

No. 793,687.

PATENTED JULY 4, 1905.

C. H. SMITH.  
LEG FOR GRAIN ELEVATORS.  
APPLICATION FILED SEPT. 28, 1904.

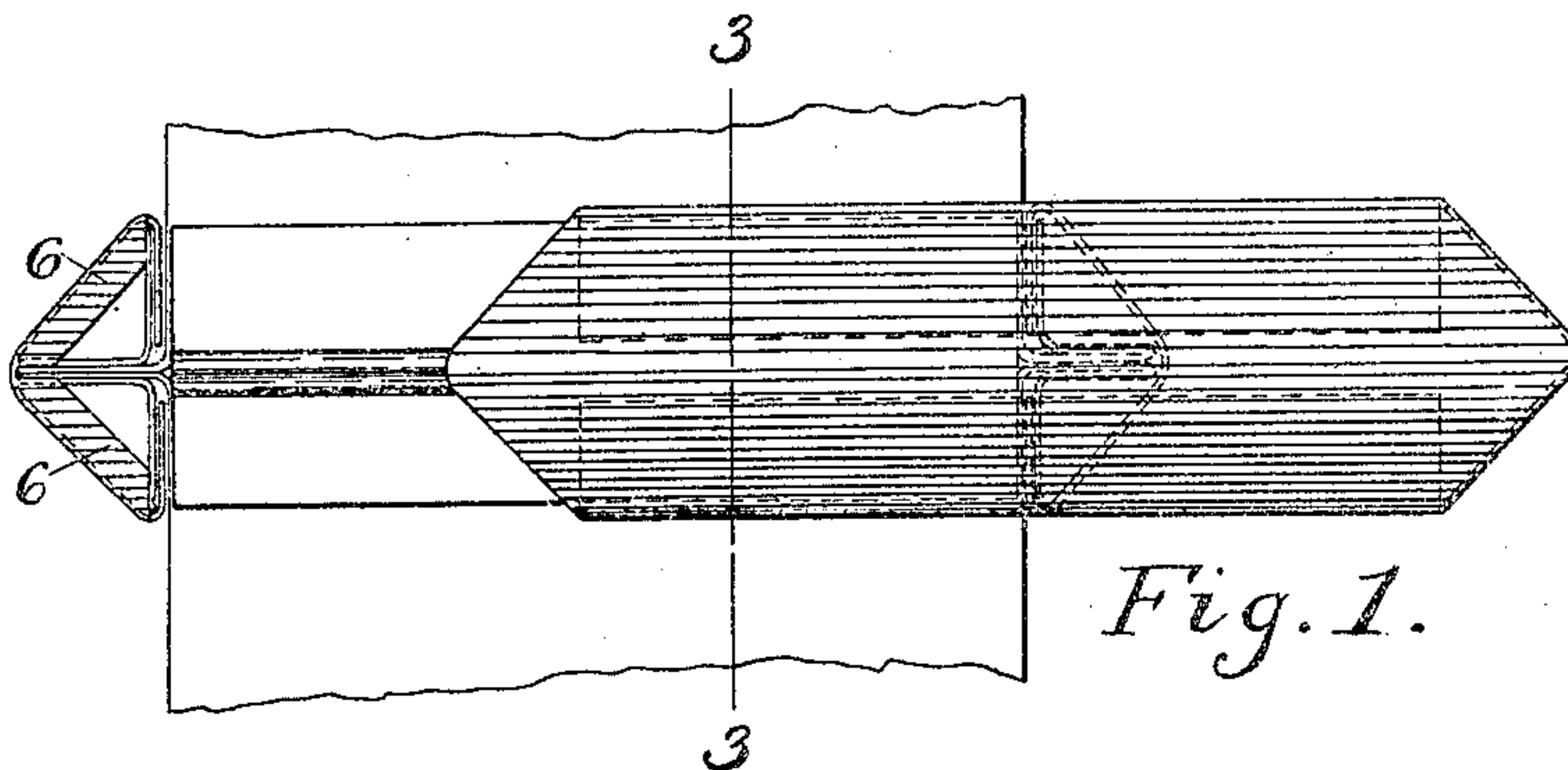


Fig. 1.

