

No. 612,386.

Patented Oct. 11, 1898.

J. W. HASSMANN.
APPARATUS FOR MALTING GRAIN.

(Application filed Feb. 26, 1897.)

(No Model.)

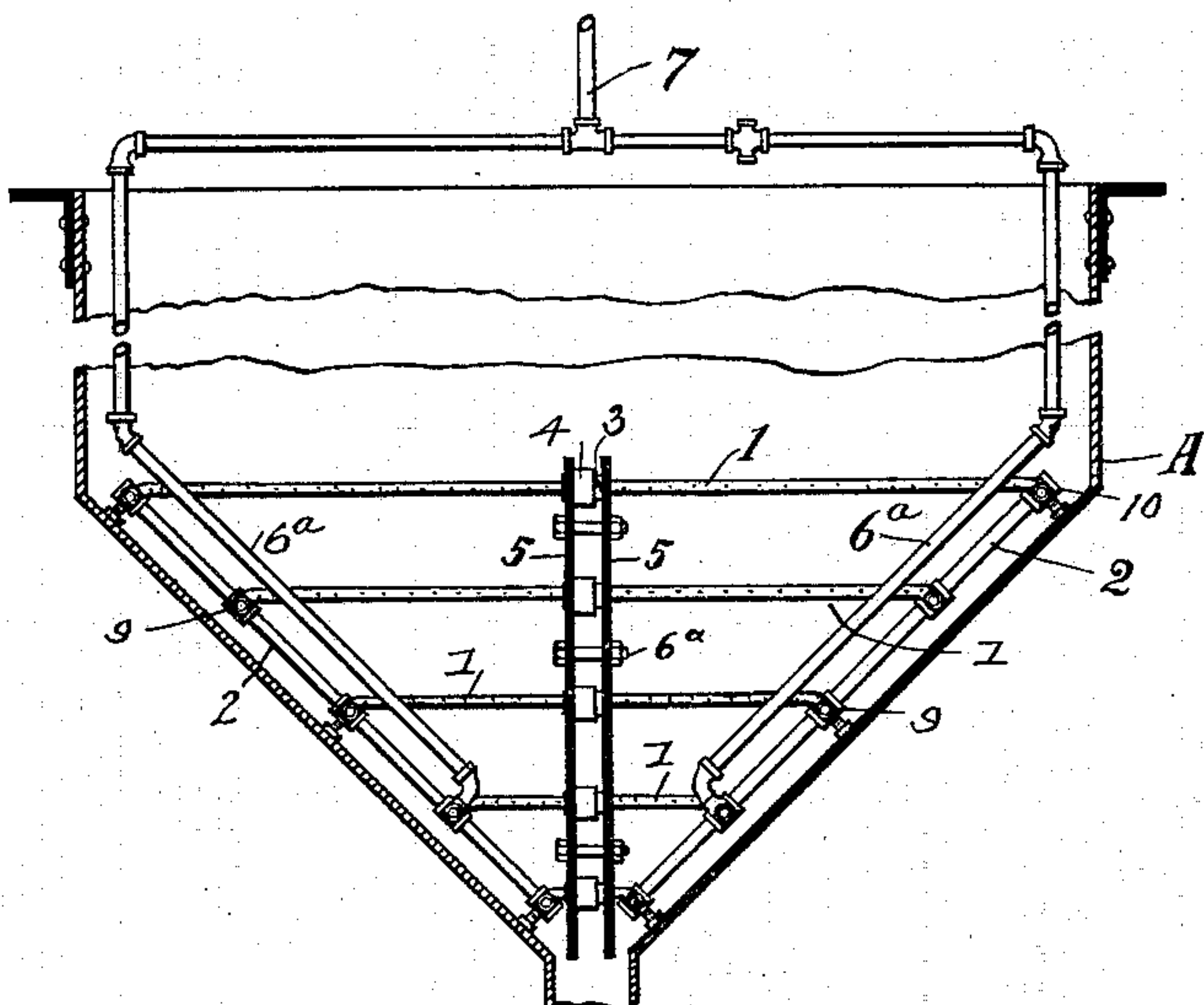


Fig 1.

