

The professor's beloved cooking pan

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Abstract

The late professor Hiroshi Kobayashi (1926–2008) invented a special pan that helps us cook tasty dishes by heating the food at a suitable temperature below boiling point. It also helps us to save energy when cooking. His eagerness to popularize the pan can be felt in the patent specification.

A utensil that applies chefs' secret techniques

For twelve years I have been enjoying cooking with a special thermally insulated pan, called “Hakase Nabe” in Japanese. The word “Hakase” is a noun that means Ph.D. This was used because the pan was invented by a professor of physics at Waseda University [1, 2]. The word also sounds like a verb meaning “dress” since the pan is dressed in a stainless steel skirt (see Fig. 1 and 2). This special structure enables us to cook tasty dishes easily because of its following two basic functions; it heats food efficiently (see Fig. 2 left) and it keeps it warm (see Fig. 2 right).

It may seem counter intuitive to suggest that we do not need to maintain the food at boiling point during cooking. Once we have brought food to the boil, we should keep it in a heat insulated atmosphere to avoid excess heating and loss of flavor. This also helps us to reduce the energy required for heating and the time taken up watching the stove. In addition, Prof. Kobayashi found that the seasoning of boiled foods is optimized when their temperature is reduced gradually [1, 2]. Hakase Nabe helps us to cook this way very easily.



Figure 1: Hakase Nabe (はかせなべ; Courtesy of AMI Corp. <http://www.kabuami.com/>)

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http://www.geocities.jp/tokyo_1406/

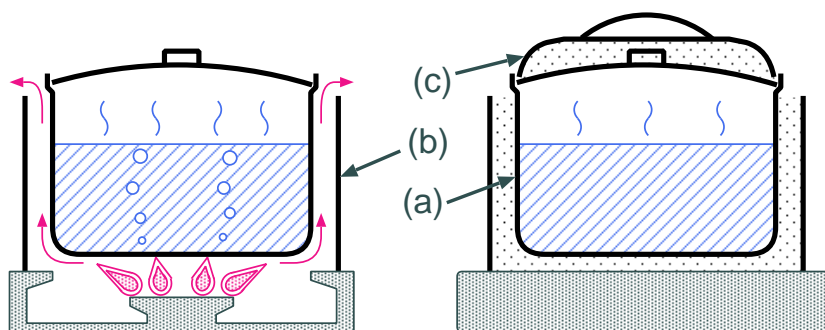


Figure 2: Cross-sectional view of Hakase Nabe for heating on a cooking stove (left) and for keeping food warm on a table (right). It comprises an inner vessel (a) and an outer shell, or skirt (b). They are combined via the handles (see Fig. 1). On heating, the shell enhances the thermal efficiency by eliminating any flow of hot air. After heating, the food in the pan is kept warm on a flat table because of the air insulation layer that is formed between the table and the shell. An outer cover (c) also assists this heat insulation.

Prof. Kobayashi and his wife became acquainted with Monsieur Nobuo Murakami (1921–2005), the father of French cuisine in Japan, after they had started developing Hakase Nabe. During their conversation, the professor was convinced that this pot would help people to employ the secret techniques of professional chefs, i.e. cooking foods at their appropriate temperatures below the boiling point of water [3]. I strongly agree with this because I'm only a good cook when I use this pan.

Patent specification including a recipe for cooking

I was interested in the way the professor developed this pan. First of all, I retrieved his patent applications with respect to the pan. The first was submitted in 1985 when he was 59 years old. The commercial products are based on another patent application that was submitted two years later [1, 2]. As I read it I felt the professor's enthusiasm.

In this specification, he pointed out the problems of conventional home cooking methods, and described how this special pan overcomes them as described briefly. He added two extra sections that were not necessary for the standard patent specifications. He described the differences between ordinary pans and this invention numerically. After presenting a recipe for vegetable stew, he compared the time for each procedure, and the amount of gas consumption and water evaporation.

Furthermore, he compared cooked dishes based on comments from 10 housewives. I was impressed by his intension to extract objective judgements from the tasting, and his sincere desire to popularize his invention.

Inventor's pride

One year after his second patent submission, Prof. Kobayashi and his wife embarked on some educational activities, including starting up a company called "Kitchen Science" and publishing their first recipe book [4]. Although Chef Murakami helped with some of their activities, Prof. Kobayashi did not allow the chef's fame to be used to promote the sales of his pan [5]. The knowhow as regards cooking food below 100 °C is the accumulated wisdom of many chefs [6]. The professor must have thought that Hakase Nabe was merely one of many ways to accomplish this. This episode reflects both his humility and his pride in his invention.



Figure 3: Handmade cooking apparatus for heat insulation comprising a milk pan (14 cm), an ice pail, a glass cover and a bowl.

I usually employ this cooking knowhow using Hakase Nabe, but sometimes I use with my handmade apparatus as shown in Fig. 3. This is useful for cooking small amounts of food. However, I concede that Hakase Nabe has a more sophisticated structure.

His enthusiasm continues

Although Kitchen Science Co. Ltd. went into liquidation, educational activities related to Hakase Nabe are still conducted by the professors' followers. Recently, a new recipe book was published [7]. I thank them for extending my family's menu and giving us a happy time. I believe this pan can even warm an engineer's heart.

References

- [1] "Cooking utensil", US Patent No.4872445. (Issued: Oct. 10, 1989, Filed: Jun. 29, 1988).
- [2] "Cooking utensil", European Patent No.297412. (Issued: Sep. 8, 1993, Filed: Jun. 22, 1988).
- [3] H. Kobayashi and M. Kobayashi: Mado-Sha (1998). (ISBN: 9784896250095, in Japanese).
- [4] H. Kobayashi: Kobun-Sha (1988). (ISBN: 9784334051532, in Japanese).
- [5] M. Kobayashi: "Watashi no Kami-sama (Monsieur Murakami, my respectable chef)", Kitchen Science News, **23**, pp. 33–34 (1996). (in Japanese).
- [6] H. Kobayashi, M. Kobayashi and M. Murakami: Bunei-Do (1998). (ISBN: 9784578129470, in Japanese).
- [7] H. Sawaguchi: Bungei-Sha (2009). (ISBN: 9784286073811, in Japanese).