

No. 785,950.

PATENTED MAR. 28, 1905.

S. G. HINDES.
WHARF OR PIER.

APPLICATION FILED JAN. 21, 1905.

2 SHEETS—SHEET 1.

FIG. 1

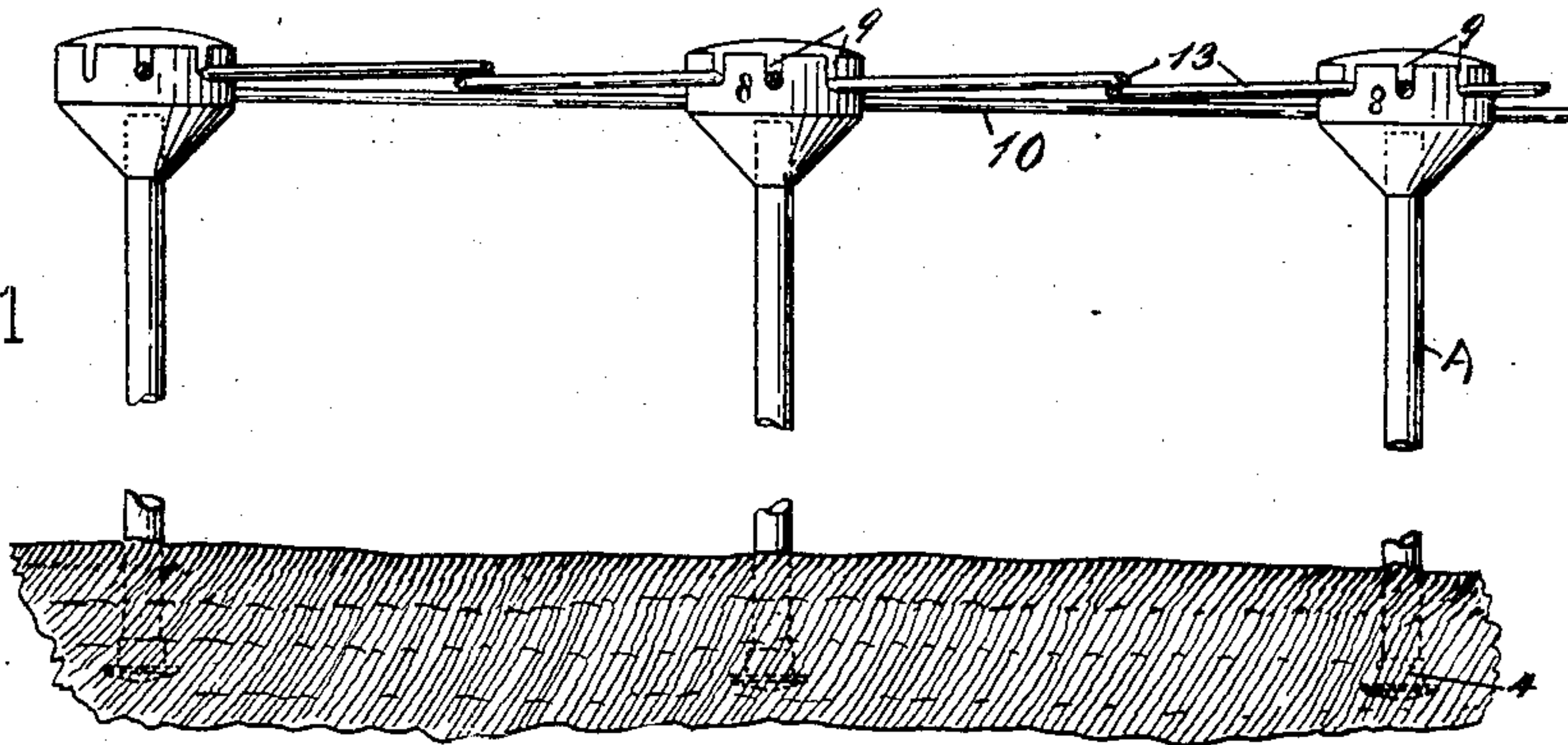


FIG. 2

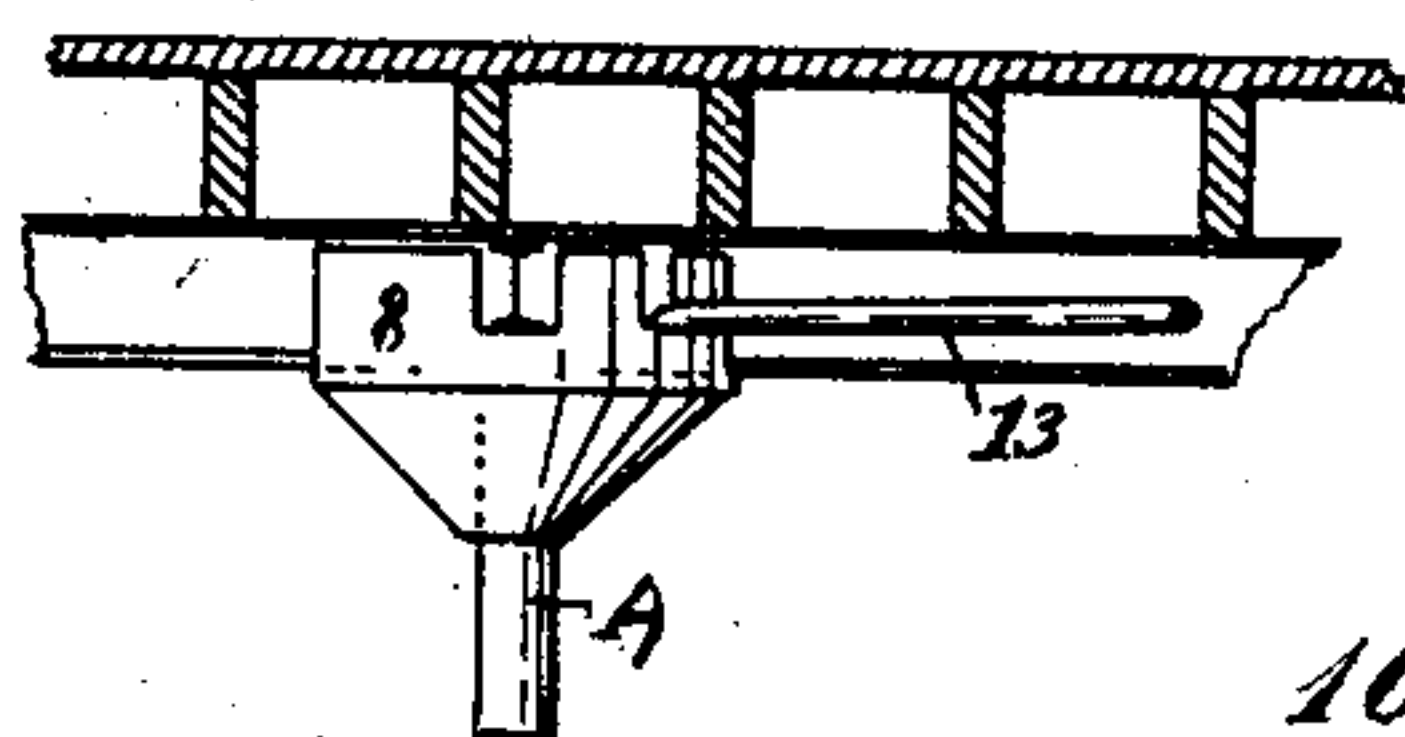
