

DESCRIPTION

STAPLER

5 <TECHNICAL FIELD>

[0001]

The present invention relates to a base portion serving
as a swing center of a stapler mainly used for office equipment,
and more particularly, to a stapler in which a base portion
10 of a handle having a driver plate is improved.

<BACKGROUND ART>

[0002]

Generally, as described in JP-A-11-028682, in this kind
15 of stapler, sheets to be bound is clamped between a base having
a clincher groove at a front end and a magazine accommodating
a plurality of the staples, the staple penetrates sheets to
be bound when a handle formed at an upper side of the magazine
is pressed against the magazine and a leading staple in the
20 magazine is driven by a driver plate provided at the handle,
and the stapler binds the sheets by bending the legs of the
penetrated staple on the clincher groove of the base.

[0003]

In the conventional stapler, on purpose to improve a fitness
25 of a front end of the handle coming in contact with a thumb

during using of the stapler, a steel plate of the front end of the handle has a concaved shape, or a concaved cover made of synthetic resin is attached to the front end of the handle.

This depends on assuming, so-called, a normal-grasping where
5 the thumb grips an upper side of the front end of the handle,
as how to grip the stapler.

[0004]

However, in an actual use, contrary to the normal grasping,
a reverse-grasping of the stapler in which the stapler is grasped
10 with the base portion of the stapler faced upward and a driving
side of the staple faced downward and the thumb is put onto
the base portion of the handle is often used.

[0005]

However, a method of using the staple in the
15 reverse-grasping is not reflected to a design of the stapler.

Thereby, the metal base portion of the handle is exposed,
and a holding is unstable due to easy slipping, when the stapler
is used in the reverse-grasping. Furthermore, a supporting
shaft for swingably supporting the handle and the magazine
20 to the base may be protruded toward sides. As a result, feeling
is bad, and since it is painful when the force is applied,
operational feeling is not good.

[0006]

Moreover, in a tucking operation for driving the staple

into a target object, the handle is spread so as to form a straight shape with respect to the base by opening the handle, and the staple is driven without using the clincher groove.

However, when the handle is spread out, since a remover (thin
5 plated blade) protruding from the base portion of the base turns to the top surface of the base portion of the handle, there is a concern that a finger may be sandwiched between the handle and the remover.

10 <DISCLOSURE OF INVENTION>

[0007]

One or more embodiments of the invention a stapler that can be easily grasped to provide good workability and safe use and that is excellent in touch and operational feeling,
15 when the stapler is used in a reverse-grasping.

[0008]

According to a first aspect of the invention, in a stapler provided with a magazine accommodating a plurality of staples; a handle having a driver plate, which drives the staples
20 accommodated in the magazine toward sheets of paper to be bound, at the front end thereof; and a base having at the front end thereof a clincher groove for bending leg portions of the respective staples driven from the magazine, the magazine and the handle being swingably supported by a supporting shaft

formed at the rear end of the base, a protective cover made of a synthetic resin is attached to a base portion of the handle, and the top surface of the handle and side surfaces of the handle from which end faces of the supporting shaft being exposed
5 are covered with the protective cover.

[0009]

According to a second aspect of the invention, in the first aspect, the protective cover may include an indented part that is fitted to a thumb when the stapler is reversely
10 grasped.

[0010]

According to a third aspect of the invention, in the first or second aspect, the indented part may be formed on left and right sides of the top surface of the protective cover.

15 [0011]

According to a fourth aspect of the invention, in the first or second aspect, the indented part may be formed at a center of the protective cover.

[0012]

20 According to a fifth aspect of the invention, in any one of the first to fourth aspects, a receiving groove may be formed in the protective cover so as to receive a remover that protrudes from the base portion of the base when the handle is spread to form a straight shape with respect to the base by opening

the handle.

[0013]

According to a sixth aspect of the invention, in the first aspect, the sides of the handle may be fixed to both sides
5 of the protective cover, and an upper surface of the handle may be caulked and fixed to a protrusion of the protective cover.

[0014]

According to a seventh aspect of the invention, in the
10 second aspect, a slip stopper may be formed on the indented part.

[0015]

According to an eighth aspect of the invention, in any one of the second to fourth aspects, a protruding-shaped part
15 may be formed instead of the indented part.

[0016]

According to a ninth aspect of the invention, in any one of the first to eighth aspects, a cover made of a synthetic resin may be provided at the front end of the handle, and the
20 cover and the protective cover may be separate from each other.

[0017]

According to a tenth aspect of the invention, in any one of the first to fourth aspects, a cover made of a synthetic resin may be provided at the front end of the handle, and the

cover and the protective cover may be integrally formed.

