

No. 743,731.

PATENTED NOV. 10, 1903.

F. KLEPETKO.  
WATER JACKET.

APPLICATION FILED AUG. 8, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

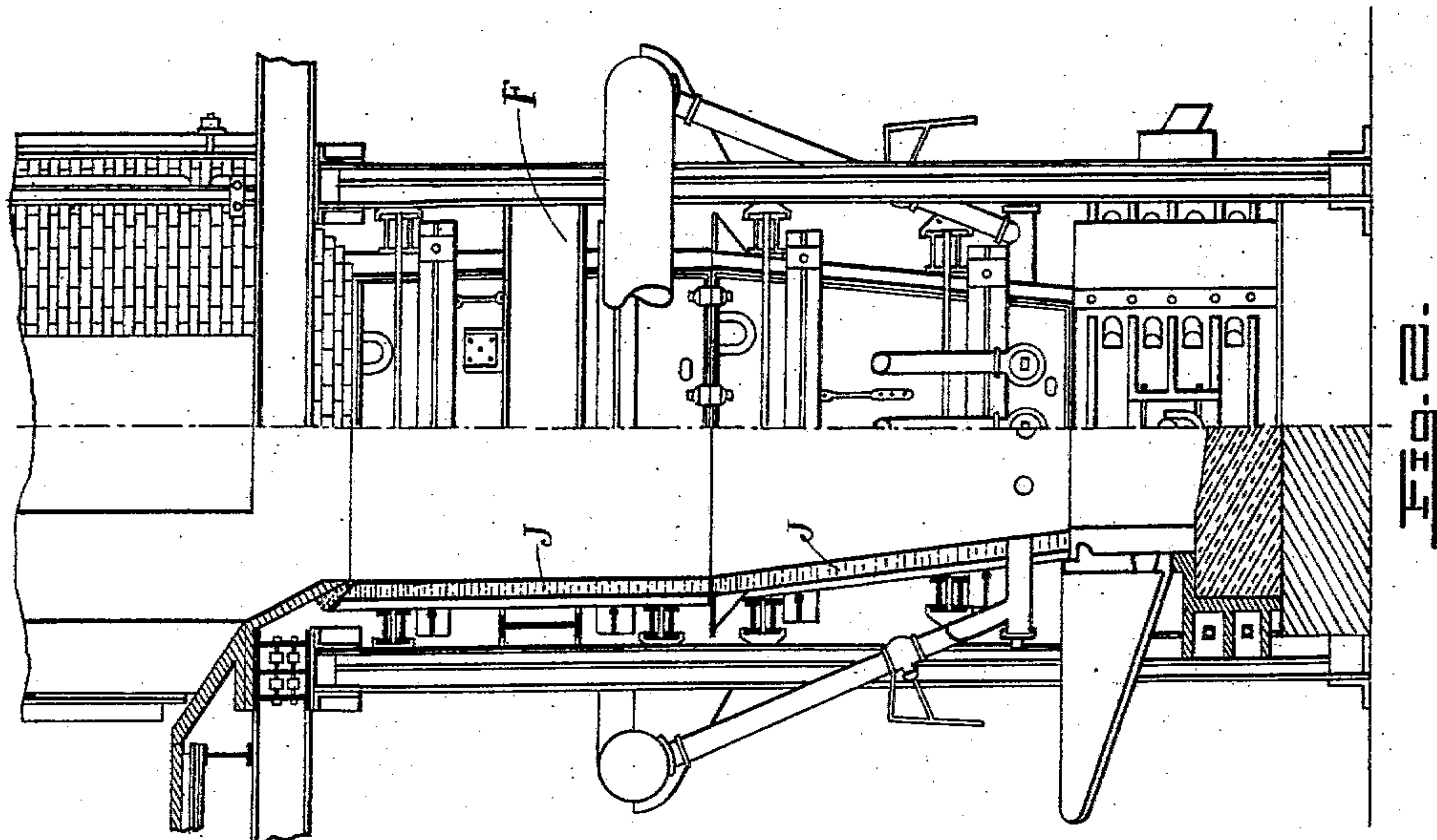


Fig. 2.

