

J. NIELSEN & S. A. C. KRISTENSEN.
 INSTRUMENT FOR INDICATING THE TEMPERATURE OF COOKING ARTICLES.
 APPLICATION FILED MAR. 16, 1908.

945,978.

Patented Jan. 11, 1910.

Fig. 1.

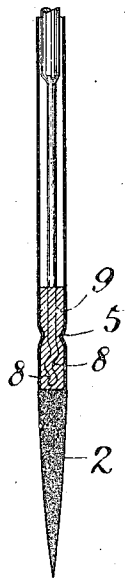
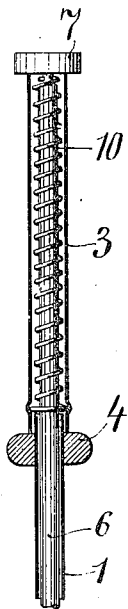


Fig. 2.

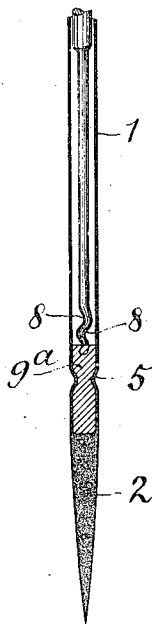
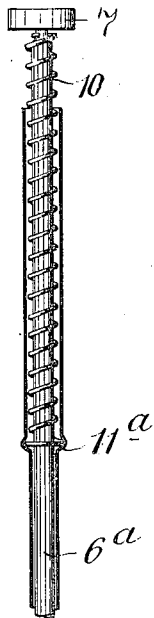
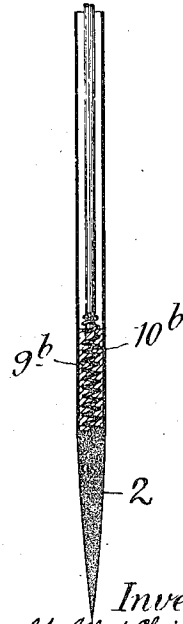
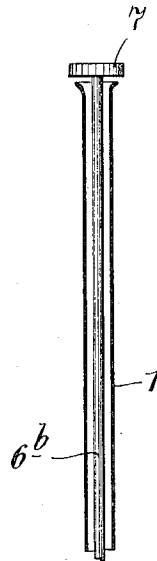


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JENS NIELSEN, OF COPENHAGEN, AND SIGVALD ALFRED CHRISTIAN KRISTENSEN, OF SOTORP PER VALBY, NEAR COPENHAGEN, DENMARK.

INSTRUMENT FOR INDICATING THE TEMPERATURE OF COOKING ARTICLES.

945,978.

Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed March 16, 1908. Serial No. 421,455.

To all whom it may concern:

Be it known that we, JENS NIELSEN, merchant, a subject of the King of Denmark, (whose postal address is 7/9 Vestervoldgade, Copenhagen, Denmark,) and SIGVALD ALFRED CHRISTIAN KRISTENSEN, printer, a subject of the King of Denmark, (whose postal address is Sotorp per Valby, near Copenhagen, Denmark,) have invented a new and useful Improvement in Instruments for Indicating the Temperature of Cooking Articles, of which the following is a specification.

The object of this invention is a needle adapted to be pierced into the food during the cooking operation, and there signaling automatically the attainment of the desired temperature.

The needle consists of a very thin metal tube provided, at its lower end, with a point adapting it to be easily entered into the meat &c. whose temperature is to be gaged. Connected with the needle is a spring held in tension by means of a substance melting at the temperature to be indicated and thereby releasing the spring, so that a pin or button shoots up from the needle as a signal that the proper temperature has been reached.

It is an important feature that the apparatus has shape of a fine needle which is easy to thrust entirely into the meat &c. whose temperature is to be determined.

In the drawing Figures 1-3 show various modifications of the needle.

The apparatus shown in Fig. 1 is constructed in the following manner: 1 is a long hollow needle ending in a point 2. 3 is a short tube of slightly larger diameter than the needle 1. This needle and the tube 3 are soldered together and provided with a disk 4. The needle 1 has further some impressed embossments or rings 5. Inside the needle and fitting the bore thereof is placed a long pin 6 ending outside of the tube 3 in a button 7. At its other extremity the pin 6 is thinner and near the embossments 5 it is provided with indentations, bends or twists 8. 9 is a certain substance or metal introduced into the needle 1 in molten state where it solidifies inside the embossments 5 and around the pin 6 with the indentations 8 which pin, by a pressure on the button 7, is

brought into contact with the molten substance. 10 is a helical spring in tension which tends to push the pin 6 with its button 7 out of the needle, but is counteracted by the solidified substance or metal 9 gripping the pin 6. When the substance 9 melts, the spring 10 presses the inner pin 6 and thereby the button 7 upward, Fig. 2, and in order to prevent the helical spring from throwing the pin 6 entirely out of the needle, when the metal 9 melts, the coil of spring nearest to the button 7 is somewhat reduced in diameter, so as to engage a groove turned in the pin 6. On the other hand, the coil of spring farthest from the button 7 is somewhat extended so as to fit, by its own elasticity a groove provided on the inside of the tube 3, for instance at its bottom. In this manner the spring is fastened to the pin 6, as well as to the tube 3, whereby the two parts are prevented from separating entirely, but this connection may easily be released and again effected.

Fig. 2 shows substantially the same apparatus as Fig. 1, but in a neater manner of execution. The needle 1, the tube 3 and the disk 4 are here replaced by a single fine tube with an enlarged portion 11^a. By this enlargement a groove is formed inside the needle 6^a, and therein fits the above mentioned lower coil of the helical spring 10^a. In this figure the helical spring is shown released, as the metal 9^a is supposed to be melted and the press button consequently elevated.

In the manner of execution shown in Fig. 3 a helical spring 10^b is placed in the lower end of the needle, so as to be partly or entirely immersed in the substance 9^b fusing at the temperature in question. By means of the pin 6^b the spring is compressed, while the substance is liquid, and as soon as it solidifies, the spring 10^b is locked in its compressed state, and the pin 6^b as well is maintained in its lower position. When the needle is inserted in the meat, and the latter has reached the desired temperature, the fusible substance will melt, and the spring 10^b will then be able to press the pin 6^b up from the needle, thereby indicating that the desired temperature has been reached. The fusible substance 9 may consist for instance of the following materials:—lead, 12 ounces,

tin, 4 ounces, bismuth, 16 ounces, cadmium, 3 ounces, or lead, 14 ounces, tin, 3 ounces, bismuth, 17 ounces, cadmium 4 ounces.

What we claim is:—

5 1. A temperature indicating device comprising a thin hollow needle, a fusible substance therein near the point thereof, an indicating device extending within said needle retained by said substance when solid but
10 released by the melting of said substance.

2. A temperature indicating device comprising a thin hollow needle, a fusible substance near the point thereof, an indicating device retained by said substance when solid
15 and a spring device for moving the indicating device when said substance is molten.

3. A temperature indicator comprising a thin hollow needle, a fusible substance near the point thereof, a rod or pin extending to the opposite end of said needle, and normally held inactive by said fusible substance, and a spring device for moving said pin when released by the melting of said substance. 20

In witness whereof, we have hereunto signed our names in the presence of two subscribing witnesses. 25

JENS NIELSEN.

SIGVALD ALFRED CHRISTIAN KRISTENSEN

Witnesses:

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