[0018]

In accordance with the first aspect of the invention,
a protective cover is attached to the portion that contacts
5 with a thumb when the stapler is used in a reverse-grasping.

Therefore, a slipping is harder to occur than the metal, the
feeling is better, and the holding is better due to easy grasping.

Moreover, since both sides of the protective cover covers
the end of the supporting shaft of the base, it is not painful
10 even if the force is applied during the binding operation.
Accordingly, operational feeling is good, and working property
is also good.

[0019]

Moreover, since the supporting shaft of the base is covered
15 by both sides of the protective cover, the operation is safe.

Furthermore, since the supporting shaft is not exposed to
the outside, the entire appearance of the staple is improved

[0020]

In accordance with the second aspect of the invention,
20 the indented part fitted to the thumb during using the stapler
in the reverse-grasping is formed on the protective cover.
Therefore, even if the force is applied during using the stapler
in the reverse-grasping, since the thumb does not easily come
off from the fit shape part, working property or operability

is good. As a result, it is possible to stably perform the binding operation.

[0021]

5 In accordance with the third or fourth aspect of the invention, since the indented parts are formed at the left and right sides or the center of the protective cover, it is possible to correspond by right-handed user and even left-handed user.

[0022]

10 In accordance with the fifth aspect of the invention, in the tucking operation, when the handle is spread so as to form the straight shape with respect to the base by opening the handle, a receiving groove for housing the remover protruding from the base portion of the base is formed in the protective
15 cover. Accordingly, a finger is not sandwiched between the handle and the remover, and the finger is not bumped against the remover. Therefore, it is possible to secure the safety of the operation without a hurt of the finger.

[0023]

20 In accordance with the sixth aspect of the invention, sides of the handle are locked to both sides of the protective cover so as to be fixed to each other, and the upper surface portion of the handle is caulked to the protrusion of the protective cover. Therefore, it is possible to easily and

surely attach the protective cover.

[0024]

In accordance with the seventh aspect of the invention, since a slip stopper is formed on the indented parts, it is possible to stably perform the binding operation.

[0025]

In accordance with the eighth aspect of the invention, since a protruding-shaped part is formed instead of the indented part, when the thumb is hanged on the protruding-shaped part during reversely grasping, the holding is good. Moreover, even if the force is applied while reversely grasping the stapler, since the thumb does not easily come off from the fit shape part, the working property or the operability is good. As a result, it is possible to stably perform the binding operation.

[0026]

In accordance with the ninth aspect of the invention, since the protective cover is independently provided from the resin cover of the front end of the handle, it is possible to reduce the cost by covering only a necessary part.

[0027]

According to the tenth aspect of the invention, since the resin cover and the protective cover of the front end of the handle are integrally formed, a unity and a sense of identity can be expressed in an entire design of the staple.

[0028]

Other aspects and advantages of the invention will be apparent from the following description and the appended claims.

5 <BRIEF DESCRIPTION OF THE DRAWINGS>

[0029]

[Fig. 1] Fig. 1 is a perspective view of a stapler according to an exemplary embodiment of the invention.

[Fig. 2(a)] Fig. 2(a) is a side view of the stapler.

10 [Fig. 2(b)] Fig. 2(b) is a rear view of the stapler.

[Fig. 3] Fig. 3 is a cross-sectional view illustrating a schematic structure of the stapler.

[Fig. 4(a)] Fig. 4(a) is an explanatory view illustrating a method of attaching a protective cover of a handle.

15 [Fig. 4(b)] Fig. 4(b) is a cross-sectional view taken along X-X of Fig. 4(a).

[Fig. 5] Fig. 5 is an explanatory view illustrating a reverse-grasping state.

20 [Fig. 6(a)] Fig. 6(a) is an explanatory view illustrating a receiving groove of a remover during tucking and a housing state during tucking.

[Fig. 6(b)] Fig. 6(b) is an explanatory view illustrating a receiving groove of a remover during tucking and a housing state during tucking.

[Fig. 7] Fig. 7 is a perspective view of a stapler according to another embodiment of the invention.

[Fig. 8] Fig. 8 is a perspective view of a stapler according to an embodiment of a protruding part.

5 [Fig. 9] Fig. 9 is a perspective view of a stapler according to another embodiment of an indented part.

[Fig. 10] Fig. 10 is a perspective view of a stapler according to an embodiment in which a resin cover and a protective cover are integrally provided.

