitting the blade to be made of comparatively rigid material as well as affording a minimum of resistance to is specified reciprocation, and pressure means operating upon the fingers to maintain the scraping edge of each finger in contact with the drum.

3. A scraping device for removing adherent substances from a rotating drum including a one-piece scraping blade of rigid characteristics being cut transversely into a multiplicity of fingers of variable length and all of them of a length and width imparting to them limited flexibility, mounting means extending longitudinally of said blade and supporting it in operating position, pressure means operating upon the fingers to maintain the free scraping edge of each finger in contact with the drum, said blade being slidable in the direction of its length, and means to reciprocate the blade in that direction during the scraping operation.

4. A scraping device for removing adhering substances from moving collecting surfaces including a scraper blade of rigid characteristics being cut into a plurality of fingers of a width to permit limited flexibility thereof, mounting means to support said blade in operating position, and a plurality of adjustable bolts threadedly engaging the blade mounting means and positioned to engage each finger separately for independent adjustment into operating contact.

5. A scraping device for removing adhering substances from moving collecting surfaces including a scraper blade of rigid characteristics being cut into a plurality of fingers of a width to premit limited flexibility thereof and of a length so that alternate fingers vary in length from adjacent fingers, mounting means to support said blade in operating position, and pressuring means cooperating between the support and the blade to cause operating contact for each finger thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

2,314,062	Alvey et al.	Mar. 16, 1943
2,330,922	Riegler	Oct. 5, 1943
2,478,885	Alvey	Aug. 9, 1949
2,654,125	Hall	Oct. 6, 1953