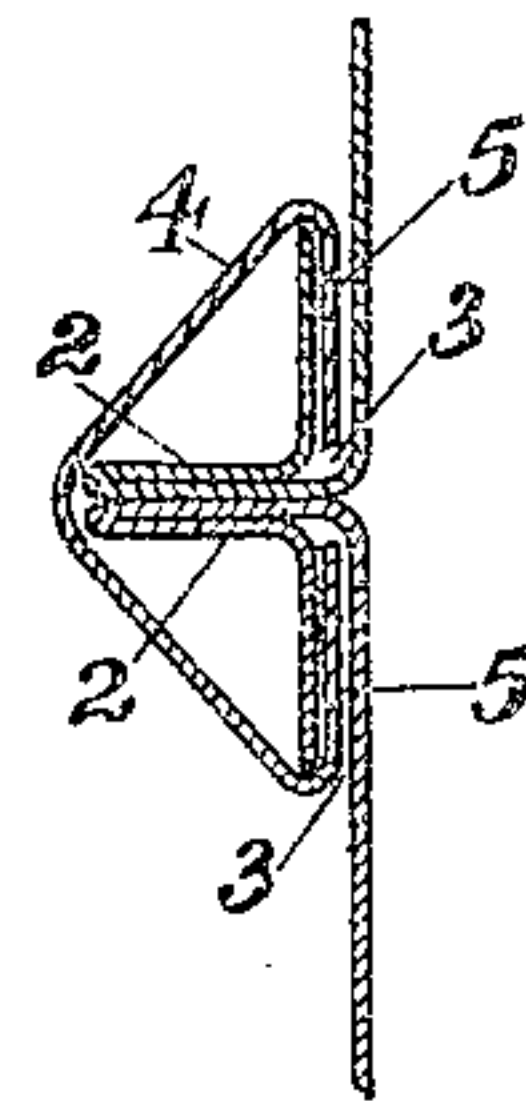


Fig. 3.

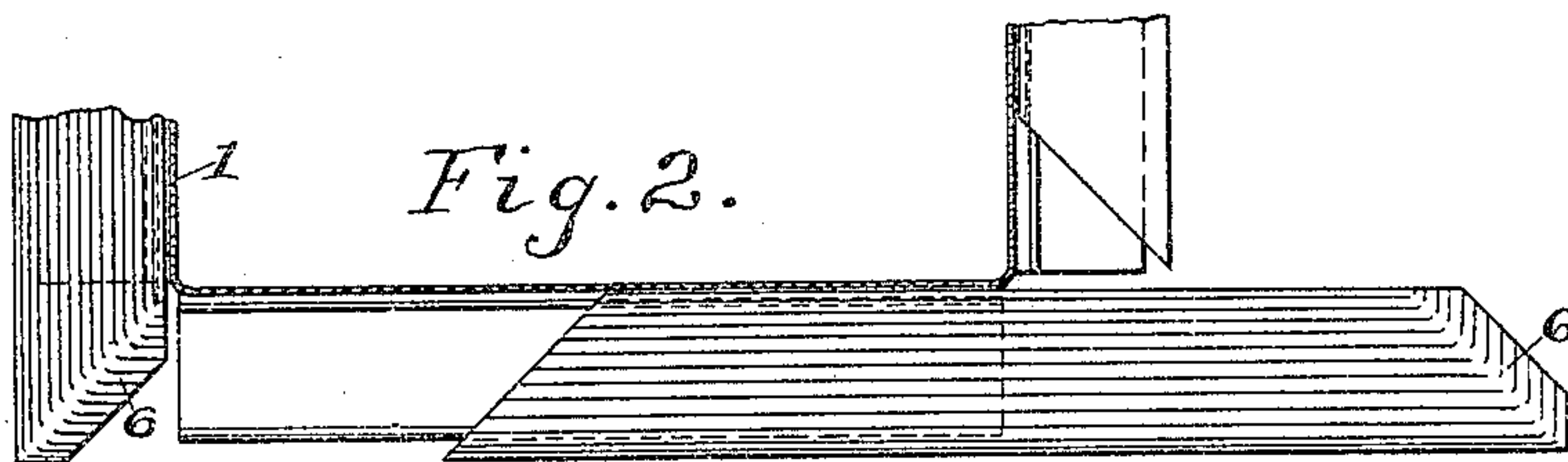


Fig. 2.