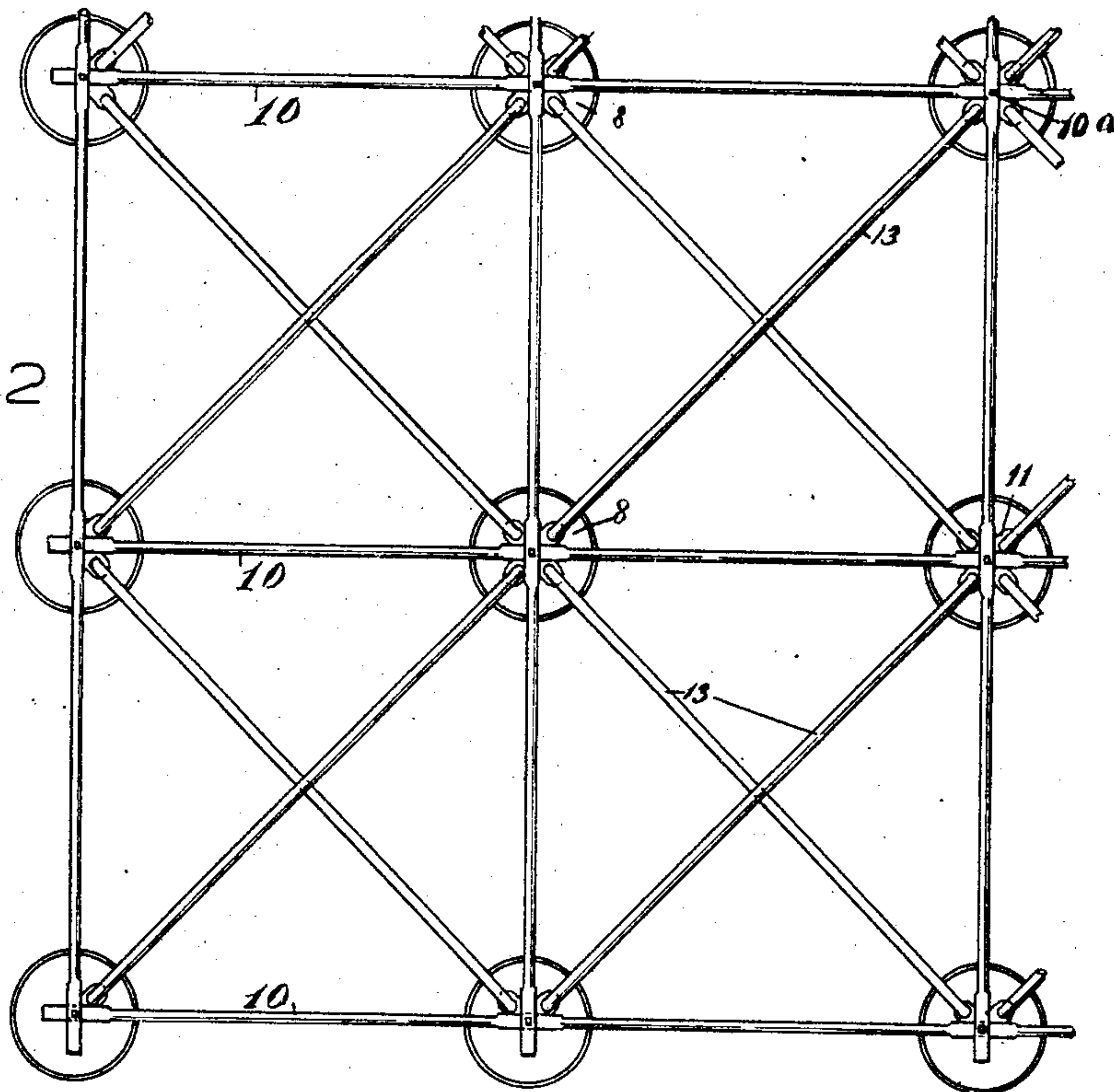
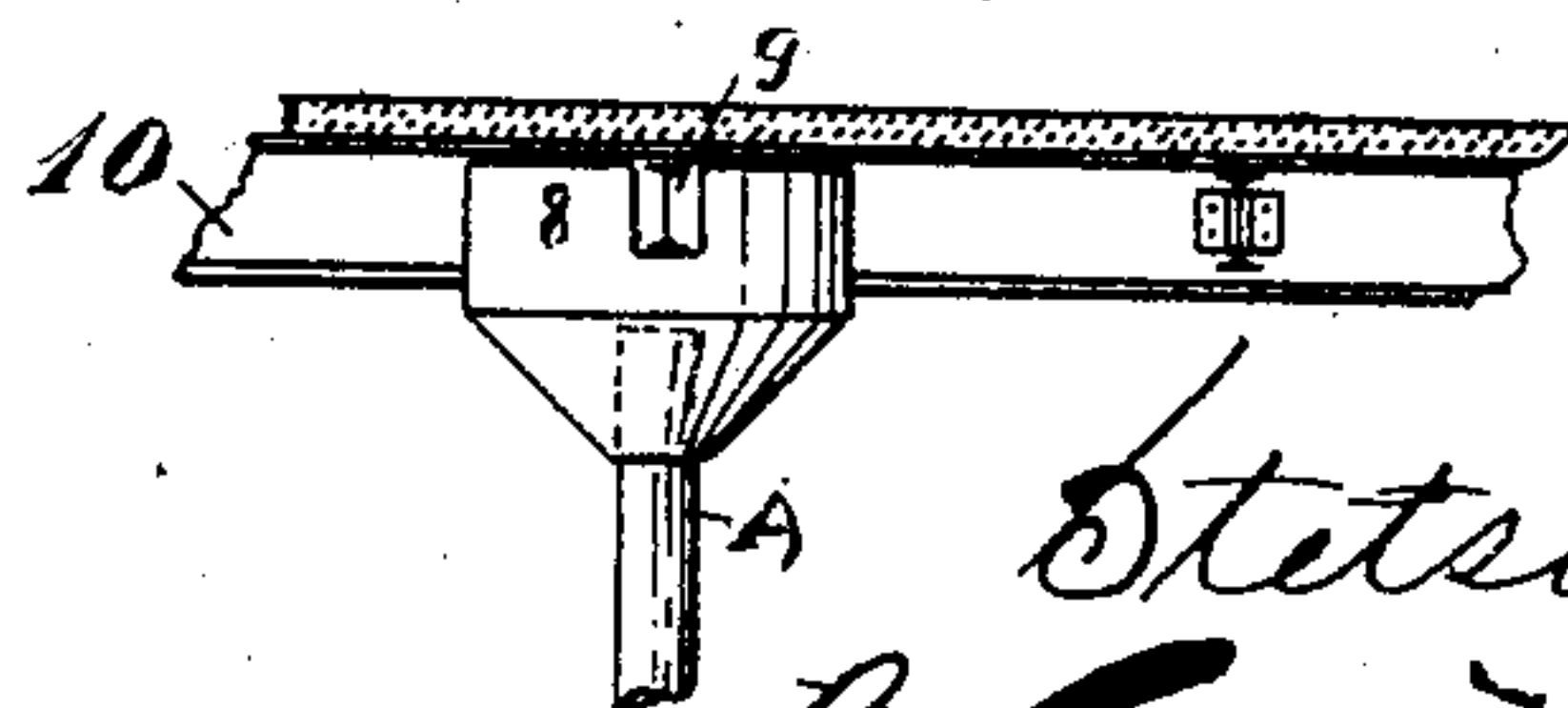


