

CLEANING MOP ✓

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention relates to a cleaning mop having a cleaning sheet covering the outer periphery of a base to make cleaning.

PRIOR ART

Fig. 5 is a perspective view showing the external appearance of a conventional cleaning mop.

A base 1 of a cleaning mop shown in Fig. 5 is mainly composed of an upper base 2 and a slip-preventing member 3 which is fitted onto an outer edge of the upper base 2 to cover the bottom of the upper base 2. For example, the upper base 2 is formed by injection-molding synthetic resins and the slip-preventing member 3 is made of high-molecular substance (elastomer) exhibiting the remarkable elasticity at the normal temperature.

A connecting portion 4 is disposed in the middle of the upper base 2 and a joint 7 is coupled with the connecting portion 4. The joint 7 is further coupled with a handle of the mop.

Disposed at fixing portions 10A and 10B positioned on both sides of the upper base 2 in the longitudinal direction thereof are receiving portions 11, 11 formed to be recessed in the upper base 2 and holding members 12, 12 fitted into the receiving portions 11, 11. The holding member 12 is supported rotatably by a hinge 11a positioned on the

side of the connecting portion 4 while the hinge 11a functions as a fulcrum.

Arcuate holes 14, 14 are formed in the receiving portion 11 and a claw receiving portion 15 is integrally formed at the receiving portion 11 on the side opposite to the hinge 11a. An engagement claw 12a is integrally formed on a lower surface of the holding member 12 to be engaged with the claw receiving portion 15 and holding claws 12b, 12b are also integrally formed on the lower surface of the holding member 12 to be fitted into the arcuate holes 14, 14.

A cleaning sheet S having a predetermined form is set on the outer periphery of the base 1 of the cleaning mop as shown by one-dot chain line. The cleaning sheet S is set on the lower surface of the slip-preventing member 3 and both end portions Sa, Sa of the cleaning sheet S are wound from the sides to the upper surface of the upper base 2 to cover on the slip-preventing member 3 and the upper base 2. At this time, in the fixing portions 10A and 10B, the holding members 12, 12 are angularly moved upward to be separated from the receiving portions 11, 11. The end portions Sa, Sa of the cleaning sheet S are pulled toward the claw receiving portion 15, 15 and the holding members 12, 12 are moved down in the pulled state of the end portions of the cleaning sheet to press the holding members 12, 12 on the receiving portions 11, 11.

At this time, the cleaning sheet S is pushed in the arcuate holes 14, 14 by means of the holding claws 12b, 12b formed on the holding member 12 and the engagement claw 12a formed on the holding member 12 is engaged in a hole 15a of the claw receiving portion 15, so that

the holding members 12, 12 are locked in the closed state. The sides of the cleaning sheet S are held between the holding claws 12b, 12b and the arcuate holes 14, 14 to thereby prevent the sides of the cleaning sheet S from being separated from the upper base 2.

As described above, the cleaning sheet S is pushed in the arcuate holes 14, 14 by means of the holding claws 12b, 12b to be fixed, while when the width of the cleaning sheet S is larger, both the end portions Sa, Sa of the cleaning sheet S are sometimes put on the claw receiving portions 15. At this state, when the holding member 12 is pressed on the receiving portion 11, the cleaning sheet S is held between the engagement claw 12a and the claw receiving portion 15, so that the engagement claw 12a is not sometimes engaged in the hole 15a of the claw receiving portion 15 securely.

In this case, when the holding member 12 is tried to be forcedly pressed on the receiving portion 11 so that the engagement claw 12a is engaged with the claw receiving portion 15, there is the possibility that the engagement claw 12a is damaged or the holding member 12 is cracked.

Particularly, when a cleaning sheet S having a very large width and unapplicable to the base 1 of the cleaning mop shown in Fig. 5 is used, the end portions Sa and Sa of the cleaning sheet S are overlapped each other on the claw receiving portion 15 to be doubled and even when the holding member 12 is pressed on the receiving portion 11, the engagement claw 12a is not engaged with the claw receiving portion 15 easily.

It is an object of the present invention to solve the above

problems in the prior art by providing a cleaning mop in which when a holding member is pressed on a base, end portions of a cleaning sheet have a tendency to escape from a claw receiving portion to sides thereof so that the holding member is apt to be engaged with the base through a gap between the end portions of the cleaning sheet.