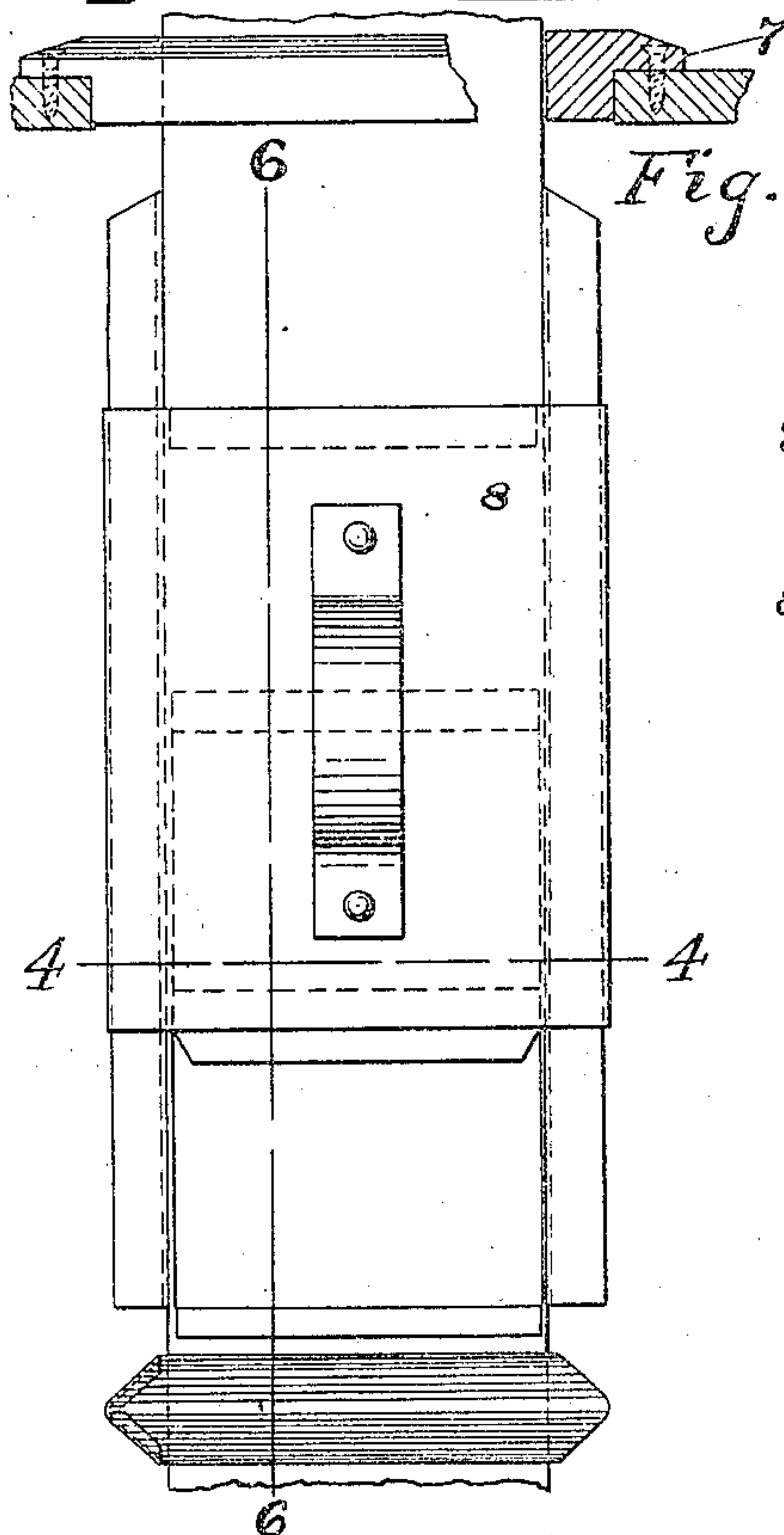


Fig. 5.