10 [Fig. 11] Fig. 11 is a perspective view of a stapler according to another embodiment in which a resin cover and a protective cover are integrally provided.

<Description of Reference Numerals and Signs>

15 [0030]

1: BASE

2: SUPPORTING SHAFT

3: MAGAZINE

4: DRIVER PLATE

20 5: HANDLE

14: PROTECTIVE COVER

24: INDENTED PART

<BEST MODE FOR CARRYING OUT THE INVENTION>

[0031]

Exemplary embodiments of the invention will now be described with reference to the accompanying drawings.

Fig. 1 is a perspective view of a stapler according to an exemplary embodiment of the invention, Figs. 2(a) and Fig. 2(b) are a side view and a rear view of the stapler, respectively, and Fig. 3 is a cross-sectional view illustrating a schematic structure of the stapler. The stapler is configured such that a magazine 3 accommodating a plurality of staples and a handle 5 having a driver plate 4 are swingably supported to a supporting shaft 2 formed at a rear end of a base 1. The driver plate 4 is provided at a front end of the handle 5 and drives the staple (not shown) accommodated in the magazine 3 toward sheets of paper to be bound.

15 [0032]

A clincher groove 6 is formed at a front end of the base, and the clincher groove 6 bends a leg of the staple driven from the magazine 3. A supporting wall 7 having an erected shape is formed at the base 1. In addition, a thin plate shaped remover 8 is formed so as to be protruding from the rear end of the base 1, and the remover 8 has a tip that is tapering off. The remover 8 is used so as to detach the staple that binds the sheets.

[0033]

A plurality of staples is charged in the magazine 3, and a driving part 10 is formed at the front end of the magazine 3 so as to driving a leading staple. A pusher 11 is engaged to the rear end of the charged staples, and the pusher 11 is urged so as to constantly move the staples into the punching part 10 by a spring 12.

[0034]

In addition, the magazine 3 is urged so as to constantly maintain a prescribed distance with respect to the base 1 by means of a flat spring 13 provided at the base portion of the base 1.

[0035]

The handle 5 is formed such that a transverse cross-section thereof is opened downward in U-shape, and the driver plate 4 is formed at the front end of an inner side. In addition, a staple holding member 15 is integrally provided at a lower part of the handle 5. The base portion of the staple holding member 15 is engaged with the supporting shaft 2, and the front end of the staple holding member 15 is slidably maintained in the height direction of the driver plate 4. Moreover, the front end of the staple holding member 15 is urged so as to rotate around the magazine 3 by means of the flat spring 16 that is attached to the upper bottom part of the handle 5.

[0036]

With the above-mentioned configuration, the sheets P are clamped between the base 1 and the magazine 3 charging the plurality of the staples, and when the handle 5 is pressed against the magazine 3, the leading staple in the magazine 3 is driven from the driving part 10 by the driver plate 4, thereby the sheets are penetrated by the staple. Since the legs of the penetrating staple are bent on the clincher groove 6 of the base 1, it is possible to bind the sheets.

[0037]

Furthermore, resin covers 17 and 18 made of synthetic resin are fixed to the front end of the handle 5 and the base 1. An indented part 19 is formed on the resin cover 17 of the handle 5.

[0038]

In addition, the magazine 3 is disposed at the inner side of the supporting wall 7 of the base 1, and the handle 5 is disposed at the outer side of the supporting wall 7. The magazine 3 and the handle 5 are swingably supported by the common supporting shaft 2. Both ends of the supporting shaft 2 are exposed to both sides of the handle 5.

[0039]

By the way, according to the above-mentioned stapler, a protective cover 14 made of the synthetic resin is overlaid on the top surface of the handle 5. The protective cover 14

is softer than that made of metal.

[0040]

The protective cover 14 includes a top surface 14a and both sides 14b and has U-shaped cross section that is opened
5 downward. The distance between both sides 14b is substantially equal to the width of the handle 5. That is, the protective cover 14 is formed so as to be fitted onto the base portion of the handle 5. Accordingly, the top surface 14a and both sides 14b of the protective cover 14 cover the top surface
10 of the handle 5 and the side of the handle 5, respectively, and the upper end of the top surface 14a flattens. In addition, as shown in Fig 4(a) and Fig. 4(b), a protrusion 20 is formed at a back side of the top surface 14a of the protective cover 14, and locking projections 21 are formed at inner surfaces
15 of both sides 14b. The protective cover 14 is attached to the handle 5 such that the locking projections 21 of both sides 14b are locked into locking holes 22 formed at the side of the handle 5 and the protrusion 20 is penetrated and caulked into a mounting hole 23 formed at the top surface of the handle
20 5.

