April 30, 1935. C. KENNE ET AL 1,999,462

WALL CLEANING APPARATUS

Filed Sept. 18, 1933 2 Sheets-Sheet 1

Fig. 1.

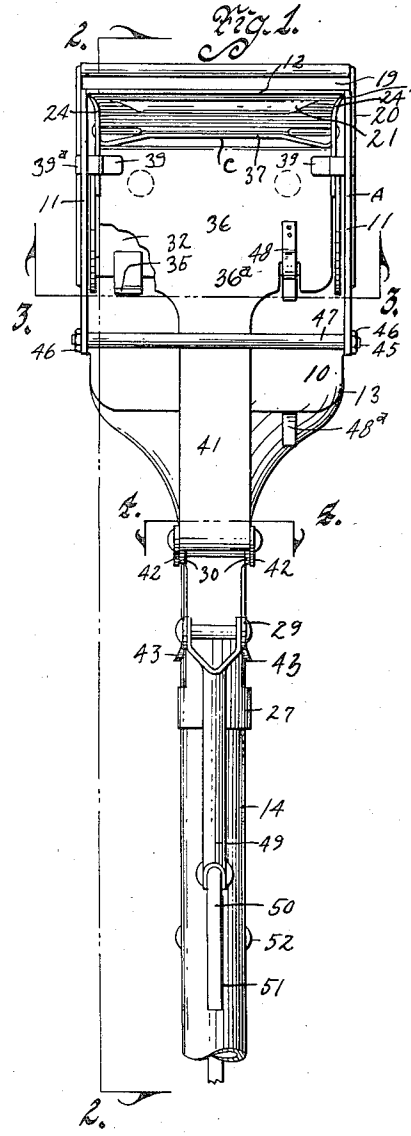


Fig. 4.

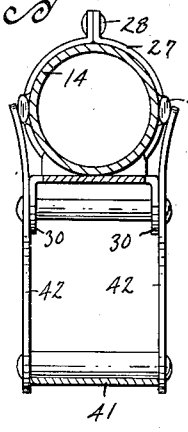
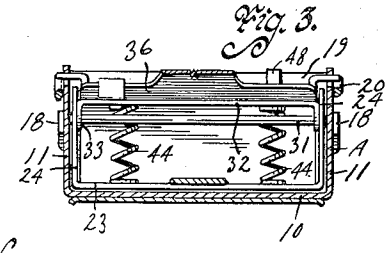


Fig. 2.

Fig. 3.



Witness
Edw. Seeley

Inventors
Casper Kenne & Anthony Kenne
By Bair, Freeman & Sinclair
Attorneys

April 30, 1935. C. KENNE ET AL 1,999,462

WALL CLEANING APPARATUS

Filed Sept. 18, 1933 2 Sheets-Sheet 2

Fig. 8.

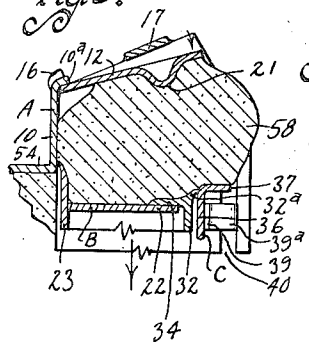


Fig. 7.

Fig. 6.