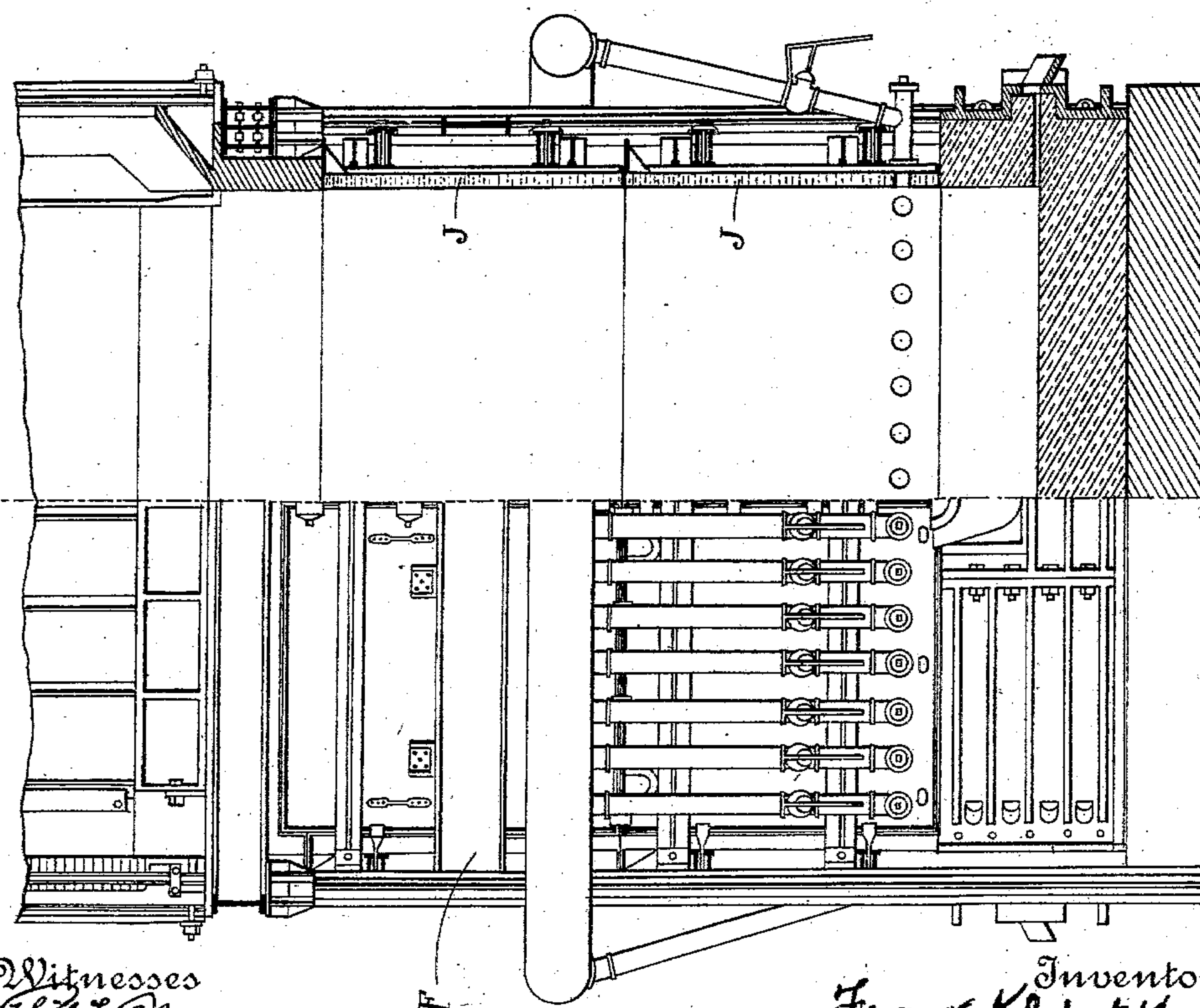


Fig. 1.

