April 23, 1968 E. F. FRONTERA ET AL 3,378,872

SHIELD FOR PAINT ROLLER

Filed Sept. 23, 1965 2 Sheets-Sheet 1

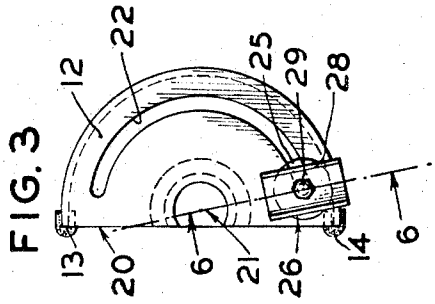


FIG. 3

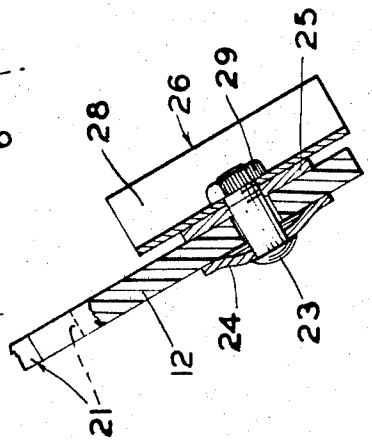


FIG. 6

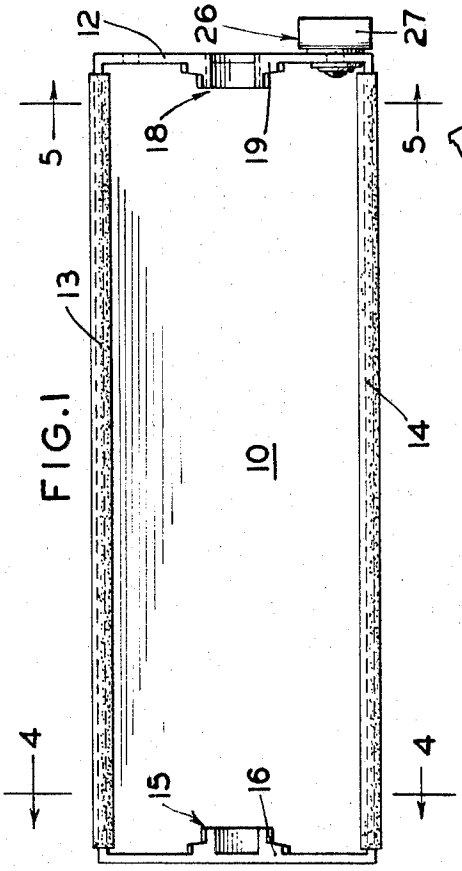


FIG. 1

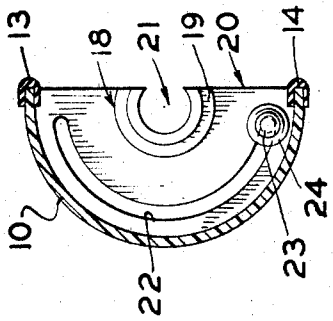


FIG. 5

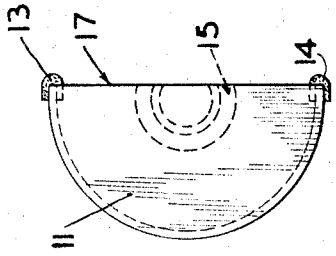


FIG. 2

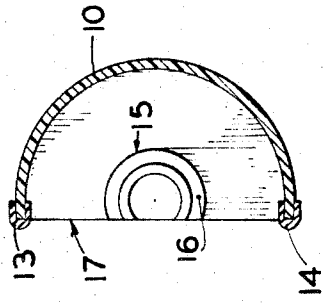


FIG. 4

INVENTORS
EDWARD F. FRONTERA
RAYMOND C MICHELFELDER
BY
Rudolph J. Jurick
ATTORNEY

