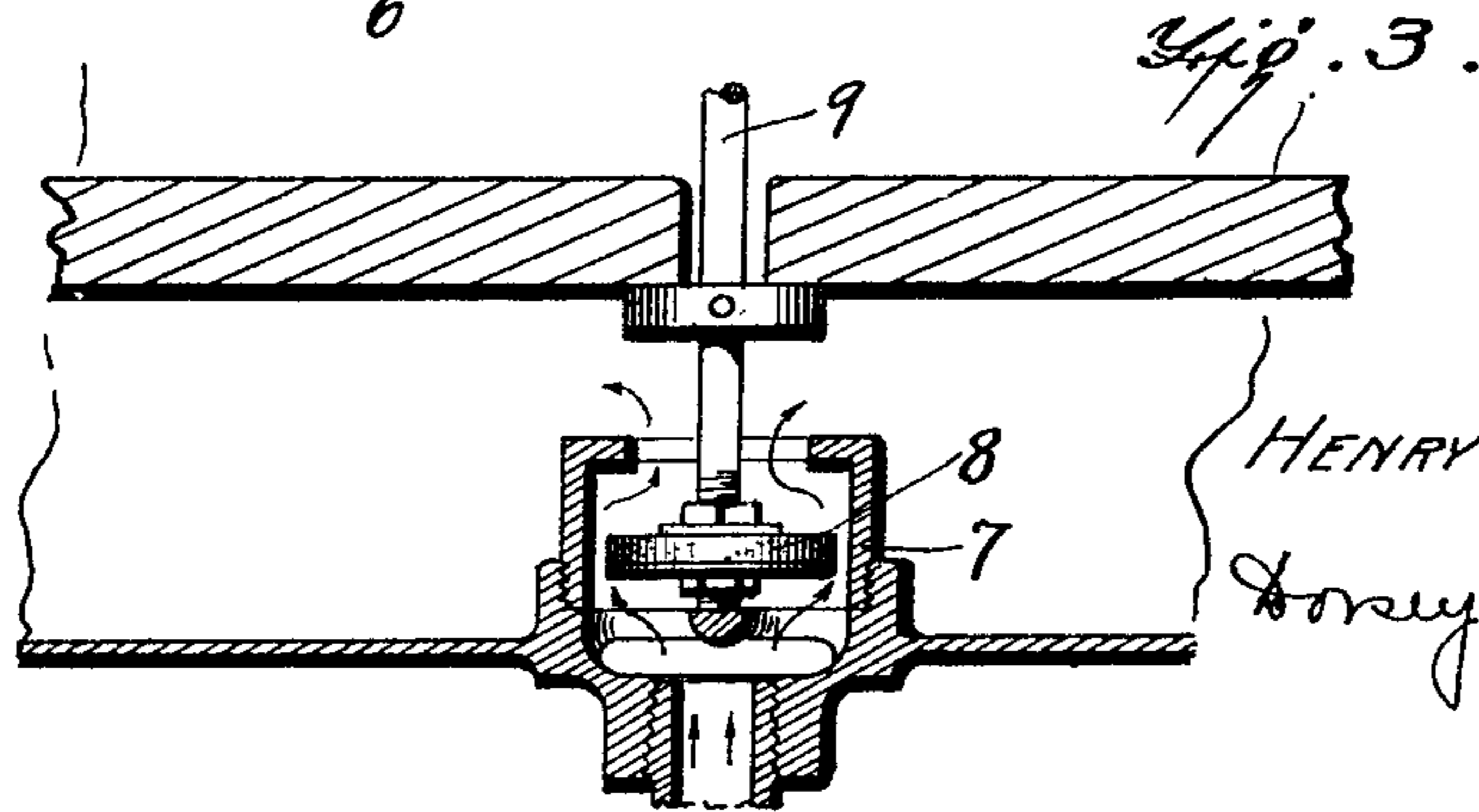