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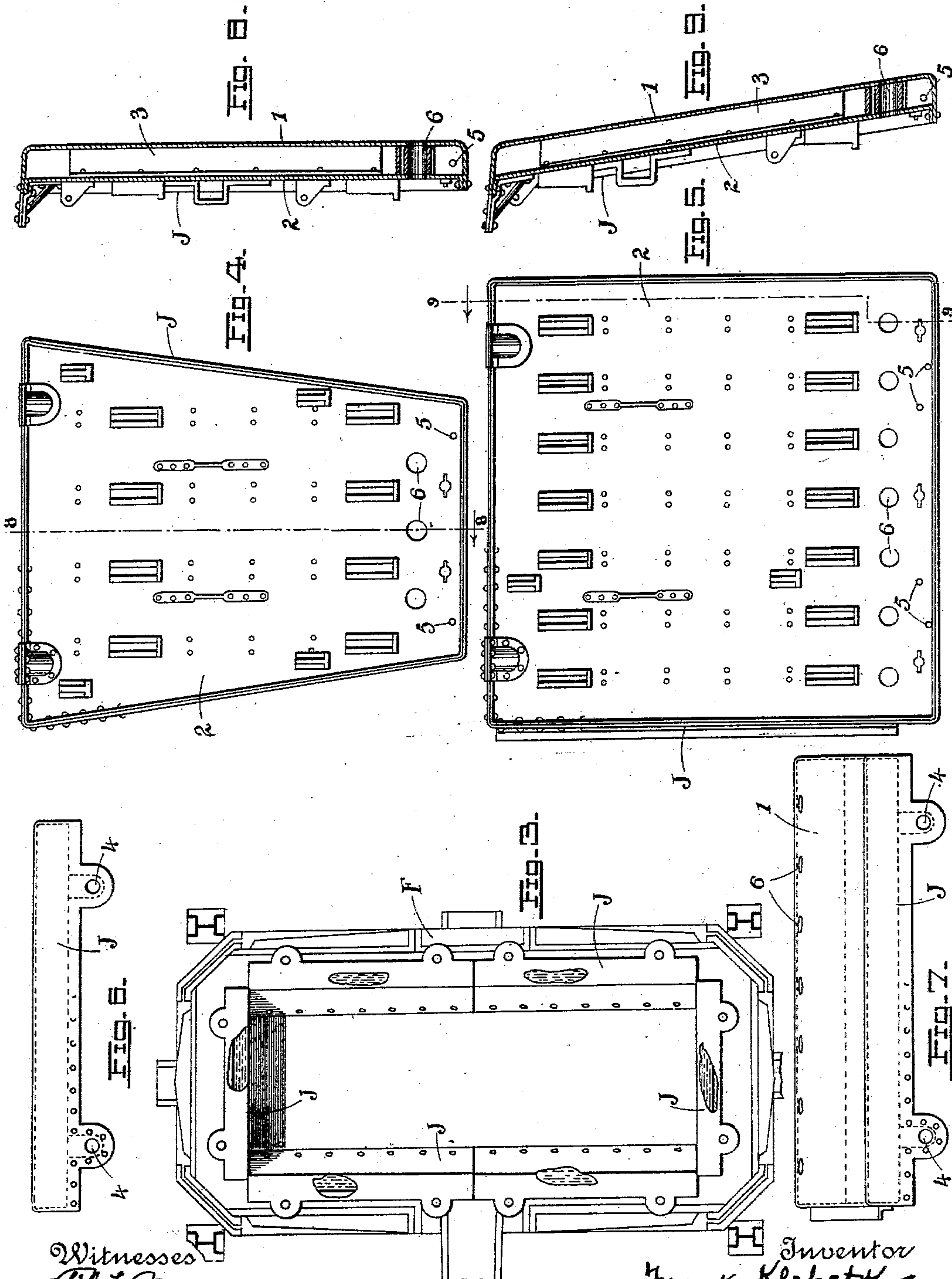
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

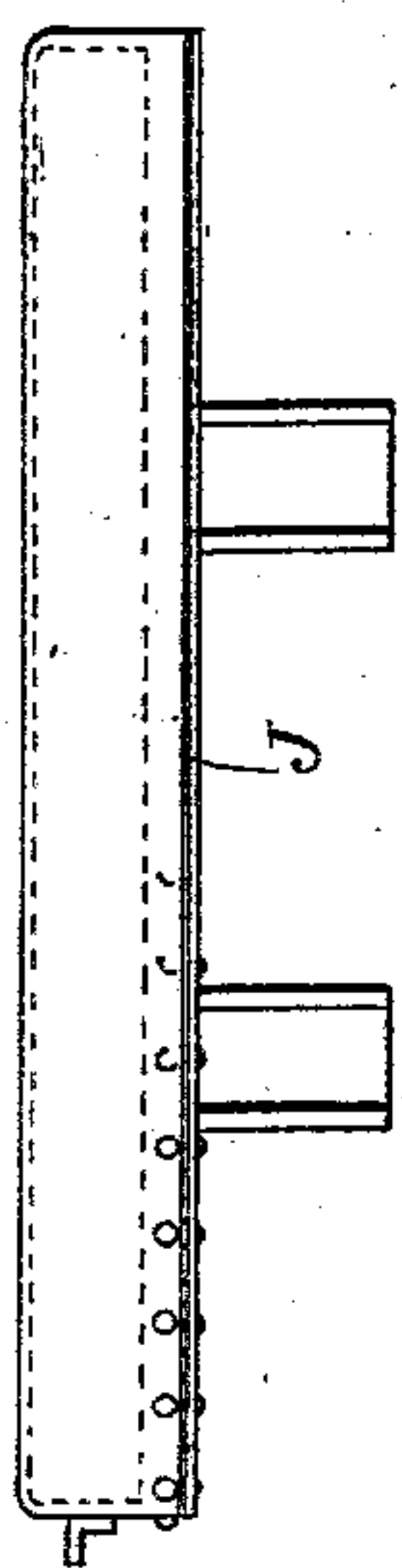


FIG. 13.

