Sept. 20, 1960 J. C. GEORGE 2,952,860

APPARATUS FOR CLEANING COW'S UDDER

Filed Oct. 14, 1957 2 Sheets-Sheet 1

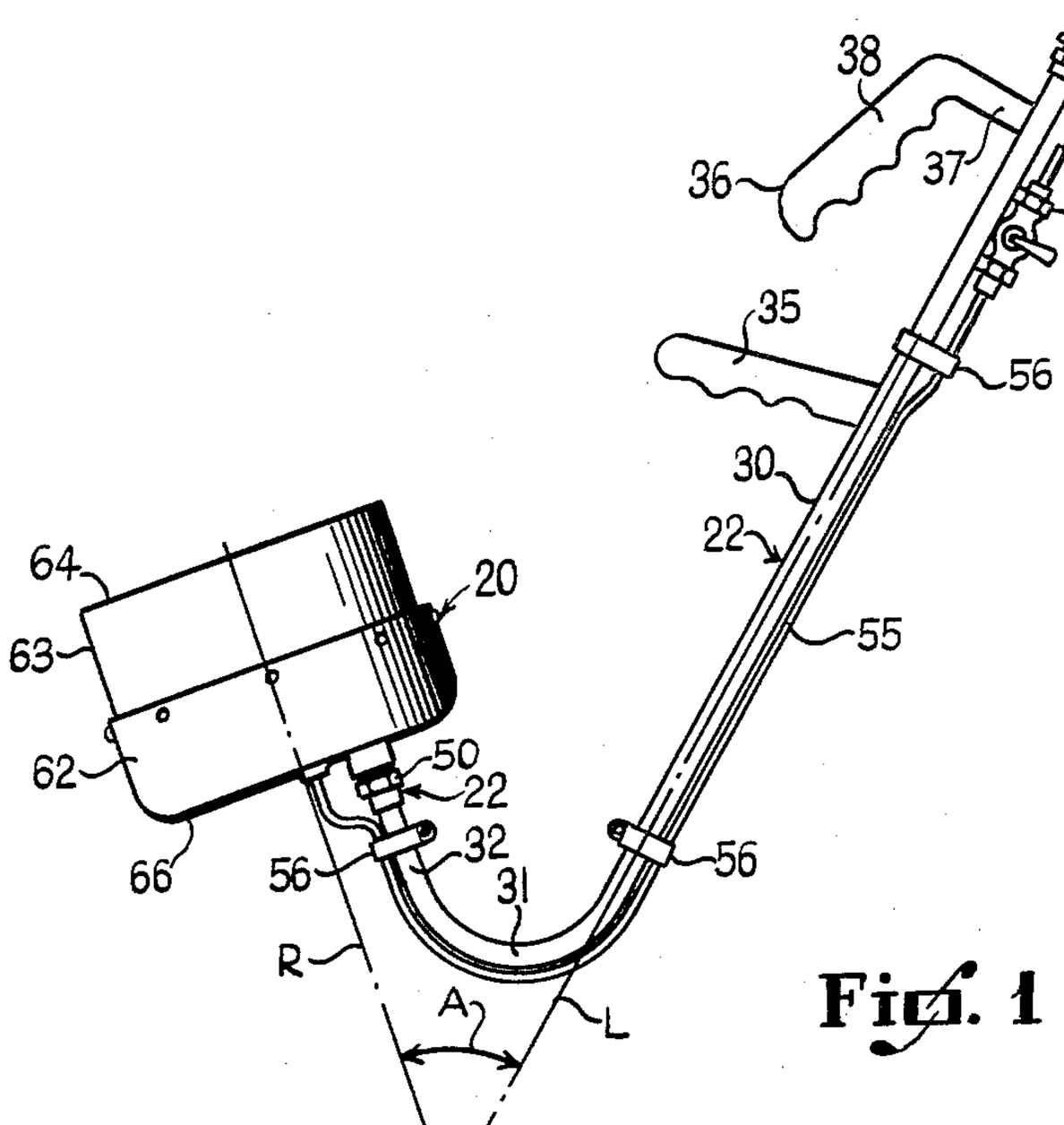

Fig. 1

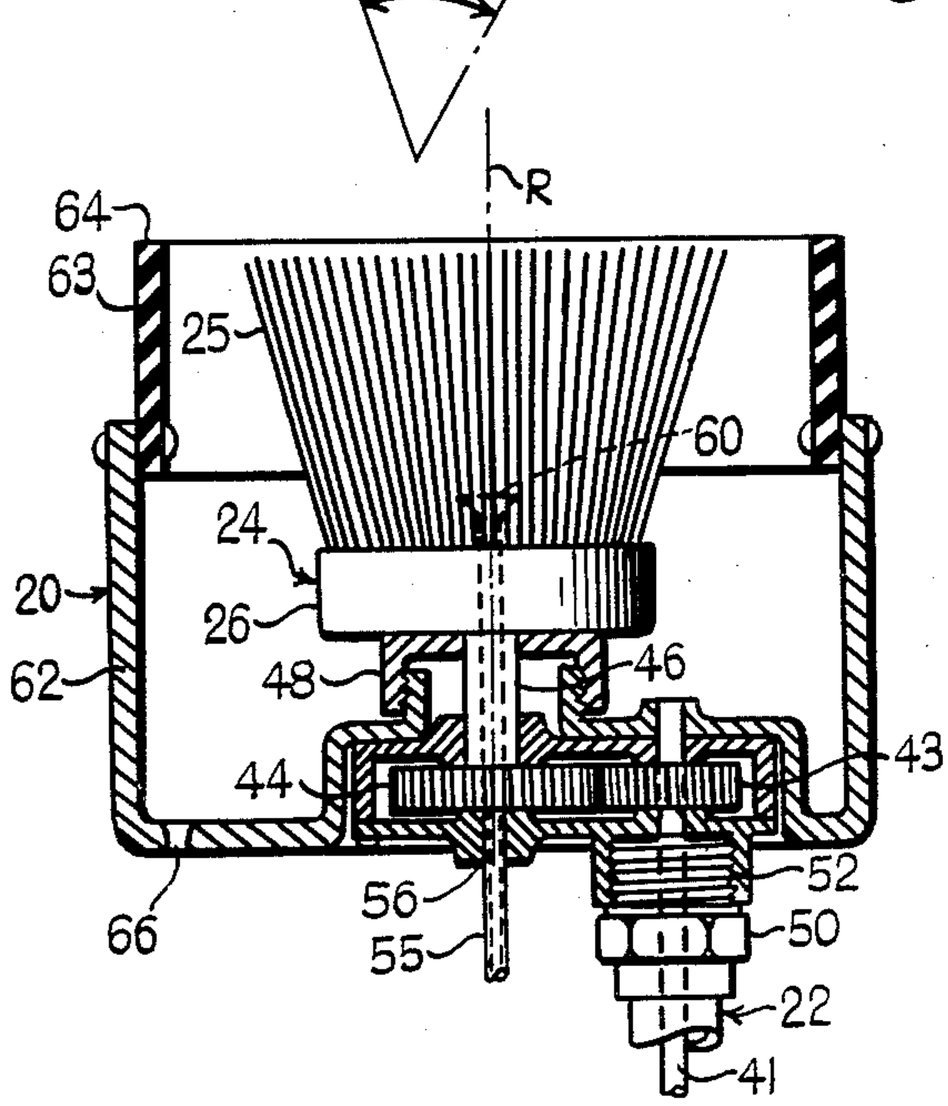

Fig. 2