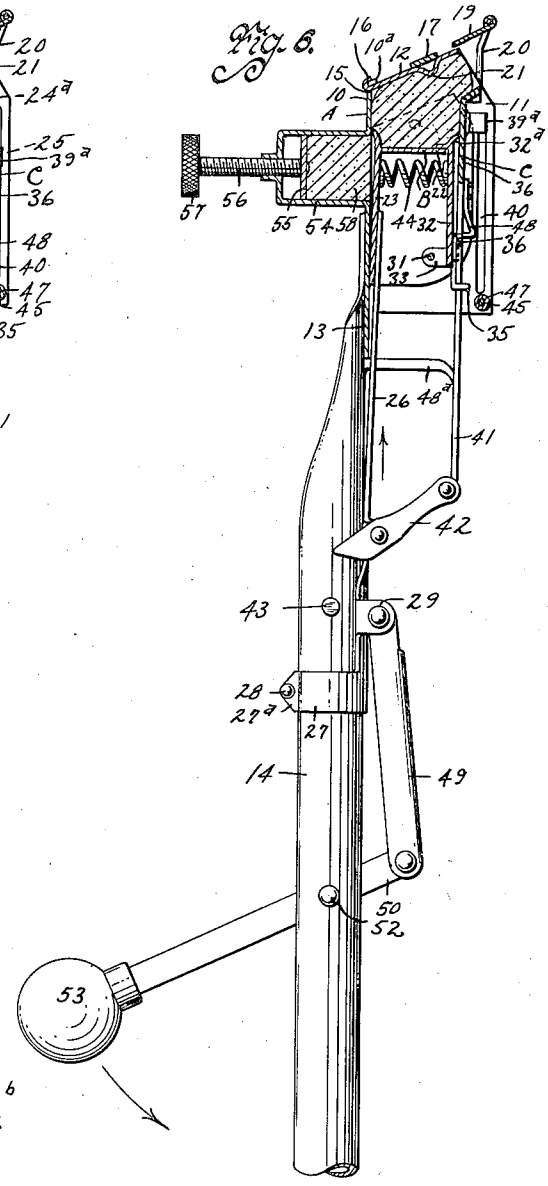
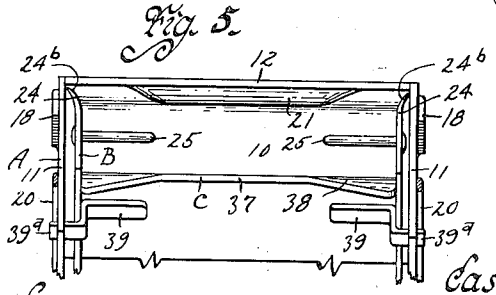


Fig. 5.



Witness
Edw. Seeley

Casper
by

Inventors
Kenne & Anthony Kenne
Bair, Freeman & Sinclair
Attorneys

Patented Apr. 30, 1935 1,999,462

UNITED STATES PATENT OFFICE

1,999,462

WALL CLEANING APPARATUS

Casper Kenne and Anthony Kenne,
Des Moines, Iowa

Application September 18, 1933, Serial No. 689,953

13 Claims. (Cl. 15—219)

Our invention relates to an apparatus for use in cleaning walls and particularly in cleaning wall paper with ordinary well known plastic wall paper cleaner.

The object of our invention is to provide such an apparatus which will hold a charge of the plastic cleaning material, present a clean surface thereof in a substantially straight transverse line, and which can be manipulated for kneading and rotating the cleaner for thus presenting fresh cleaning surface for each successive operation.

An important purpose is to provide in such an apparatus, novel and efficient means for effecting the operation of kneading the cleaner and rolling or rotating it for successively presenting new cleaning surface for the next cleaning operation.

In this connection, it is our purpose to provide a number of important features of detailed mechanical structure, which will be hereafter fully set forth.

Still another purpose is to provide such an apparatus having means for feeding an additional supply of cleaner as desired.

With these and other objects in view, our invention consists in the construction, arrangement and combination of the various parts of our wall paper cleaning apparatus whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a top or plan view of an apparatus of the kind under consideration embodying our invention, parts being broken away.

Figure 2 shows a detail, sectional view taken on the line 2—2 of Figure 1, parts being broken away.

Figure 3 shows a detailed, sectional view taken on the line 3—3 of Figure 1, the reservoir being omitted.

Figure 4 shows a detailed, sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a detailed, sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a side elevation of the apparatus, the cleaner container and some of the operating parts being shown in section in the position where the device is approaching the finish of its stroke for presenting a portion of the cleaner in a cleaning surface ready for work.

Figure 7 is a similar view with the parts illustrated at an earlier stage of the movement than that shown in Figure 6; and

Figure 8 is a sectional view through the container and scoop taken on the same line as Figures 6 and 7 and illustrating the operation of the hinged front wall of the container.

