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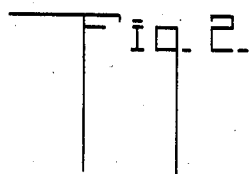
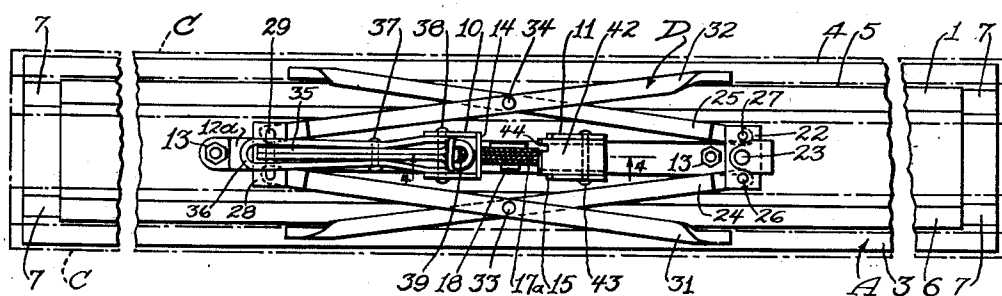
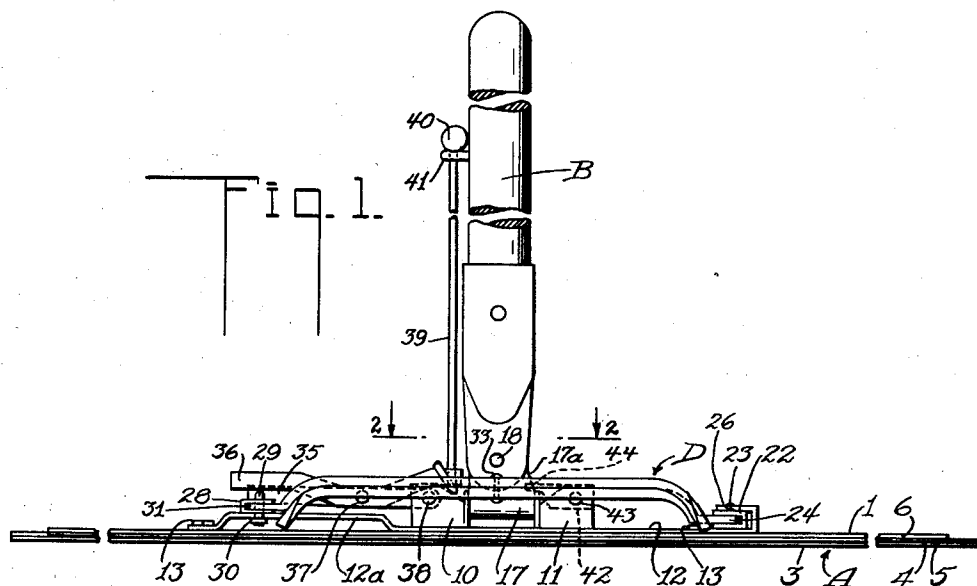
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COMBINED FLOOR BRUSH, DUSTER, AND SQUEEGEE