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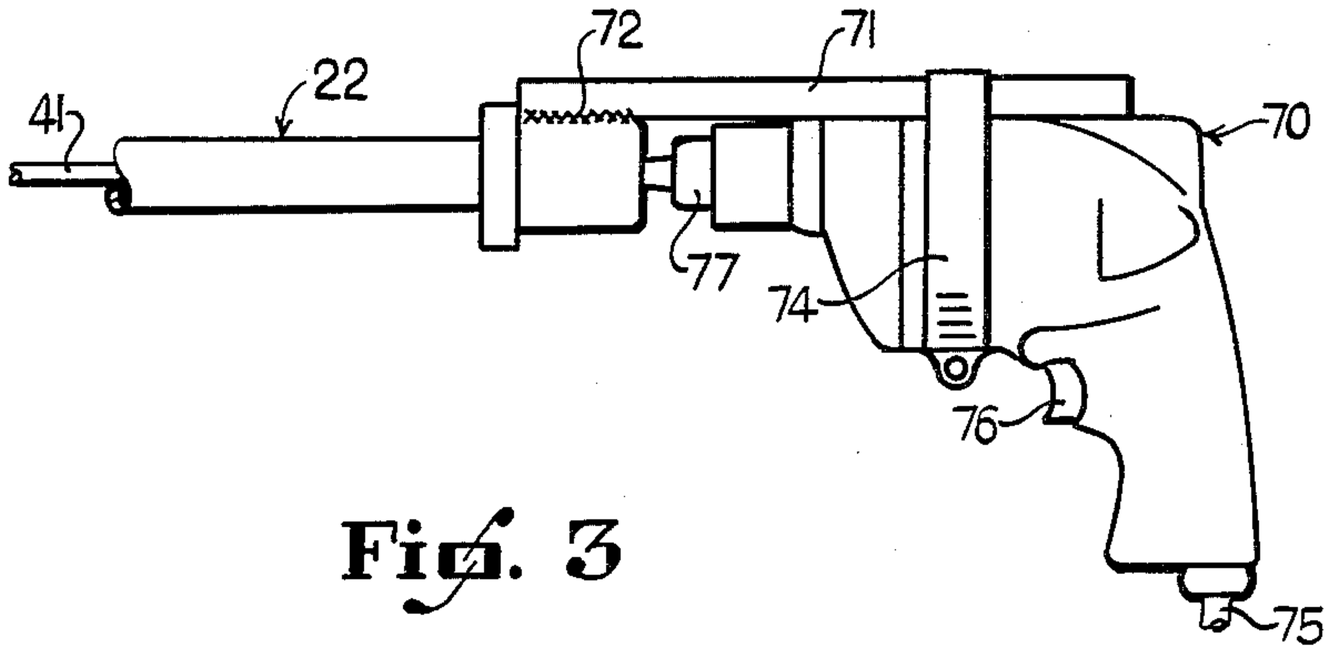

Fig. 3

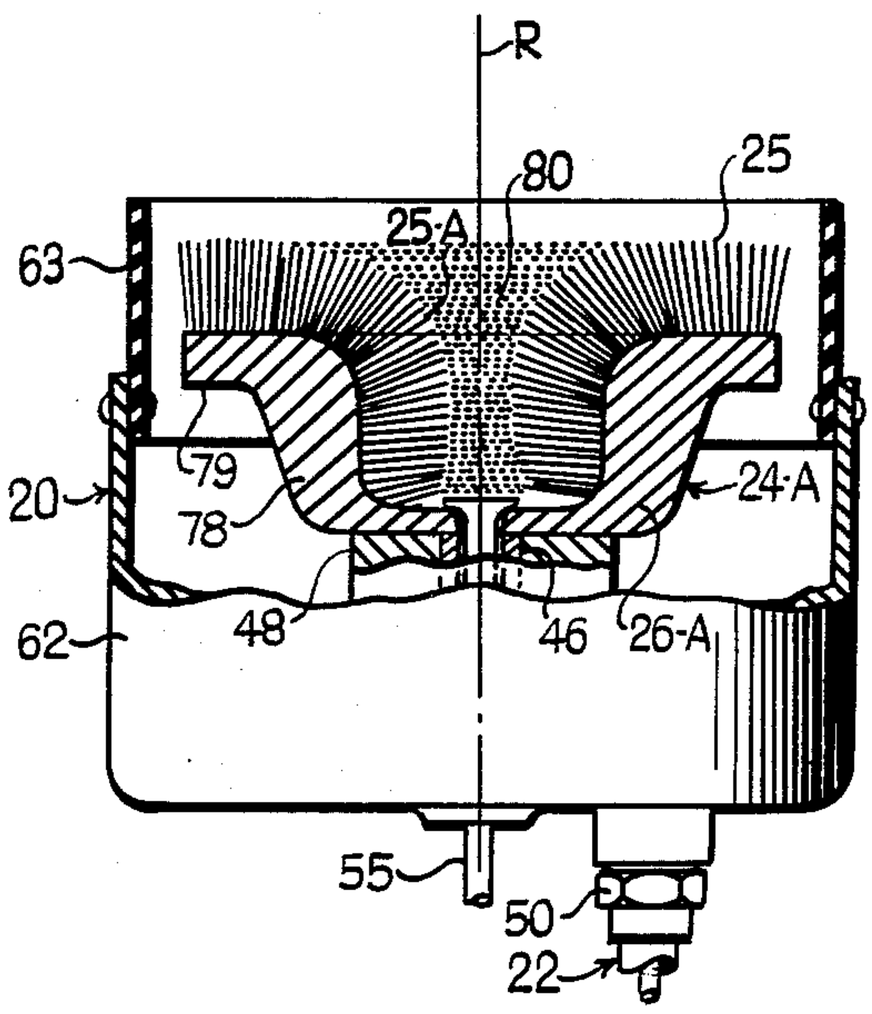

Fig. 4

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APPARATUS FOR CLEANING COW'S UDDER

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4 Claims. (Cl. 15—29)

This invention relates to rotary brush apparatus and particularly to a novel apparatus for cleaning a cow's udder prior to milking.