Our improved apparatus includes a container for a plastic cleaner of the kind ordinarily used in cleaning wall paper. Suitably mounted in association with the container is a movable scoop and a movable kneader and roller. The parts are so arranged that a portion of the cleaner is pressed outwardly from the container to afford a cleaning surface for a cleaning operation, which consists in drawing different surfaces across a section of the wall paper. The scoop and the kneader and roller may then be actuated for sliding the cleaner in the container and then imparting to it a rotary and kneading movement, and then presenting another portion of the cleaner for use as a cleaning surface.

Our improved cleaning apparatus includes a container, which we have indicated generally by the reference character A. The scoop is indicated generally by the character B, and the kneading and rolling member by the character C.

Container

The container A comprises a bottom 10, spaced side walls 11 and a front wall 12. A suitable handle is connected with the container.

As shown in the drawings, we have illustrated a plate 13 extending from the bottom 10 of the container A as perhaps best illustrated in Figures 2, 6 and 7. The plate 13 may be connected with or formed integrally with a handle, such as the tubular member 14.

We shall now describe certain features of the container, the purpose of which will be later more fully explained.

It will be noted that the front wall 12 of the container has a pivotal connection with the forward edge of the bottom 10. The means whereby this connection may be established may be varied as desired. As shown, the bottom 10 is illustrated as formed with an upturned inclined flange 10*a* at its forward edge and is provided with slots 15 laterally spaced to receive tongues 16 projecting from the lower edge of the wall 12 and bent around the flange 10*a*. Only one tongue and one slot are shown, but it will be understood that there are enough of them for the purpose. These tongues limit the rearward swinging movement of the wall 12 and its forward swinging movement is limited by a stop bar 17 secured to the side walls 11 by means of flanges 18 at its ends. (See Figures 3, 5 and 6).

The container A carries a stop plate 19 at its forward end slightly spaced from the upper edge of the front wall 12 and projecting above the front wall and supported by resilient arms preferably in the form of spring wires 20, extending rearwardly and fastened to the side walls 11. (See Figures 1 and 2).

The front wall 12 has an inwardly projecting rib 21 near its upper edge and terminating short of its ends and preferably rounded in every direction as illustrated in Figures 5 and 6.

Scoop

The scoop B has an upright rear wall 22. It has a bottom 23 projecting forwardly a short distance from the rear wall 22 and inclined downwardly slightly, so as to have a shearing motion along the bottom 10 of the container and also extending rearwardly from the wall 22 in the form here shown.

The scoop has spaced side walls 24 secured to the rear wall 22, extending substantially rearwardly therefrom and also extending forwardly therefrom. The forward edge of one side wall 24 is shown in dotted lines at 24*a* in Figure 7 and it will be noted that it is inclined from its bottom upwardly and forwardly.

The forward edge of the scoop is also inclined outwardly as indicated at 24*b* in Figure 5, so that it will have a shearing motion in its travel against the side walls 11 of the container.

The portions of the side walls 24 of the scoop, which project forwardly from the wall 22 are provided forwardly of the wall 22 and rearwardly of the forward edges 24*a* and substantially midway between the top and bottom edges of said side walls with an inwardly extending pin 25. There is one pin 25 for each wall 24, and the pins 25 are aligned with each other as best shown in Figure 5.

The pins 25 are intended to stick into the plastic cleaner and help hold it in the scoop.

A scoop operating bar 26 is secured to the rearwardly projecting part of the bottom 23 of the scoop on top of the handle 14.

At the rear end of the scoop operating bar 26, it has a split ring 27, which extends around the handle 14 and has at its ends the down-turned flanges 27*a* connected together by a bolt or rivet or the like 28.

The split ring 27 is arranged so that it will slide freely on the handle 14.

Spaced forwardly from the ring 27, the scoop operating bar 26 has spaced upwardly extending ears 29. Spaced forwardly from the ears 29 are similar spaced upwardly extending ears 30 on the scoop operating bar 26.

A rod 31 connects the side walls 24 of the scoop at their upper parts near their rear ends as illustrated in Figures 2 and 3.

