July 11, 1950 B. R. WINBORN, JR 2,514,530

AGITATOR

Filed Oct. 26, 1948 2 Sheets-Sheet 1

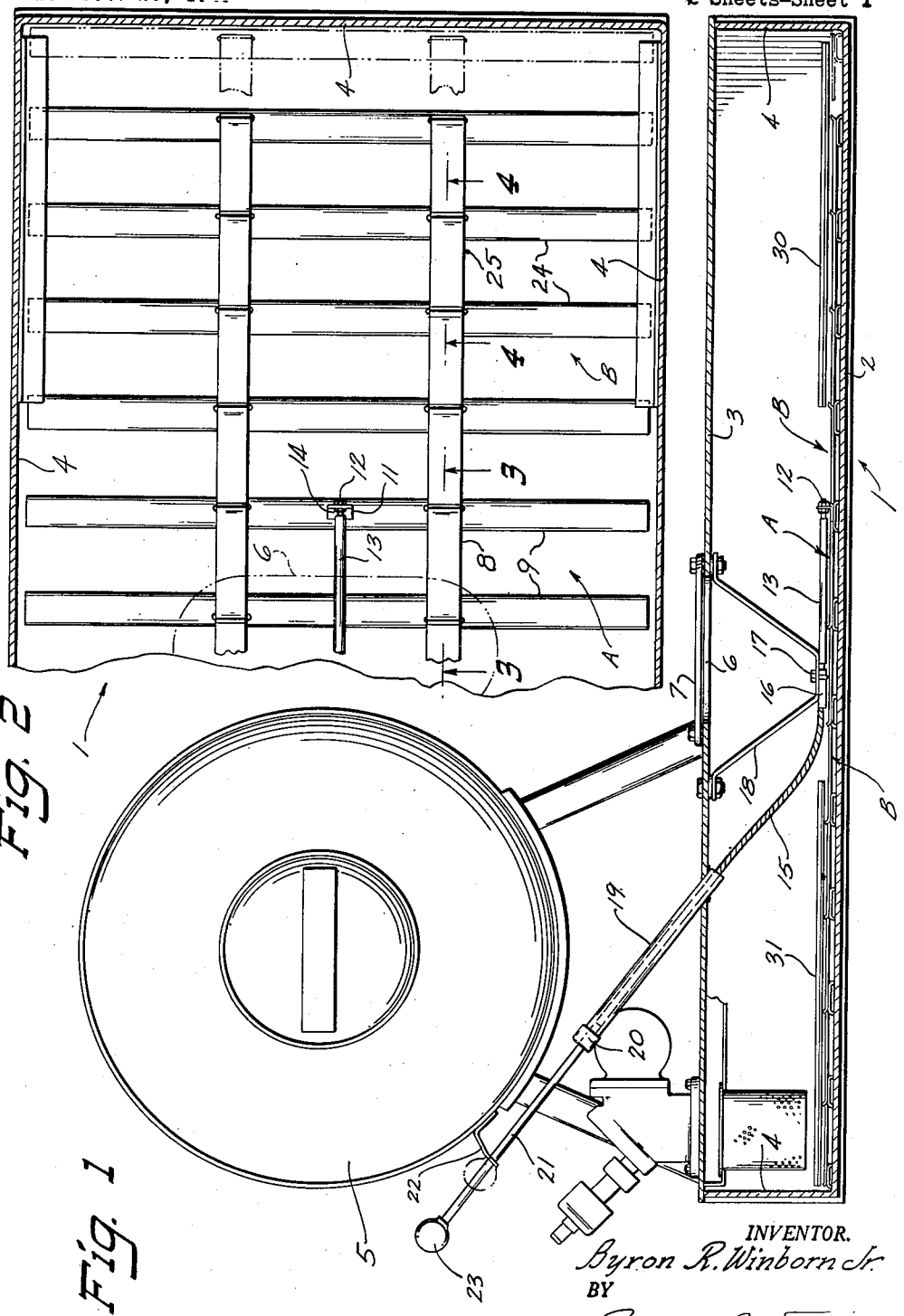


Fig. 2

Fig. 1

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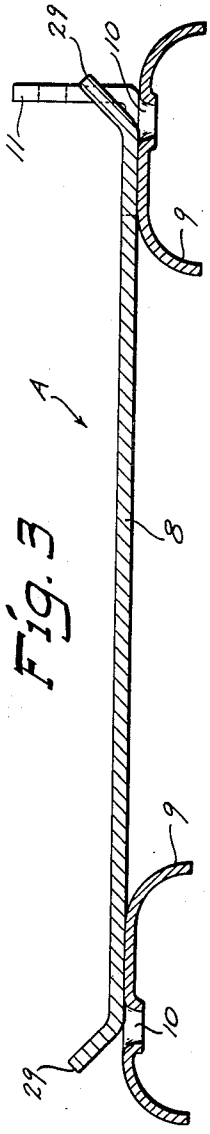