SUMMARY OF THE INVENTION

In accordance with the present invention, a cleaning mop to which a cleaning sheet is to be applied in use, comprises a base and at least one holding member disposed on an upper surface of the base, end portions of the cleaning sheet wound about the base from a lower surface toward the upper surface of the base being held between the upper surface of the base and the holding member, the base and the holding member being engaged with each other by engagement means, projection portions protruding alternately from the holding member and the base being disposed in a course that the cleaning sheet reaches the engagement means, the cleaning sheet passing above the projection portions to reach an upper part or the vicinity of the engagement means.

With such structure, both sides of the cleaning sheet in the width direction thereof pass above the projection portions, so that the course of the cleaning sheet reaching the engagement means is substantially lengthened. Accordingly, when the cleaning sheet is pressed onto the base by the holding member, the probability that end portions of the cleaning sheet are held in engagement portions by the engagement means can be reduced, so that engagement by the

engagement means can be exactly made within the space between both the end portions of the cleaning sheet.

Preferably the base is formed with a recessed receiving portion and the holding member is engaged with the base by the engagement means in a state that the holding member is received in the receiving portion, the engagement means and the projection portions being positioned in space between the receiving portion and the holding member, and the projection portions being disposed in both sides of the engagement means.

When the holding member is received in the receiving portion, since the end portions of the cleaning sheet are held between recessed side walls of the receiving portion and edge portions of the holding member to be tightened, the cleaning sheet opposite to the projection portions can be stabilized in the held position.

With the projection portions being disposed in both the sides of the engagement means, the probability that the cleaning sheet is held in the engagement means can be reduced on both the sides of the engagement means.

Preferably the engagement means includes an engagement claw protruding from the holding member toward the base and having a hook portion formed in a tip thereof and a claw receiving portion protruding from the base toward the holding member and having a hole or step with which said hook portion is engaged, and inclined surfaces are formed in an upper surface of the claw receiving portion so that the cleaning sheet slips down from an upper position to sides of the hole or step.

With such structure, when the holding member presses the end portions of the cleaning sheet put on the claw receiving portion, the end portions of the cleaning sheet are apt to slide on the inclined surfaces to be moved from the upper part to the sides of the claw receiving portion, so that engagement by the engagement means is further ensured.

More preferably the projection portions protruding from the holding member are longer than the other projection portions protruding from the base, and when the holding member and the base are engaged with each other by means of the engagement means, the longer projection portion protruding from the holding member is inserted into a hole or recess formed in the base, so that the cleaning sheet is pushed into the hole or recess by means of a tip of the longer projection portion.

With such structure the projection portion can be inserted into the hole or recess formed in the base to thereby increase an amount of bending of the cleaning sheet, so that the probability that the cleaning sheet is held in the engagement means can be further reduced.

Further preferably when the holding member and the base are engaged with each other by means of the engagement means, a tip of the shorter projection portion protruding from the base faces a rear face of the holding member in parallel and a gap is formed therebetween, and a size of the gap is so set that the holding member cannot be engaged with the base by means of the engagement means when a cleaning sheet having a predetermined thickness or more is held in the gap.

With such structure, when the cleaning sheet having a thickness

larger than a prescribed thickness is used or when two cleaning sheets are overlapped to be used, an amount of movement that the holding member is pressed onto the base can be limited, so that there can prevent problems that engagement by the engagement means is forcedly tried so that bending force larger than needed is exerted onto the holding member to thereby cause damage and engagement by the engagement means is made against large resistant force so that the engagement means is damaged.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing the external appearance of a cleaning mop according to the present invention;

Fig. 2(A) is a sectional view taken along line IIa-IIa of Fig. 1 and Fig. 2(B) is a sectional view taken along line IIb-IIb of Fig. 1;

Fig. 3 is a partially sectional view showing another embodiment of the present invention;

Figs. 4(A) and 4(B) are partially enlarged views showing preferable structures constituting engagement means; and

Fig. 5 is a perspective view showing the external appearance of a base of a conventional cleaning mop.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the accompanying drawings, the present invention is described.

Fig. 1 is a perspective view showing the external appearance

of a cleaning mop according to the present invention, Fig. 2(A) is a sectional view taken along line IIa-IIa of Fig. 1 and Fig. 2(B) is a sectional view taken along line IIb-IIb of Fig. 1.

A base 21 of the cleaning mop shown in Fig. 1 is mainly composed of an upper base 22 formed by injection-molding synthetic resins and a slip-preventing member 23 made of thermoplastic elastomer or the like.