At the top of the scoop, we provide a shear plate 32, which extends from the wall 22 rearwardly. The shear plate 32 has at its side edges downwardly extending ears 33 journaled on the rod 31. The front edge of the shear plate 32 is inclined upwardly as indicated at 32*a* in Figure 6 to cooperate in a shearing manner with the kneading and rolling element hereinafter described.

The plate 32 has a down-turned flange 34 best illustrated perhaps in Figure 8, which overhangs the front face of the scoop wall 22 at the upper edge thereof.

At the rear edge of the shear plate 32, it has an upwardly projecting stop 35 for cooperating with the kneading and rolling element, as will hereafter be explained.

Kneading and rolling element

We provide a kneading and rolling element C consisting of a transverse plate 36 with an upturned flange 37 at its forward edge. The kneading and rolling element slides forwardly and rearwardly above the shear plate 32. The flange 37 is curved rearwardly at its ends as indicated at 38 in Figure 5.

The kneading and rolling element is slidably guided and supported on the side walls 11 of the container by means of guide brackets 39, having portions secured to the plate 36 and arms 39*a* projecting through fore-and-aft elongated slots 40 near the upper edges of the side walls 11 of the container.

Extending rearwardly from the plate 36 of the kneading and rolling element is an operating bar 41, the rear end of which is pivotally connected as shown in Figures 1 and 7 with two spaced links 42. The links 42 extend downwardly from the operating bar 26 and are pivoted near their lower ends to the ears 30 hereinbefore described. They project beyond the ears 30 and are intended to cooperate with stop pins 43 projecting laterally from the sides of the handle 14. The links 42 are of resilient material and the pins 43 have beveled faces and are shortest at their sides nearest the container, so that when the scoop operating bar 26 is slid forwardly, the lower ends of the links 42 will engage behind the pins 43 as shown in Figure 7. Then it will be seen that upon further forward movement of the scoop operating bar 26, the links 42 will be swung on their pivot connection with the ears 30 for forcing the bar 41 and the kneading and rolling element forwardly with a faster motion than that of the scoop. This continues until the links 42 are inclined to position where their lower ends clear the pins 43. On the other hand, on the rearward movement of the links 42, they slide over the beveled faces of the pins 43.

The inclined edge 32*a* of the shear plate 32 is yieldingly pressed against the underside of the plate 36 of the kneading and rolling element by springs 44 interposed between the bottom member 23 of the scoop and the plate 32, as illustrated in Figures 2 and 3 for example.

The rear upper parts of the side walls 11 of the container are held rigidly spaced by means of a rod 45 extending through them and having the nuts 46 threaded on its outer ends and the spacer sleeve 47 mounted on it and extending between the walls 11.

We preferably attach to the kneader and roller element plate 36, a spring clip 48 (see Figure 6), the function of which will be referred to later herein. Supported on the handle 14 is a cam post 49*a* for cooperating with the clip 48.

Handle structure

We provide a handle structure for reciprocating the scoop and kneader and roller element, comprising a channel bar-shaped member 49, having its forward end pivoted between the ears 29 and its rearward end pivoted to a lever 50. The lever 50 extends through an elongated slot 51 in the handle 14 and is pivoted to the handle by means of a pin or bolt or the like 52. The lever 50 may be provided with a handle 53.

Feeding mechanism

Mounted on the under side of the container A is a reservoir compartment 54, the upper end of which communicates with the lower interior of the container.

In the reservoir 54 is a plunger 55 swiveled to a threaded bolt 56. The bolt 56 has a threaded connection with the bottom of the reservoir 54 and is provided with a knurled head 57.

Operation

We will now explain the practical operation of our cleaner apparatus.

The plunger 55 in the reservoir 54 is moved to the bottom of the reservoir, and the scoop is moved to its rearward limit of movement. A body of plastic wall paper cleaner 58 is put into the reservoir and into the scoop. Experience will show about the amount which should be used for operating under the most favorable conditions.

The plastic cleaner 58 is pushed into the scoop until it is properly held by the pins 25.

The operator then grasps the handle 53 and swings it from its forward position shown by dotted lines in Figure 2 to its rearward position shown in full lines in that figure. This forces the scoop to its forward limit of movement and forces a certain amount of the cleaner material upwardly and outwardly to about the position shown by the dotted lines 59 in Figure 2.

