Title: ADAPTER FOR USE WITH A MOP

Abstract: An adapter for connecting a mop frame to a fluid source is provided. The adapter includes a hollow substantially tubular connector portion with a swivel joint at a mop frame connection end, an elongated hollow body portion with a locking tab at each end and a central opening to receive the swivel joint of the tubular connector portion, and the locking tabs at the opposed ends of the body portion biased outwardly for selective engagement to the mop frame and for rotation of the mop frame about the axis of the body portion. In addition, a steam mop frame and adapter for connecting the mop frame to a fluid source is provided. The steam mop and adapter includes a steam mop frame having receiving openings for engaging a connector, a hollow substantially tubular connector having a connector portion with a swivel joint at a mop frame connection end, an elongated hollow body portion with a locking tab at each end and a central opening to receive the swivel joint of the tubular connector portion, and the locking tabs at the opposed ends of the body portion biased outwardly for selective engagement to the mop frame and for rotation of the mop frame about the axis of the body portion.
ADAPTER FOR USE WITH A MOP

BACKGROUND OF THE INVENTION

[0001] The invention relates generally to an adapter for use with a mop, and more particularly to an adapter for connecting a mop frame to a fluid source.

[0002] Wet and dry mops have been widely used for cleaning floors. A type of wet mop is a steam mop, which works as a steaming device.

[0003] Steaming devices used to apply steam to household objects are well known. The uses of the devices vary widely, and may include the application of steam to drapes or other fabrics to ease wrinkles, and the application of steam to objects to assist in cleaning the objects.

[0004] Typical steam devices have a reservoir for storing water that is connected to an electrical water pump with an on/off switch. The exit from the electric water pump is connected to a steam boiler with a heating element to heat the water. The heated water generates steam, which may be directed towards its intended destination through a nozzle which controls the application of the steam. Variation of the shape and size of the nozzle allows for preferred distribution of generated steam to an object to be cleaned. The nozzles may be disconnectable from the steam generator to allow different nozzles to be utilized, based on the object to be steamed. The nozzle may be either closely coupled to the steam generator, or located at a distance from the steam generator, requiring tubing or other steam transfer structures to be interconnected between the steam generator and the discharge nozzle.

[0005] Accordingly, it is desirable to provide an adapter for connecting the a nozzle or mop frame to a fluid source for changing the angle between the housing and frame, to provide a full range of steering and one that easily disconnects from the mop frame.
SUMMARY OF THE INVENTION

[0006] Generally speaking, in accordance with the invention, an adapter for connecting a mop frame to a fluid source in a mop housing is provided. The adapter includes a hollow substantially tubular connector portion for connecting to the mop housing and an elongated hollow body portion with a locking tab at each end and a central opening to receive the connection joint. The connector portion has at the connection end a swivel joint end. The swivel joint is a rotatable swivel joint to permit 360 degree rotation between the connector portion and the body portion. The locking tabs are biased outwardly for selective engagement to the mop frame and provide for rotation about the axis of the body portion.

[0007] Accordingly, it is an object of the invention to provide an adapter that easily connects and disconnects a mop frame to a fluid source.

[0008] A further object of the invention is to provide an adapter that allows for easy and user friendly angle change between the mop housing and frame.

[0009] Yet a further object of the invention is to provide an adapter that provides a full range of steering for mop frames.

[0010] Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

[0011] The invention accordingly comprises a product possessing the features, properties, and the relation of components which will be exemplified in the product hereinafter described, and the scope of the invention will be indicated in the claims.
BRIEF DESCRIPTION OF THE DRAWINGS

[0012] For a fuller understanding of the invention, reference is made to the following description taken in connection with the accompanying drawing(s), in which:

[0013] FIG. 1 is a top plan view of an adapter and frame constructed and arranged in accordance with the invention;

[0014] FIGS. 2A and 2B are right side elevational views of the adapter FIG. 1 in an upright and rotated position, respectively;

[0015] FIG. 3 is a rear elevation a view of the adapter of FIG. 1 showing the locking tabs;

[0016] FIGS. 4A and 4B are plan views of the adapter showing how the adapter may be rotated in respect to the mop frame;

[0017] FIG. 5 is a perspective view of the adapter mounted on an oval shaped mop frame in accordance with the invention;

[0018] FIG. 6 is a perspective view of the adapter mounted on a triangular shaped mop frame in accordance with the invention; and

[0019] FIG. 7 is a perspective view of a steam mop including an adapter in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0020] FIG. 1 illustrates an adapter 11 constructed and arranged in accordance with the invention mounted on a mop frame 12. Here, adaptor 11 includes a hollow tubular connector portion 13 and a hollow body portion 14. Connector portion 13 has a proximal end 13a that connects to a mop housing pipe and a distal end 13b with a swivel joint 18 that connects to an elongated hollow body portion 14.
Elongated hollow body portion 14 includes a central opening 17 (not shown) for fluid passage and receives swivel joint 18 of proximal end 13b of tubular connector portion 13. Each end of body portion 14 includes a locking tab 16. Swivel joint 18 permits side to side and 360 degree rotation between tubular connector portion 13 and elongated hollow body portion 14. This gives a user greater control of mop frame 12 and allows the user use of both sides of mop frame 12 for cleaning.

Mop frame 12 includes an upper surface 12a, an opposed bottom surface 12b, a front wall 12c, a rear wall 12d, a right side wall 12e and a left side wall 12f as shown in FIGS. 1 and 2A.

