Oct. 31, 1961 R. B. STEWART 3,006,668

LOCKABLE UNIVERSAL IMPLEMENT HEAD

Filed Dec. 3, 1959

FIG-1

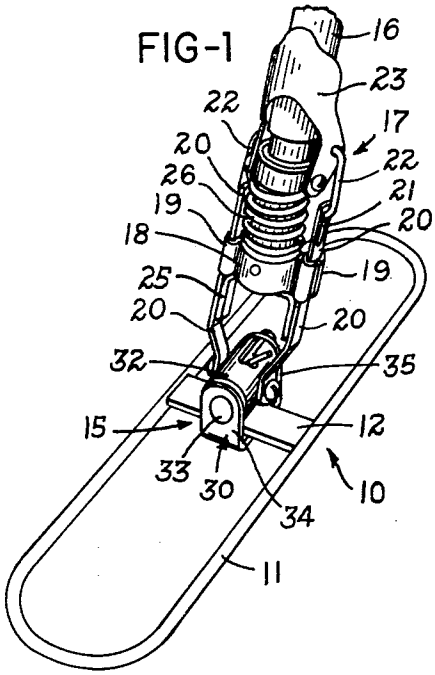


FIG-2

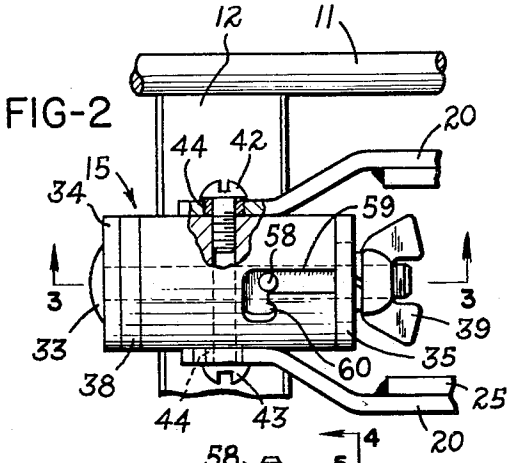


FIG-3

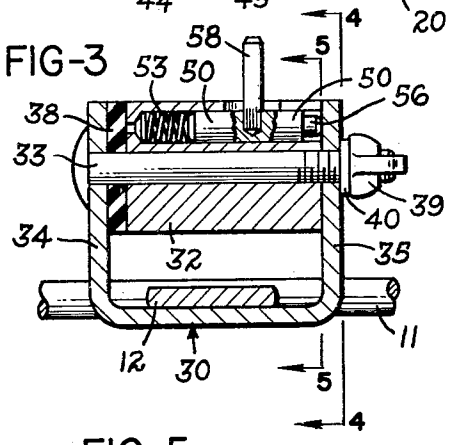


FIG-4

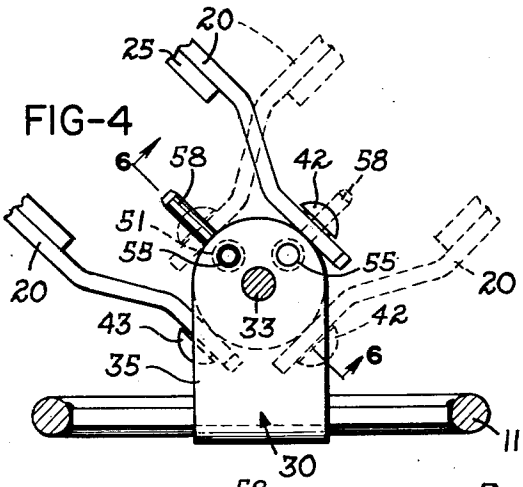


FIG-5

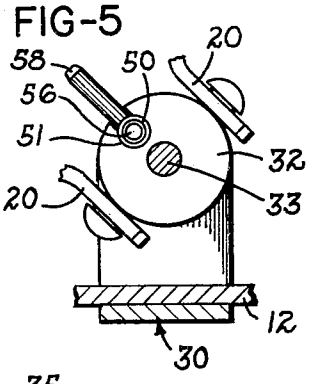


FIG-6

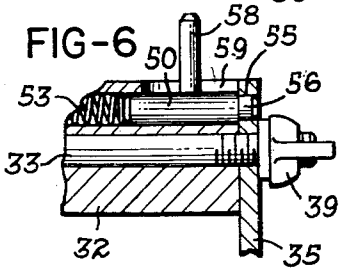
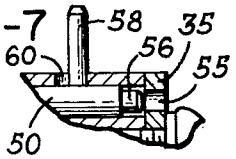


FIG-7



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LOCKABLE UNIVERSAL IMPLEMENT HEAD

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This invention pertains to implements and more particularly to a lockable universal member for connecting a handle to a head of an implement, such as for a mop, broom or the like.

