No. 640,156. Patented Dec. 26, 1899.

A. BRAY.

SPONGING DEVICE.

(Application filed July 11, 1899.)

(No Model.)

Fig. 1

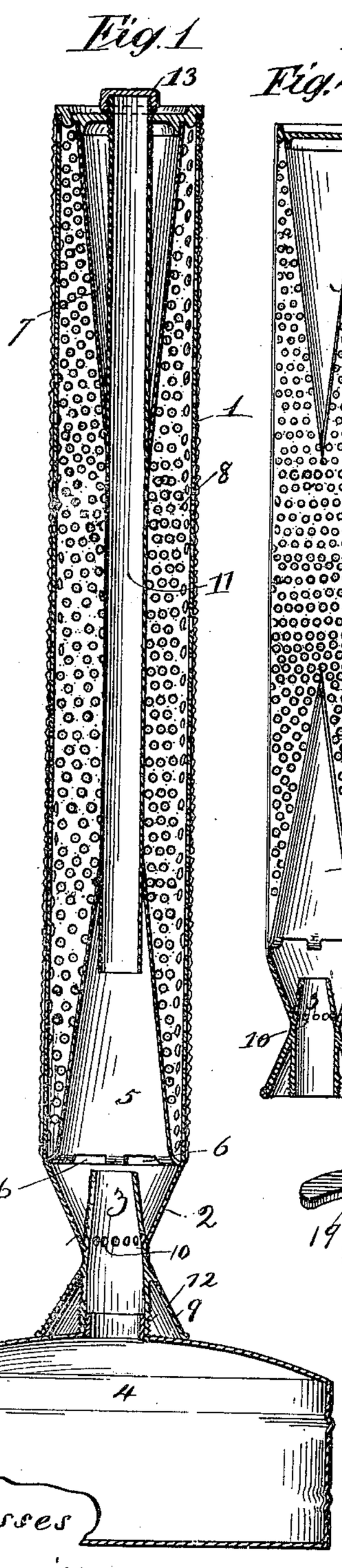


Fig. 3.

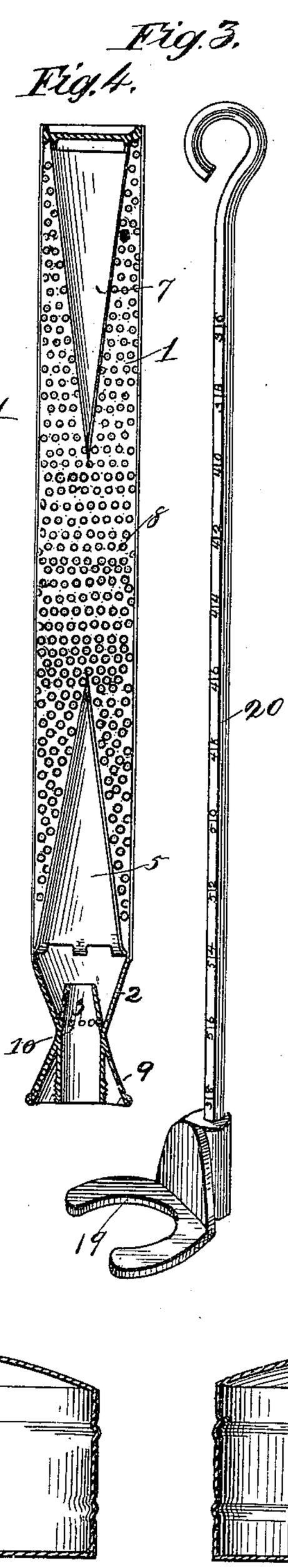
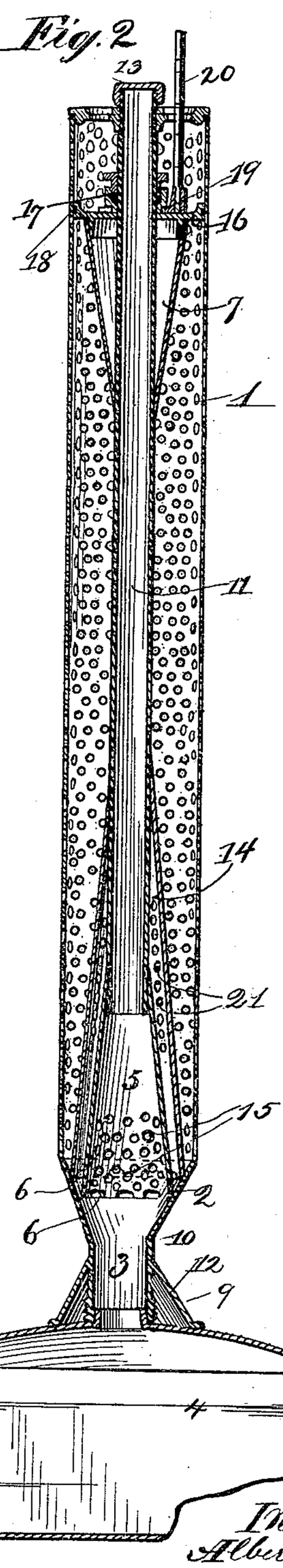


Fig. 4.

Fig. 2



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UNITED STATES PATENT OFFICE.

ALBERT BRAY, OF CLEVELAND, OHIO, ASSIGNOR TO SPOTLESS STEAM SPONGER CO., OF SAME PLACE.

SPONGING DEVICE.