[0041]

Both sides 14b of the protective cover 14 cover both ends of the supporting shaft 2 of the base 1.

[0042]

In addition, as well shown in Fig. 1, indented parts 24 are formed on the top surface 14a of the protective cover 14.

The indented parts 24 are formed so as to be fitted into a thumb 30, when user reversely grasps the stapler, as shown in Fig. 5. Furthermore, the indented parts 24 are formed at left and right sides of the top surface of the protective cover 14. However, as shown in Fig. 7, a single indented part 24 may be formed at the center of the protective cover 14. In addition, a slip stopper 24a may be formed on the indented parts 24 or be formed in the vicinity of the indented parts 24. The slip stopper may be an uneven shape or may be formed of material that is difficult to slip.

[0043]

Next, in the back side of the base portion of the indented parts, as shown in Fig. 4(a), Fig. 6(a), and Fig. 6(b), a receiving groove 25 is formed on the top surface of the handle 5. Since the receiving groove 25 is opened in an extension direction of the handle 5, when the handle 5 is spread so as to form a straight-shape with respect to the base 1 by opening the handle 5, the receiving groove 25 is formed so as to house the remover 8 that is protruding from the base portion of the base 1.

[0044]

Since the above-mentioned protective cover 14 is attached

to the base portion of the handle 5 of the stapler, it is possible to obtain following operational effects.

(1) As shown in Fig. 5, the protective cover 14 having the indented parts 24 is attached to the top surface 14a that contacts with the thumb 30. Therefore, in a case of using by reversely grasping the stapler, a slipping is more difficult to be occurred than the metal, the feeling is better, and the holding is better due to easy grasping. Moreover, since both sides 14b of the protective cover 14 cover the end of the supporting shaft 2 of the base 1, it is not painful even if the force is applied during the binding operation. Accordingly, operational feeling is good, and working property is also good.

(2) The indented parts 24 are formed at the protective cover 14. Generally, the contacting part of the thumb 30 is a corner of the base portion of the handle, when the stapler is reversely grasped, and the contacting part has a shape that is fitted to the thumb 30. As described above, since the indented parts 24 are formed at a supporting point with which the thumb 30 is contacted when the stapler is reversely grasped, it is possible to stably perform the binding operation.

(3) If the indented parts 24 are formed at the left and right sides, it is possible to correspond by right-handed user and even left-handed user. Naturally, even though the indented part 24 is formed at the center of the protective cover 14,

it is possible to correspond by right-handed user and left-handed user.

(4) Since the supporting shaft 2 of the base 1 is covered by both sides 14b of the protective cover 14 that is formed with U-shaped cross section, the operation is safe, as described
5 above. Furthermore, since the supporting shaft 2 is not exposed to the outside, the entire appearance is improved.

(5) The side surfaces of the handle 5 is fixed to the sides 14b of the protective cover 14, and the upper surface of the
10 handle 5 is fixed to the lower surface of the protective cover 14. Therefore, the protective cover 14 is attached to the handle 5 without using alternative engagement components such as a pin.

(6) If the slip stopper is formed on the indented parts 24,
15 the thumb does not easily slip. Accordingly, even if the force is applied while reversely grasping the stapler, since the thumb does not easily come off from the fit shape part, working property or operability is good.

(7) In a tucking operation for driving the staple to a target
20 object, the handle 5 is spread so as to form a straight-shape with respect to the base 1 by opening the handle 5. However, when the handle 5 is spread out, the remover 8 protruding from the base portion of the base 1 turns to the top surface of the base portion of the handle 5, and then is received in the

receiving groove 25 of the protective cover 14. Accordingly,
a finger is not sandwiched between the handle 5 and the remover
8, and the finger is not bumped against the remover 8. Therefore,
it is possible to secure the safety of the operation without
5 a hurt of the finger.

(8) A circle part is formed at the area corresponding to the
supporting shaft 2 of both sides 14b. Since the circle part
is associated with a rotation center, natural appearance is
obtained.

10 (9) Since the protective cover 14 is independently provided
from the resin cover 17 of the front end of the handle, it
is possible to reduce the cost by covering only a necessary
part.

[0045]

15 The shape of the part hanging the thumb only has to be
effective as a finger hanging part, and it is not necessary
to surely make it to the indented part. It may be formed as
a protruding shape. For example, since the top surface 14a
of Fig. 1 is protruding between the left and right indented
20 parts so as to configure the protruding part, when the thumb
is hanged on the protruding part during reversely grasping,
the holding is good. Accordingly, even if the force is applied
while reversely grasping the stapler, since the thumb does
not easily come off from the fit shape part, the working property

or the operability is good. As a result, it is possible to stably perform the binding operation.