Filed Dec. 20, 1939

2 Sheets-Sheet 1



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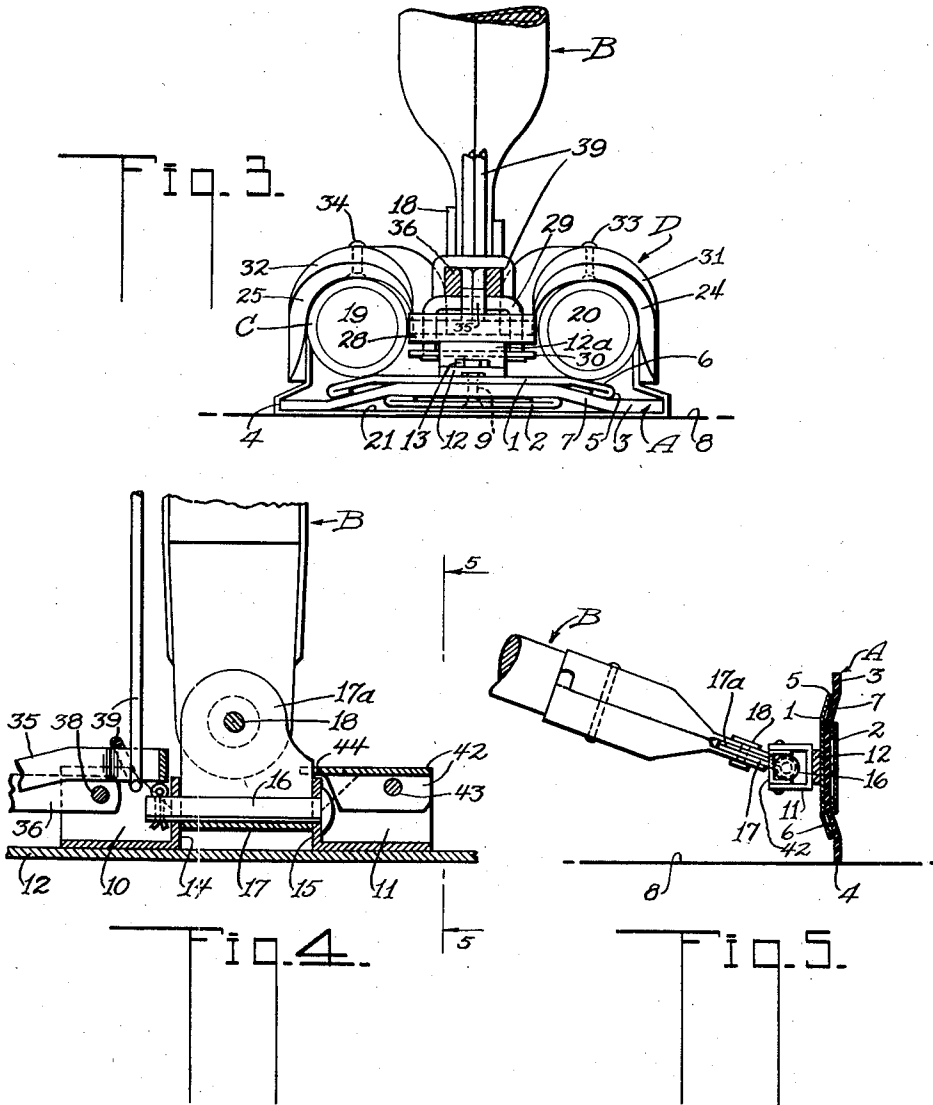
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COMBINED FLOOR BRUSH, DUSTER, AND
SQUEEGEE

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Application December 20, 1939, Serial No. 310,199

5 Claims. (Cl. 15—231)

My invention relates to improvements in a combined floor brush, duster and squeegee, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a combined floor brush, duster and squeegee which is an improvement over my patent on a Combined floor brush and duster No. 1,991,693, issued February 19, 1935. In the patent I show two spring actuated clips for holding the rolled ends of a dusting cloth on a cleaning member, the portion of the cloth between the ends being passed under the member and constituting a dust cloth.

In the present form of the invention, I combine the two cloth-gripping members into a single unit and place the unit at the center of the member where it will be out of the way and not interfere with the furniture while the floor is being cleaned. The cloth-gripping unit is opened and closed by a toggle mechanism so arranged as to be opened by pulling on a string attached to the handle, and closed by actuating it with the foot. This permits the dusting cloth to be quickly applied to or removed from the cleaning member without the necessity of the operator getting down upon his hands and knees to effect the change. The cloth-gripping unit has self-compensating means for accommodating the rolled ends of the dust cloth even though the diameters of the rolled portions are constantly changed due to the winding of the soiled portion of the cloth onto one roll and the unwinding of a clean cloth portion from the other roll. A rubber squeegee on the cleaning member will give a cushioning support to the dusting cloth and this will also prevent the device from damaging the furniture should it accidentally contact therewith.

