

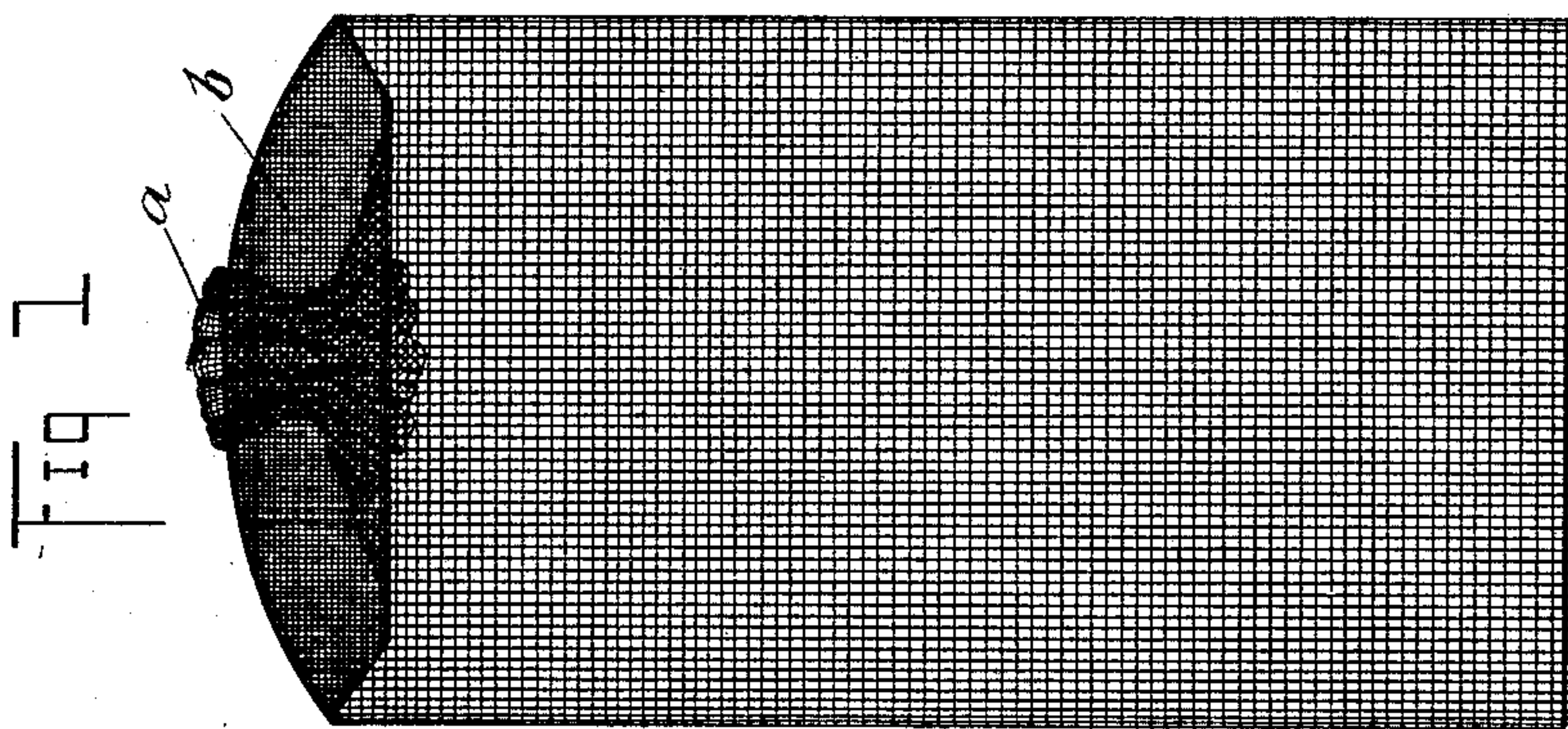
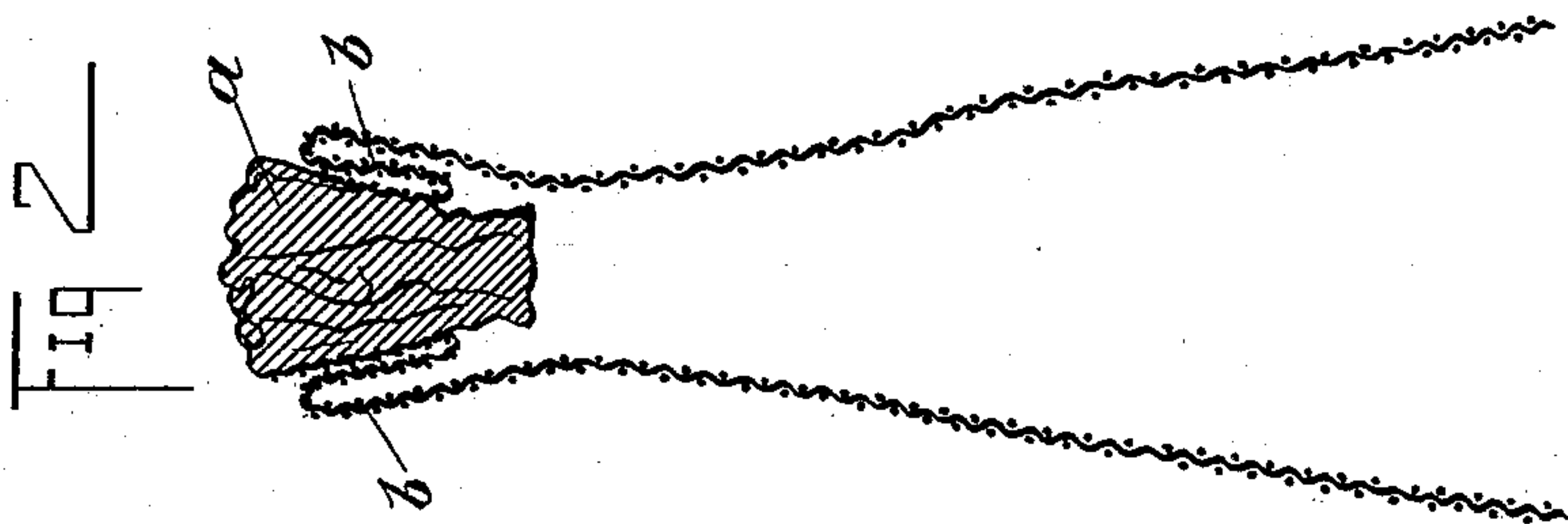