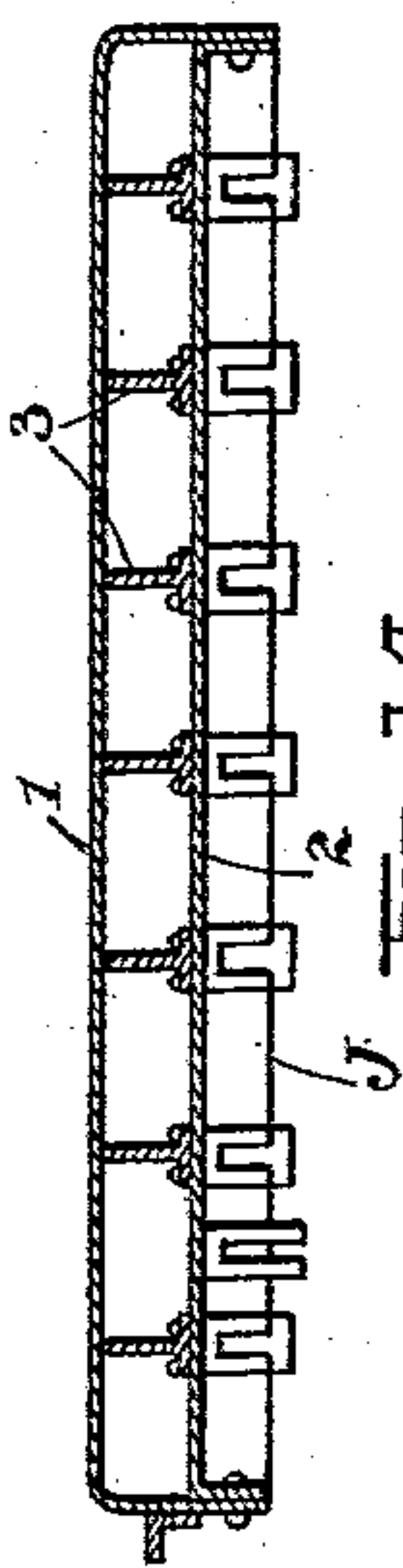


FIG. 14.

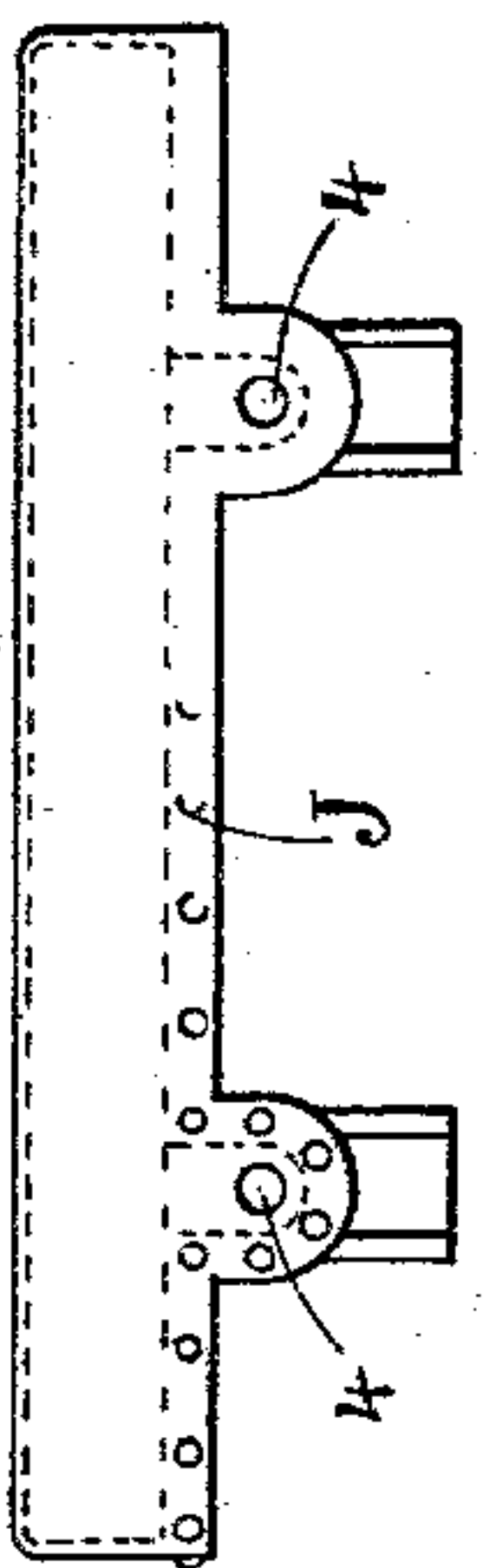


FIG. 10.