Fig. 3

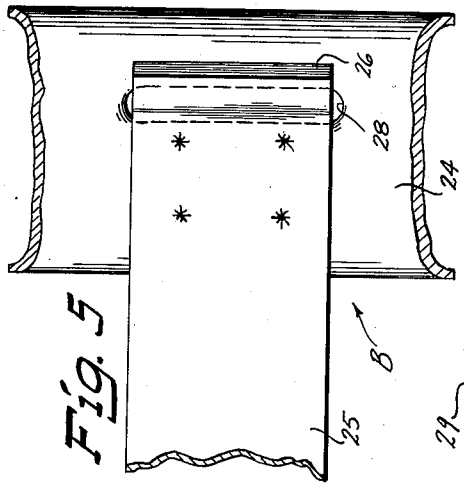


Fig. 5

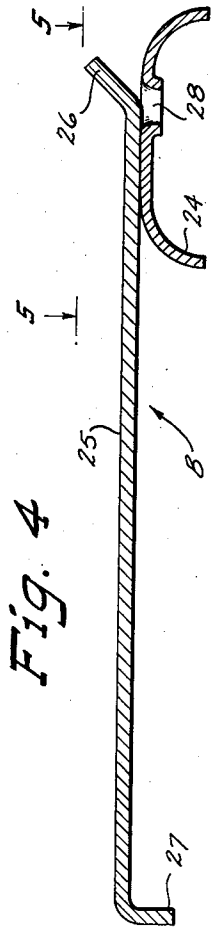


Fig. 4

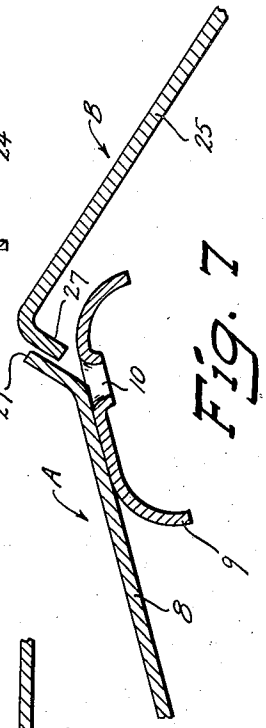


Fig. 7

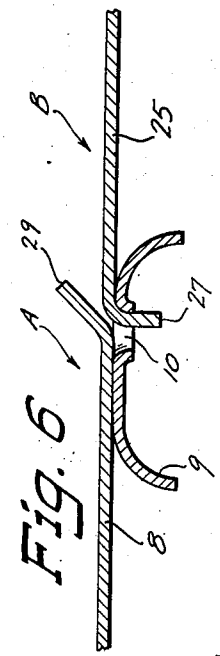


Fig. 6

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AGITATOR

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Application October 26, 1948, Serial No. 56,603

4 Claims. (Cl. 259—113)

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This invention relates to agitators and is particularly directed to an agitator for dry cleaners.

In dry cleaners the sump at the bottom of the apparatus collects a quantity of sediment and it is desirable to agitate this sediment and get it thoroughly mixed with the cleaning fluid so that the cleaning fluid may be pumped from the sump and discharged or else may be filtered and returned to the sump.

Objects of this invention are to provide a novel form of sediment agitator which is an articulated structure and formed of a plurality of elements with the elements arranged for easy interlocking to thereby form a unitary agitator substantially covering the entire bottom of the sump of the dry cleaner and to so construct the agitator that it may be assembled by passing each element through a moderate sized opening in the top of the sump, the elements being thereafter interlocked with each other after having been positioned within the sump.

An embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a portion of a dry cleaner with the sump in section.

Figure 2 is a fragmentary plan view of a portion of the structure shown in Figure 1 with the top of the sump removed.

