

SPONGE BRUSH MOLD STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a sponge brush mold structure, and more particularly to a
5 sponge brush mold structure for cleaning disks, semiconductor silicon wafers or the like of
high technology industry.

2. Description of the Prior Art

Fig. 5 shows a conventional surface cleaning structure. When polishing semiconductor
components, such as disks or wafers, there are tiny bits and small pieces remaining on the
10 surface of the semiconductor components. It is necessary to use a sponge brush for cleaning
the surfaces of the semiconductor components (disks or wafers). There are two molds
having holes for manufacturing the sponge brush. The two molds cooperate with a cylinder
mold. The base material of the sponge brush is filled in the two molds and then heated and
pressurized to form the sponge brush. Fig. 5 shows another conventional surface cleaning
15 structure. A cover is used to seal the bottom of a first mold. The first mold has a plurality
of apertures thereon. A second mold having a smooth inner surface is fitted on the first
mold. Sponge reaction solution is filled in the molds. The sponge reaction solution flows
through the plurality of holes of the first mold. After the reaction solution is solidified, the
outer wall of the sponge roller has a plurality of protrusions.

20 The conventional sponge brush mold structures have the following drawbacks.

1. Unstable configuration. The molds are hard. After a period of time, the molds will
suffer a lot of wear and tear to cause differentiation and to influence its quality so the
configuration is unstable.

2. High processing cost. It is necessary to process burrs after molding. This
25 increases manufacture cost and takes a lot of working time.

Accordingly, the inventor of the present invention has devoted himself based on his
many years of practical experiences to solve these problems.

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide a sponge brush mold structure which comprises an elastic soft outer pipe, a molding pipe, a front cover and a rear cover. The molding pipe is inserted in the elastic soft outer pipe. An outer wall of the molding pipe is compressed by a press surface of the elastic soft outer pipe. The front cover covers one end of a molding space of the molding pipe. The base material of a sponge brush is filled in the molding space of the molding pipe. The base material of the sponge brush flows through molding holes of the outer wall of the molding pipe to be molded. The rear cover covers another end of the molding space of the molding pipe. After the base material of the sponge brush is molded, the rear cover, the elastic soft outer pipe and the molding pipe are disassembled, and then a central rod of the front cover is pulled out to finish the sponge brush. The molding pipe is compressed by the press surface of the elastic soft outer pipe, such that the molding holes of the outer wall of the molding pipe are filled with the base material of the sponge brush, without burrs. Because the cost of the elastic soft outer pipe is lower, it can be thrown away after use to lower the differentiation of reuse and to enhance the quality of products. The disposable elastic soft outer pipe can decrease defective products and simplify the process. The present invention has a stable configuration and lower cost.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an exploded view of the present invention;

Fig. 2 is a sectional view of the present invention;

Fig. 3 is a processing diagram of the sponge brush mold structure of the present invention;

Fig. 4 is a schematic view showing an embodiment of the sponge brush mold structure;

Fig. 5 is a schematic view of a conventional sponge brush; and

Fig. 6 is a schematic view of another conventional sponge brush.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings.

As shown in Fig. 1 and Fig. 4, the sponge brush mold structure of the present invention comprises an elastic soft outer pipe (10), a molding pipe (20), a front cover (30), and a rear cover (40).

The elastic soft outer pipe (10) has a press surface (11) at an inner wall thereof. The resilient soft outer pipe (10) is made of a plastic material having elastic force.

The molding pipe (20) has an outer wall (21) and a molding space (22). The outer wall (21) has a plurality of molding holes (210). The molding pipe (20) is inserted in the elastic soft outer pipe (10). The outer wall (21) of the molding pipe (20) is compressed by the press surface (11) of the elastic soft outer pipe (10).

5 The front cover (30) has a central rod (31). The front cover (30) is to cover one end of the molding pipe (20), and the central rod (31) of the front cover (30) is inserted in the molding space (22) of the molding pipe (20).

 The rear cover (40) has an engaging portion (41). The rear cover (40) is opposite the front end (30) and located at another end of the molding pipe (20) to cover the molding space (22) of the molding pipe (20). The engaging portion (41) engages with the end of the molding space (22) of the molding pipe (20).

 Fig. 3 is a processing diagram of the sponge brush mold structure of the present invention. The rear cover (40) covers one end of the molding space (22) of the molding pipe (20). The engaging portion (41) engages with the end of the molding space (22) of the molding pipe (20). The molding pipe (20) is inserted in the elastic soft outer pipe (10). The outer wall (21) of the molding pipe (20) is compressed by the press surface (11) of the elastic soft outer pipe (10). The front cover (30) covers the other end of the molding pipe (20), and the central rod (31) of the front cover (30) is inserted in the molding space (22) of the molding pipe (20). The base material of a sponge brush (50) is filled in the molding space (22) of the molding pipe (20). The base material of the sponge brush (50) flows through the molding holes (210) of the outer wall (21) of the molding pipe (20) to be molded. After the base material of the sponge brush (50) is molded, the rear cover (40), the elastic soft outer pipe (10) and the molding pipe (20) are disassembled, and then the central rod (31) of the front cover (30) is pulled out to finish the sponge brush. The molding pipe (20) is compressed by the press surface (11) of the elastic soft outer pipe (10), such that the molding holes (210) of the outer wall (21) of the molding pipe (20) are filled with the base material of the sponge brush (50), without burrs. Because the cost of the elastic soft outer pipe (10) is lower, it can be thrown away after use to lower the differentiation of reuse and to enhance the quality or products. The disposable elastic soft outer pipe can decrease defective products and simplify the process. The present invention has a stable configuration and lower cost.