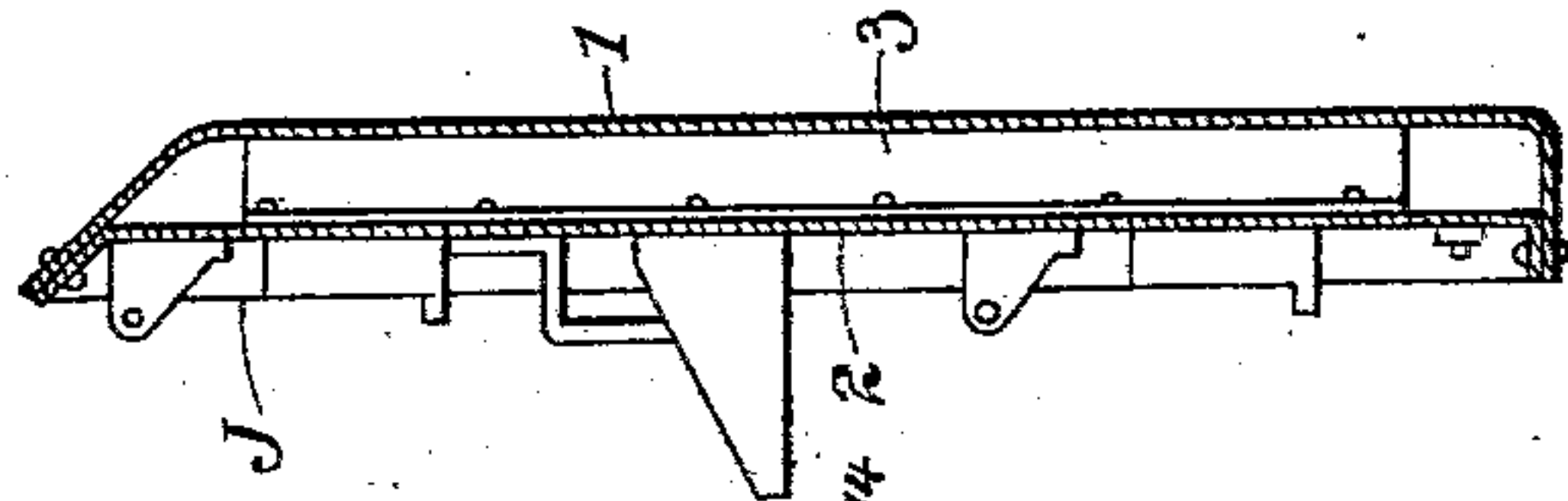


FIG. 16.