April 23, 1968 E. F. FRONTERA ET AL 3,378,872

SHIELD FOR PAINT ROLLER

Filed Sept. 23, 1965 2 Sheets-Sheet 2

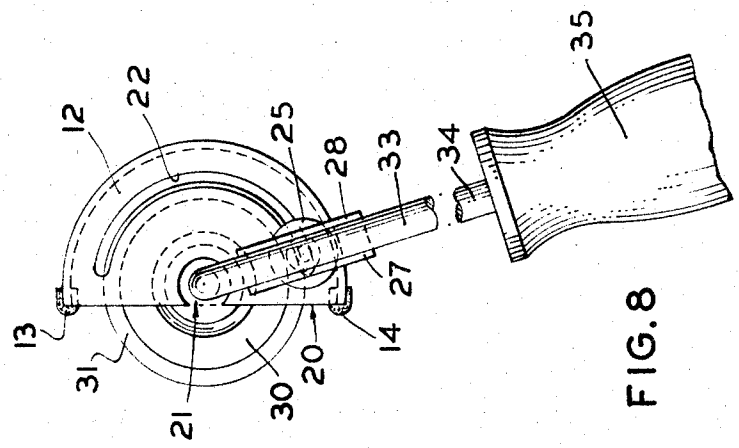


FIG. 8

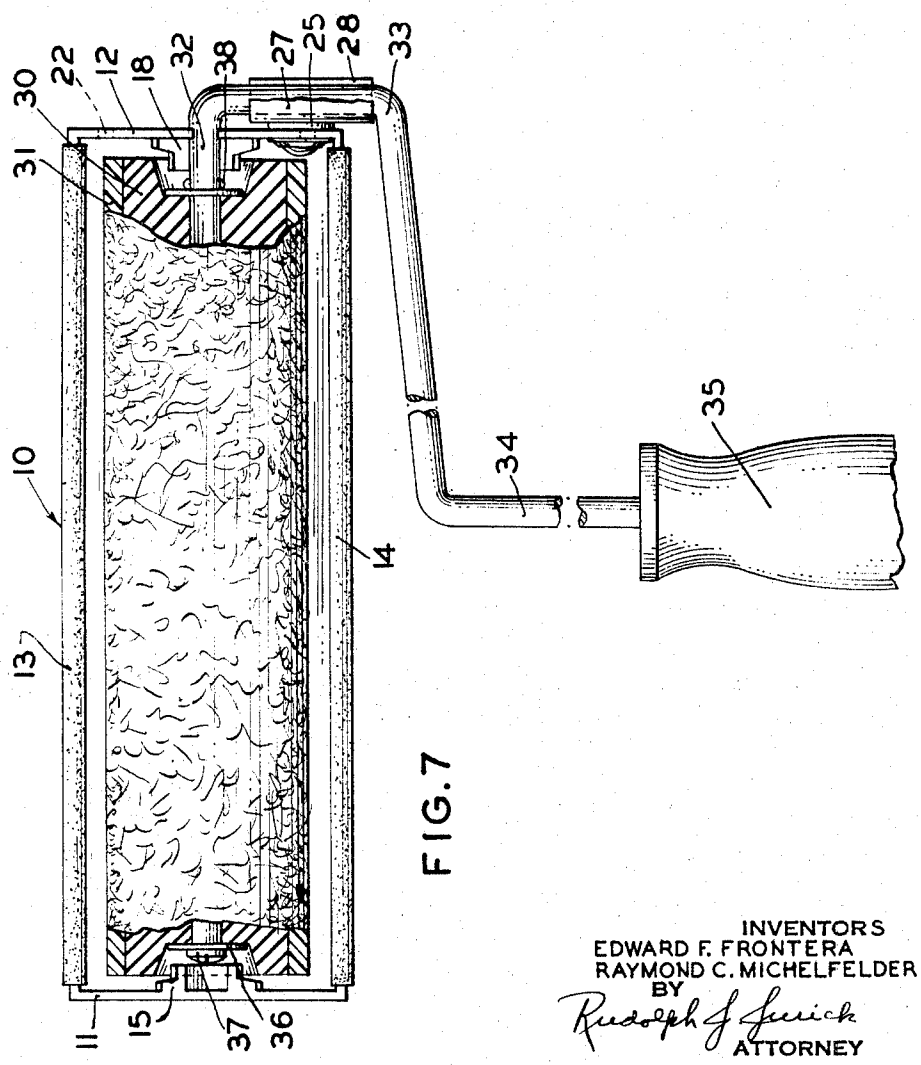


FIG. 7

INVENTORS
EDWARD F. FRONTERA
RAYMOND C. MICHELFELDER
BY
Rudolph J. Jurick
ATTORNEY

United States Patent Office 3,378,872 Patented Apr. 23, 1968

3,378,872

SHIELD FOR PAINT ROLLER

Edward F. Frontera, 15 Otsego Road, Verona, N.J. 07044, and Raymond C. Michelfelder, 410 Stonetown Road, Wanaque, N.J. 07465