FIGS. 2A and 2B show side views of adapter 11 mounted on mop frame 12. These figures show how tubular connector portion 13 may be rotated around the axis of body portion 14 with respect to mop frame 12. This provides a user with an easy and a user friendly angle change.

FIG. 3 shows adapter 11 with two side tabs 21 that engage with mop frame 12. Locking tabs 16 on hollow body portion 14 that control side tabs 21. As shown, a pair of locking tab springs 19 bias locking tabs 16 outwardly from body portion 14 to engage receiving opening in framed 12. When a user sides locking tabs 16 toward tubular connector portion 13, side tabs 21 retract so that adapter may be easily inserted into or removed from mop frame 12. Similarly, when a user releases locking tabs 16 springs 19 urge locking tabs 16 outwardly so that side tabs 21 engage receiving openings in mop frame 12. In one embodiment, each locking tab 16 may have a depression 22 to facilitate the contraction of locking tabs 16 for the removal of adapter 11 from mop frame 12.

FIG. 4A shows that tubular connector portion 13 of adapter 11 may rotate 360 degrees to the right as shown by arrow A with respect to mop frame 12 that is substantially rectangular in shape. FIG. 4B shows that tubular connector portion 13 of adapter 11 may rotate 360 degrees to the left as shown by arrow B with respect to mop frame 12. This permits a user to use the top or bottom of frame 12 for cleaning.
FIG. 5 shows adapter 11 mounted on a football or oval shaped mop frame 31. FIG. 7 shows adapter 11 mounted on a triangular shaped mop frame 41.

Adapter 11 provides many advantages for ease of use because it easily connects and disconnects to a mop handle and a mop frame. Here, the user has more control over the angle and movement of the mop frame to clean whatever areas that need to be clean. In addition, the mop frame may be rotated so that the user may use both sides of the mop frame to clean. Further, adapter may attached to any variety of differently shaped mop frames.

FIG. 7 is a perspective view of a steam mop 100 including adapter with distributor 11 constructed and arranged in accordance with the invention. Mop 100 includes an elongated housing 111 with a water reservoir and a boiler and an upper tube 112a and a lower tube 112b connected to one end of housing 111. A handle 113 is attached to the end of upper tube 112A. Steam frame 112 with an installed steam towel 115 is operatively connected to the other end of housing 111 by adapter 11. In this embodiment, adapter 11 and frame 12 as shown in FIG. 7 may be removed from housing 11 by pressing a release button 117 at the base of housing 11. Water is introduced into a reservoir at a water inlet or opening 118a. The level of water present in a reservoir in housing 111 can be viewed through a sighting window 119.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above product without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.
CLAIMS

WHAT IS CLAIMED IS:

1. An adapter for connecting a mop frame to a fluid source, comprising:
   a hollow substantially tubular connector portion with a swivel joint at a mop frame
   connection end;
   an elongated hollow body portion with a locking tab at each end and a central
   opening to receive the swivel joint of the tubular connector portion; and
   the locking tabs at the opposed ends of the body portion biased outwardly for
   selective engagement to the mop frame and for rotation of the mop frame about the axis
   of the body portion.

2. The adapter of claim 1, wherein the mop frame is substantially rectangular
   in shape.

3. The adapter of claim 1, wherein the mop frame is football shaped.

4. The adapter of claim 1, wherein the mop frame is substantially triangular in
   shape.

5. The adapter of claim 1, wherein the locking tab includes a spring for
   biasing the tabs outwardly to engage the mop frame.

6. The adapter of claim 1, wherein the locking tab includes a depression to
   facilitate the removal of the adapter from the mop frame.
7. A steam mop frame and adapter for connecting the mop frame to a fluid source, comprising:
   a steam mop frame having receiving openings for engaging a connector;
   a hollow substantially tubular connector having a connector portion with a swivel joint at a mop frame connection end;
   an elongated hollow body portion with a locking tab at each end and a central opening to receive the swivel joint of the tubular connector portion; and
   the locking tabs at the opposed ends of the body portion biased outwardly for selective engagement to the mop frame and for rotation of the mop frame about the axis of the body portion.

8. The steam mop frame and adapter of claim 7, wherein the locking tab includes a spring for biasing the tabs outwardly to engage the mop frame.

9. The steam mop frame and adapter of claim 7, wherein the locking tab includes a depression to facilitate the removal of the adapter from the mop frame.

10. A steam mop, comprising:
    a housing including a water reservoir and boiler connected by hoses,
    a steam frame for distributing steam to a surface; and
    an adapter for connecting the steam frame to the housing including:
        a hollow substantially tubular connector having a connector portion with a swivel joint at a mop frame connection end;
        an elongated hollow body portion with a locking tab at each end and a central opening to receive the swivel joint of the tubular connector portion; and
        the locking tabs at the opposed ends of the body portion biased outwardly for selective engagement to the mop frame and for rotation of the mop frame about the axis of the body portion.
### A. CLASSIFICATION OF SUBJECT MATTER

INV. A47L13/254 A47L13/22

According to International Patent Classification (IPC) or to both national classification and IPC.

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols):

A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched:

Electronic data base consulted during the international search (name of data base and, where practical, search terms used):

**EPO-Internal, WPI Data**

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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**X** Further documents are listed in the continuation of Box C  
**X** See patent family annex

* Special categories of cited documents

*•* document defining the general state of the art which is not considered to be of particular relevance

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Date of actual completion of the international search: 17 December 2009

Date of mailing of the international search report: 08/01/2010

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