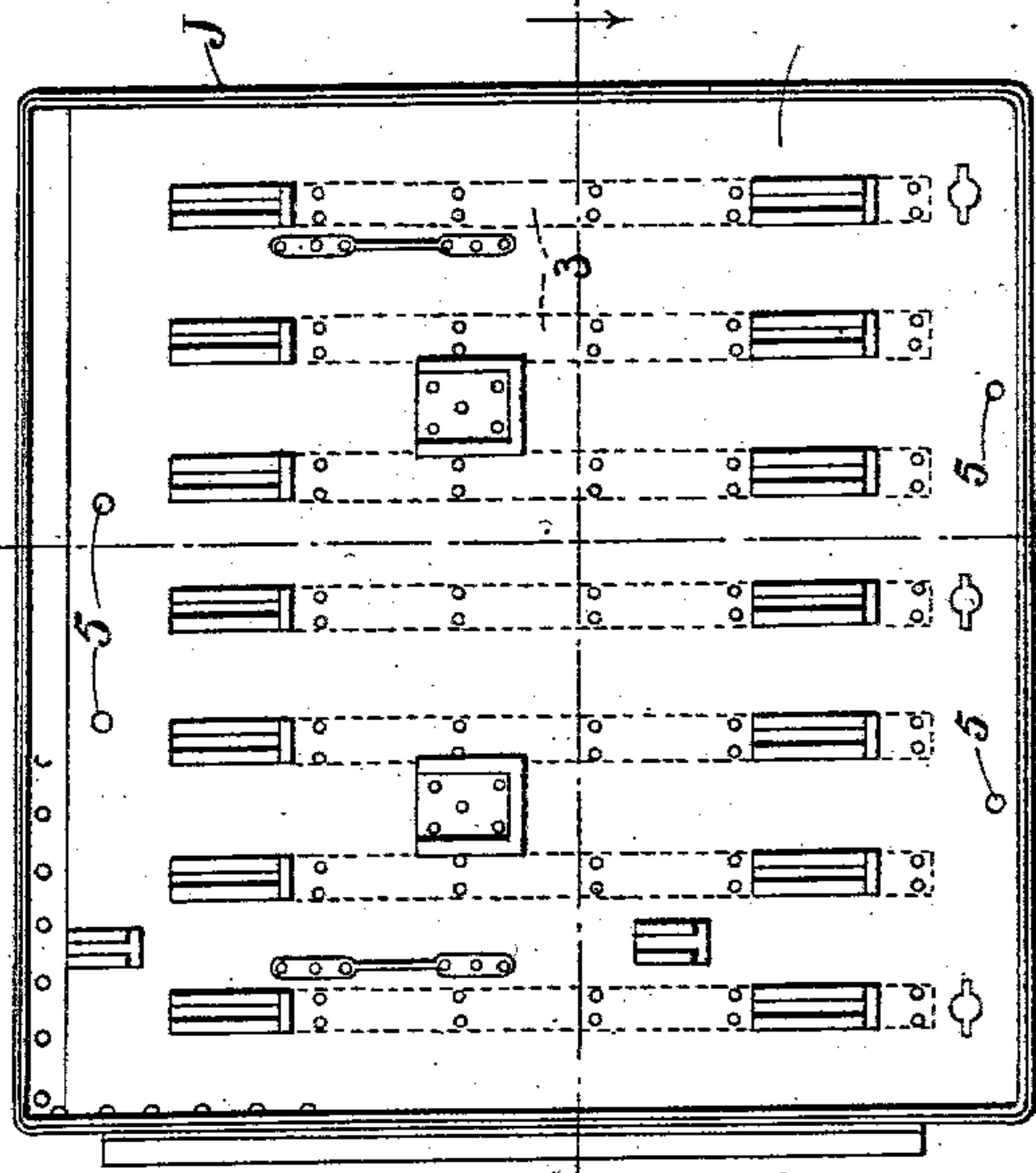


FIG. 15.

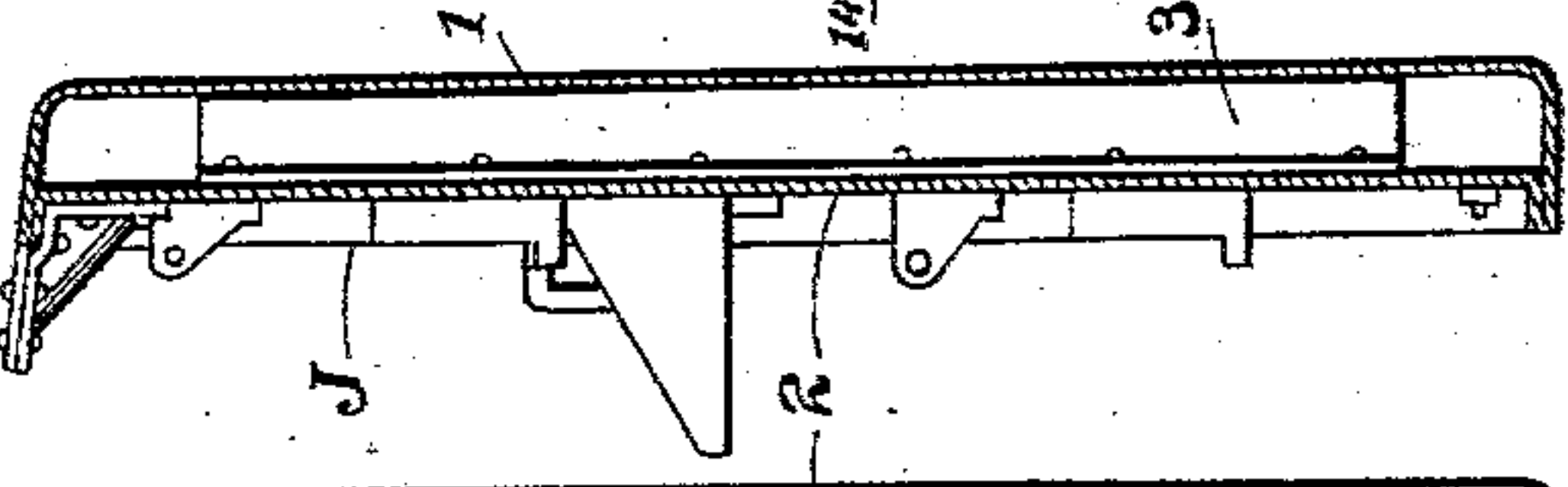


FIG. 12.