It is an object of this invention to provide an implement head particularly suited for the attachment of floor cleaning devices such as mops, dusters and the like to a handle, which provides universal movement of the attached implement with respect to the handle and which is lockable into a position permitting relative movement in one plane only between the implement and the handle where additional control is desired for getting into hard-to-reach places.

A further object of this invention is to provide an implement head with a universal mounting which may be adjusted for relative movement in one plane, or returned to universal movement, with the simple hand manipulation of a pin. An advantage resides in the provision of an adjustment to vary the relative stiffness or looseness of the mounting in one plane of movement.

A further object of this invention is to provide a universal implement head which includes a selectable fool-proof lock-out of one of the movements in the form of a latch bolt movable between an inner retracted position providing for universal movement and a plurality of extended locked positions.

Other objects and advantages of the invention will be apparent from the following description, the accompanying drawings and the appended claims.

In the drawing:

FIG. 1 is a perspective view of the implement head of this invention arranged for use with a dust mop;

FIG. 2 is a plan view of the coupling partially broken away to show details;

FIG. 3 is a sectional view along the line 3—3 of FIG. 2;

FIG. 4 is an end view taken generally along line 4—4 of FIG. 3;

FIG. 5 is a view taken generally along the line 5—5 of FIG. 3 showing the end of the cylinder;

FIG. 6 is a fragmentary section showing the latch bolt in extended position, taken generally along line 6—6 of FIG. 4; and

FIG. 7 is a fragmentary section similar to FIG. 6 showing the bolt in retracted position.

Referring to the figures of the drawing, which illustrate a preferred embodiment of the invention, a head frame for a dust mop is indicated generally at **10**. It is understood that this invention has equal application to wet mops, brushes, brooms and other instruments where the selection between fixed or universal movement between a handle and a working implement head is desired. The head **10** includes a wire loop **11** having a cross brace **12** located centrally. A coupling indicated at **15** is arranged on the cross brace **12** to provide for the selection of universal movement between a handle **16** and the head **10**, or pivotal movement in either of a plurality of selectable positions.

Means for attaching the handle **16** to the head **10** through the coupling **15** includes a quick-disconnect attachment indicated generally at **17**. The attachment **17** includes a yoke-like member **18** secured to the bottom of the handle **16** and including loops or guides **19** through

which the upper ends of a pair of upstanding connecting rods **20** are slidably and removably receivable. The rods **20** are each slotted as indicated at **21** for the purpose of receiving the looped end of pull wires **22** of a clasp **23**. A cross piece **25** secured between the rods **20** forms a brace against which the yoke **18** rests in the assembled position of the handle **16**. Between the clasp **23** and the yoke **18** a spring **26** provides tension in the wires **22** when the yoke **18** is bottomed and the clasp **23** is raised in the attached position of the handle, as shown.

The coupling **15** includes a generally U-shaped support bracket **30** secured to the loop **11** at the cross brace **12**. A cylinder **32** is mounted for rotation on a spindle or bolt **33** between the oppositely disposed upstanding arms **34** and **35** of the bracket **30**. The bolt **33** is arranged to extend through suitable openings provided in the arms **34, 35** and through a suitable opening extending axially through the cylinder **32**, and a rubber cushioning washer **38** may be inserted on the bolt **33** between an end of the cylinder **32** and the arm **34**. The bolt **33** and cylinder **32** are held in the assembled position by a wing nut **39** on the extended threaded end of the bolt **33**, which may be adjusted against a lock washer **40** to compress the elastomeric washer **38**. This adjustment provides the means by which the resistance of the cylinder **32** to turning within the arms **34, 35** may be controlled to avoid "flop over" of the frame **11** when pushing an attached mop head.