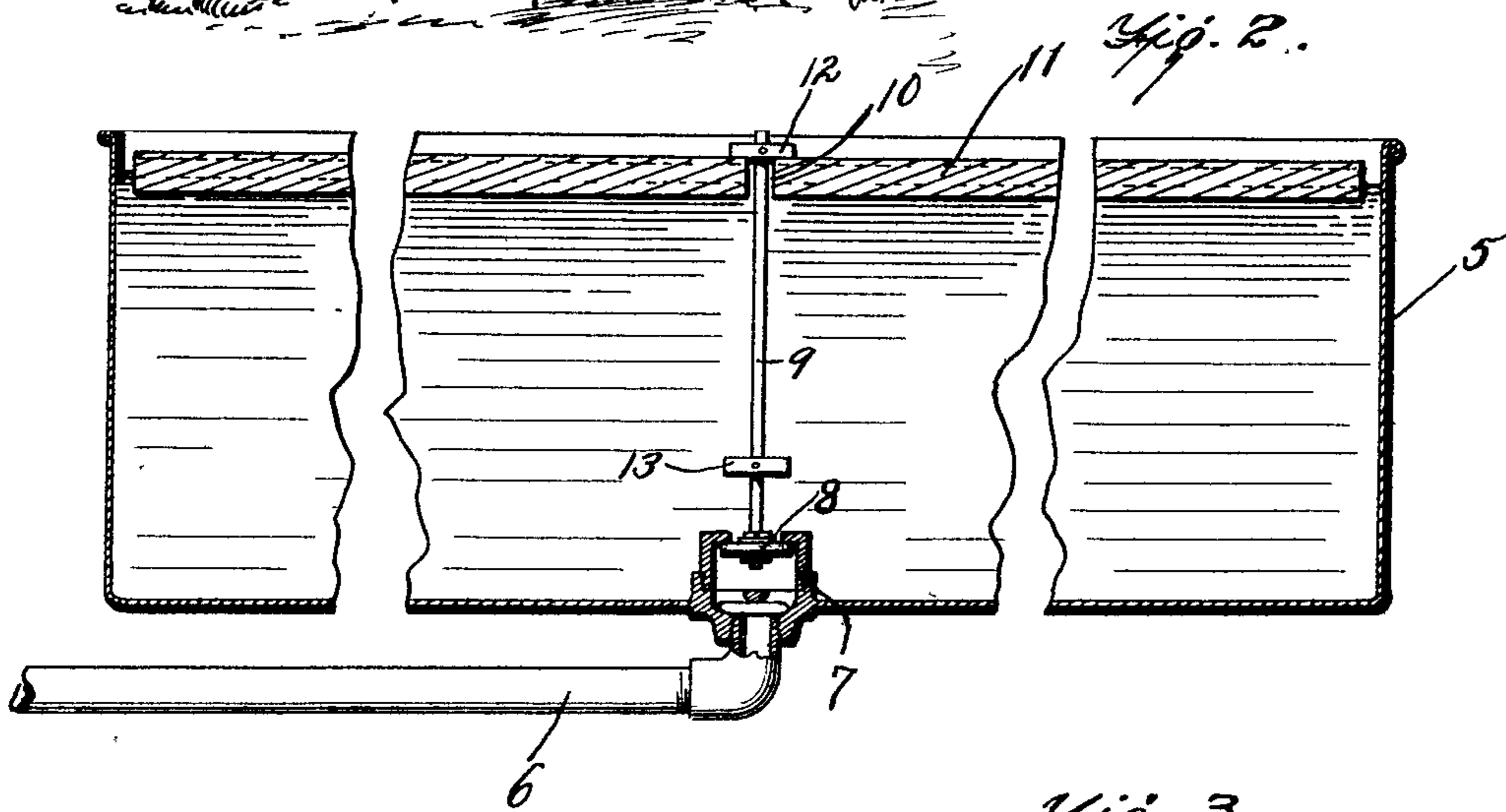