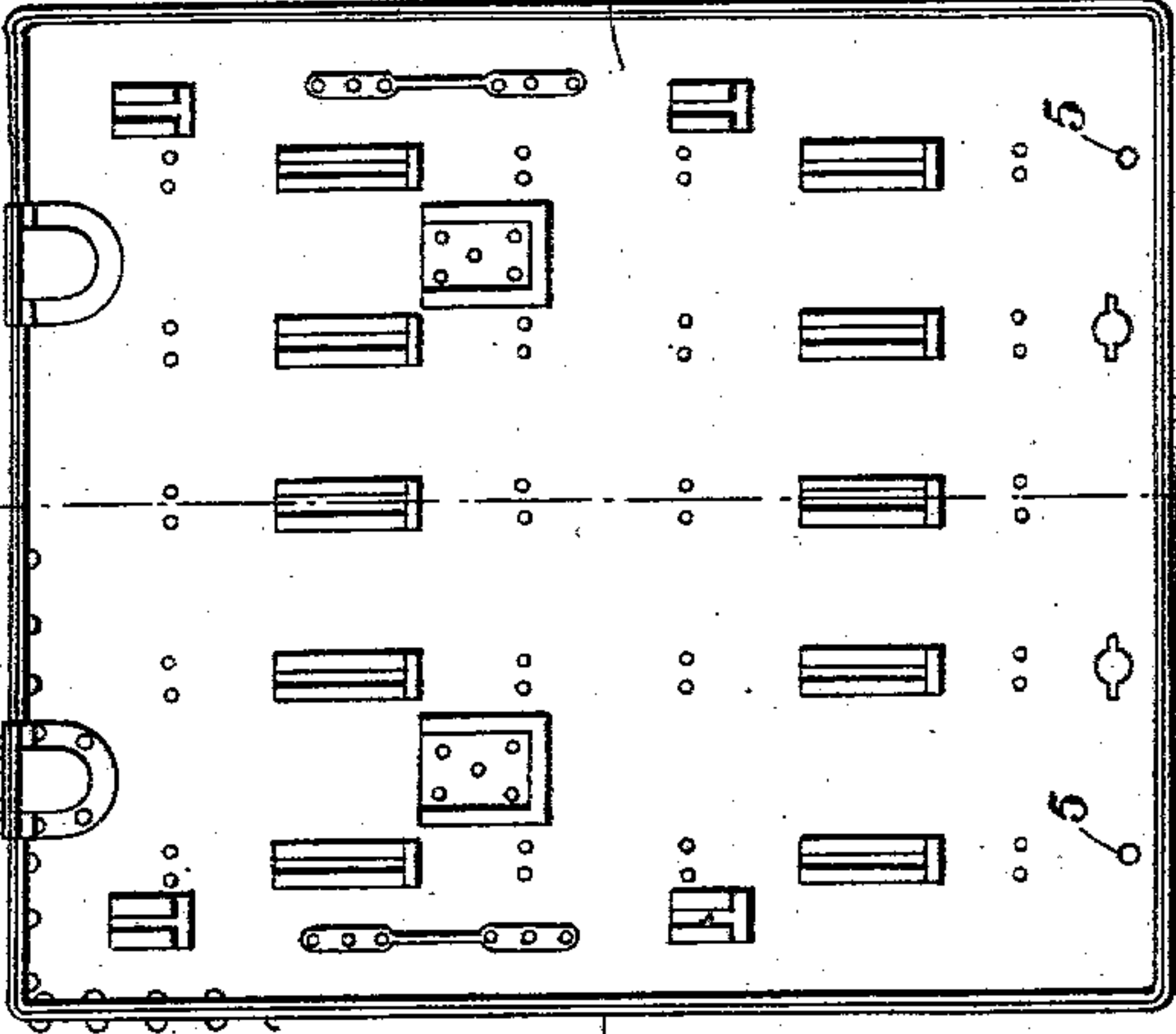


FIG. 11.

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# UNITED STATES PATENT OFFICE.

FRANK KLEPETKO, OF ANACONDA, MONTANA.

## WATER-JACKET.

SPECIFICATION forming part of Letters Patent No. 743,731, dated November 10, 1903.

Application filed August 8, 1902. Serial No. 118,957. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK KLEPETKO, a citizen of the United States, residing at Anaconda, in the county of Deerlodge and State of Montana, have invented certain new and useful Improvements in Water-Jackets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in water-jackets for cupola, blast, and similar furnaces; and it consists in the novel construction of jacket more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a combined vertical longitudinal middle section and elevation of the lower portion of the furnace. Fig. 2 is a section and elevation at right angles to Fig. 1. Fig. 3 is a top plan of the portion below the plane of the upper series of jackets. Fig. 4 is an elevation of the lower end jacket. Fig. 5 is an elevation of the lower side jacket. Fig. 6 is a top edge view of Fig. 4. Fig. 7 is a top edge view of Fig. 5. Fig. 8 is a vertical section on line 8 8 of Fig. 4. Fig. 9 is a vertical section on line 9 9 of Fig. 5. Fig. 10 is a top edge view of Fig. 11. Fig. 11 is an elevation of the upper end jacket. Fig. 12 is a vertical section on line 12 12 of Fig. 11. Fig. 13 is a top edge view of Fig. 15. Fig. 14 is a horizontal section on line 14 14 of Fig. 15. Fig. 15 is an elevation of the upper side jacket, and Fig. 16 is a vertical section on line 16 16 of Fig. 15.

The object of my invention is to construct a water-jacket in which the element of the danger of leakage and consequent delay resulting therefrom shall be wholly eliminated, the inner wall of my jacket presenting an uninterrupted, unbroken, and seamless surface to the ore charge, so that the starting of a leak is practically impossible.