Figure 3 is an enlarged, sectional view on the line 3—3 of Figure 2 showing the approximately central element of the agitator with other parts of the apparatus omitted.

Figure 4 is a similar view on the line 4—4 of Figure 2 showing a section of one of the remaining elements of the agitator.

Figure 5 is a fragmentary view looking down on Figure 4 on the line 5—5 thereof.

Figure 6 is a fragmentary sectional view showing how the interlocking of successive elements of the agitator is obtained.

Figure 7 is a view corresponding to Figure 6 showing one step in the process of interlocking successive elements of the agitator.

Referring to the drawings, particularly Figures 1 and 2, it will be seen that the sump of the dry cleaner has been indicated generally by the reference character 1 and is provided with a bottom or floor 2 and a top 3 and side and end walls 4. The dry cleaner is provided with a washer casing 5 within which the washer drum, not shown, is positioned in the usual manner. Other portions of the dry cleaner have been omitted for the sake of clearness.

It is the usual practice to completely finish the

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sump and it is, therefore, a difficult matter to provide an agitator which will sweep across the entire bottom of the sump and will thus agitate all portions of the collected sediment and insure their mixture with the dry cleaning fluid, neither the sediment nor the dry cleaning fluid having been shown in Figure 1. It is also undesirable to provide a very large opening in the top 3 of the sump through which the agitator may be inserted.

This invention provides a novel form of an agitator which may be assembled through a moderate-sized hole or opening 6 in the top 3 of the sump. This opening may be oval, if desired, as generally indicated in Figure 2 by the dot and dash lines and is provided with a removable cover 7 bolted to the top, a suitable gasket being provided as indicated in Figure 1. The agitator is provided with an approximately central or intermediate element indicated generally by the reference character A and with a plurality of successive elements all of which are similar and which are indicated generally by the reference character B. The approximately central or intermediate element A is shown in section in Figure 3 and one of the other elements B is shown in section in Figure 4.

It will be seen that the intermediate element A is provided with a pair of spaced strap members 8 which are welded or otherwise secured to a pair of end, downwardly opening channel-shaped scraper members 9. The scraper members 9 are each provided with downwardly opening apertures 10 which have rounded upper portions to facilitate the insertion of a portion of a succeeding element hereinafter described. Also one of the channel-shaped scraper elements 9 is provided with an upstanding lug 11 apertured to receive the threaded extension 12 of a tubular member 13. The threaded extension 12 may be a bolt-like member secured in any suitable manner within the forward end of the tube or rigid member 13. In this way it is possible to provide a pair of nuts 14 on opposite sides of the lug 11 as shown in Figures 1 and 2 and thus lock the rigid member 13 in place. The rigid member or tube 13 is secured to a heavy, flexible cable 15 at its rear end. The cable may be inserted within the tube 13 and secured thereto or may be secured to the rigid member 13 in any other suitable manner. The cable 15 is guided by means of a stationary tube 16 secured by means of a U-bolt 17 to the bottom portion of a V-shaped bracket 18 which in turn is bolted to the under side of the top or cover 3 of the sump 1. The

cable 15 extends through a guiding tube 19 which projects through the top 3 and may be welded or otherwise secured thereto. This guiding sleeve 19 may be provided with an apertured end cap 20 through which the oscillating, or reciprocating, or operating rod 21 projects. This rod is guided adjacent its upper end by means of an apertured bracket 22 and is provided with a manipulating handle or knob 23 adapted to be grasped by the operator when it is desired to reciprocate the agitator back and forth lengthwise of the sump 1.

Each of the remaining elements of the agitator are each composed of a single channel-shaped scraper member 24 to which is welded end portions of spaced straps 25. These straps are provided at their extreme forward end with an upturned lip 26 and at their rear end with a down turned lip 27. The down turned lip 27 is bent at approximately right angles, whereas the lip 26 extends upwardly at approximately 45°. The lip 26 overhangs a portion of an aperture 28 formed in the scraper member 24 and it is to be noted that the aperture 28 similarly to the aperture 10, previously described, has rounded upper edges.

It is to be noted from Figure 2 that the straps 8 and 25 are arranged in pairs and are spaced from each other as shown in Figure 2 to thus hold the successive scraper members in parallelism to each other.