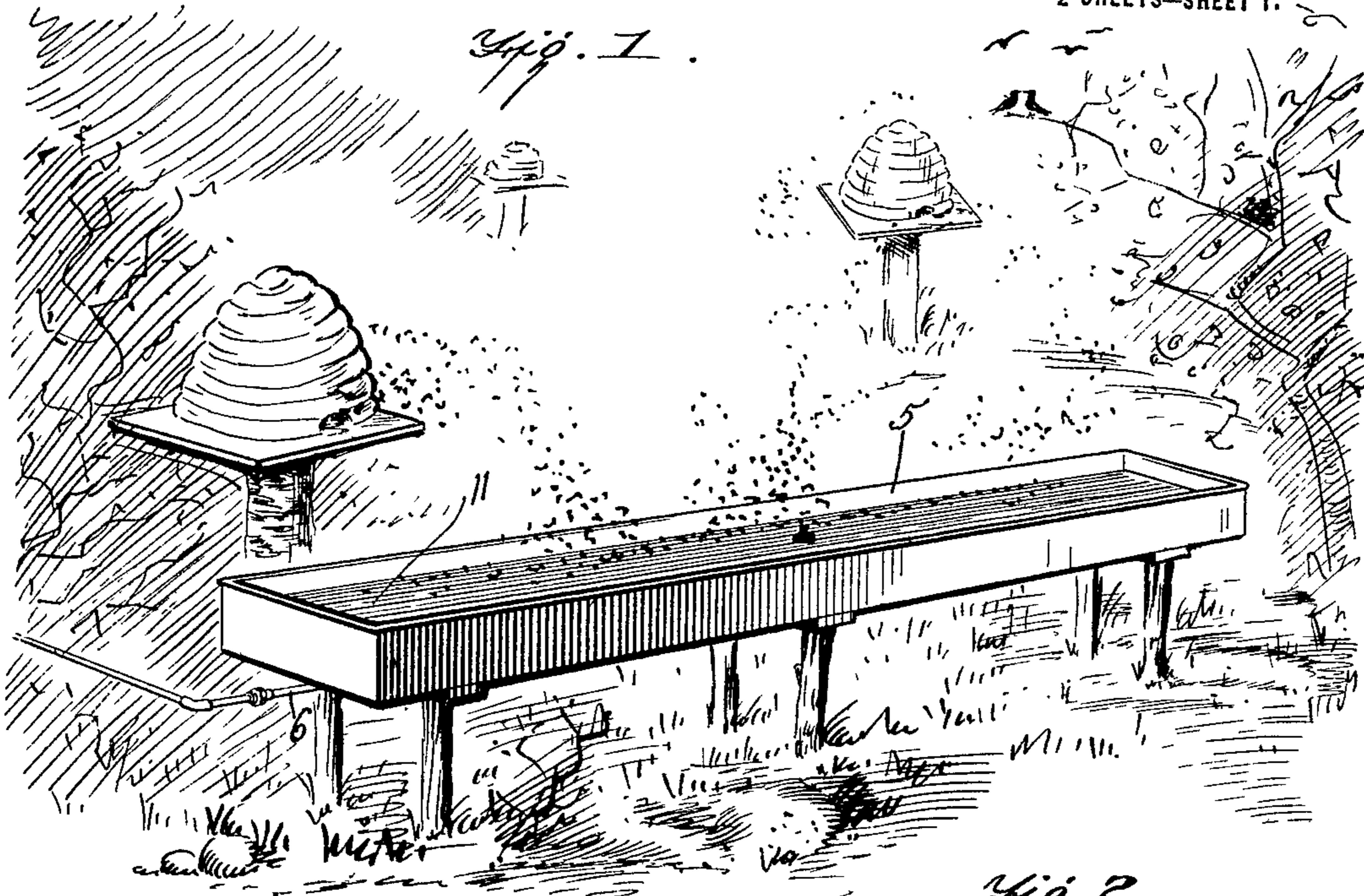