In the above patent, I show a novel joint for connecting the handle with the cleaning member for causing the member to swing into various desired angular positions by the mere rocking of the handle. The same type of joint is used in the present invention which permits the handle to swing transversely to the cleaning member and also to swing about an axis paralleling the length of the cleaning member. I provide novel means for locking the handle against swinging about the longitudinally extending pin while still permitting it to swing about the transversely extending axis. This locking of the handle from one of its swinging movements is done when it is desired to support the cleaning member on one of its longitudinal edges and to po-

sition the plane of the member substantially at right angles to the floor to increase its floor-sweeping qualities. The device is simple in construction and is durable and efficient for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming a part of this application, in which—

Figure 1 is a front elevation of the device;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is an end view of Figure 1 showing the device full size;

Figure 4 is an enlarged section taken along the line 4—4 of Figure 2; and

Figure 5 is a section along the line 5—5 of Figure 4.

In carrying out my invention, I provide a squeegee or cleaning member indicated generally at A and Figures 2 and 3 show the member comprising an upper plate 1 separated from a lower plate 2 by a rubber squeegee 3. Figure 2 shows the longitudinal edges 4 of the squeegee extending beyond the corresponding edges 5 of the top plate 1. In the full-size view of Figure 3, I show the top plate 1 extending beyond the side edges of the bottom plate 2 and the overhanging portions are downwardly inclined as shown at 6 for inclining the side portions of the squeegee in a manner shown at 7. The bending of the rubber is sufficient to cause the bottom plate 2 to be spaced above a floor line 8 when the rubber contacts with the floor. In this way, the metal part 2 is prevented from scratching the floor surface. The inclining of the squeegee sides causes the edges to conform to floor irregularities. Bolts 9 (see Figure 2) are used for securing the two plates together.

I will first describe how the handle, indicated generally at B, is connected to the cleaning member A by a joint that functions much the same as a universal joint and will cause the member A to swing into desired angular positions when the handle is rotated about its longitudinal axis through portions of a circle. In Figure 4, brackets 10 and 11 are mounted on a strap 12 which in turn is secured to the top plate 1 by nuts 13 or other suitable fastening means. The brackets 10 and 11 may be welded to the strap 12 or otherwise secured thereto. The opposed walls 14 and 15 of the brackets are spaced from each

other and carry a pin 16, see Figure 4. A yoke or U-shaped member 17 has a cylindrical portion rotatably mounted on the pin 16 and the ears 17a of the member are brought into contact with each other as shown in Figures 4 and 5. The handle B is pivotally secured to the member 17 by a rivet or bolt 18 and it will be seen that the handle can swing about the bolt as a pivot in one plane, and the handle with the U-shaped member 17 can swing about the pin 16 in a second plane which lies at right-angles to the first plane. The resulting joint movement is substantially the same as a universal joint in that the handle is free to pivot about two axes that extend at right-angles to each other.

When the cleaning member lies flat on the supporting surface 8, the handle B will swing about the pin 16 and will extend at the desired angle up to the operator's hand. If now the handle B is rotated or rocked about its longitudinal axis through a portion of a circle, it will rock the member 17 therewith and since the member 17 is pivotally connected to the cleaning member and to the handle, the result will be an angular movement of the cleaning member over the surface 8. It is possible in this simple manner to swing the member A into various angular positions by the mere twisting of the handle B. This feature is extremely useful when cleaning or dusting a floor where objects such as furniture are scattered over the floor.

It may be desirable to use the device for dusting floors and to this end I provide novel means for securing a dusting cloth indicated generally at C to the cleaning member A so as to enclose the member, see Figures 2 and 3. In Figure 2 I show the dusting cloth C in broken lines, while in Figure 3 I show it in full lines. The cloth is quite long, about two or more yards in length, and its ends are wrapped around two rods 19 and 20. The portion of the dust cloth C between the rods 19 and 20 is passed around the squeegee 7 and the cloth has a width sufficient to entirely enclose the member. The width of the dust cloth is preferably greater than the length of the member A. I will describe hereinafter the cloth-gripping unit for holding the rods 19 and 20 on top of the member A, and for maintaining the portion 21 of cloth between the rods or rolls up against the undersurface of the member for providing an effective cleaning portion. When this portion becomes dirty, the soiled part can be wrapped onto one of the rolls of cloth and a clean part can be unwrapped from the other cloth roll so that a perfectly clean dusting cloth will again be positioned under the cleaning member A. This operation is repeated until the entire cloth is used, whereupon a new one may be substituted for the soiled one.