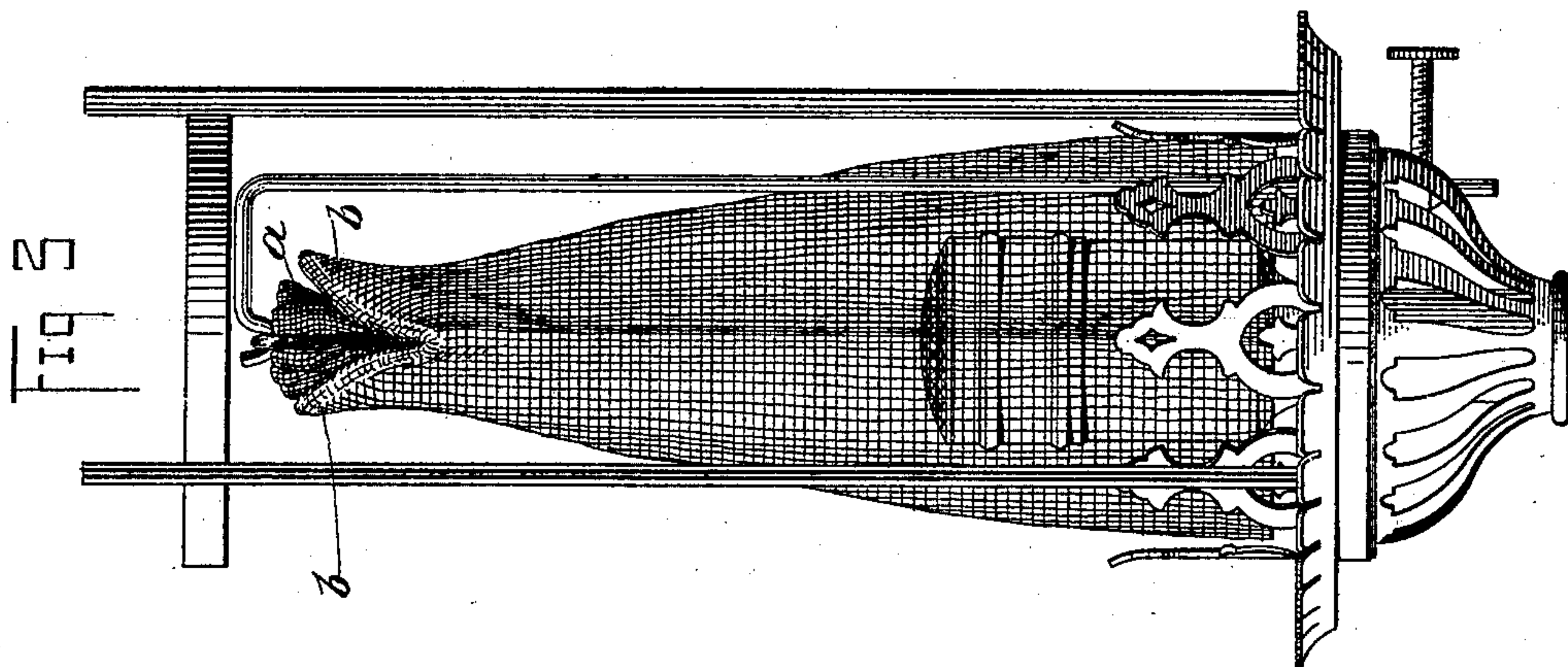
No. 622,960.