In general, the apparatus of the present invention includes a brush head which rotatably supports a brush element. A handle for manipulating the brush is secured to the brush head with the axis of said handle being disposed at an acute angle relative to the axis of rotation of the brush. Hence the person manipulating the brush can, from a standing position, extend the brush head downwardly to a position below the cow's udder, and then move the brush head upwardly whereby the brush face contacts the bottom of the udder and scrubs same clean in preparation for milking. The apparatus of the present invention further includes other features later to be described in detail herein.

It is therefore an object of the present invention to provide an apparatus for rapidly and conveniently washing a cow's udder in preparation for milking.

It is another object of the present invention to provide an apparatus of the type described which continuously supplies washing fluid to a rotary brush head yet which confines the washing fluid to the area being washed and thereby eliminates splashing.

It is still another object of the present invention to provide an apparatus of the type described which incorporates a rotary brush provided with a recessed central portion adapted to efficiently scrub not only the under side of the udder, but also each individual teat as well.

Other objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred forms of embodiments of the invention are clearly shown.

In the drawing:

Figure 1 is a side elevational view of an udder cleaning apparatus constructed according to the present invention;

Figure 2 is a side sectional view of a brush head comprising a portion of the apparatus of Figure 1, the section being taken along a vertical plane through the centerline of the brush head of Figure 1;

Figure 3 is a partial side view of the apparatus of Figure 1, said view illustrating the application of a hand drill as a prime mover for driving said apparatus; and

Figure 4 is a side view, partially in section, of a second brush head constructed according to the present invention and comprising a second aspect thereof, said section being taken along a vertical plane through the centerline of said brush head.

Referring in detail to the drawing, the apparatus of Figure 1 includes a brush head indicated generally at **20** which is mounted to a handle means indicated generally at **22**. As seen in Figure 2, brush head **20** includes a brush **24** consisting of bristles **25** secured to a bristle holder **26**. As seen in Figures 1 and 2, brush **24** includes an axis of rotation R that forms an acute angle A with

a longitudinal axis L of the previously mentioned handle means **22**.

As one means of providing the above described acute angular configuration A the handle means **22** is formed from a tubular member including a straight downwardly extending portion **30**, an arcuate portion **31**, and a straight upwardly extending portion **32**. The upper end of straight handle means **30** includes a lower horizontally extending grip **35** and an upper grip **36** which includes an outwardly extending base **37**, and a downwardly extending portion **38**. Hence it will be understood that the brush can be effectively manipulated by holding grip **35** in one hand and grip **36** in the other hand whereby movement of one of the grips relative to the other will rock the brush **24** upwardly whereby the bristles **25** engage and scrub the under side of the udder.

With particular reference to Figure 2 a flexible drive cable **41** is rotatably extended through tubular handle member **22** and a driving gear **43** is keyed to the lower end of drive cable **41**. A driven gear **44** is rotatably mounted in brush head **20** and in engagement with driving gear **43**. A hollow drive shaft **46** has its lower end keyed to driven gear **44** and its upper end keyed to bristle holder **26**. Hence it will be understood that flexible drive shaft **41** rotates driving gear **43** which in turn rotates driven gear **44** and hollow drive shaft and bristle holder keyed thereto. A bearing member **48** is mounted to brush head **20** and includes an upper surface forming a thrust bearing in engagement with the lower surface of bristle holder **26**. A detachable threaded coupling **50** is secured to brush head **20** such that tubular handle member **22** can be detached from the brush head at the threaded junction **52** to provide access to drive cable **41**.