The cloth-gripping member is shown at D in Figures 1 to 3 inclusive and comprises two lazy-tong roll engaging grippers actuated by a toggle mechanism. One arm of each lazy-tong is pivoted to a U-shaped equalizing lever 22 which in turn is pivotally secured to the strap 12 at 23. The end of the strap 12 is bent back upon itself in order to support the equalizing lever 22 at both its top and bottom. The lazy-tong arms 24 and 25 are pivotally secured at 26 and 27 to the equalizing member 22 and the two points of pivot are equally spaced from the central pivot 23. The arms have upwardly curved portions disposed near their points of pivot, and downwardly curved cloth-gripping portions at their free ends.

The strap 12 has a raised portion 12a (see Fig-

ure 1), for slidably receiving a U-shaped equalizing member 28 which is similar in function to the member 22. The member 28 carries a staple 29 that has its legs extending through the member 28 and straddling the strap 12. A keeper 30 is placed under the raised portion 12a and is secured to the member 28 by the legs of the staple 29. The keeper and equalizing member 28 are adapted to slide freely along the raised portion 12a.

Two additional lazy-tong cloth-gripping arms 31 and 32 are pivotally secured to the member 28 by the legs of the staple 29. The arms 24 and 31 are pivoted together at 33, while the arms 25 and 32 are pivotally secured together at 34. Figure 1 shows the central portions of the arms 24, 25, 32 and 33 raised above the plate 1 to provide a space for receiving the rods 19 and 20 with the cloth C.

I will now describe the particular toggle mechanism for moving the pairs of lazy-tong arms outwardly to receive the rolls of cloth and then inwardly to yieldingly hold the rolls in place. The toggle mechanism comprises two levers 35 and 36. The lever 35 is pivoted to the U-shaped portion of the staple 29 and the upper wall of the member 28 is slotted to receive the lever end. The lever 35 is pivoted to the lever 36 at 37. The lever 36 is U-shaped and has its ends pivoted to the bracket 10 at 38, see Figures 2 and 4.

It will be seen that when the free end of the lever 35 is moved upwardly, this lever will pivot about the staple 29 and through its pivotal connection at 37, will also raise the lever 36 upwardly. This will cause the member 28 to slide along the portion 12a of the strap 12 and to move the arms 31 and 32 of the lazy-tongs. The other arms 24 and 26 of the lazy-tongs will cause both pairs of arms to open. I show a cord 39 secured to the free end of the lever 35 and carrying a knob 40 at its free end which normally rests in an eyelet 41 secured to the handle B, see Figure 1. When this knob 40 is raised, it will lift the lever 35 and actuate the lazy-tongs in the manner just described. It will be noted that although the cleaning member A is pivoted to the handle B, an upward movement on the cord 39 to raise the lever 35 will have no tendency to swing the member A about the handle pivot 18 since the upward force on one end of the lever 35 is counter-balanced by a downward force by the opposite lever end and also by the downward force of the lever 36 whose end is pivoted at 38. This permits the operator to hold the member A above the floor when releasing the cloth C.

When the lazy-tongs are in open position, the rods 19 and 20 with the cloth C wrapped therearound, may be moved onto the top of the cleaning member A and be received between the arms 24 and 31 and the arms 25 and 32. The free end of the lever 36 may now be moved downwardly by means of the foot and this will cause the arms of the lazy-tongs to yieldingly grip the rods and cloth. The pivot point 37 for the two levers 35 and 36 will swing beyond dead center position during this movement and will automatically lock the parts in closed position. The equalizing member 22 can pivot at 23 and the member 28 can likewise rock on the raised portion 12a to permit the lazy-tongs to adjust themselves and accommodate the two rolls of cloth even though one roll is larger than the other in diameter because of its carrying a greater portion of

cloth. A self-compensating lever arrangement is thus provided for the lazy-tong arms.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

When the device is used as a squeegee, the rolls 19 and 20 of the dust cloth are removed and the member 7 can be moved across the floor 8 by means of the handle B. As already stated, the handle can be rocked about its longitudinal axis for swinging the cleaning member into different angular positions.