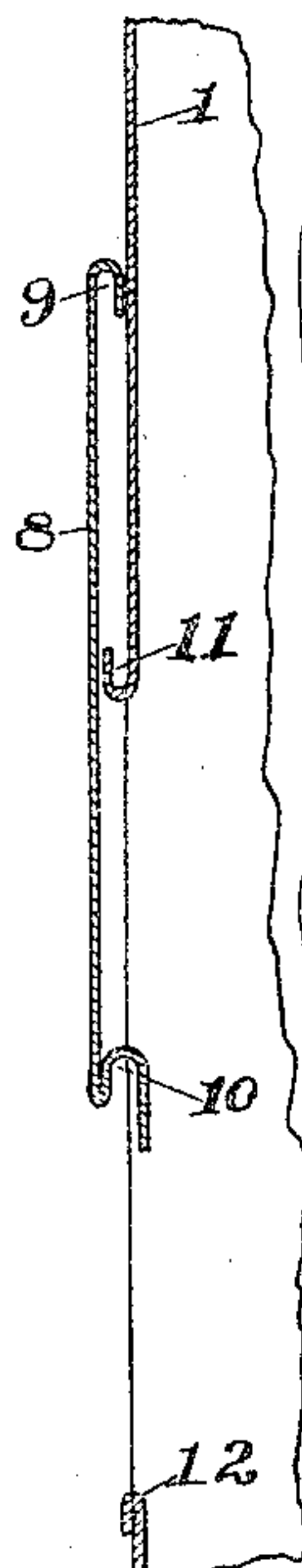


Fig. 6.

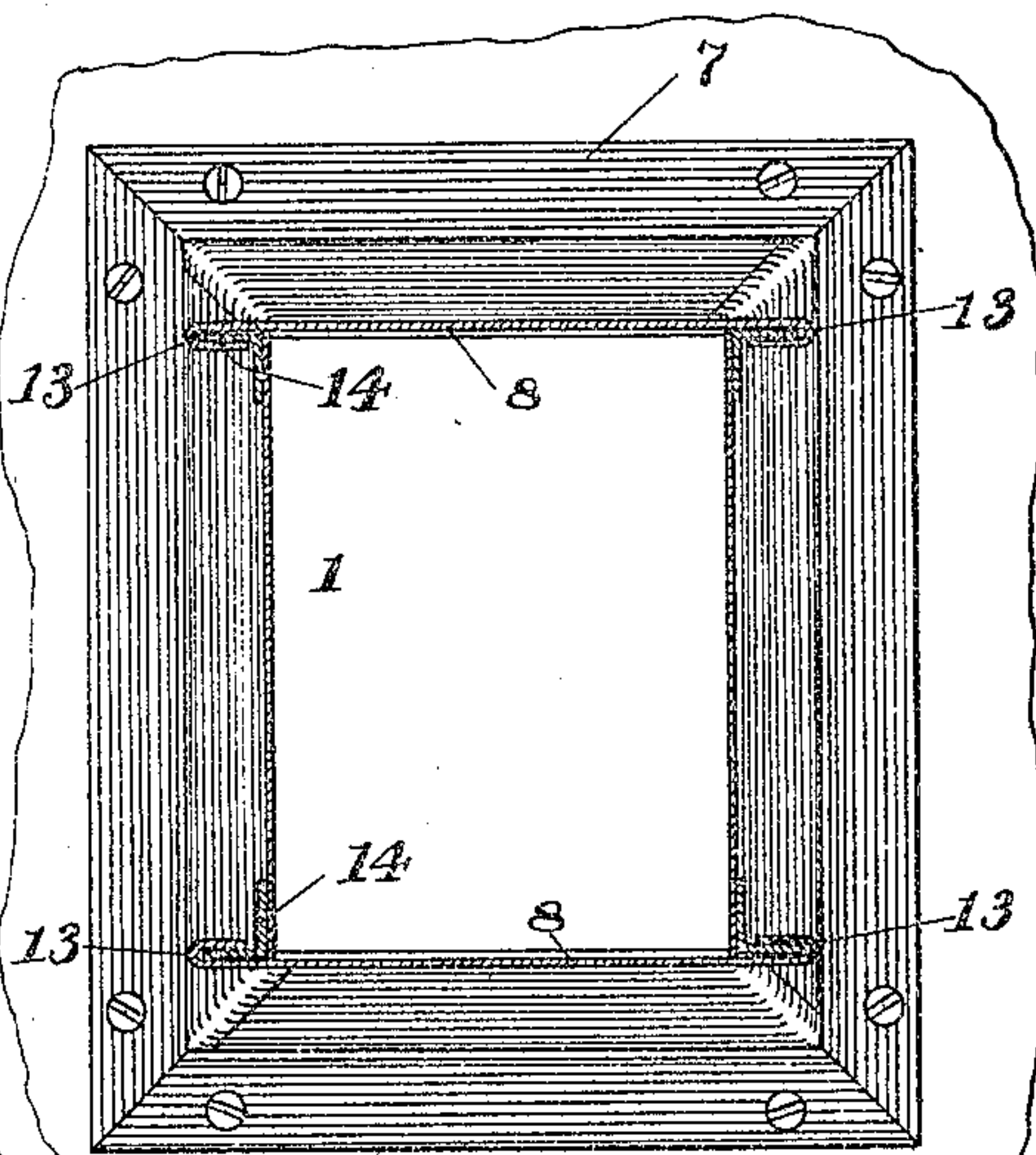


Fig. 4.