Patented Apr. 11, 1899.

J. LEDERER.  
INCANDESCENT MANTLE.

(Application filed May 6, 1898.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOSEPH LEDERER, OF NEW YORK, N. Y.

## INCANDESCENT MANTLE.

SPECIFICATION forming part of Letters Patent No. 622,960, dated April 11, 1899.

Application filed May 6, 1898. Serial No. 679,956. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH LEDERER, of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Incandescent Mantle, of which the following is a full, clear, and exact description.

This invention is an incandescent mantle, the cotton fabric of which need not be burned out until the mantle is applied to the burner, whereupon the mantle after being positioned on the burner may be ignited and the cotton burned out and the mantle at the same time automatically adjusted to compensate for the contraction of the mantle due to the burning thereof. This invention avoids, therefore, the necessity of burning the mantle at the factory and of impregnating the burned or completed mantle in collodion or other substances of the same character, by which to prevent the fracture of the exceedingly-delicate residue which is to compose the mantle.

This specification is the disclosure of one form of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a mantle constructed according to my invention. Fig. 2 is a fragmentary vertical sectional view of the same on a slightly-enlarged scale, and Fig. 3 is an elevation showing the mantle positioned on the burner just before the burning of the mantle.

The mantle is constructed of a fabric of cotton or other like material, and the fabric is impregnated with the salts of certain known rare minerals, so that when the fabric is burned out there remains the coherent illuminating-body known in the arts as the "Welsbach incandescent mantle." The fabric is preferably knitted in tubular form and before being impregnated with the salts above referred to is cut into appropriate lengths, each length to form a mantle. One end of the length of fabric is then sewed firmly together to form the head *a* of the mantle. Then for the purpose of stiffening the mantle and rendering the fabric of the same readily combustible I impregnate the mantle with a solution pref-

