

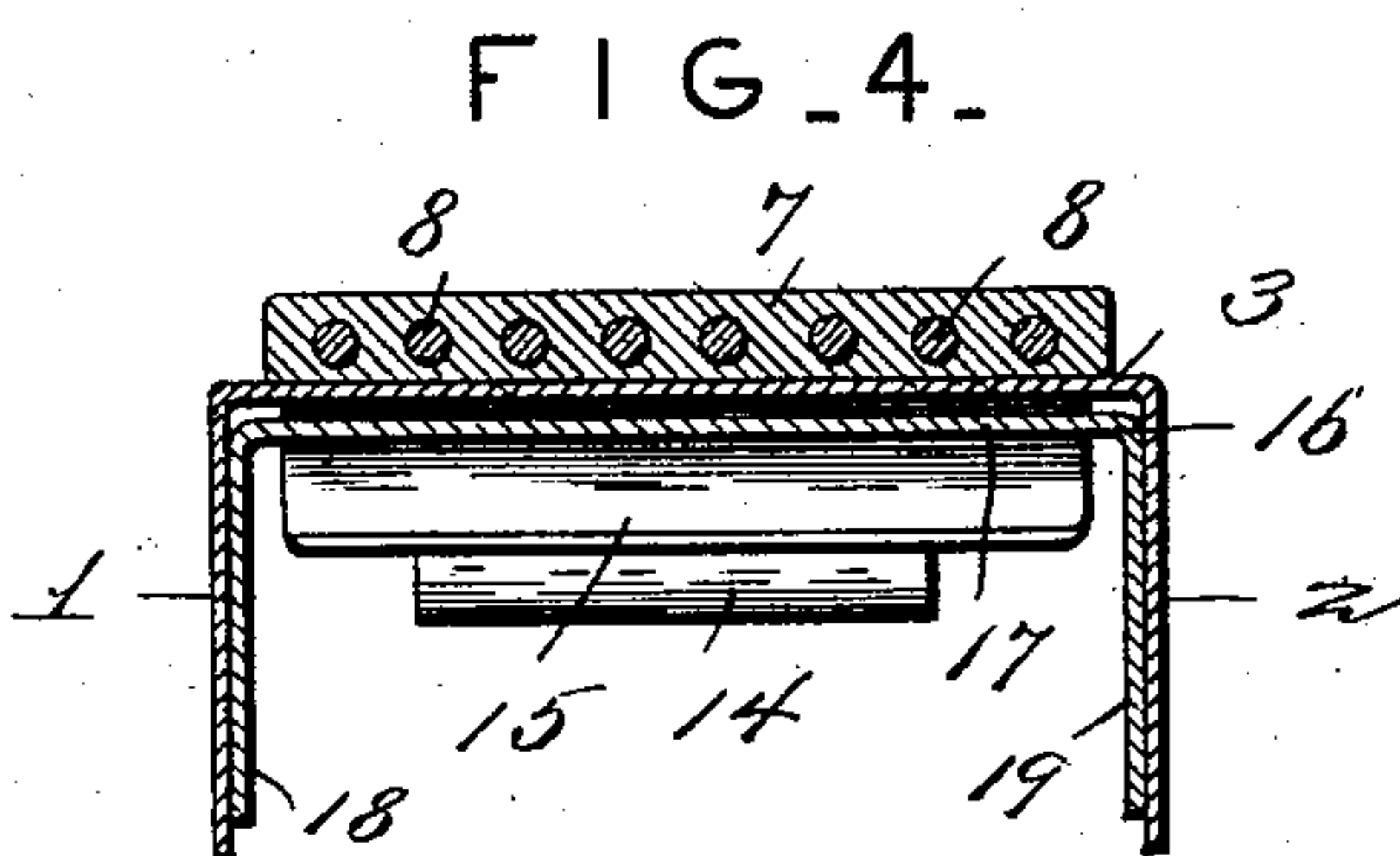