[0046]

Furthermore, as shown in Fig. 8, a protruding-shaped part
5 26 is formed at the center of the protective cover 14 of the
base portion of the handle 5, and the protruding-shaped part
26 has an oval shape in which the center is gently projecting.

Even in this case, when the stapler is reversely grasped,
the thumb does not easily come off. Accordingly, it is effective
10 as a finger hanging part. When the protruding part 26 is
configured so as to have elasticity, even if the stapler is
strongly grasped in the reverse-grasping, it is not so painful
due to the elasticity.

[0047]

15 There are no special limitations in the position and the
shape of the protruding part. Similarly to the staple shown
in Fig. 1, the protruding part may be formed at the left and
right sides of the protective cover 14, and the whole shape
may be a square. Similarly, the shape of the indented part
20 24 only has to be a level that is fitted so as not to move,
when the thumb works, and the indented part 24 may be an elongated
circle, as shown in Fig. 9.

[0048]

In addition, the resin cover and the protective cover

of the front end of the handle may be integrally formed. For example, Fig. 10 shows an example in which the resin cover 17 and the protective cover 14 are integrally formed through a connecting cover 27. Indented parts 19 and 14 are formed on the resin cover 17 and the protective cover 14 of the front end, respectively. Furthermore, Fig. 11 also shows an example in which the resin cover 17 and the protective cover 14 are integrally formed through the connecting cover 27. The connecting cover 27 covers an outer surface of the handle 5, the indented part 19 is formed on the resin cover 17 of the front end, the protruding part 26 is formed at the top surface of the protective cover 14, and the upper end thereof is formed so as to be flattened. In addition, a small projection 28 is formed at an inner side of the indented part 19 so as to prevent the slip.

[0049]

As described above, when the resin cover 17 and the protective cover 14 of the front end of the handle are integrally formed, the unity and the sense of identity can be expressed in the entire design.

[0050]

While the invention has been described with reference to the specific embodiments, it is apparent to skilled persons that various variations and modification can be made without

departing a spirit and scope of the invention.

[0051]

The present application is based on Japanese Patent Application (2006-254861) filed on September 20, 2006, and
5 Japanese Patent Application (2007-104293) filed on April 11, 2007, the contents of which are hereby incorporated by reference.

<INDUSTRIAL APPLICABILITY>

The present invention can be applied to a stapler mainly
10 used for office equipment.

CLAIMS

1. A stapler comprising:

a magazine accommodating a plurality of staples;

5 a handle having, at a front end of the handle, a driver plate that drives the staples accommodated in the magazine toward sheets of paper to be bound;

a base having, at a front end of the base, a clincher groove that bends leg portions of the staples driven from the magazine, wherein the magazine and the handle are swingably supported by a supporting shaft formed at a rear end of the base; and

a protective cover made of a synthetic resin and attached to a base portion of the handle, wherein a top surface of the handle and side surfaces of the handle from which end faces of the supporting shaft being exposed are covered by the protective cover.

2. The stapler according to claim 1, wherein the protective cover includes an indented part that is fitted to a thumb when the stapler is reversely grasped.

3. The stapler according to claim 2, wherein the indented part includes a right indent provided on a right side of a

top surface of the protective cover and a left indent provided on a left side of the top surface of the protective cover.

4. The stapler according to claim 2, wherein the indented
5 part is formed at a center of the protective cover.

5. The stapler according to any one of claims 1 to 4, wherein the protective cover comprises a receiving groove, and
a remover protruding from a base portion of the base is
10 received in the receiving portion, when the handle is spread to form a straight-shape with respect to the base by opening the handle.

6. The stapler according to claim 1, wherein sides of the
15 handle are fixed to both sides of the protective cover, and
an upper face portion of the handle is caulked and fixed to a protrusion of the protective cover.

7. The stapler according to claim 2, further comprising:
20 a slip stopper formed on the indented part.

8. The stapler according to claim 1, wherein the protective cover includes a protruding part that is fitted to a thumb when the stapler is reversely grasped.

9. The stapler according to any one of claims 1 to 8, further comprising:

5 a cover made of a synthetic resin and provided at the front end of the handle,

wherein the cover and the protective cover are separately formed.

10 10. The stapler according to any one of claims 1 to 8, further comprising:

a cover made of a synthetic resin and provided at the front end of the handle, and

wherein the cover and the protective cover are integrally formed.