Attest:

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# UNITED STATES PATENT OFFICE.

CHARLES H. SMITH, OF CHICAGO, ILLINOIS.

## LEG FOR GRAIN-ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 793,687, dated July 4, 1905.

Application filed September 28, 1904. Serial No. 226,310.

*To all whom it may concern:*

Be it known that I, CHARLES H. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Legs for Grain-Elevators, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to tubing, and is particularly serviceable for use as legs of grain-elevators, though the use to which the tubing is put is not to be restricted.

Elevator-legs are understood by those familiar with grain-elevators to be the channels or tubes in which the buckets and belts carrying the same are caused to travel in order that grain may be elevated and discharged. Hitherto wood has been employed as the material out of which the legs were made, which material is objectionable, increasing the fire risk, and being of expensive and inconvenient construction.

In accordance with my invention I form tubes in sections, preferably rectangular in cross-section, and so construct the ends of these sections that they are adapted to cooperate with the binder, joiner, or clamp, whereby the pipe-sections may readily be united to form a continuous channel.

The joint of my invention between the pipe-sections and for uniting the same is adapted not only to prevent longitudinal separation of the sections of pipe, but also to prevent transverse or lateral displacement of the pipe-sections. To these ends I construct the pipe-sections with outsetting flanges at their ends and also provide at these ends pockets, in which pockets the joiners or clamps may be inserted, which clamps thereby prevent longitudinal separation of the pipe-sections and also prevent transverse separation of the pipe-sections by having engagement with the outsetting flanges. The flanges and the walls of the pockets are preferably formed of integral sheets of metal by suitably bending and folding. The pockets of adjacent sections open in opposite directions, and the clamps, which are desirably formed of sheet metal, are pro-

vided with blades which may be inserted within the pockets by movement of the clamps transversely of the tubing, the said pockets being preferably open at all of their ends to permit of the insertion of these blades in the sides of the pockets, whereby the said clamps may be moved transversely of the tubing to effect complete entry of the clamp-blades within the pockets. The clamps are desirably triangular in cross-section, the blades forming the subdivision of one wall of the triangle, between which blades a space intervenes to accommodate the flanges, while the remaining walls of the triangle slope outwardly to engage the outer edges of the flanges to prevent transverse displacement of the tube-sections.

When the invention is applied to elevator-legs, I provide an improved door construction for the legs having a tongue-and-groove connection with the leg along the sides thereof, whereby the door may be slid up and down, the door having a transverse groove at its upper horizontal margin in which a transverse outsetting tongue provided upon the leg may be received when the door is closed to seal the upper margin of the doorway against the passage of grain. The lower transverse horizontal margin of the door is also desirably provided with a groove engaging a corresponding tongue that constitutes the lower horizontal margin of the doorway or opening for the purpose also of sealing the lower part of the doorway.

I will explain my invention more fully by reference to the accompanying drawings, in which—

Figure 1 is a view in detail, illustrating two adjacent abutting ends of tubing joined by means of the clamp and joint of my invention, one of the clamps being illustrated partially withdrawn clearly to reveal the nature of my improved construction. Fig. 2 is a plan view of elements illustrated in Fig. 1. Fig. 3 is a sectional view on line 3 3 of Fig. 1. Fig. 4 is a plan view on line 4 4 of Fig. 5. Fig. 5 is a view in elevation illustrating two pipe-sections clamped together and my improved door construction. Fig. 6 is a sectional view on line 6 6 of Fig. 5.

Like parts are indicated by similar charac-



ters of reference throughout the different figures.