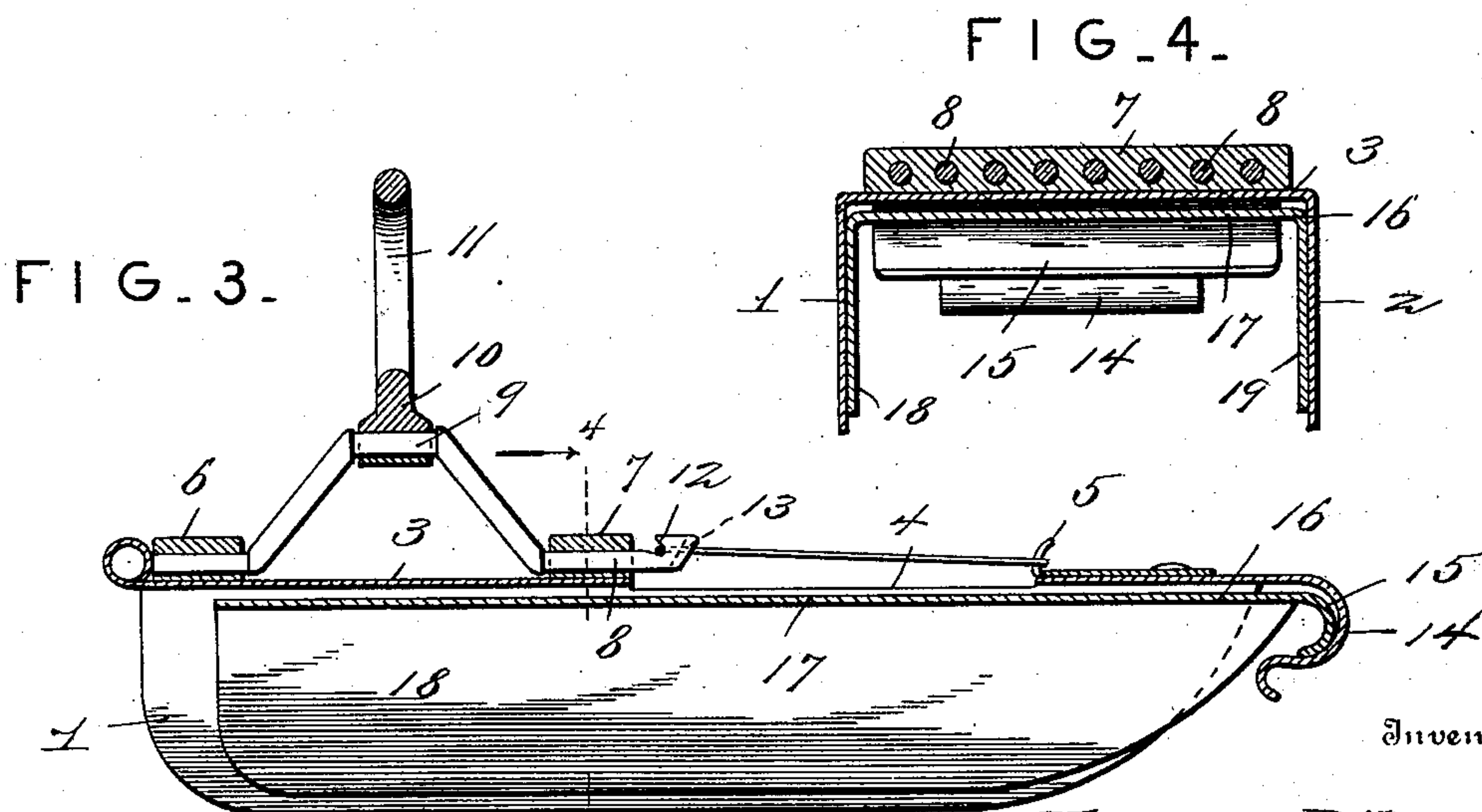