It is to be noted that the lips 27 of all of the elements B fit within either the apertures 10 of the intermediate or approximately central element A or in the apertures 28 of the successive or outer elements B. It is to be noted also from Figure 1 that the elements B on the right-hand side or forward side of the intermediate element A are turned in the direction shown in Figure 4, whereas the elements B on the left-hand or rear side of the intermediate element A are turned in the opposite direction. It is to be noted also from a comparison of Figures 3 and 4 that the intermediate or approximately central element A is the only element which is provided with a pair of spaced, channel-shaped scraper members 9, whereas all of the other elements B are provided with a single channel-shaped or scraper member 24.

It will be observed from Figure 2 that the spaced pairs of straps 8 and 25 constitute tie members which tie the successive elements together.

Figures 6 and 7 show how the members interlock. It will be observed that the lip 27 of an element B extends downwardly through the aperture 10 of the element A. Exactly the same relation obtains for successive elements B. They are hooked or attached to each other in exactly the same manner as that shown in Figure 6. It is to be noted that the strap members 8 of Figures 3 and 6 for the intermediate or approximately central element A are provided with lips 29 which are bent upwardly at approximately 45° similarly to the lips 26 for the elements B. It is apparent, therefore, and as shown in Figure 7 that successive elements may be joined by tilting them upwardly and inserting the lip 27 of an element B through the appropriate aperture of the next adjacent element, for instance through the aperture 19 of the element A as shown in Figure 7. It is to be noted also from Figure 7 that when the adjacent portions of the successive elements are tilted upwardly, that the lip 27 or hook-like portion of an element B will clear or just pass beneath the lip 29 of the intermediate element A or lip 26 of an element B, the intermediate element A and

a succeeding element B, having been chosen for illustration in Figures 6 and 7. It is to be noted also from reference to Figure 5 that the apertures 28 and similarly, it is to be understood, the apertures 10, are elongated so as to freely receive the tongues 27 of the straps or tie members 25 of the elements B.

In assembling the device, the cover 7, see Figure 1, and the bracket 18 are not positioned in the initial assembling operation. The elements B are successively inserted endwise through the opening 6 into the sump and turned into the position shown in Figure 2 and moved or slid along the bottom of the sump outwardly toward one end of the sump, for instance, the forward end. As successive elements B are inserted through the opening 6 and are turned so that their scraper members 24 parallel the scraper member of the preceding element B, the hook portions or lips 27 of the preceding element B are hooked through the apertures 28 in the manner indicated in Figure 7 by tilting the two elements upwardly at their adjacent edges and are thereafter rocked downwardly. As the elements B are joined and are pushed towards the right as viewed in Figure 1, the extreme ends of their scraper members 24 project or pass beneath side flanges or overhanging guiding flanges 30 secured to the side walls of the sump. Thereafter the elements B are inserted through the opening 6 and are turned in the opposite direction from that shown in Figure 4 and are slid along the bottom 2 of the sump rearwardly, that is to say, towards the left-hand end of the sump as viewed in Figure 1. Successive elements B are hooked to preceding elements B in the same manner as that previously described. As the elements B are assembled and are pushed towards the left-hand end of the sump as viewed in Figure 1, the extreme outer ends of their scraper members 24 pass beneath overhanging or guiding flanges 31 secured to the side walls of the sump. After all of the elements B have been assembled the intermediate or approximately central element A is passed through the opening 6 as described previously for the elements B and is turned so that its scraper members 9 parallel the scraper members 24 of the elements B. Thereafter the adjacent end of one of the forward element B and the forward edge of the element A are raised upwardly as shown in Figure 7, and the hooks or lips 27 of the adjacent element B are passed into the openings 10 of the element A. Similarly, the rear group of elements B are attached to the intermediate element A by raising the adjacent edges of the elements A and B and hooking the lips 27 of the next adjacent rear element B into the openings 10 of the element A. After this has been done, the bracket 18 is positioned and the rigid member 13 is secured to the lip 11 of the intermediate or approximately central member A and the cover 7 of the sump 1 is placed in position to close the aperture 6.