A further object is to construct a jacket which will combine simplicity of construction with cheapness and one possessing further and other advantages, better apparent from a detailed description of the invention, which is as follows:

Although the several forms of jackets which enter into the construction of my furnace differ slightly from one another, such forms depending on the position the particular jacket

occupies in the furnace when completed, still possessing, as they each do, an inside sheet and an outside sheet—a feature common to them all—it will be convenient to apply the same reference characters in all the figures to the parts which form the subject-matter of my invention.

Referring, therefore, to the drawings, I represent any one of the jackets, 1 the inside sheet or wall thereof, and 2 the outside sheet. The inside sheet is the sheet which is exposed directly to the charge or that facing the interior of the furnace. In previous constructions of wrought-iron and steel water-jackets (so far as I am aware) stay-bolts have been used to stiffen and support the sheets. These stay-bolts have been the source of leaks and a great deal of trouble, and the life of the jacket has been very much shortened by the necessity of frequently repairing these stay-bolts until the troubles arising from this cause become so bad as to necessitate discarding the jacket while all other parts are still in good condition. It is found in practice that a jacket provided with stay-bolts when heated expands differently in different parts, due to unequal heat in the furnace, thereby producing an undue strain in some of the bolts and a buckling of the sheets. This buckling and undue strain cause a leak around the bolt, necessitating the shutting down of the furnace.

To overcome the aforesaid objections, I have provided specific means for supporting the inside sheet, these means being directly secured to the outside sheet.

In one of the forms of my invention (that being the preferred form) I dispose at suitable intervals apart, between the inside and outside sheets, a series of bridge-walls or T-irons 3, running when the jacket is in place in planes parallel to the axis of the furnace, the flanges of the T-irons being riveted directly to the outside sheet and the longitudinal edges of said spacing-irons 3 serving to support the inside sheet. In lieu of the T-irons I may substitute angle-bars or I-beams, so long as no direct connection is made between them and the inside sheet. This arrangement leaves the inside sheet intact, permitting the latter to present an unbroken, uninterrupted, smooth, and seamless surface to the charge and to the



heat or to the bars used in "barring" the furnace, and consequently there are no points for a leak to start. Herein is one of the great advantages of this method of construction—  
 5 that is, the unbroken surface of the inside sheet, there being no rivets, bolts, or other parts coming through this sheet.

I do not, of course, wish to be limited to any precise number or shape of the bridge-walls  
 10 or spacing-irons nor to the precise length of the same, so long as they do not interfere with the free circulation of the water within the jacket. The latter is provided with taps  
 4 5 for water-pipes.

15 6 represents the twyer-block for the insertion of the twyer-pipe.

F represents the furnace.

These and many other features shown but not referred to are common to all jackets, are  
 20 old, and form no part of my invention, the latter being restricted solely to the manner of supporting the inside sheet, as described in detail above.

It is of course apparent that minor changes  
 25 may be made in the construction described without affecting either the nature or spirit of my invention.

Having described my invention, what I claim is—

30 1. A water-jacket comprising an inside and an outside sheet, and a series of flanged bridge-walls disposed between the sheets, the flanges being secured along the inner surface of the outside sheet, and the opposite longitudinal edges of the webs being disconnected  
 35 from, but bearing against, the inner surface of the inside sheet, substantially as set forth.

2. A water-jacket comprising an inside and an outside sheet, and a series of individual  
 40 partition or bridge walls extending continuously substantially the full dimension of the

chamber in the direction in which they are disposed, and secured at one of their longitudinal edges along the inner surface of the outside sheet, the opposite longitudinal edges  
 45 thereof being disconnected from, but bearing against the inner surface of the inside sheet, substantially as set forth.

3. A water-jacket comprising an inside and an outside sheet, and a series of parallel individual partition or bridge walls extending  
 50 continuously substantially the full dimension of the chamber in the direction in which they are disposed, and secured at one of their longitudinal edges along the inner surface of the  
 55 outside sheet, the opposite longitudinal edges thereof being disconnected from, but bearing against the inner surface of the inside sheet, substantially as set forth.

4. A water-jacket comprising an inside and  
 60 an outside sheet, a series of T-irons located within the jacket and having their flanges secured to the outside sheet, the longitudinal edges of the webs of the irons serving to support the inside sheet along the inner surface  
 65 thereof, substantially as set forth.

5. A water-jacket comprising an inside and an outside sheet, a series of flanged spacing-walls disposed within the jacket in planes  
 70 parallel to the axis of the furnace, the flanges of the walls being secured to the outside sheet, and the longitudinal edges of the webs thereof serving to support the inside sheet along the inner surface thereof, substantially as set  
 75 forth.

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

FRANK KLEPETKO.

Witnesses:

KEMP KINCKLE,  
 M. A. PESTANA.