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WATERING TROUGH FOR BEES.
APPLICATION FILED MAY 5, 1920.

1,406,568.

Patented Feb. 14, 1922.

2 SHEETS—SHEET 1.



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Fig. 4.

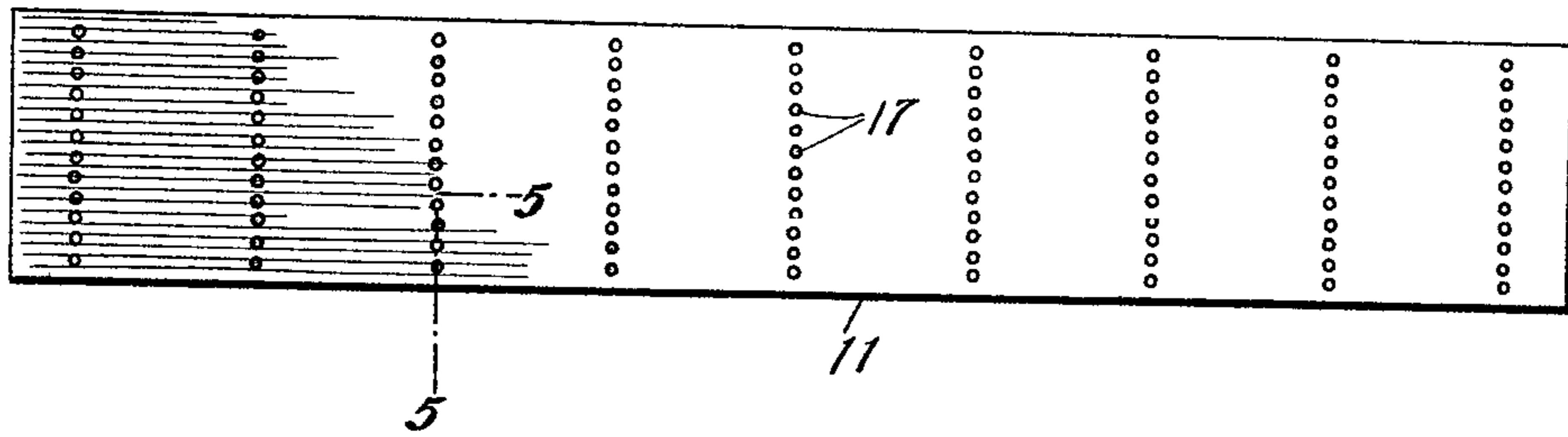


Fig. 5.

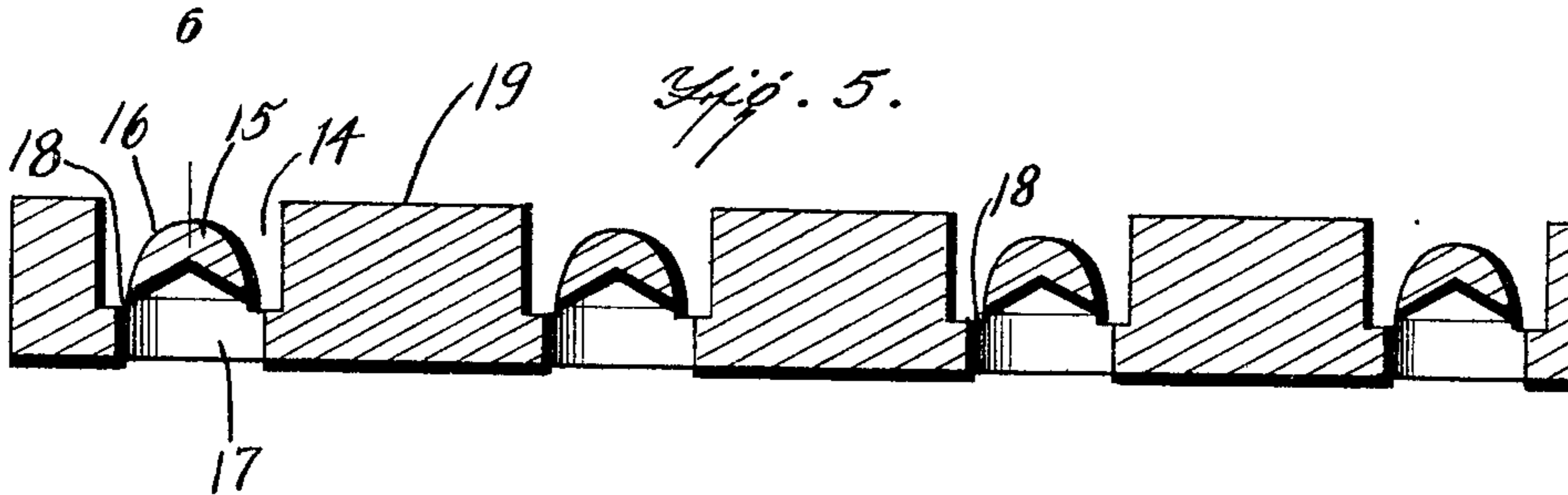


Fig. 6.