FIG. 3

Witnesses

E. W. Horne
J. A. Source

FIG. 4



Inventor

Stetson G. Hinds
By Geo. H. Strong

Attorney

S. G. HINDES.
WHARF OR PIER.
APPLICATION FILED JAN. 21, 1905.

2 SHEETS—SHEET 2.

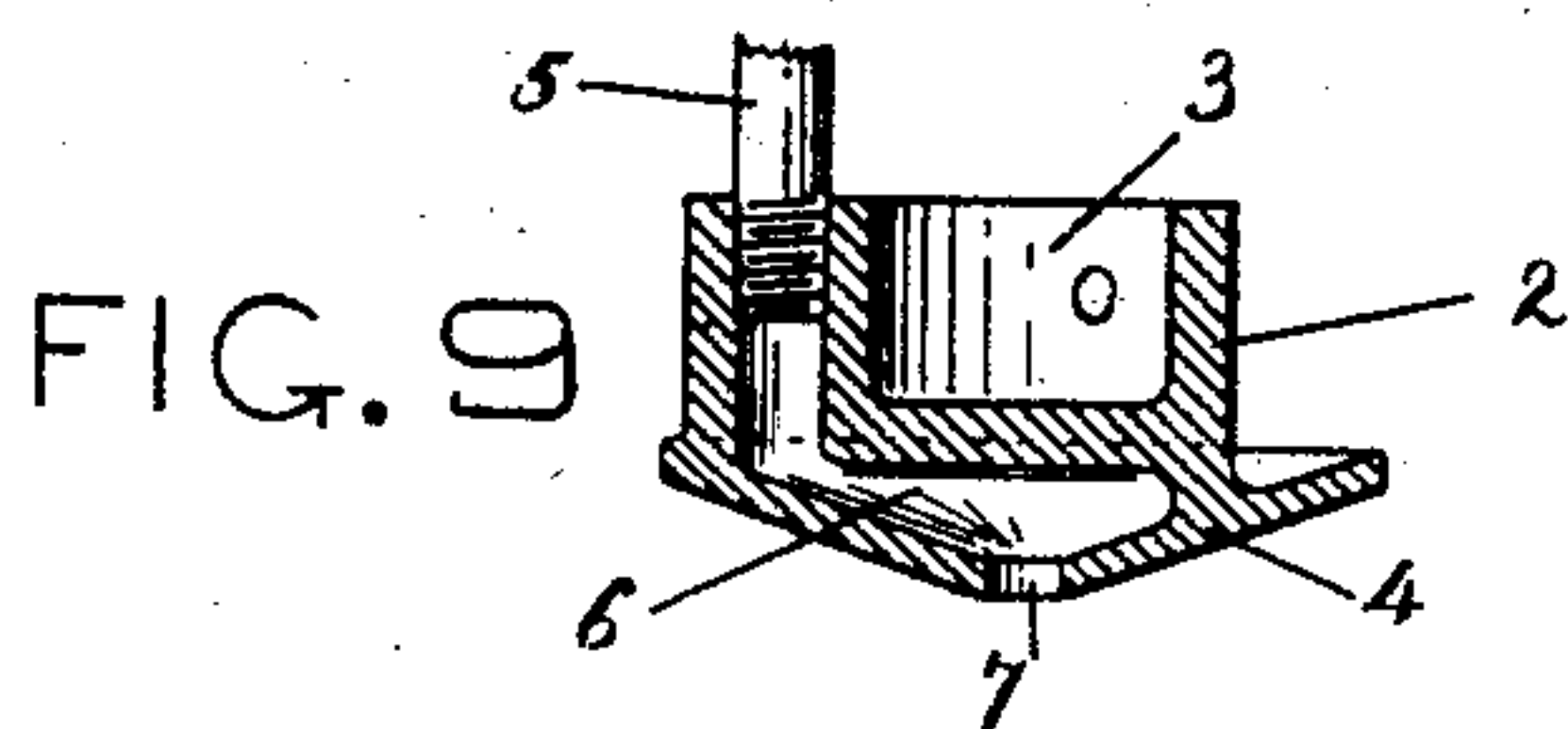