The tube-sections are rectangular in cross-section, as indicated most clearly in Figs. 2 and 4 at 1. These tube-sections are provided with outsetting flanges 2 and have pockets 3 opening in opposite directions, the said flanges and pockets being at the transverse edges of the pipe-sections. The pockets preferably extend continuously across the tubes, the said pockets and flanges being desirably formed by folding the sheet metal of the tubing, as indicated most clearly in Fig. 3. The clamps 4 are preferably made triangular in cross-section, one wall of each triangular clamp being cut away centrally, whereby blades 5 5, that extend toward each other, are established, the space between the blades being sufficient to accommodate the flanges, which blades are of such a thickness, as compared with the space of the walls of the pockets 3, as readily to permit the reception of these blades. The clamps preferably engage the outer walls of the pockets 3 along the longitudinal edges of the clamps, whereby vertical displacement of the tube-sections designed to be united by the clamps is prevented. The space between the base of the triangle formed by the blades 5 5 and the opposite corner of the triangle is completely bridged by the flanges 2, so that the outer walls of the pockets 3, the blades 5 5, the flanges 2, and the ridge portion of the clamp engaging the outer edges of the flanges may cooperate to prevent lateral displacement between the tube-sections. One end of each clamp preferably has downturned ends 6, that fit over the contiguous end of the adjacent clamp, whereby the corner portions of the tubing where they join are sealed or closed.

Where the tubing is employed for grain-elevator legs, the flooring is provided with holes through which the tubing is passed, such holes being of ample size, as indicated in Fig. 5, to permit of the passage of the flanges therethrough, whereafter fillers 7 may be inserted to occupy the space between the tube and the surrounding margin of the floor.

My improved door 8 includes a top grooved portion 9 and a bottom grooved portion 10, these grooves extending horizontally across the door and being turned inwardly to engage corresponding tongues or flanges 11 and 12, that horizontally margin the top and bottom of the doorway controlled by the door. It will be observed that the grooves 9 and 10 open downwardly, so that no grain will be caught thereby to prevent the closing of the door. The door, like the tubing, is preferably formed of sheet metal and is folded toward its rear to provide guiding-pockets 13, into which the guides 14, riveted upon the tubing, project to direct the door in its vertical movement.

I do not wish to be limited to the precise details of construction shown; but,

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

1. In tubing the combination of two adjacent abutting tube-sections having their adjacent edges margined with abutting outsetting flanges, pockets back of the flanges adjacent to the pipe-wall and clamps provided with blades engaging both of these pockets to prevent longitudinal separation of the tube-sections and also engaging the flanges to prevent transverse displacement of said tube-sections, substantially as described.

2. In tubing the combination of two adjacent abutting tube-sections having their adjacent edges margined with abutting outsetting flanges, pockets back of the flanges adjacent to the pipe-wall and clamps provided with blades engaging these pockets to prevent longitudinal separation of the tube-sections and also engaging the flanges to prevent transverse displacement of said tube-sections, the said pockets opening in opposite directions while the said blades extend toward each other, substantially as described.

3. In tubing, the combination of two adjacent abutting tube-sections having their adjacent edges margined with abutting flanges formed by overturned edge portions of the tube-sections pockets back of the flanges adjacent to the pipe-wall, and clamps triangular in cross-section provided with approaching blades 5 that are inserted between the walls of said pockets, the said flanges engaging the portions of the clamps between said blades, whereby both longitudinal and transverse displacement of the tube-sections is prevented, substantially as described.

4. In tubing, the combination of two adjacent abutting tube-sections having their adjacent edges margined with abutting flanges formed by overturned edge portions of the tube-sections, pockets back of the flanges adjacent to the pipe-wall also formed by the overturned portions of the tube-sections, and clamps triangular in cross-section provided with approaching blades 5 that are inserted between the walls of said pockets, the said flanges engaging the portions of the clamps between said blades, whereby both longitudinal and transverse displacement of the tube-sections is prevented, substantially as described.

5. In tubing, the combination of two adjacent abutting tube-sections having their adjacent edges margined with abutting flanges formed by overturned edge portions of the tube-sections, pockets back of the flanges adjacent to the pipe-wall extending along the wall of the pipe substantially parallel to its axis also formed by the overturned portions of the tube-sections, and clamps triangular in cross-section provided with approaching blades 5 that are inserted between the walls of said pockets, the said flanges engaging the portions of the clamps between said blades,



whereby both longitudinal and transverse displacement of the tube-sections is prevented, substantially as described.

5 6. The combination with the marginal portions of a doorway, of a door having sliding engagement therewith, the said door having downwardly-facing grooves at its top and bottom horizontal margins, which grooves are  
0 upon the rear face of the door, the corresponding horizontal margins of the door or

opening being provided with tongues or portions engaging the said grooves when the door is moved downwardly, substantially as described.

In witness whereof I hereunto subscribe my name this 14th day of September, A. D. 1904.

CHARLES H. SMITH.

Witnesses:

LEON STROH,

CHAS. F. BASSETT.