The operator then moves the handle 53 back again to its dotted line position shown in Figure 2. This pulls the scoop rearwardly. The clip 48 engages over the rear edge of the shear plate 32 through a slot 36*a* in the plate 36, so as to cause the kneading and rolling element to be drawn rearwardly with the scoop.

At the finish of the rearward stroke of the scoop, the clip 48 rides up on the cam post 48*a*, so as to be inoperative.

We have experienced some difficulty in pulling the cleaner away from the front wall of the container, on account of the fact that the cleaner sticks to this wall. To make certain that the cleaner will always pull away from the front wall properly, we have hinged the front wall in the manner mentioned. At the beginning of the rearward movement of the scoop, the upper end of the front wall tilts rearwardly slightly. This causes the cleaner to start to peel away from the front wall at the bottom edge thereof and to simply peel off the front wall. At the completion of the rearward movement of the scoop, the cleaner stands in the position indicated by the dotted lines 60 in Figure 2. During the rearward stroke of the scoop, the lower ends of the links 42 will have slid over the beveled pins 43. The operator then gives the scoop another forward movement. At the beginning of this forward movement of the scoop, the lower ends of the links 42 engage against the pins 43, then as the scoop is moved forward, the links 42 give an accelerated motion to the kneading and rolling element for thus pushing the upper part of the cleaning material 58 forward and downward. In Figure 7, the parts are shown at an intermediate point of this forward movement of the scoop, and the kneading and rolling element. As the stroke of the kneading and rolling element is completed, the cleaning material is pushed downwardly to the bottom of the container to substantially the position shown in Figure 6. The pins 43 are so located that the kneading and rolling element reaches the forward end of its stroke and the links 42 clear the pins 43 before the scoop reaches its forward limit of movement.

There is thus effected a rolling movement of the cleaning material on the pins 25 so that during the final portion of the forward stroke of the scoop, as it moves from its position shown for instance in Figure 6 to its position shown in Figure 2, the cleaning material will be squeezed and a fresh cleaning surface forced upwardly and outwardly to the position shown at 59 in Figure 2.

We have found it very desirable that the upper portion of this cleaning surface should lie in a straight horizontal line. We have found considerable difficulty owing to the fact that this upper surface of the projecting portion of the cleaner ordinarily tends to assume a curved line position from end to end. In order to make it come out straight, we have therefore provided the rib 21, which impedes the outer movement of the cleaning material in that portion between the ends of the wall 12. We have also curved the ends of the flange 37 rearwardly as shown in Figure 5 to make it easier to force more of the cleaner material out at the sides of the container and at the opposite ends of the wall 12.

By the provision of these parts just mentioned, we can insure the forming of a cleaning surface in a straight line from side to side.

It will be noted that on each forward stroke of the scoop, that portion of the cleaner which served as the cleaning surface during the last preceding cleaning stroke is forced forwardly and downwardly and on the final part of the forward stroke of the scoop, a fresh portion of the cleaning material is forced upwardly and outwardly, so that there is thus effected the double function of kneading the cleaner and of successively presenting a fresh portion for a cleaning surface.

The operator then wipes down the wall paper to be cleaned with the exposed cleaning surface indicated at 59 in Figure 2. About two strokes is all that ordinarily should be taken. Then while he is moving the apparatus from its position at the lower part of the cleaning stroke to the point where another cleaning stroke will be begun, the operator uses the handle to pull the scoop and the connected parts rearwardly and thus pulls the cleaning material rearwardly and completes the forward stroke of the scoop and connected parts for imparting the rolling movement to the cleaner and forcing out a new cleaner surface.

This cycle of operations is continued until the cleaner has taken up so much dirt that it becomes necessary to remove the old cleaner and put a new charge into the apparatus.

During the cleaning operation, a small amount of cleaner crumbles off. The operator can at any time add to the supply in the container and thus maintain a proper working body of cleaning material by rotating the screw 56 and forcing the plunger 55 upwardly and thus forcing some of the fresh cleaner from the reservoir 54 into the container. This, of course, must be done when the scope is at the rearward position of its movement.