 Fig. 4 is a schematic view showing an embodiment of the sponge brush mold structure. The front cover (30) has an insertion hole (32), and the rear cover (40) has an insertion hole (42). A central rod member (60) is inserted in the molding pipe (20). The molding pipe (20)

is inserted in the elastic soft outer pipe (10). The outer wall (21) of the molding pipe (20) is compressed by the press surface (11) of the elastic soft outer pipe (10). The base material of the sponge brush (50) is filled in the molding space (22) of the molding pipe (20). The base material of the sponge brush (50) flows through the molding holes (210) of the outer wall (21) of the molding pipe (20) to be molded and blocked by the press surface (11) of the elastic soft outer pipe (10) fitted on the molding pipe (20). The front cover (30) and the rear cover (40) cover the two ends of the molding pipe (20), respectively. Two ends (61) of the central rod member (60) are inserted through the insertion holes (32, 42) of the front cover (30) and the rear cover (40), so that the central rod member (60) is connected with the sponge brush (50). The front cover (30) has an engaging portion (33), and the rear cover (40) has an engaging portion (41). The engaging portions (33, 41) engage with the two ends of the molding space (22) of the molding pipe (20), respectively.

The present invention has the following advantages.

1. Stable configuration. The press surface of the elastic soft outer pipe tightly compresses the outer wall of the molding pipe, preventing the sponge brush from burring. Because the cost of the elastic soft outer pipe is lower, it can be thrown away after use to lower the differentiation of reuse. The present invention has a stable configuration.

2. Lower cost. The press surface of the elastic soft outer pipe tightly compresses the outer wall of the molding pipe. The molding holes of the outer wall of the molding pipe are filled with the base material of the sponge brush, without burrs. There is no need for the process of deburring so the cost is lower.

Although particular embodiments of the present invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the present invention. Accordingly, the present invention is not to be limited except as by the appended claims.

WHAT IS CLAIMED IS:

1. A sponge brush mold structure, comprising:

an elastic soft outer pipe (10), the elastic soft outer pipe (10) having a press surface (11) at an inner wall thereof;

5 a molding pipe (20), the molding pipe (20) having an outer wall (21) and a molding space (22), the outer wall (21) having a plurality of molding holes (210), the molding pipe (20) being inserted in the elastic soft outer pipe (10), the outer wall (21) of the molding pipe (20) being compressed by the press surface (11) of the elastic soft outer pipe (10);

10 a front cover (30), the front cover (30) having a central rod (31), the front cover (30) being to cover one end of the molding pipe (20), the central rod (31) of the front cover (30) being inserted in the molding space (22) of the molding pipe (20); and

a rear cover (40), the rear cover (40) being opposite the front end (30) and located at another end of the molding pipe (20) to cover the molding space (22) of the molding pipe (20).

15 2. The sponge brush mold structure as claimed in claim 1, wherein the resilient soft outer pipe (10) is made of a plastic material having elastic force.

3. The sponge brush mold structure as claimed in claim 1, wherein the rear cover (40) has an engaging portion (41), and the engaging portion (41) engages with an end of the molding space (22) of the molding pipe (20).

20 4. A sponge brush mold structure, comprising:

an elastic soft outer pipe (10), the elastic soft outer pipe (10) having a press surface (11) at an inner wall thereof;

25 a molding pipe (20), the molding pipe (20) having an outer wall (21) and a molding space (22), the outer wall (21) having a plurality of molding holes (210), the molding pipe (20) being inserted in the elastic soft outer pipe (10), the outer wall (21) of the molding pipe (20) being compressed by the press surface (11) of the elastic soft outer pipe (10);

a front cover (30), the front cover (30) having an insertion hole (32), the front cover (30) being to cover one end of the molding pipe (20);

30 a rear cover (40), the rear cover (40) having an insertion hole (42), the rear cover (40) being to cover another end of the molding pipe (20); and

a central rod member (60), the central rod member (60) having two ends (61), the central rod member (60) being inserted in the molding pipe (20), the two ends (61) of the central rod member (60) being inserted through the insertion holes (32, 42) of the front cover (30) and the rear cover (40).

5 5. The sponge brush mold structure as claimed in claim 4, wherein the resilient soft outer pipe (10) is made of a plastic material having elastic force.

6. The sponge brush mold structure as claimed in claim 4, wherein the front cover (30) has an engaging portion (33), and the engaging portion (33) engages with one end of the molding space (22) of the molding pipe (20).

10 7. The sponge brush mold structure as claimed in claim 4, wherein the rear cover (40) has an engaging portion (41), and the engaging portion (41) engages with another end of the molding space (22) of the molding pipe (20).