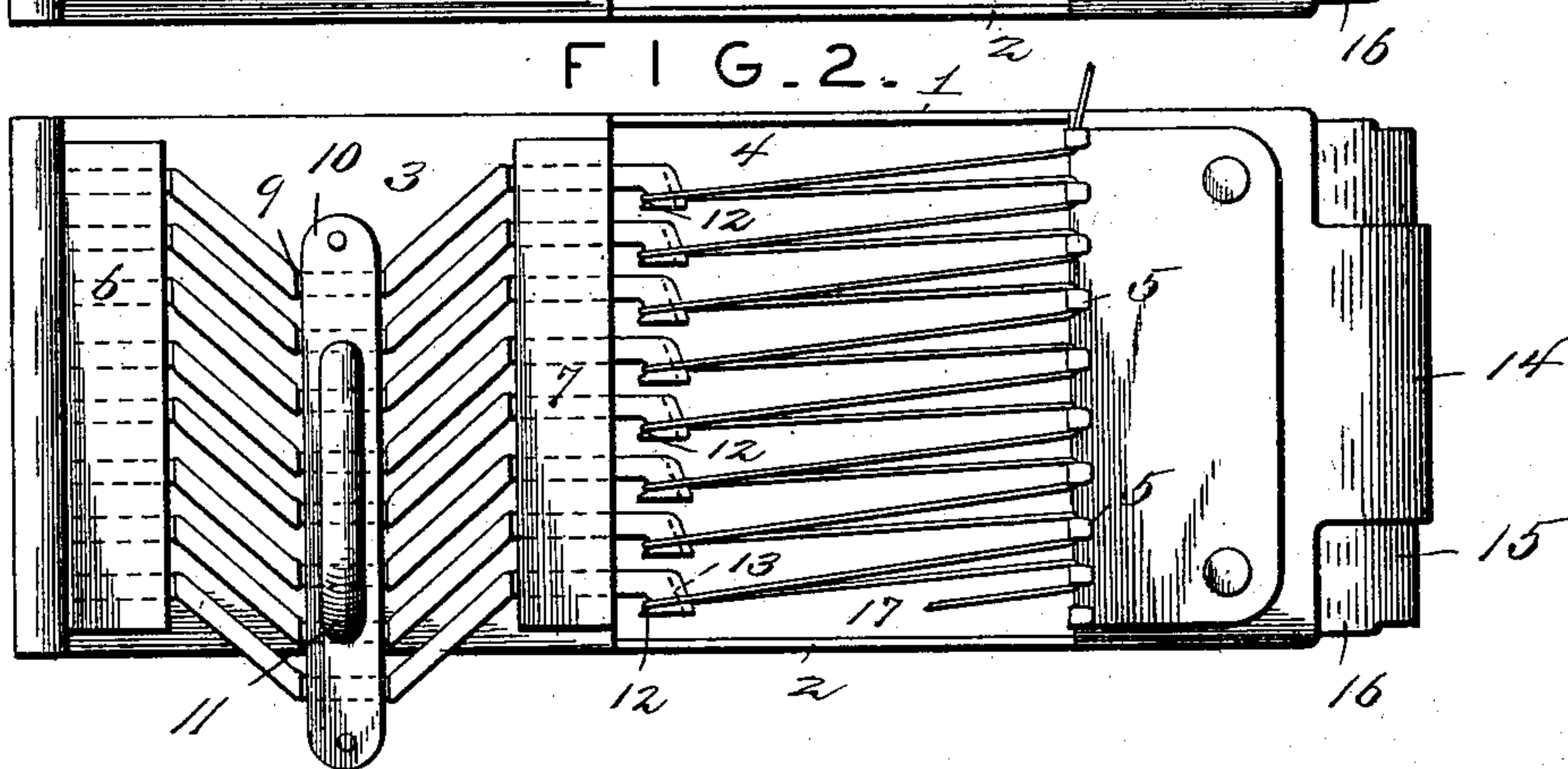