A connection portion 24 is mounted in the middle of the surface of the upper base 22 and fixing portions 30A and 30B are provided on both sides of connection portion 24. The connection portion 24 is composed of a pair of supporting axis portions or pivot portions 25a, 25b, an angular movement member 26 and a Y-shaped joint 27.

Projections 25a1 and 25b1 (not shown) projecting in the Y-axis direction are formed on the opposite surfaces of the pivot portions 25a and 25b, respectively, and the angular movement member 26 is rotatably supported by the projections 25a1 and 25b1. Accordingly, the angular movement member 26 can be rotated about the projections 25a1 and 25b1. Further, an end of the Y-shaped joint 27 is bifurcated and the angular movement member 26 is held between the bifurcated portions, so that the Y-shaped joint 27 is rotatably supported to the angular movement member 26 by means of protrusions 27a, 27a formed on opposite surfaces of the bifurcated portions. Thus, the Y-shaped joint 27 can be angularly moved about the protrusions 27a, 27a. In this manner, the Y-shaped joint 27 can be angularly moved about the pivot portions 25a, 25b at any angle with the upper base 22.

Furthermore, an end surface of the Y-shaped joint on the side

of Z1 is formed with a threaded hole and a handle formed into a predetermined length is connected to the end surface.

The fixing portions 30A and 30B each include a receiving portion 31 formed to be recessed in the upper surface of the upper base 22 and a holding member 32. An extended groove 31a and an arcuate groove or hole 31b are integrally and continuously formed at both ends of the receiving portion 31. As shown in the fixing portion 30A, a holding member 32 is supported rotatably in the direction of β_1 - β_2 about a rotating member (not shown) formed at a base portion 32A of the holding member 32 within the extended groove 31a.

A slip-preventing sheet 33 is disposed in the receiving portion 31 and arcuate holes 34, 34 are formed in both sides of the sheet.

A claw receiving portion 35 is integrally formed on the receiving portion 31 positioned inside of the arcuate groove 31b and in the middle portion of the base 21 in the width direction thereof so that the claw receiving portion 35 is protruded from the receiving portion 31. The claw receiving portion 35 is formed with a hole 35a with which an engagement claw 32a of the holding member 32 is engaged. Alternatively, a recess or cavity may be formed instead of the hole 35a and the engagement claw 32a may be engaged with a step formed by the recess.

Through holes 36, 36 are formed on both sides of the claw receiving portion 35 and projection portions 37, 37 are integrally formed on both sides of the through holes 36, 36. Further, as shown in Fig. 2, the claw receiving portion 35, the through holes 36, 36 and the projection portions 37, 37 are disposed substantially in a

line. On the other hand, the engagement claw 32a and arcuate holding claws 32b, 32b are formed in the holding member 32 in the same manner as in the prior art, while pushing projection portions 32c, 32c are formed on both sides of the engagement claw 32a. As shown in Fig. 2, the pushing projection portions 32c, 32c are formed to be longest.

The holding member 32 can be angularly moved in the direction of $\beta 1$ to thereby become the closed state as shown in the fixing portion 30B. At this time, the holding claws 32b, 32b are inserted into the arcuate holes 34, 34 and the pushing projection portions 32c, 32c are also inserted into the through holes 36, 36. At the same time, a rear surface 32B of the holding member 32 comes near the projection portions 37, 37 and finally a hook portion formed at the tip of the engagement claw 32a is engaged with the hole 35a of the claw receiving portion 35, so that the holding member 32 is locked as it is in the closed state. That is, in the embodiment, the engagement claw 32a and the claw receiving portion 35 constitute engagement means.

Further, a finger can be inserted into the arcuate groove 31b in the closed state and the holding member 32 can be pushed up or lifted up lightly in the direction of $\beta 2$ by the finger, so that the locked state can be released and the holding member 32 can be angularly moved to be opened as shown by the fixing portion 30A.

When the cleaning sheet S is set on the outer periphery of the base 21 of the cleaning mop structured above, the cleaning sheet S is set as shown by one-dot chain line of Fig. 2.

More particularly, in the open state shown in Fig. 2(A), the holding member 32 is separated from the receiving portion 31 upward

(in the direction of Z1). At this time, when the length LS of the cleaning sheet S in the width direction is longer than the length L0 of the circumference of the base 21 ($LS > L0$), end portions Sa, Sa of the cleaning sheet S overlap each other on the claw receiving portion 35 as shown in Fig. 2(A).