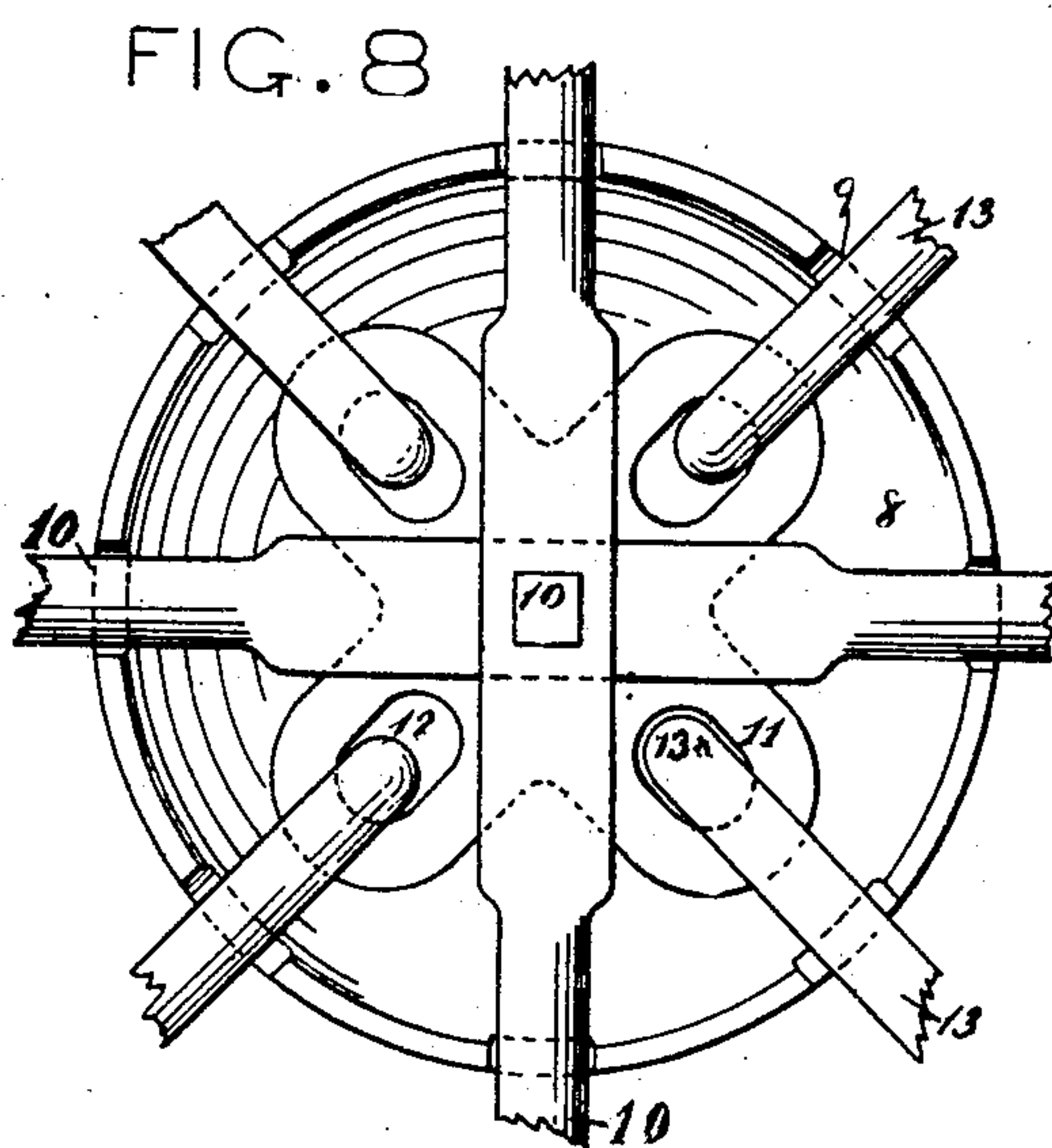
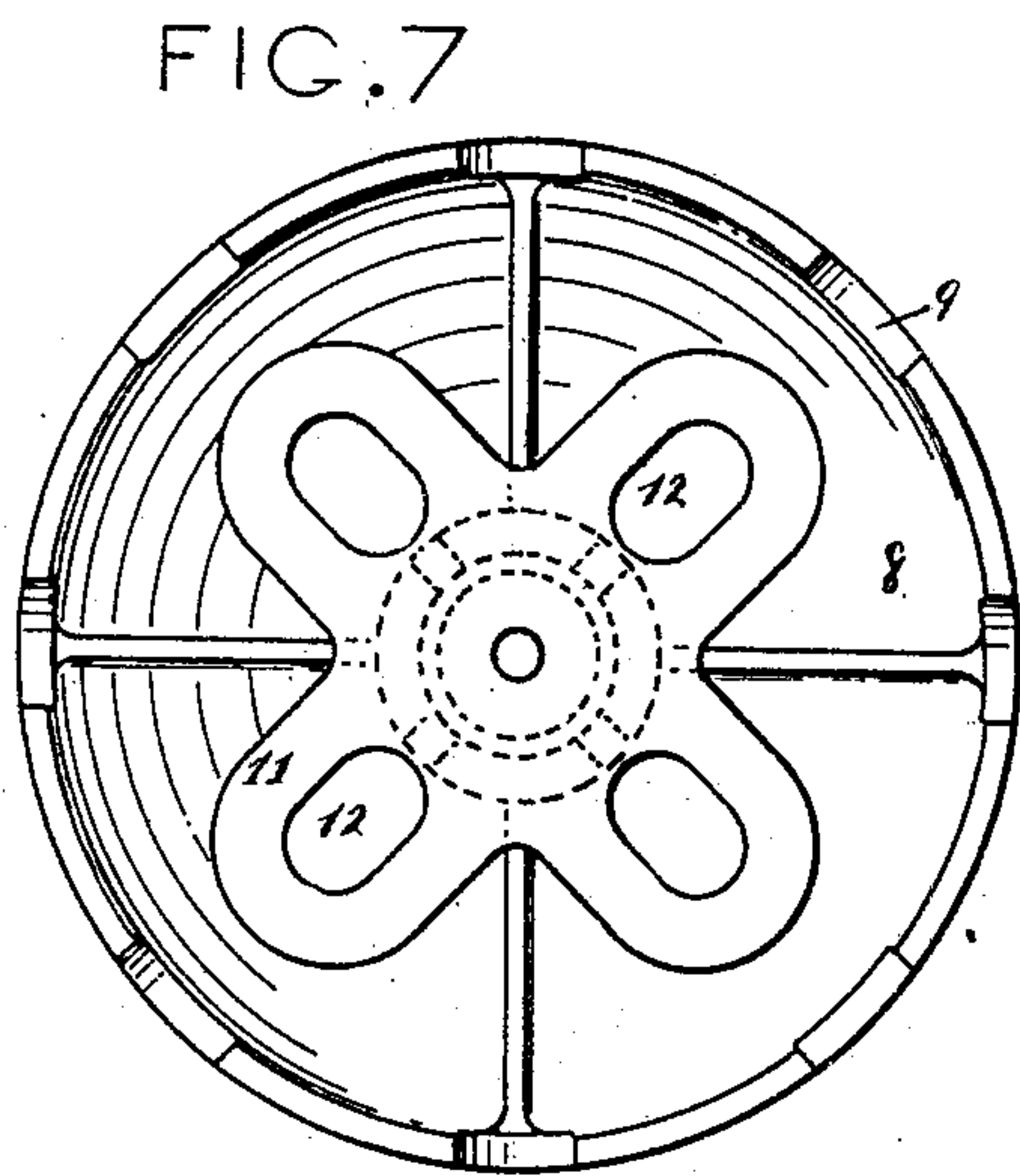