Filed Sept. 23, 1965, Ser. No. 489,502
7 Claims. (Cl. 15—230.11)

ABSTRACT OF THE DISCLOSURE

A semi-cylindrical shield is provided with means for frictional attachment thereof to a paint roller carried by a shaft terminating in an offset handle portion. The offset handle portion is mechanically-coupled to a coupling member carried by an end wall of the shield, which coupling member is displaceable along an arcuate slot, formed in said end wall, in response to pressure applied to an edge of the shield.

This invention relates to a paint roller and more particularly to a shield for removable attachment to existing paint rollers.

Shields of various constructions and arrangements have heretofore been provided for attachment to a paint roller to protect the user and proximate surfaces from the spray of paint which accompanies the use of the roller. The prior devices generally are of expensive construction and are not arranged for convenient attachment to and removal from the paint roller. Further, such devices are not mounted for relatively free rotation about the roller thereby to facilitate application of paint to the roller and to permit the use of the roller in a reverse direction. Still further, in the prior devices, the shield is not self-orienting with respect to changes in the angular disposition of the roller handle, as when the user applies a continuous strip of paint on a wall from the ceiling to the floor.

A shield made in accordance with this invention overcomes the shortcomings and deficiencies of the prior devices. The shield is attachable to the paint roller without the use of screws or similar fastening devices, and it is rotatable about the roller axis, whereby its angular position, relative to the handle of the paint roller, may be changed during use.

An object of this invention is the provision of an improved shield for a paint roller, which shield is quickly and conveniently attachable to and removable from the roller.

An object of this invention is the provision of a shield constructed and arranged to be snapped into operative position on a convenional paint roller.

An object of this invention is the provision of a semi-cylindrical shield having means for frictional attachment thereof to a conventional paint roller having a handle, which shield carries means for cooperative engagement with the handle, thereby to retain the shield in a set position relative to the roller while affording angular rotation of the shield in response to a force applied to either of the side edges thereof.

These and other objects and advantages of the invention will become apparent from the following description when taken with the accompanying drawings. It will be understood, however, that the drawings are for purposes of illustration and are not to be construed as defining the scope or limits of the invention, reference being had for the latter purpose to the claims appended hereto.

In the drawings wherein like reference characters denote like parts in the several views:

FIGURE 1 is a front elevational view showing a shield made in accordance with this invention;

FIGURE 2 is a side elevational view showing the left side of the shield;

FIGURE 3 is a similar view showing the right side of the shield;

FIGURE 4 is a cross-sectional view taken along the line 4—4 of FIGURE 1;

FIGURE 5 is a cross-sectional view taken along the line 5—5 of FIGURE 1;

FIGURE 6 is a cross-sectional view taken along a diametrical plane passing through the right end wall of the shield, as along the line 6—6 of FIGURE 3, and drawn to an enlarged scale;

FIGURE 7 is a front elevational view of the shield attached to a paint roller, parts of the roller being shown in section; and

FIGURE 8 is a corresponding side elevational view thereof.

Referring to FIGURES 1–6, the shield comprises a semi-cylindrical shell **10**, preferably made of a clear plastic, having end walls **11** and **12**. Secured to the side edges of the shell are wiper blades **13** and **14** made of a suitable material such as sponge rubber, plastic or felt. These blades have a generally U-shape, in cross section, and may be secured in place by a suitable adhesive or molded directly on the shield. A hollow bushing **15**, having a base flange **16**, is cemented to the inner surface of the end wall **11**, said bushing being concentric with the axis of the shell. The shell **10** preferably has an angular extent somewhat greater than 180 degrees, as shown by the straight edge identified by the numeral **17** in FIGURES 2 and 4. The bushing **15** may be cut along a longitudinal plane coinciding with the edge **17** thereby forming a transverse opening communicating with the axial hole. Alternatively, the bushing may be solid, with an axial bore formed in the end, for reasons which will be explained hereinbelow. A similar bushing **18**, having a base flange **19**, is cemented to the inner surface of the end wall **12** in axial alignment with the bushing **15**. This bushing also is cut along a longitudinal plane coinciding with the straight edge **20** of the end wall. It will be noted that the end wall **12** has a central hole **21** formed therein, which hole intersects the edge **20** of the wall.