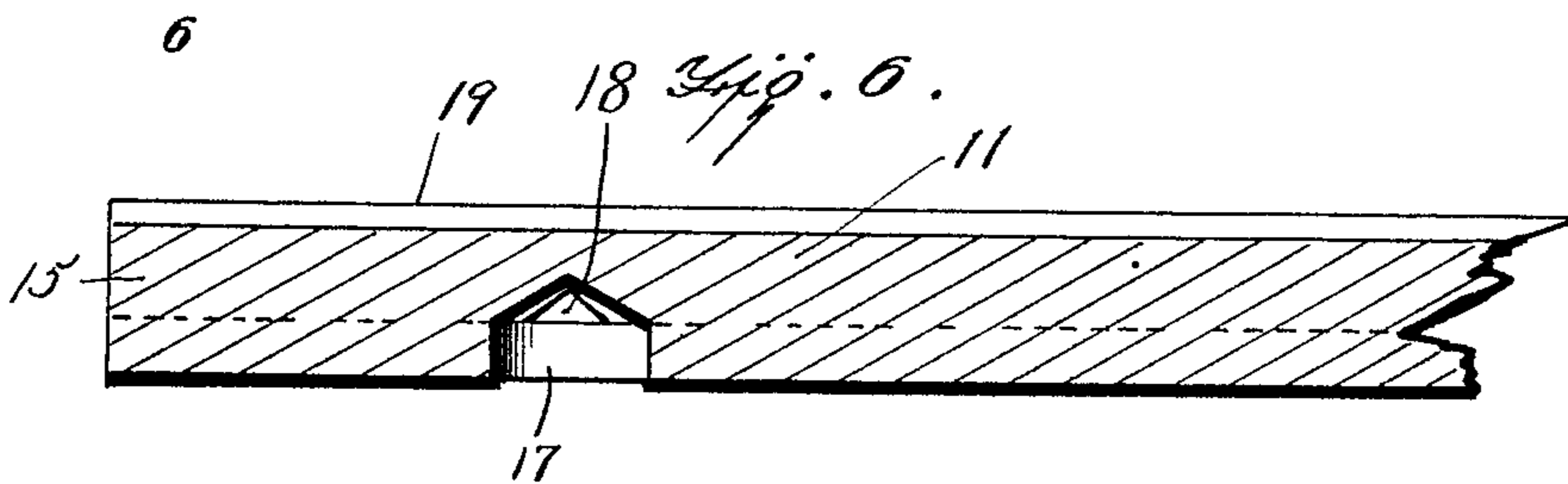
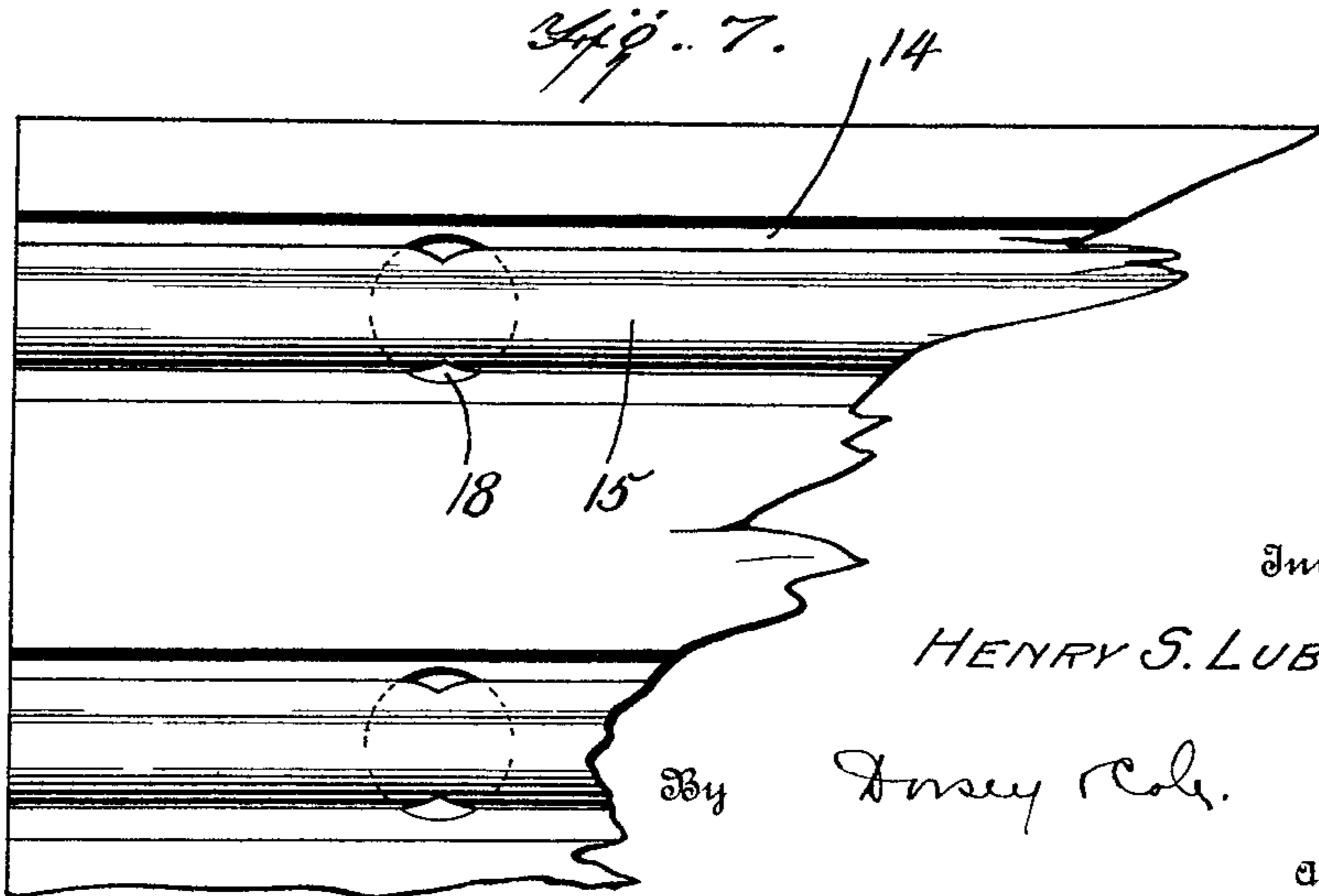