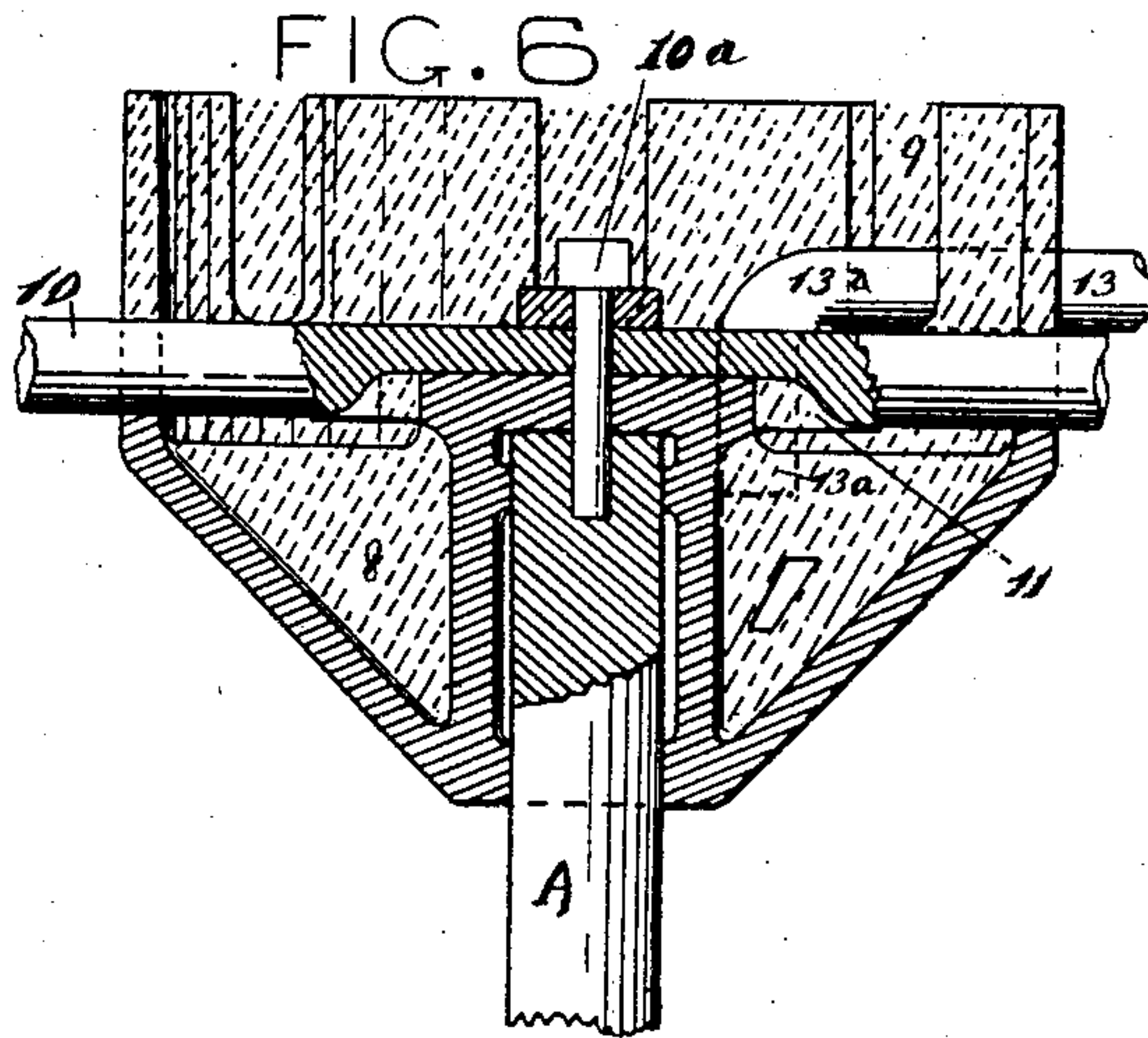
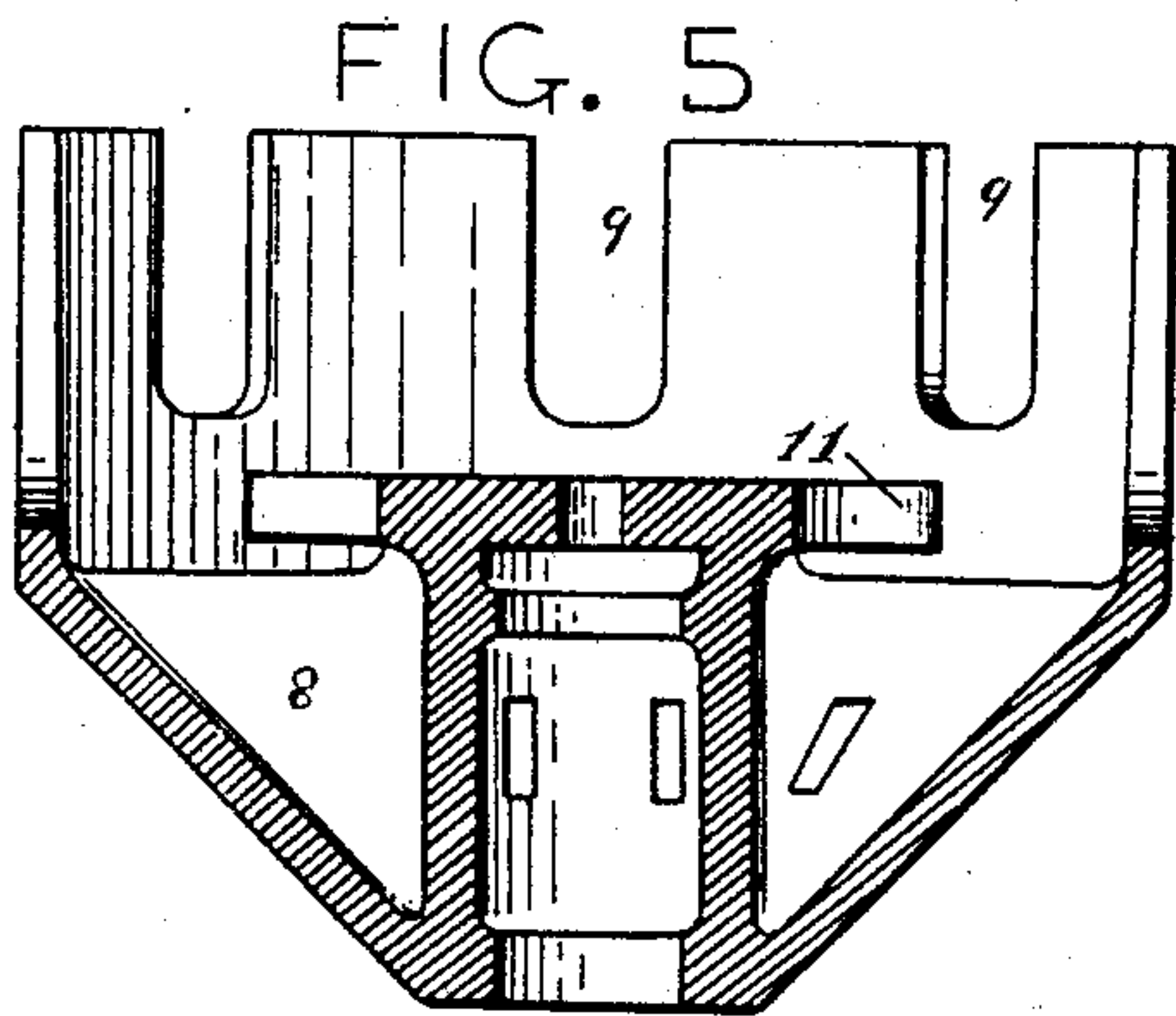
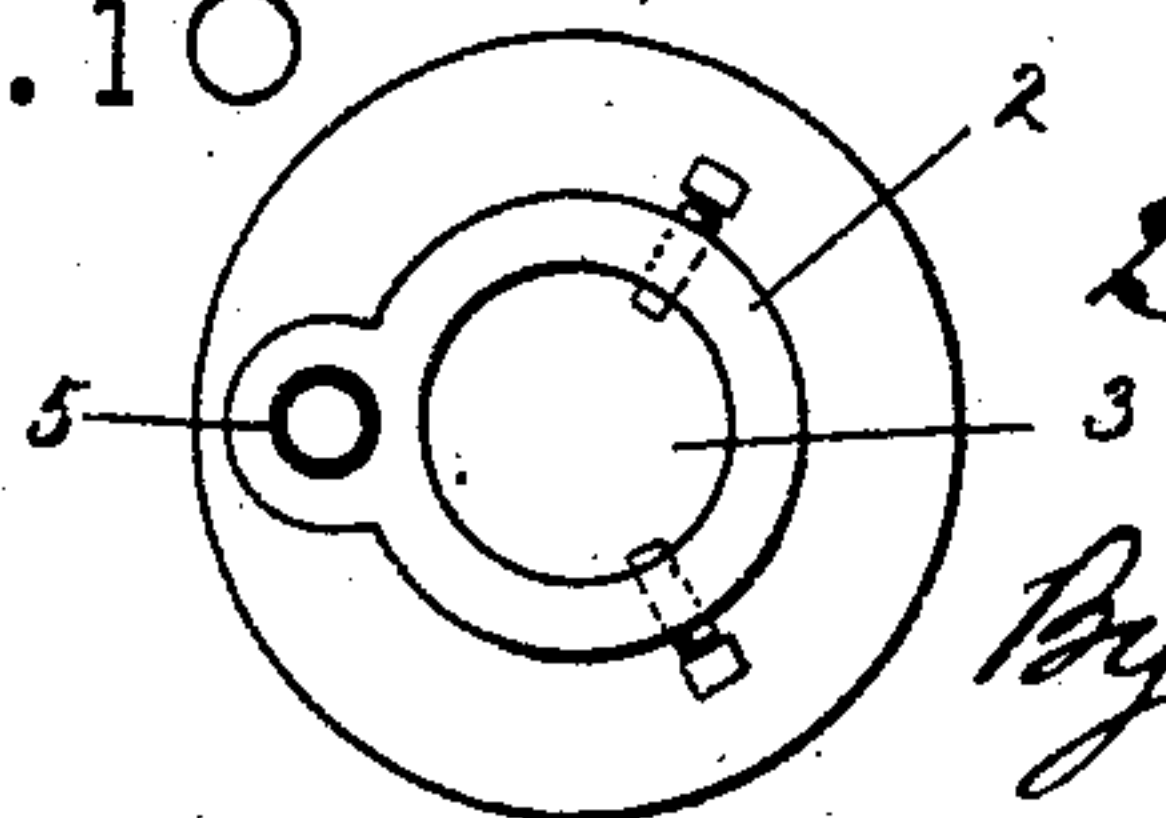