Referring specifically to FIGURES 3, 5 and 6, the end wall **12** has a circular slot **22** formed therein. A friction mechanism is carried by the end wall **12**, said mechanism comprising a screw **23**, a bowed spring washer **24** secured to the screw head, a flat washer **25**, a U-shaped coupling member **26**, having spaced, upstanding walls **27** and **28**, and a nut **29**. The coupling member preferably is made of a relatively thin spring metal. It will be apparent that the described friction mechanism is slidable along the slot **22** and that the force required to effect relative movement between the shield and the friction mechanism depends upon the clamping pressure exerted against the shield end wall by the washers **24** and **25**. It may here be pointed out that the diameter and length of the shield are such that the shield is attachable to a conventional paint roller.

Reference now is made to FIGURES 7 and 8 showing the shield attached to a paint roller. Generally, such roller comprises a cylindrical member **30** carrying a covering **31** of felt, or other material suitable for applying paint to a surface. The roller is rotatably carried by the axial portion **32** of a metal rod, which rod includes an offset portion **33** terminating in a straight portion **34** having a suitable hand grip **35** secured thereto. Axially-extending cavities are formed in the ends of the cylindrical member **30**. A washer **36** and a screw **37**, threaded into an axial hole formed in the end of the rod portion **32**, serve to limit axial displacement of the roller in one direction, while integral ears **38**, formed on the rod, limit such movement of the roller in the other direction.

The central hole 21, formed in the shield end wall 12, has an entrance opening having a width, taken along the edge 20, somewhat less than the diameter of the axial portion 32 of the rod. To attach the shield to the roller, the axial rod portion 32 is snapped into the central hole 21 and the shield is moved to the left, as viewed in FIGURE 7, so that the bushing 18 is disposed within the axial cavity of the cylindrical member 30. The end wall 11 is bowed outwardly to clear the left end of the roller and then released while positioning the bushing 15 in the proximate cavity. Now, one or both, of the upstanding walls 27, 28, of the U-shaped coupling member, are flexed apart, temporarily, to position the offset rod portion 33 therebetween. The bushing 15 preferably is hollow and slotted to form a transverse slot, as has been described above. Such arrangement facilitates the positioning of the bushing within the cavity, while providing clearance between the bushing and the head of the screw 37, thereby allowing for normal tolerances in the manufacture of the shield as well as the paint roller. Alternatively, the bushing 15 may be solid and provided with a relatively shallow, axial bore to clear the screw head. In any event, the wall thickness of the shell and end walls is such that end walls may be bowed to the extent necessary to attach the shield to the paint roller, as described.

With the shield attached in operative position on the paint roller, the shield may be set to a desired orientation relative to the straight portion 34 of the handle, as is shown in FIGURE 8, for example. Inasmuch as the offset portion 33, of the handle rod, is cradled between the walls 27 and 28, of the U-shaped coupling member, the shield will remain in set position during normal use of the device without in any way interfering with the normal rotation of the roller, said roller being free to rotate relative to the bushings 15 and 18, as well as the axial portion 32 of the rod. Thus, the exposed portion of the covering 31 may be rotated through a shallow pan containing paint.

It will be apparent that the handle of the paint roller will occupy substantially the position shown in FIGURE 8, when the device is raised above the head of the user, as at the start of a vertical stroke when applying paint to a wall adjacent the ceiling. If, now, the user moves the handle downwardly along the wall, the shield will remain in the illustrated position. Normally, however, the handle is rotated in a counterclockwise direction as the painting stroke progresses below the eye level of the user. Thereafter, in a continuous stroke, the handle may reach a position where it extends upwardly from the device, particularly as the stroke approaches the bottom of the wall. During the counterclockwise handle rotation, the shield rotates correspondingly until the upper wiper blade 13 strikes the wall. Thereafter, slippage occurs between the shield and the friction mechanism. The clamping pressure is exerted by the washers 24 and 25 against the shield end wall 12, so that the shield normally will follow rotation of the handle but only a relatively small pressure between the wiper blade and the wall will result in slippage of the shield relative to the handle. Consequently, the sliding of the wiper blade along the wall will not affect the quality of the freshly applied coat of paint.