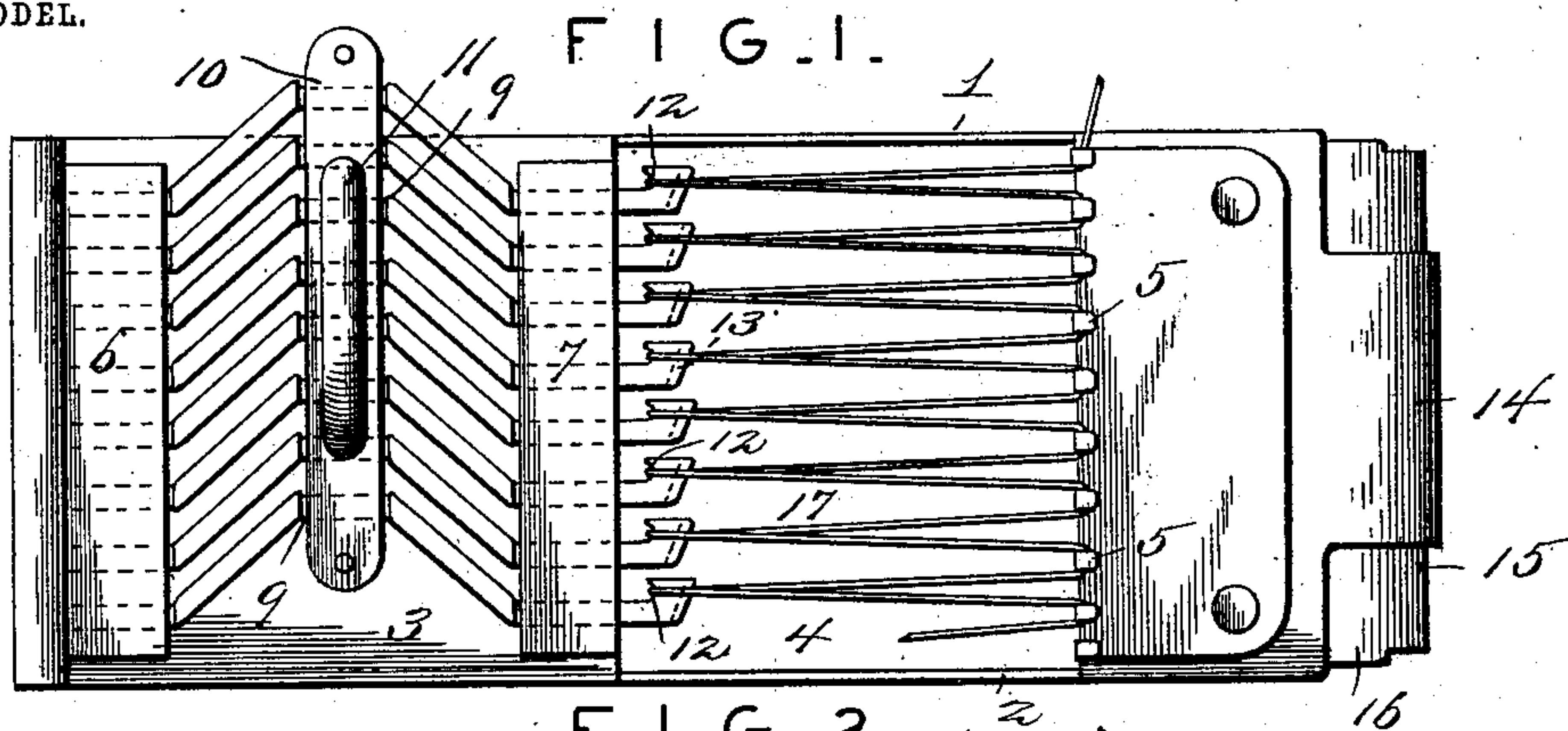
No. 724,783.