Fig. 7.



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UNITED STATES PATENT OFFICE.

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WATERING TROUGH FOR BEES.

1,406,568.

Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed May 5, 1920. Serial No. 378,951.

To all whom it may concern:

Be it known that I, HENRY S. LUBBEN, a citizen of the United States of America, and a resident of Le Mars, Iowa, have invented certain new and useful Improvements in Watering Troughs for Bees, of which the following is a specification.

This invention is an improvement in watering troughs for bees, and its principal object is to provide an efficient means whereby clean, fresh water is at all times available.

Another object is to provide an accessible water supply for the bees which may be used in safety by them, and which will afford warm water for them to drink.

The invention consists essentially in a trough, connected to a water supply, and in which floats a landing board, the water supply being controlled automatically by a valve operable by the landing board in such manner that as the board drops with the level of the water to a certain position, the valve will be opened to admit water to the trough, and when the board in rising with the water level reaches a certain position, the valve will be closed to cut off the supply.

The landing board is constructed with grooves in its upper surface which communicate with openings extending to its lower surface so that the water may flow up through the openings and into the grooves. The grooves are provided with longitudinally extending ribs, the upper surfaces of which are of a convex formation, so that a plurality of areas of shallow water are exposed by the landing board. The spaces between the grooves afford safe landing places for the bees, and while resting on these spaces, they may drink the water from the grooves. By reason of the shallowness of the water areas, the sunlight will quickly bring the water to a desirable temperature so that tepid water will be available at all hours of the day.

In the accompanying drawings, which form a part of this application,—

Figure 1 represents a view in perspective of a watering trough constructed according to my invention.

Figure 2 represents a vertical longitudinal section thereof, portions being broken away, the control valve being shown in closed position.