Referring again to Figures 1 and 2, a washing fluid supply conduit **55** is secured to handle member **22** by means of a plurality of clamps **56** with said conduit including an intake end **57**, connected to a source of washing fluid, not illustrated, a flow control valve **58**, which serves to control and shut off the rate of flow of the fluid, and a discharge end **60** located centrally of bristles **25** of brush **24**. It will be noted from Figure 2 that conduit **55** extends through a hole **56** in the bottom of brush head **20** and thence extends upwardly through hollow drive shaft **46** and bristle holder **26**. Hence it will be understood that driven gear **44**, drive shaft **46**, and bristle holder **26** are free to rotate about the stationary fluid supply conduit **55**.

As is best seen in Figure 2, brush head **20** includes an open ended metallic casing or guard **62** provided with a flexible lip **63** formed of synthetic rubber or the like. It is preferable to extend the upper edge **64** of flexible member **63** upwardly just beyond the upper ends of bristles **25**. Hence when bristles **25** are moved upwardly against the under side of the udder the flexible lip **63** will engage the surface of the udder and form a splash-guard whereby water thrown outwardly by centrifugal action of the brush will be retained within the brush head and the operator will be protected from splashing.

With further reference to Figure 2, the lower portion of casing **62** includes a drain hole **66** for continuously draining the washing fluid such that the casing does not become excessively full of water. Hence drain hole **66** serves as an additional means of preventing the brush from throwing water beyond the confines of the casing.

Referring next to Figure 3, a novel means for driving the apparatus is provided by a conventional electric hand drill **70** removably mounted to a bracket **71** which is in turn welded to handle member **22** at a welded junction **72**. Electric drill **70** is secured to bracket **71** by means of a detachable clamp **74**, with such drill includ-

ing wire leads **75** for connection with a source of electric current and a trigger switch **76** for turning the current on and off. Torque is applied to flexible drive shaft **41** by inserting an end thereof into a chuck portion **77** of electric drill **70**.

Reference is next made to Figure 4 which illustrates another aspect of the present invention. The apparatus of Figure 4 is identical to that of Figures 1 through 3, previously described, except that the brush **24**–A of Figure 4, is modified in that a bristle holder **26**–A is formed with an upwardly extending portion **78** and an outwardly extending portion **79** to provide a cup shaped mount for upwardly facing bristles **25** and inwardly facing bristles **25**–A. With this arrangement it will be understood that the particular bristle configuration provides a centrally disposed recess **80** in the rotary brush such that when the brush head is moved upwardly it can be successively positioned over each of the cow's teats whereby the teat will extend downwardly into the recess **80** and the sides of the teat will be thoroughly scrubbed by the inwardly facing bristles **25**–A.

While the forms of embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. An apparatus for washing a cow's udder comprising, in combination, a guard; a brush rotatably mounted in said guard about an axis of rotation, said brush including a recessed central portion and provided with axially extending bristles for rotational engagement with the under side of the cow's udder and radially inwardly extending bristles for engagement with the sides of the cow's teats, said guard including a housing having an open end adjacent an upper portion of said brush, said housing including a drain opening; handle means mounted to said guard; means for supplying cleansing fluid to said brush; and driving means for rotating said brush.

2. An apparatus for washing a cow's udder comprising, in combination, a guard; a brush rotatably mounted in said guard about an axis of rotation and provided with axially extending bristles for rotational engagement with the under side of the cow's udder and radially inwardly extending bristles for engagement with the sides of the

cow's teats, said guard including a housing having an open end adjacent an upper portion of said brush, said housing including a drain opening; handle means mounted to said guard; conduit means mounted to said handle means and including an outlet communicating with said brush; and driving means for rotating said brush.

3. An apparatus for washing a cow's udder comprising, in combination, a guard; a brush rotatably mounted in said guard about an axis of rotation and provided with axially extending bristles for rotational engagement with the under side of the cow's udder and radially inwardly extending bristles for engagement with the sides of the cow's teats, said guard including a housing having an open end adjacent an upper portion of said brush, said housing including a drain opening; handle means mounted to said guard; means for supplying cleansing fluid to said brush; and driving means for rotating said brush, said driving means including a flexible shaft carried by said handle means.

4. In a brush for cleaning a cow's udder the combination of a rotary brush provided with axially extending bristles for rotational engagement with the under side of the cow's udder and radially inwardly extending bristles for engagement with the sides of the cow's teats; means for rotating said brush; handle means for manipulating said brush; an open ended housing for said brush, the open end of said housing being adjacent an upper portion of said brush, said housing including a drain opening; means for supplying washing fluid to the interior of said housing; and a flexible lip on the open end of said housing.

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