PATENTED APR. 7, 1903.

F. BÉLANGER.  
DARNING MACHINE.

APPLICATION FILED NOV. 28, 1902.

NO MODEL.



Witnesses

Harry L. Ames  
B. I. Prink

By

*François Bélanger.*

*Victor J. Evans*

Attorney



# UNITED STATES PATENT OFFICE.

FRANÇOIS BÉLANGER, OF LANGDON, NORTH DAKOTA.

## DARNING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,783, dated April 7, 1903.

Application filed November 28, 1902. Serial No. 133,066. (No model.)

*To all whom it may concern:*

Be it known that I, FRANÇOIS BÉLANGER, a citizen of the United States, residing at Langdon, in the county of Cavalier and State of North Dakota, have invented new and useful Improvements in Darning-Machines, of which the following is a specification.

This invention relates to darning-machines; and the object thereof is to provide a cheap, durable, and efficient device for repairing rents, tears, or holes in fabrics.

The peculiar manner of accomplishing the desired result, as well as the novel details of construction, will be specifically referred to hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a darning-machine, showing the shifting hooks in one position. Fig. 2 is a similar view showing the hooks reversed. Fig. 3 is a vertical longitudinal sectional view through the darning-machine, and Fig. 4 is a cross-sectional view on the line 4 4 of Fig. 3.

The frame of the machine consists of two side bars 1 and 2, connected at their top by a base-plate 3, having a rectangular slot or cut-out portion 4 therein, on one edge of which are upwardly-projecting hooks 5. On the opposite end of the frame and secured in journals 6 and 7 are the rocking shifting hooks 8, which are provided with intermediate cranks 9, adapted to be simultaneously operated by a shifting bar 10, which is connected to the crank and between the ends of which is a ring 11. The hooks 8 are provided with notches 12, into which the thread or yarn is to pass, and the ends of the hooks are provided with grooves 13, which are designed to align when the same are in a position shown in Figs. 1 or 2, so that the needle will pass in the grooves of the respective hooks and thereby be guided between the strands of yarn. On one end of the frame is a downwardly-curved hooked clamp 14, designed to be engaged by a hook 15 of the clamping-jaw 16, which comprises a plate 17, designed to rest parallel with the plate 3 and having downwardly-projecting flanges 18 and 19, which coincide with and rest against the flanges 1 and 2, so that the clamping-jaw will be held

in proper engagement with relation to the frame. This jaw 16 will clamp the material to the frame, so that it will be held taut across the slot formed in the plate 3. In forming the warp a strand of the darning material will be passed alternately from the hooks 5 to the hooks 8 back and forth, as shown in Figs. 1 and 2, and the end fastened conveniently to one of the hooks. The woof will be passed back and forth through the strands, the needle being passed through the grooves in the ends of the hooks until the thread is carried entirely across the machine. The shifting bar 10 can be controlled, so as to reverse the position of the hooks, whereby the lower strands of the warp become the upper ones. In operating the machine the second and third fingers are placed beneath the clamping-jaw, so as to bear against the under side of the plate 17. The little finger and index-finger engage the sides of the flanges 1 and 2, while the thumb is passed through the ring 11. By moving the thumb from right to left or transversely of the frame the hooks can be shifted from one side to the other. This will cause the loops forming the warp to alternately become the top and bottom strands. In placing the warp in proper relation to the frame the cranks will be moved on a vertical plane, as shown in Fig. 3, but as soon as the strand is in proper position they will be moved either to the right or to the left, as shown in Figs 1 and 2, and the woof will be interwoven between them. By releasing the jaw the material can be removed. After the fabric is suitably darned the jaw 16 can be released and the material taken out.

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

1. A darning-machine comprising a plate having a slot therein, of rigid hooks formed on the plate at one edge of the slot, reversible hooks on the opposite side of the slot and alternating with the rigid hooks, cranks formed integral with the reversible hooks and intermediate the ends thereof, and a shifting bar connecting the cranks so as to operate the hooks simultaneously.

2. A darning-machine comprising a plate having a slot therein, of rigid hooks formed on the plate at one edge of the slot, reversing-hooks on the opposite edge of the slot, cranks  
5 formed integral with the reversing-hooks and intermediate the ends thereof, the respective ends of each of the cranks being journaled in the frame, a shifting bar connected to the cranks and a ring intermediate the ends of the bar for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANÇOIS BÉLANGER.

Witnesses:

H. W. MONTGOMERY,  
W. F. LAVIN.