When the holding member 32 is further angularly moved down in the direction of $\beta 1$ from the above state to be closed, the longest pushing projection portions 32c, 32c are first inserted into the through holes 36, 36. Thus, at this time, the tips of the pushing projection portions 32c, 32c push parts of the cleaning sheet S into the through holes 36, 36. Further, the cleaning sheet S positioned outside of the pushing projection portions 32c, 32c is lifted up by means of the projection portions 37, 37. In addition, the cleaning sheet S positioned inside of the pushing projection portions 32c, 32c is also lifted up by rising portions 35b, 35b on both sides of the claw receiving portion 35.

In the process that the cleaning sheet S passes through both the sides of the base 21 to the upper surface thereof and reaches the engagement means, the cleaning sheet S follows a zigzag course including the projection portions 37, 37, the pushing projection portions 32c, 32c and rising portions 35b, 35b. Accordingly, the course that the end portions Sa, Sa of the cleaning sheet S reaches just the upper part of the hole 35a of the claw receiving portion 35 is lengthened. Accordingly, as shown in Fig. 2(B), the end portions Sa, Sa of the cleaning sheet S are moved right and left to form a space therebetween so that the engagement claw 32a is not prevented

from being moved down.

The pushing projection portions 32c push the cleaning sheet S into the through holes 36 before the hook portion at the tip of the engagement claw 32a is engaged with the hole 35a of the claw receiving portion 35 and accordingly when the engagement claw 32a goes down near the claw receiving portion 35, the end portions Sa and Sa of the cleaning sheet S are separated from each other right and left to form the space therebetween. Thus, the engagement claw 32a is exactly engaged with the hole 35a of the claw receiving portion 35 to be locked therein without disturbance by the cleaning sheet S.

Further, when the holding member 32 is moved down toward the receiving portion 31 and the engagement claw 32a is engaged with the claw receiving portion 35, the upper end surfaces of the projection portions 37, 37 face the rear surface 32B of the holding member 32 in parallel. Accordingly, when large pressing force is exerted on the holding member 32 in the direction of Z2 in the closed state of the holding member 32, the upper end surfaces of the projection portions 37, 37 receive the rear surface 32B of the holding member 32, so that it can be prevented that excessive bending force is exerted on the holding member 32 and the holding member 32 is damaged.

Further, as shown in Fig. 2(B), when the holding member 32 is closed and the engagement claw 32a is engaged with the claw receiving portion 35, a gap δ is formed between the upper end surfaces of the projection portions 37 rising from the receiving portion 31 and the rear surface 32B of the holding member 32. The gap δ is set to be equal to or slightly shorter than a thickness of a standard cleaning

sheet S applicable to the base 21 of the cleaning mop. Accordingly, when one standard cleaning sheet S is used, the cleaning sheet S is held within the gap δ to thereby be able to engage the engagement claw 32a with the hole 35a of the claw receiving portion 35.

However, when a cleaning sheet S having a thickness extremely larger than that of the standard cleaning sheet is used or when two or more sheets of the standard cleaning sheets S are overlapped to be used, the hook portion at the tip of the engagement claw 32a cannot reach the hole 35a of the claw receiving portion 35 when the cleaning sheet is held between the projection portions 37 and the rear surface 32B of the holding member 32, so that the holding member 32 cannot be locked in the closed state.

Accordingly, it can be prevented that the cleaning sheet S having the thickness extremely larger than the standard thickness is used and the holding member 32 is forcedly pressed to engage the engagement claw 32a with the claw receiving portion 35, and the problem that the engagement claw 32a or the holding member 32 is damaged can be avoided.

Further, by inserting the pushing projection portions 32c, 32c into the through holes 36, 36, the cleaning sheet S positioned outside of the projection portions 37, 37 can be pulled toward the center (engagement claw 32a) of the base 21, so that the cleaning sheet S can be set strongly taut on the base 21 to thereby prevent the cleaning sheet S from being loosened during cleaning.

Moreover, in the foregoing description, the pushing projection portions 32c, 32c are inserted into the through holes 36, 36 formed

on the side of the receiving portion 31, while recessions or cavities may be formed instead of the through holes 36, 36 and when the pushing projection portions 32c, 32c are inserted into the recessions, gaps in which the cleaning sheet S can be held may be formed between the recessions and the tips of the pushing projection portions 32c, 32c.

Further, in the foregoing description, the pushing projection portions 32c, 32c are disposed on the side of the holding member 32 and the through holes 36, 36 are also disposed on the side of the receiving portion 31. However, the present invention is not limited thereto. The pushing projection portions 32c may be disposed on the side of the receiving portion 31 and the through holes or recessions may be disposed in the holding member 32.