erably composed of one-half pound of camphor to one gallon of collodion. It is not necessary to impregnate the head *a* of the mantle with this solution. This solution may be varied, if desired, the purpose being simply to give the mantle a stiffness enabling it to retain a folded position and also to make it readily combustible. The mantle is now folded at its upper end directly adjacent to the head to form an overlap *b* at each side of the head. The mantle is also folded flat, forming two creases, the overlapping portions *b* extending from one crease to the other and parallel with each other, so that the head *a* is situated between the overlaps. The mantle may be folded in various other ways to form two or more or any plurality of creases. The stiffness imparted to the fabric by the solution of collodion and camphor will cause the mantle to retain its folded condition, and the mantle is now ready for shipment and for delivery to the consumer. The consumer on receiving the mantle thus produced simply hangs the mantle from the hook of the usual burner, as shown in Fig. 3, so that the lower portion of the mantle incloses the burner-tube. Then by igniting the mantle the fabric, as well as the solution of collodion and camphor, will be burned away, and after the burner is lighted the residue will form the usual mantle.

Upon the burning of the mantle it is contracted, as will be understood, so that heretofore it has been necessary to burn the mantle in the factory and to apply it to the burner after the fabric has been burned away, the mantle being adjusted by means of the adjustable suspending-hook with which the burners are provided. By means of my invention, however, the mantle adjusts itself automatically during the burning of the fabric, since as the mantle contracts to lift its lower end out of the position shown in Fig. 3 the burning of the fabric causes a relaxation of the folds producing the overlaps *b*, so that the mantle is lowered simultaneously with its contraction, and consequently it fits the burner properly.

It will thus be seen that I provide a mantle which may be transported with great ease and without danger of destruction and which need not be impregnated with collodion or paraffin according to the usual method. The mantle



may be applied by any person, even those not familiar with the art, because the mantle adjusts itself, and before it is burned the mantle is perfectly durable and not liable to fracture. Heretofore with the ordinary raw mantles it was necessary to exercise the greatest care in the adjustment of the suspension-hook after the mantle had been burned and contracted, and this delicate task could only be performed by skilled persons.

The mantle may be folded in ways other than those here shown, the drawings and specification being simply an illustration and description of one and the preferred form. Materials other than collodion and camphor may be used for stiffening the mantle and rendering it combustible.

This invention also makes it possible to save a considerable amount of previously-wasted material. By the ordinary process of manufacture great loss was entailed, owing to the breakage of the mantles during the burning and shaping of the mantles before being shipped for use.

My mantle is not burned until applied to the burner and is shaped automatically by the action of the burner when the same is in regular operation.

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

1. An incandescent mantle having a fold forming an overlap therein, so that as the mantle contracts when the fabric is burned, the fold is relaxed and the mantle is elongated to compensate for the contraction.

2. An incandescent mantle having a head

at its upper end, and two folds produced in the upper portion of the mantle directly adjacent to the head, the folds forming overlaps between which the head lies, so that as the mantle is burned, the folds relax and the mantle is elongated to compensate for the contraction due to the burning thereof.

3. An incandescent mantle having a fold therein, so that as the mantle is burned the fold relaxes to lengthen the mantle and to compensate for the contraction thereof due to the burning of the mantle.

4. An incandescent mantle having a fold therein and coated with a combustible stiffening substance to retain the fold until the mantle is burned, whereupon the fold is relaxed and the mantle lengthened to compensate for the contraction of the mantle due to burning.

5. An incandescent mantle having a head at its upper end, and having a fold adjacent to said head, the mantle having applied thereto a combustible stiffening substance serving to retain the fold until the mantle is burned.

6. An unburned incandescent mantle having a fold therein, so that as the mantle is burned the fold relaxes to lengthen the mantle and to compensate for the contraction thereof, due to the burning of the mantle, the mantle having applied thereto a combustible stiffening substance serving to retain the form of the mantle prior to the burning thereof.

JOSEPH LEDERER.

Witnesses:

ISAAC OWENS,

EVERARD BOLTON MARSHALL.