Figure 3 represents an enlarged vertical

sectional view of the valve, the same being shown in open position.

Figure 4 represents a bottom plan view of the landing board.

Figure 5 represents a transverse sectional view enlarged, on the line 5-5 of Figure 4.

Figure 6 represents a fragmentary longitudinal sectional view enlarged on the line 6-6 of Figure 5.

Figure 7 represents a fragmentary enlarged plan view of the landing board.

Referring more particularly to the drawings, the trough is indicated at 5, and is connected by means of a suitable pipe line 6, with a source of water supply (not shown), as for instance, a tank. The supply pipe 6 connects with a valve casing 7 arranged in the floor of the tank, and in which a valve 8 is positioned. The valve 8 is equipped with a rod 9 which extends vertically up into the tank and which projects through an opening 10 in the landing board 11. Stops 12 and 13 are arranged in spaced relation on the rod 9, one above, and one below the board, and are disposed preferably adjacent the upper and lower edges of the tank.

The landing board is made of wood, or some other suitable material which will float on the surface of the water in the trough. As the water evaporates from the tank, the board moves downward with the level of the water, until it engages the lower stop 13. Further evaporation will cause the weight of the board to be taken up by the stop, and will thus shift the valve from the closed position shown in Figure 2, to the open position shown in Figure 3, whereupon water will pass into the tank through the line 6 and valve casing 7. The board in rising with the water level will, as the level reaches nearest the top of the tank, engage the upper stop 12 and shift the valve upwardly in the open position indicated in Figure 3, to the closed position indicated in Figure 2, thus cutting off the water supply. Thus the water supply will be automatically controlled by the movements of the landing board. The levels at which the valve will be operated in one direction and the other, may be controlled and adjusted by shifting the stops 12 and 13 to the desired positions on the rod 9, suitable holding means for the stops, such as set screws, or the like being provided.

The landing board is provided on its upper surface with a plurality of spaced longitudinally extending grooves 14. The

floors of the grooves are formed with upwardly projecting ribs 15 having convex upper surfaces 16, so that the areas of water exposed in the grooves, while being relatively 5 wide, will be shallow, so that the sun's rays will quickly warm the water to a desirable temperature. In the lower face of the board, openings 17 are made, which are of a diameter slightly greater than the width of the 10 rib 15, so that communicating ports 18 between the openings 17 and the grooves 14 are thus provided. Each of the grooves thus communicates at a plurality of points with the lower surface of the board, so that 15 when the board is placed in a trough, the water will find access into the grooves through the openings 17 and ports 18. The landing spaces 19, occurring between the grooves 14, on the upper surface of the 20 board, will project slightly above the water level, so as to remain always in a dry state, and on these spaces the bees may land and drink from the water in the grooves.

I claim,—

25 1. In a device of the class described, the combination of a trough, a water supply line connecting with the trough, a valve for controlling the water supply line, a floating landing board arranged in the trough, a 30 stem for the valve extending through the landing board, and spaced stops arranged on the valve on opposite sides of the landing board whereby as the board moves with the level of the liquid in the trough, the 35 valve will be closed when the board reaches one predetermined level, and will be opened

when the board reaches another predetermined level.

2. In a device of the class described, the combination of a trough, a water supply 40 means therefor, a valve controlling the water supply means, a floating landing board arranged in the trough, and movable with the water level therein, and means 45 operable by the landing board for actuating the valve.

3. In a device of the class described, the combination of a trough, a fluid supply means therefor, a valve for controlling the 50 fluid supply, a floating landing board having means for exposing areas of fluid to the atmosphere, and means operable by the landing board for actuating the valve.

4. In a device of the class described, a landing board having a plurality of spaced 5 grooves provided in its upper surface, upwardly extending ribs on the floors of the grooves having convex upper surfaces, openings provided in the lower surface of the board and communicating with the grooves, 60 the upper surfaces of the board between the grooves affording landing places.

5. In a device of the class described, a landing board having a plurality of grooves 65 in its upper face, ribs extending into the grooves for reducing the cross-sectional area of said grooves, said board being provided in its lower face with openings communicating with the grooves.

In testimony whereof I hereunto affix my 70 signature.

HENRY S. LUBBEN.