SPECIFICATION forming part of Letters Patent No. 640,156, dated December 26, 1899.

Application filed July 11, 1899. Serial No. 723,514. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BRAY, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Sponging Devices, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a steam sponging device whereby all portions of the cloth under treatment will be equally affected without danger of overheating or discoloring any part. To accomplish this object, I employ a perforated heating-cylinder with the steam inlet and distributing devices, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central section of the device. Fig. 2 is a similar view showing a vertically-adjustable cone. Fig. 3 is a perspective view showing the tool by means of which the upper cone is raised or lowered, and Fig. 4 shows a vertical central section of the simplest form of the device.

In the drawings, 1 is a cylinder, formed of perforated metal, upon which the cloth to be treated is wound, a thin stocking of woven material being first stretched thereon. The steam is introduced centrally into the cylinder through the tightly-fitting nozzle 3 from the portable boiler 4 below. The steam issuing from the nozzle first passes into the cone 5, placed over the mouth of the cylinder, which prevents its rising too quickly toward and overheating the upper end of the cylinder. Openings 6 at the base of this cone permit the final escape of the steam upward into the cylinder. From the upper extremity of the cylinder depends the inverted cone 7. At the lower extremity of the cylinder a spreading conical sleeve connects the cylinder with the top of the boiler. Openings 3 in the inner nozzle are employed for the escape of the condensed steam, if this nozzle is extended into the cylinder, as shown in Figs. 1 and 4.

In Figs. 1 and 4 is seen a central steam-inlet pipe 11, by means of which steam can be introduced at the top of the cylinder, as well as at the bottom, and connections can be made with pipes which in turn connect with steam-heaters or any other permanent steam apparatus. This pipe enters the cone 5 at the base of the cylinder before discharging the steam, so that the steam-distribution is accomplished in precisely the same manner from whichever end of the apparatus the steam enters, and the apices of the cones are always closed to the cylinder.

When the central steam-inlet pipe is employed, a cap is placed over the inner nozzle 3 at 12, and when the steam is admitted through the nozzle 3 a cap is screwed over the inlet-pipe at 13.

The central tube 11 can be dispensed with entirely when it is desired to use only a steam-boiler attached to the lower end of the cylinder, as shown at Fig. 4 in the simplest form.

In Fig. 2 an additional condensing-cone 14 is shown, which takes the steam through perforations 15 in the lower cone 5 and returns it to the outer cylinder 1 through perforations 21 in the outer cones. The advantage of this additional device is found in the increased dryness of the steam obtained thereby before it enters the perforated cylinder 1.

An additional device is shown in Fig. 2, by means of which the upper cone is made adjustable in the perforated cylinder, so as to limit the steam-travel in the cylinder to the width of goods which are being treated. Thus the upper cone is brought down when the goods are narrower than the height of the cylinder and raised when the goods are of a width equal to the full width of the cylinder, so that no more steam need be used than will be necessary to treat the goods. The movable cone is provided with a head 16, which moves up and down the central tube 11, and a stuffing-box 17 is employed at the outer edging of the head 16. Only one cone is shown adjustable; but either upper or lower cones can be made adjustable, if desired.

A special tool is adapted to raise or lower the upper cone and head. This consists of the lifting-fork 19, provided with the graduated stem 20, by means of which the head can be adjusted to the exact width of the goods.

The action of the sponging device is as follows: The steam is first thrown downward by the closed top of the lower cone and thence rises and is thrown outwardly by the upper cone, the effect of which is to deflect the steam which in a vertically-placed cylinder would naturally rise immediately to the top and heat the upper portion to the exclusion of the lower and central portions and also to distribute the steam equally and with equal pressure to all parts of the cylinder, thus treating all parts of the cloth alike.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a vertically-placed perforated cylinder, of inwardly-pointed-cone steam-distributers secured to either extremity of the cylinder, the said cones being closed at their pointed extremities and one of said cones being provided with openings about its base, and a steam-inlet nozzle in the base of said cone, substantially as set forth.

2. The combination with a vertically-placed and perforated cylinder, of a steam-distributing device therein consisting of inwardly-pointing cones at either extremity, said cones being closed at their apices and one of said cones being provided with openings for steam-inlet to the cylinder, a steam-nozzle entering said perforated cone and a support for the cylinder, substantially as described.

3. In a steam sponging device, the combination with a perforated cylinder, of steam-distributing cones at either extremity, a steam-inlet nozzle in the lower cone, a steam-admission pipe entering the upper extremity of the cylinder and terminating in the lower cone and a cap for the steam-inlet nozzle adapted to close either end, the said lower cone being provided with perforations, substantially as and for the purpose described.

4. In a steam sponging device the combination with a vertically-placed perforated cylinder, of inwardly-pointing cones arranged one at either extremity thereof, a steam-nozzle inserted into the lower cone, steam-passages leading to the perforated cylinder from the lower cone, and means for vertically adjusting one of said cones in the cylinder substantially as described.

5. In a steam sponging device, the combination with a vertically-placed perforated cylinder of an upper cone pointing inwardly and vertically adjustable therein, a cone at the lower extremity of the perforated cylinder perforated at its lower extremity, a perforated condensing-cone over said lower cone, and a steam-inlet nozzle beneath said lower cone substantially as described.

Signed by me at Cleveland, Ohio, this 27th day of May, A. D. 1899.

ALBERT BRAY.

Witnesses:
WM. M. MONROE,
JOHN T. LISTER.