Fig. 3 shows another embodiment.

In Fig. 3, the arcuate holding claws 32b, 32b formed integrally on the rear surface 32B of the holding member 32 are extended to the side of the projection portions 37, 37 in the direction Y1. Accordingly, the arcuate holes 34, 34 in the receiving portion 31 are extended to the position in which the arcuate holes 34, 34 are juxtaposed with the projection portions 37, 37.

In the embodiment shown in Fig. 3, when the holding member 32 is pressed on the receiving portion 31 and the engagement claw 32a is engaged with the claw receiving portion 35, the cleaning sheet S extending toward the engagement claw 32a is pushed into the arcuate holes 34 by means of the holding claws 32b, is then lifted up by the projection portions 37, and is further pushed into the through holes 36 by means of the pushing projection portions 32c. Accordingly, the

substantial distance that the end portion Sa of the cleaning sheet S reaches the engagement claw 32a is lengthened, so that the end portion Sa of the cleaning sheet S is apt to be shifted from the upper part to the side of the claw receiving portion 35 to thereby further reduce the probability that the end portion Sa of the cleaning sheet S is held between the engagement claw 32a and the claw receiving portion 35.

Fig. 4(A) shows another claw receiving portion 35 having upper inclined surfaces 35c, 35c descending right and left. Fig. 4(B) shows still another claw receiving portion 35 having inclined surfaces 35d, 35d which are protruded upward from the right and left rising portions 35b, 35b. Accordingly, even when the end portions Sa, Sa of the cleaning sheet S are put on the claw receiving portion 35, the end portions Sa, Sa are apt to slip down right and left by means of the inclined surfaces 35c or 35d, or since the end portions Sa, Sa of the cleaning sheet S are turned up by the inclined surfaces 35c or 35d, the distance between the end portions Sa, Sa is made longer, so that the engagement claw 32a is difficult to come into contact with the cleaning sheet S.

As described above, according to the present invention, since the end portions of the cleaning sheet can be prevented from overlapping each other, the engagement means can be always exposed even when the cleaning sheet is long. Accordingly, the holding member can be engaged or locked exactly, so that the cleaning sheet can be fixed to the base securely.

Further, since the holding member can be engaged or locked

smoothly, it is not necessary to engage or lock the holding member by larger force than it needs, so that crack of the holding member and damage of the engagement claw can be prevented.

In addition, it can be made difficult to accidentally release the engagement of the holding member when the cleaning mop is used.



WHAT IS CLAIMED IS:

1. A cleaning mop to which a cleaning sheet is to be applied in use, comprising a base and at least one holding member disposed on an upper surface of said base, end portions of the cleaning sheet wound about said base from a lower surface toward the upper surface of said base being held between the upper surface of said base and said holding member, said base and said holding member being engaged with each other by engagement means, projection portions protruding alternately from said holding member and said base being disposed in a course that said cleaning sheet reaches said engagement means, said cleaning sheet passing above said projection portions to reach an upper part or the vicinity of said engagement means.

2. A cleaning mop according to Claim 1, wherein said base is formed with a recessed receiving portion and said holding member is engaged with said base by said engagement means in a state that said holding member is received in said receiving portion, said engagement means and said projection portions being positioned in space between said receiving portion and said holding member, and said projection portions being disposed in both sides of said engagement means.

3. A cleaning mop according to Claim 1, wherein said engagement means includes an engagement claw protruding from said holding member toward said base and having a hook portion formed in a tip thereof and a claw receiving portion protruding from said base toward said holding member and having a hole or step with which said hook portion is engaged, and inclined surfaces are formed in an upper surface of said claw receiving portion so that said cleaning sheet slips down



from an upper position to sides of said hole or step.

4. A cleaning mop according to Claim 2, wherein the projection portions protruding from said holding member are longer than the other projection portions protruding from said base, and when said holding member and said base are engaged with each other by means of said engagement means, the longer projection portion protruding from said holding member is inserted into a hole or recess formed in said base, so that said cleaning sheet is pushed into said hole or recess by means of a tip of said longer projection portion.

5. A cleaning mop according to Claim 4, wherein when said holding member and said base are engaged with each other by means of said engagement means, a tip of the shorter projection portion protruding from said base faces a rear face of said holding member in parallel and a gap is formed therebetween, and a size of said gap is so set that said holding member cannot be engaged with said base by means of said engagement means when a cleaning sheet having a predetermined thickness or more is held in said gap.