FIG. 10



Witnesses

E. W. Hume

J. H. Hume

Inventor

Stetson G. Hinds

By Geo. H. Strong

Attorney

UNITED STATES PATENT OFFICE.

STETSON G. HINDES, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO ATLANTIC GULF AND PACIFIC CO., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF WEST VIRGINIA.

WHARF OR PIER.

SPECIFICATION forming part of Letters Patent No. 785,950, dated March 28, 1905.

Application filed January 21, 1905. Serial No. 242,046.

To all whom it may concern:

Be it known that I, STETSON G. HINDES, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Wharves or Piers, of which the following is a specification.

My invention relates to improvements in the construction of structures such as wharves, piers, and the like.

It consists in the combination with the piles by which such structure is supported of caps or heads and means for connecting the horizontal and bracing beams of the wharf-floor.

It also comprises combinations of parts and details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the top and pattern of piles and the caps. Fig. 2 is a plan view. Figs. 3 and 4 are sections showing superstructure. Fig. 5 is a vertical section of the cap. Fig. 6 is a similar view showing the bars and braces. Fig. 7 is a plan view of the cap. Fig. 8 is a similar view showing the bars and braces. Fig. 9 is a vertical section of the shoe. Fig. 10 is a plan of same.

It is the object of my invention to provide such a construction for wharf, piers, or other similarly-supported floors or structures as to rigidly unite the floor portion with the vertical piles by which such portion is supported and by such union to strengthen the structure against the shocks of waves where thus exposed or to strengthen it against loads which may be carried thereon.

As shown in the drawings, A represents piles, which in the present case are described as being of metal, and these are sunk into the sand or other bottom where the piles are to be driven. Where driven in sand or like material, I prefer to employ a shoe, as shown at 2, having a socket portion 3, into which the lower end of the pile may be inserted and fixed by set-screws or other suitable means. The lower end of the pile has formed upon it a cap, as at 4, which is in the form of a flat cone, the point of which substantially coincides with the center of the pile, and this cap is of sufficiently larger diameter than the pile

so that it may open a passage for the pile to be easily sunk by hydraulic pressure, which is introduced by means of a pipe, as at 5, and a passage and chamber 6 cast within the cap, extending below the opening in which the pile is seated and having a hole through the bottom, as at 7, so that a jet of water under pressure being delivered through this passage and chamber will force the sand away and allow the cap and pile to sink to the desired depth. When the pile has been thus sunk, the larger diameter of the cap increases the supporting-surface for the pile and the superstructure. The upper end of the pile has fitted upon it a cap, as at 8. This cap may be secured in any suitable or desired manner, as by keys passing through or by other equivalent or well-known means. This cap is here shown with the upper part substantially cylindrical and the lower portion converging toward the pile itself. This cap or head has channels made in it transversely and at right angles, as shown at 9, and these channels are adapted to receive the bars 10, which form supports for the superstructure of whatever character. These bars are here shown as made of iron, of suitable size, and they may be flattened at their intersection upon the pile and secured at their point of crossing by bolts, as at 10^a, entering the head of the pile. The cap has an interior flange, as at 11, and its periphery is here shown in the form of a cross having holes made in it, as at 12.

13 represents diagonal rods or bars the ends of which are bent downward in hook form, as shown at 13^a, and these hooks enter the openings 12, which are here shown as being elongated, in line with the bars, so as to compensate for slight differences in the length of the bar and the relative position of the piles. The bars being thus hooked into the slots are then wedged tight and the structure thus made solid. The head is then filled with concrete or any suitable filling-cement, which serves to protect the bolts and the parts thus inclosed. Such a structure completed to this point may be employed as a support for pipelines or other similar purposes. It may have beams laid upon it for the purpose of supporting a wooden or other flooring for a close

wharf, or it may be constructed to receive the necessary support for fireproof or other flooring, the structure being equally efficient for all such purposes. This cements the beams and brace-rods, cap, and pile firmly together, forming one rigid mass of great strength without other bracing and thoroughly protecting all parts within the cap from corrosion, which is especially important in salt water.

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

1. A wharf or like structure composed of piles having enlarged caps fitted to the upper ends, and means for securing horizontal beams thereto.

2. In a wharf or like structure, vertically-disposed piles, hollow caps having peripheral slots adapted to receive transverse floor-beams, and diagonal braces uniting said caps and means for securing said braces.

3. In a wharf or like structure, piles, hollow caps having channels at right angles, means for securing the caps upon the heads of the piles, slotted plates formed in the heads intermediate of the channels, diagonal bars adapted to hook into the slots and wedges by which the bars are locked in position.

4. A wharf or like structure comprising piles having hollow shoes with enlarged supporting-heads, chambers and connections through which a hydraulic jet may be delivered to sink the piles, said shoe serving as a support for the pile and superstructure, enlarged caps having channels upon the edges at right angles with each other, beams crossing each other through said channels and bolted to the pile-heads, diagonal braces extending between the piles and a filling of plastic material which will afterward set.

5. In a wharf and like structure, vertical

piles having enlarged hollow caps fixed to the upper ends, channels made in the peripheries of said caps, horizontal beams extending through the channels and means securing said beams.

6. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through said channels, flanges located within the heads and diagonal brace-rods connecting said flanges.

7. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through the channels and secured therein, radially-slotted flanges located within the heads, rods extending diagonally and engaging with the slots and means whereby said rods are locked to the flanges.

8. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through said channels, flanges located within the heads, diagonal brace-rods connecting said flanges, and a concrete filling within which the beams and braces are embedded.

9. In a wharf or like structure, piles, enlarged hollow caps rigid therewith, transverse beams and braces crossing and united within the cap, and a concrete filling within which the beams and braces are embedded and rigidly locked.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STETSON G. HINDES.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.