With the handle of the device positioned as shown in FIGURE 7, paint can be applied to a wall close to the right hand corner thereof. In order to apply the paint close to the left hand corner of the wall, the handle must be reversed, that is, rotated 180 degrees from the illustrated position. This can be done, without detaching the shield from the device, by merely grasping the shield in one hand and rotating the handle with the other hand.

It will now be apparent that a shield made in accordance with this invention is of simple, low-cost construction and easily attachable to and removable from a paint roller. The friction mechanism retains the shield in a desired orientation relative to the handle, yet permits angular displacement of the shield as the angular position of the handle is changed during use. Further, the shield, including the end walls, is made of a clear plastic so that its does not obstruct one's vision during use.

Having now described the invention, those skilled in this art will be able to make various changes and modifications without thereby departing from the scope and spirit of the invention as recited in the following claims.

We claim:

1. A shield for a paint roller comprising,
   (a) a semi-cylindrical shell having end walls, one end wall having formed therein a central hole and a concentric slot, said central hole intersecting an edge of the end wall,
   (b) a first internal bushing carried by the said one end wall, said bushing having an axial hole extending therethrough and aligned with the said central hole, and said bushing having a transverse opening formed in the wall which opening communicates with the said axial hole throughout the axial extent thereof,
   (c) a generally U-shaped coupling member carried by the said one end wall of the shell,
   (d) means frictionally securing the coupling member to the said one end wall for sliding displacement along the said slot, and
   (e) a second internal bushing carried by the other end wall and axially aligned with the said first bushing.

2. The invention as recited in claim 1, including wiper blades carried by the longitudinal edges of the said shell, and wherein the central hole in the said one end wall has a diameter less than that of the axial hole extending through said first bushing.

3. The invention as recited in claim 1, wherein the said means frictionally securing the coupling member to the said one end wall comprises a pair of washers disposed on opposite sides of the said one end wall, and means passing through the said arcuate slot and clampingly retaining the washers in engagement with the end wall.

4. A shield for a paint roller having a handle, said shield comprising,
   (a) a semi-cylindrical shell having end walls, said shell and end walls having an arcuate extent somewhat greater than 180 degrees,
   (b) means forming in one end wall a central hole intersecting an edge of the end wall and an arcuate slot which is coaxial with the central hole,
   (c) a generally U-shaped coupling member having spaced arms for receiving a portion of the paint roller handle,
   (d) a pair of washers disposed on opposite sides of the said end wall,
   (e) fastening means extending through the said arcuate slot and a hole formed in the base portion of said coupling member, said means clampingly retaining the washers in sliding engagement with the said one end wall,
   (f) a first internal bushing secured to the said one end wall, said bushing having an axial hole extending therethrough and aligned with the central hole of said one end wall, and said bushing having a transverse opening formed in the wall, which opening communicates with and is co-extensive with the said axial hole, and
   (g) a second internal bushing secured to the other end wall and axially aligned with the said first bushing.

5. The invention as recited in claim 4, wherein the said second bushing has an axial hole communicating with a transverse opening formed in the bushing wall, said transverse opening being in axial alignment with the transverse opening of the said first bushing.

6. The invention as recited in claim 5, wherein the

said shell and end walls are made of a clear plastic and including wiper blades carried by the longitudinal edges of the shell.

7. In combination,

(a) a paint applicator of the class having a roller rotatable about an axial shaft extending from one end, which shaft has an offset portion normal to the roller axis,

(b) a semi-cylindrical shell disposed about the roller and having end walls, one end wall having formed therein a central hole and a concentric slot, which hole intersects an edge of the end wall to form an entrance opening for the shaft,

(c) a first internal bushing secured to the said one end wall, said bushing having an axial hole aligned with the said central hole and a transverse entrance opening receiving the shaft,

(d) a U-shaped coupling member having spaced arms between which the offset portion of the shaft is disposed,

(e) means frictionally securing the coupling member to the said one end wall for sliding displacement along the said slot, and

(f) a second internal bushing secured to the other end wall and axially aligned with said first bushing.

References Cited

UNITED STATES PATENTS

2,902,706	9/1959	Gaetke	15—248.1
3,177,512	4/1965	Balaban	15—230 X

CHARLES A. WILLMUTH, *Primary Examiner.*

L. G. MACHLIN, *Assistant Examiner.*