It will be seen that the scraper or agitator which is composed of the element A and the elements B may now be reciprocated back and forth towards the front and rear walls of the sump and will agitate the sediment and cause it to be intimately mixed with the cleaning fluid. This is readily done by grasping the knob 23 and reciprocating the operating rod or member 21. It is to be noted that the flanges 30 and 31 prevent the elements B from buckling upwardly and becoming detached, and also it is to be noted that the rigid member 13 overhangs the intermediate or approximately central element A and the next

adjacent rear element B. This also assists in preventing inadvertent detaching of these adjacent elements. By having the straps or tie members 8 and 25 formed in pairs and arranged in spaced relation and by providing the hook or lip 27 on each of the straps or tie members 25, it is apparent that parallelism of successive scraper members 9 and 24 is maintained.

It is to be noted that the upturned lips 29 overhang the apertures 10 and that the upturned lips 26 overhang the apertures 28. It will be seen further from reference to Figure 6 that this construction prevents detaching of one element from a succeeding element as long as the elements are in horizontal alignment. It is only when the elements are tilted up at their adjacent edges, as shown in Figure 7, that it is possible to detach one element from a succeeding element.

It will be seen that an articulated agitator has been provided which is composed of a plurality of interlocking or joined elements which may be readily assembled through a moderate sized hole in the top of the sump. It will be seen further that the device is very simple and is cheap to make. It is highly efficient in stirring up and scraping the sediment from the bottom of the sump and causing it to be intimately mixed with or suspended in the cleaning fluid.

Further than this, it is apparent that it is not necessary to open the sump at any time when it is desired to agitate the sediment. All that is necessary is to reciprocate the operating rod or member 21 as previously described.

Although straps have been shown and described as the members for connecting successive scraper members, it is apparent that rods or other rigid elements of this general type could be employed without departing from the spirit of this invention.

Although this invention has been described in considerable detail, it is to be understood that such description is intended as illustrative rather than limiting, as the invention may be variously embodied and is to be interpreted as claimed.

I claim:

1. A sediment agitator for a rectangular sump comprising a plurality of transversely extending scraper members adapted to rest on the bottom of the sump and arranged in a regular sequence, said scraper members being of a length to extend approximately completely across said sump, a plurality of rigid strap members provided with angularly turned hook portions, said scraper members each having a pair of said strap members secured thereto and having a pair of apertures arranged to receive the hook portions of the pair of strap members carried by the next adjacent scraper member to thereby form an articulated agitator, and means for moving said agitator back and forth along the bottom of said sump in a direction transversely of said scraper members.

2. In a device of the class described, a box-like sump having a bottom, an articulated sediment agitator located within said sump and having a plurality of elements each element having at least one scraper member extending transversely of said sump and a pair of straps extending laterally of the scraper member and terminating in hooked ends, said elements having apertures for receiving the hooked ends of the straps of adjacent elements to interlock successive elements, flanges carried by said sump and spaced from the bottom of said sump and overhanging the ends of said scraper members, and operating means extending from the outside to the inside of said sump and operatively connected to said agitator for sliding said agitator back and forth along the bottom of said sump.

3. In a dry cleaning apparatus having a box-like sump for the cleaning liquid provided with a bottom, side walls and a top, an articulated sediment agitator located within said sump and having a plurality of elongated scraper members extending across said sump and resting on the bottom of said sump, said agitator including a plurality of elements each including at least one of said elongated scraper members and having a pair of straps projecting laterally of said scraper members and terminating in hooked ends, said elements having openings for the reception of the hooked ends of the straps of adjacent elements to interlock said elements and having lips overhanging said openings to prevent detachment of one element from a succeeding element unless said elements are tipped with respect to each other, and operating means located externally of said sump for reciprocating said agitator.

4. In a dry cleaning apparatus having a box-like sump for the cleaning liquid provided with a bottom, side walls and a top, an articulated sediment agitator located within said sump and having a plurality of elongated scraper members extending across said sump and resting on the bottom of said sump, said agitator including a plurality of elements each including at least one of said elongated scraper members and having a pair of straps projecting laterally of said scraper members and terminating in hooked ends, said elements having openings for the reception of the hooked ends of the straps of adjacent elements to interlock said elements and having lips overhanging said openings to prevent detachment of one element from a succeeding element unless said elements are tipped with respect to each other, and operating means located externally of said sump for reciprocating said agitator, the top of said sump having an opening therein whose maximum dimension is less than the length of a scraper member, said elements being individually insertable lengthwise of the scraper members through said opening and being arranged for assembly inside said sump in interlocking relation.

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