Means for attaching the handle **16** to the cylinder **32** for pivotal movement on an axis transverse to the longitudinal axis of the cylinder **32** includes a pair of machine screws **42** and **43**, which are threaded into the side of the cylinder **32** through suitable opposed openings formed in the lower ends of the arms **20**. Small cylindrical sleeves **44** positioned on screws **42, 43** between the respective screw heads and the cylinder **32** provide a bushing for the free pivotal movement of the handle **16** relative to the cylinder. It is therefore seen that the handle **16** has universal freedom of movement with respect to the head **10** by reason of the rotation of the cylinder **32** on its longitudinal axis on the bolt **33**, and the relative rotation of the arms **20** on the cylinder **32**.

The coupling **15** includes means for selectively fixing the cylinder **32** in one of a plurality of predetermined positions on the bracket **30** for limiting the movement between the handle **16** and the head **10** to a single plane to provide increased control of the head. These include a latch bolt **50** reciprocably received within a longitudinal opening **51** formed within the cylinder **32**, and movable between an inner retracted position, as shown in FIGS. 3 and 7, and an outer extended position, as shown in FIG. 6. A compression spring **53** positioned in the opening **51** behind the inner end of bolt **50** urges the bolt **50** into its outer extended position. A plurality of angularly disposed bolt receiving openings **55** are formed in the arm **35** for receiving the reduced outer end portion **56** of the bolt **50** in the extended position thereof, as shown in FIG. 4, for selectively holding the cylinder **32** in fixed positions with respect to the head **10**. While any number of openings **55** may be provided for adjusting the fixed position of the cylinder as closely as desired, it has been found in practice that two such openings located to provide an angle for the handle of approximately 45° within a horizontal plane are all that is required.

A bolt operator includes a handle or pin **58** extending from the side of bolt **50** and arranged for movement within an opening **59** formed through the cylinder **32**. Pin **58** is operable by hand manipulation to move the bolt against the resistance of the spring **53** into its retracted position, in which it may be retained by a pin receiving notch **60** formed adjacent the opening **59** within the cylinder wall. In this position of the bolt the coupling provides for fully universal movement, and when it is

desired to return to pivotal movement for greater control of manipulation, the pin **58** is pressed out of notch **60** to permit spring **53** to bias the end portion **56** of the bolt **50** into one of the openings **55**, as desired. The wing nut **39** may be tightened or loosened, as desired, to vary the firmness of the mop head connection to the handle in order to maintain uniform contact of the mop with the surface of the floor and at the same time to provide the firmness necessary to avoid the tipping of the frame **11** when encountering an uneven or rough area, commonly called "flop over."

The spaced apart arrangements of the arms **34** and **35** on the bracket **30** and the cylinder **32** are proportioned to provide unobstructed access to the cylinder and to the pin **48** for the operation of the latch bolt **50**.

It is therefore seen that this invention provides a fully universal head for connecting an implement to a handle and for selective pivotal movement of the implement with respect to the handle, having a minimum of moving parts for simplicity of construction, ease of operation and long service life.

While the form of device herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of device, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A lockable universal head for attachment of an implement handle comprising a support having oppositely disposed arms arranged for mounting in upstanding relation on an implement, a cylinder, means rotatably mounting said cylinder between said arms including a spindle on said arms and extending longitudinally through said cylinder, means for adjusting the resistance of said cylinder to rotation including an elastomeric washer positioned between said cylinder and one of said arms, and handle attaching means on said cylinder for securing a handle for pivotal movement on an axis transverse to the longitudinal axis of said cylinder.

2. A lockable universal head for attachment of an implement handle comprising a support having oppositely disposed arms arranged for mounting in upstanding relation on an implement, a cylinder, means rotatably mounting said cylinder between said arms including a spindle extending through said arms and longitudinally through said cylinder, an elastomeric washer positioned on said spindle between said cylinder and one of said arms, a nut adjustable on said spindle to effect compression of said washer to vary the resistance of said cylinder to rotating within said arms, handle attaching means on said cylinder for securing a handle for pivotal movement on an axis transverse to the longitudinal axis of said cylinder, and cooperating latch means on said cylinder and on one of said arms for fixedly positioning said cylinder on said bracket.

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