If it is desired to increase the height of the cleaning member above the floor so that it can be used for sweeping paper and the like, it is possible to support the member on one of its edges as shown in Figure 5. The handle B is locked against transverse swinging movement with respect to the member by a latching member 42. This latch 42, see Figures 2 and 4, is pivotally mounted on a pin 43 carried by the bracket 11. The latch has a notch 44 that will receive the ears 17a of the member 17 when the latch is swung into closed position. Figure 3 shows the notch 44 placed at A in the manner shown in Figure 5. The latch 41 prevents the handle from pivoting about the pin 16, but permits the handle to pivot about the bolt 18. This construction will hold the member A so that only one edge will engage with the surface 8 and the member will stand high enough above the floor to effectively clean paper and larger obstacles therefrom.

I have already described how the dust cloth may be applied to the cleaning member A. It is possible to place the member A on the cloth and then roll the rods 19 and 20 onto the top of the member with the foot. The cloth gripping member may now be tightened about the rolls by merely pressing down upon the lever 36 with the foot. This saves the operator from stooping. The toggle joint makes the device self-locking while the self-compensating levers 22 and 28 permit the gripping member to accommodate different sized rolls of cloth and grip them with the same tension. The cord 39 places the knob 40 high enough on the handle B to be readily grasped and moved to open the toggle joint and free the dust cloth and rods without the operator being compelled to stoop.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

The lazy-tong arms actually move the rolled ends of the dusting cloth up onto the top of the cleaning member when the arms are moved from open to closed position by depressing the lever 36. The rolled ends will roll by gravity off from the member when the lazy-tong arms are opened and the cleaning member lifted vertically.

I claim:

1. In a cleaning device, a member adapted to be enclosed in a cloth, a handle for the member, 65

a dusting cloth underlying the member and having its ends formed into rolls which are adapted to rest on top of the member, roll-gripping means carried by the member and including a pair of lazy-tong gripping arms for each roll, each pair of gripping arms engaging with its roll at two places, one on each side of the handle, a self-locking toggle joint operatively connected to both pair of arms and having a lever adapted to be moved by the foot for causing the arms to yieldingly grip the rolls, said toggle joint also having a second lever adapted to be moved for opening the pairs of arms and freeing the rolls.

2. In a cleaning device, a member adapted to be enclosed in a cloth, a handle for the member, a dusting cloth underlying the member and having its ends rolled and placed on top of the member, a pair of lazy-tong gripping members for each roll, each pair of gripping arms engaging with its roll at two places, one on each side of the handle, self-compensating means interconnecting the pairs of arms for permitting the latter to accommodate rolls of different diameters, and a self-locking, manually-actuated closing means operatively connected to the pairs of arms for causing them to grip the rolls.

3. In a cleaning device, a cleaning member having downwardly inclined and oppositely disposed sides, a cloth having a portion placed under the member and having its ends rolled, the inclined sides elevating the rolls up onto the top of the cleaning member when the rolls are moved over the inclined sides toward each other, a pair of lazy-tong roll-engaging grippers carried by the member and each adapted to engage with a roll at two spaced points, and means for simultaneously collapsing the lazy-tong grippers for causing them to move the rolls toward each other up the inclined sides and onto the top of the member.

4. In a cleaning device, a cleaning member having downwardly inclined and oppositely disposed sides, a cloth having a portion placed under the member and having its ends rolled, the inclined sides elevating the rolls up onto the top of the cleaning member when the rolls are moved over the inclined sides toward each other, a pair of lazy-tong roll-engaging grippers carried by the member and each adapted to engage with a roll at two spaced points, and means for simultaneously collapsing the lazy-tong grippers for causing them to move the rolls toward each other up the inclined sides and onto the top of the member, said means locking the grippers against accidentally opening.

5. In a cleaning device, a cleaning member, a cloth having a portion placed under the member and having its ends rolled, a pair of roll-engaging grippers, a toggle joint operatively connected to the grippers for opening and closing them, and including a lever for closing the grippers and adapted to be actuated by the foot, said lever substantially paralleling the plane of the member when the lever is in closed position.

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