It will be understood that during the first part of the forward stroke of the scoop and of the kneading and rolling element, the cam 48*a* holds the clip 48 in position where it will not engage the rear edge of the shear plate 32. On the final forward stroke of the scoop, however, the clip 48 drops behind the edge of the shear plate, so that on the rear stroke of the scoop, the kneading

and rolling element will be drawn rearwardly with the scoop. The stop plate 19 prevents the pulling of the projecting portion of the cleaner over the upper edge of the wall 12 during the cleaning stroke.

The resilient mounting of the stop plate 19 allows the plate to swing away from the wall being cleaned. This swinging away operation is effected by contact of the cleaning material with the stop plate, and the stop plate does not in fact engage or scrape the wall.

A cleaning apparatus of this kind has a number of important advantages.

Its size may be varied considerably but for instance if it be made to make a four inch cleaning stroke, that is considerably wider than the stroke which can be taken with cleaner held in the bare hand. Furthermore the stroke taken where the cleaner is held in the hand is limited by the length of the arm, whereas with the apparatus herein described, a much longer stroke can be taken, so that a larger area of the wall can be cleaned with each stroke.

Where the cleaning material is held in the hand and manually kneaded as it is used, it dries out and deteriorates more quickly than is the case with an apparatus of this kind.,

In hand cleaning, moisture must be added to the cleaner from time to time, which we find unnecessary where our apparatus is used.

We also find that much less of the cleaning material crumbles off at each operation where this cleaning apparatus is employed.

We have also found in practical experience that the dirt from the wall is distributed much more uniformly through the cleaner material by the kneading operation of the apparatus than can be done by hand, and that a given amount of cleaner is usable for a longer time when used with such an apparatus.

It is therefore obvious that where our apparatus is employed, the workman can clean a larger area of wall in a given time and that there is effected a substantial saving of cleaning material.

We also find that the even kneading and rolling of the cleaning material by the apparatus causes it to leave fewer streaks than where cleaner is used by hand only.

We have also found by actual experience that a given wall area can be cleaned by the use of this apparatus with much less fatigue on the part of the workman than results when cleaning is done entirely by hand.

It is obvious that the handle may be made as long as desired or that an extension may be put on it, and we have succeeded in cleaning ceilings of rooms without difficulty from the floor. This can not be done by hand operation, which requires the use of step ladders or some other equipment on which the operator can stand.

This apparatus therefore effects a very substantial saving in time, a considerable economy in the amount of cleaner used, and involves much less work and fatigue on the part of the operator than does cleaning by hand only.

It is obvious that many changes might be made in the construction and arrangement of parts of our improved cleaning apparatus.

For instance, the handle and lever arrangement here shown and indeed many of the other parts are shown simply by way of illustration and other arrangements could be employed.

The reservoir may be dispensed with if desired.

Any suitable material adaptable for the purpose may be used.

The width of the container may be varied within considerable limits.

It is therefore our purpose to cover by our claims any such modifications in the use of materials or in the construction and arrangement of parts as may be included within the scope of our claims and our invention.

We claim:

1. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, mechanism associated with the container for sequentially drawing the cleaner away from the front wall and for then giving it rolling motion toward the front wall.

2. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, mechanism associated with the container for sequentially drawing the cleaner away from the front wall and for giving it rolling motion toward the front wall the container and mechanism being arranged to cooperate for forcing part of the cleaner outwardly beyond the front end and side walls at the end of the rolling action.

3. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, mechanism associated with the container for sequentially drawing the cleaner away from the front wall, and giving it rolling motion toward the front wall, the container and mechanism being arranged to cooperate for forcing part of it outwardly beyond the front end and side walls at the end of the rolling action, said front wall being pivoted on a transverse axis at one edge and having its opposite edge capable of limited swinging movement, whereby said wall limits the movement of the cleaner in one direction and may swing with it for a limited distance in the other direction.

4. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall, giving it rolling motion toward the front wall and forcing part of it outwardly beyond the front end and side walls, said front wall having a rib across its inner surface, terminating short of the side walls for restricting the outward movement of the cleaner.

5. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall, giving it rolling motion toward the front wall and forcing part of it outwardly beyond the front end and side walls, said front wall having a rib across its inner surface, terminating short of the side walls for restricting the outward movement of the cleaner, and being pivoted on a transverse axis at one edge and being mounted for limiting swinging movement of its opposite edge.

6. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for drawing the cleaner away from the front wall and for giving it rolling motion toward the front wall, and a stop plate outside the upper edge of the front wall, projecting above its upper edge and yieldably supported on the container for up and down movement.

7. In a wall cleaning apparatus, a container

having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall and giving it rolling motion toward the front wall, comprising a cleaner holding scoop having open front and top sides slidable in the container toward and from the front wall, and a kneading and rolling element above the scoop and slidable with the scoop, and means for giving said element an accelerated motion during the movement of the scoop toward the front wall, for engaging and pushing forward the upper portion of the cleaner carried by the scoop.

8. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall and giving it rolling motion toward the front wall, comprising a scoop having open front and top sides slidable in the container toward and from the front wall, and a kneading and rolling element above the scoop and slidable with the scoop, and means for giving said element an accelerated motion during the movement of the scoop toward the front wall for engaging and rolling forwardly the upper portion of the cleaner carried by the scoop, said scoop having pins projecting inwardly from its sides, for holding the cleaner.

9. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall and giving it rolling motion toward the front wall, comprising a scoop having open front and top sides slidable in the container toward and from the front wall, and a kneading and rolling element above the scoop and slidable with and above the scoop, means for giving said element an accelerated forward motion during the movement of the scoop toward the front wall, for engaging and pushing forward the upper portion of the cleaner carried by the scoop, said scoop having pins projecting inwardly from its sides, for holding the cleaner, and a shear plate above the scoop, and below the element, pivoted to the scoop at its rear part to slide with the scoop, and arranged to be slidably engaged at its forward edge by said element to shear the cleaner from the element on the retractive movement thereof.

10. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall and for giving it rolling motion toward the front wall, comprising a scoop having open front and top sides slidable in the container toward and from the front wall, and a kneading and rolling element above the scoop and slidable with and above the scoop, means for giving said element an accelerated forward motion during the movement of the scoop toward the front wall, for engaging and pushing forward the upper portion of the cleaner carried by the scoop, said scoop having pins projecting inwardly from its sides, for holding the cleaner, a shear plate above the scoop and below the element, pivoted to the scoop at its rear part having a forward edge adapted to shear the cleaner from the element on the retractive movement of such element, and having a flange overhanging the rear upper part of the scoop in close engagement therewith.

11. In a wall cleaning apparatus, a container having a bottom, side walls and a front wall and adapted to hold plastic cleaner, means for sequentially drawing the cleaner away from the front wall and for giving it rolling motion toward the front wall, comprising a scoop having open front and top sides slidable in the container toward and from the front wall, and a kneading and rolling element above the scoop and slidable with and above the scoop, means for giving said element an accelerated forward motion during the movement of the scoop toward the front wall for engaging and pushing forward the upper portion of the cleaner carried by the scoop, said scoop having pins projecting inwardly from its sides, for holding the cleaner, and a yieldingly mounted shear plate on the scoop for engaging the under side of the element for shearing the cleaner from it during its retractive movement.

12. In a wall cleaning apparatus, a container open at its top for holding plastic cleaner and having a front wall and side walls, means associated with the container for successively withdrawing the cleaner from the front wall, rolling the cleaner and forcing it against the front wall for causing part of the cleaner to protrude above the walls.

13. In a wall cleaner apparatus, a container for holding plastic cleaner having a front and side walls open at its top adjacent the front wall, means carried by the container for sequentially withdrawing the cleaner from the front wall and giving it rolling motion toward the front wall for successively causing a different cleaning surface to protrude above the front wall for cleaning operations, and reservoir means associated with the container for supplying fresh cleaner to the container.

CASPER KENNE.
ANTHONY KENNE.