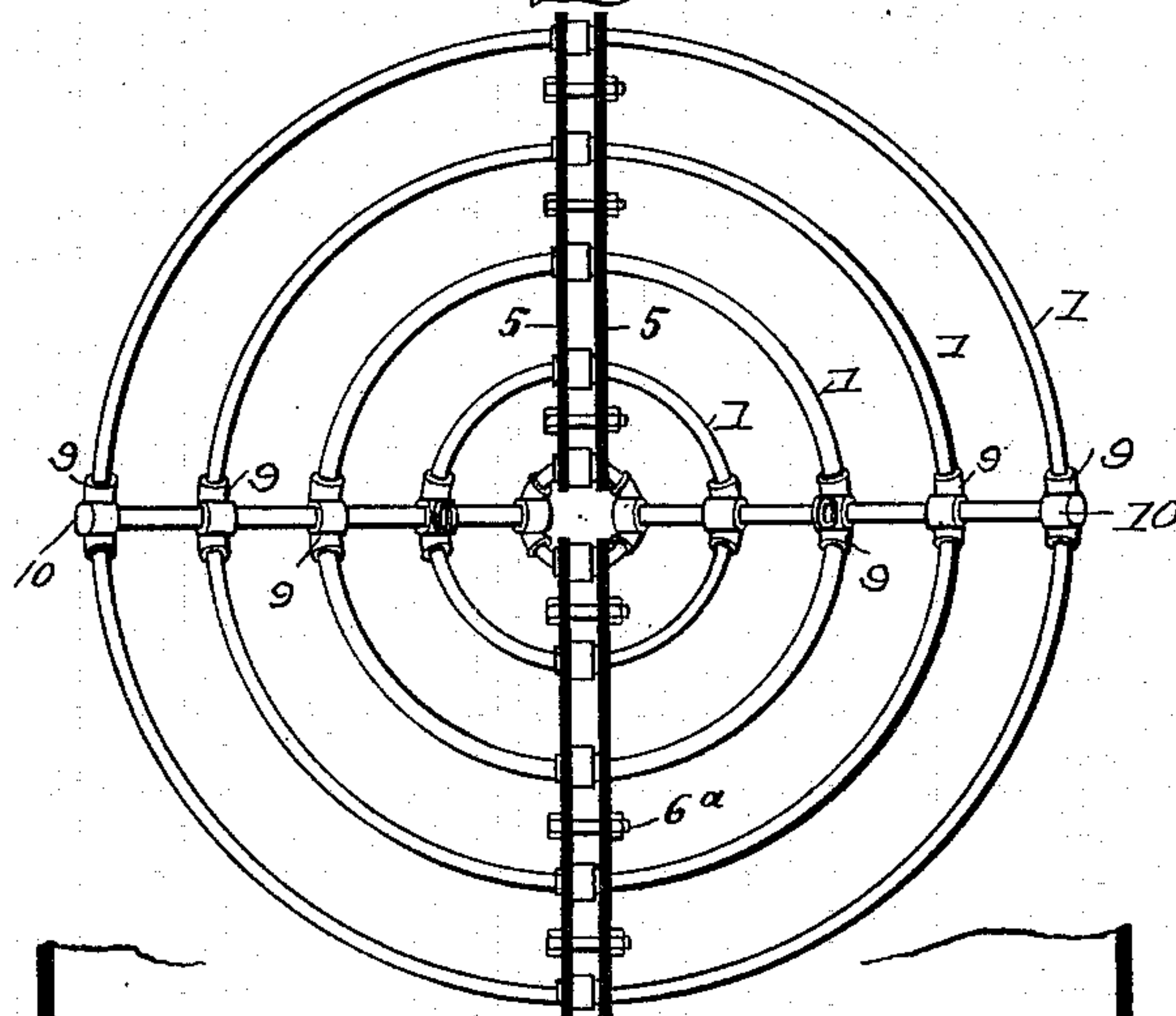


Fig 2.

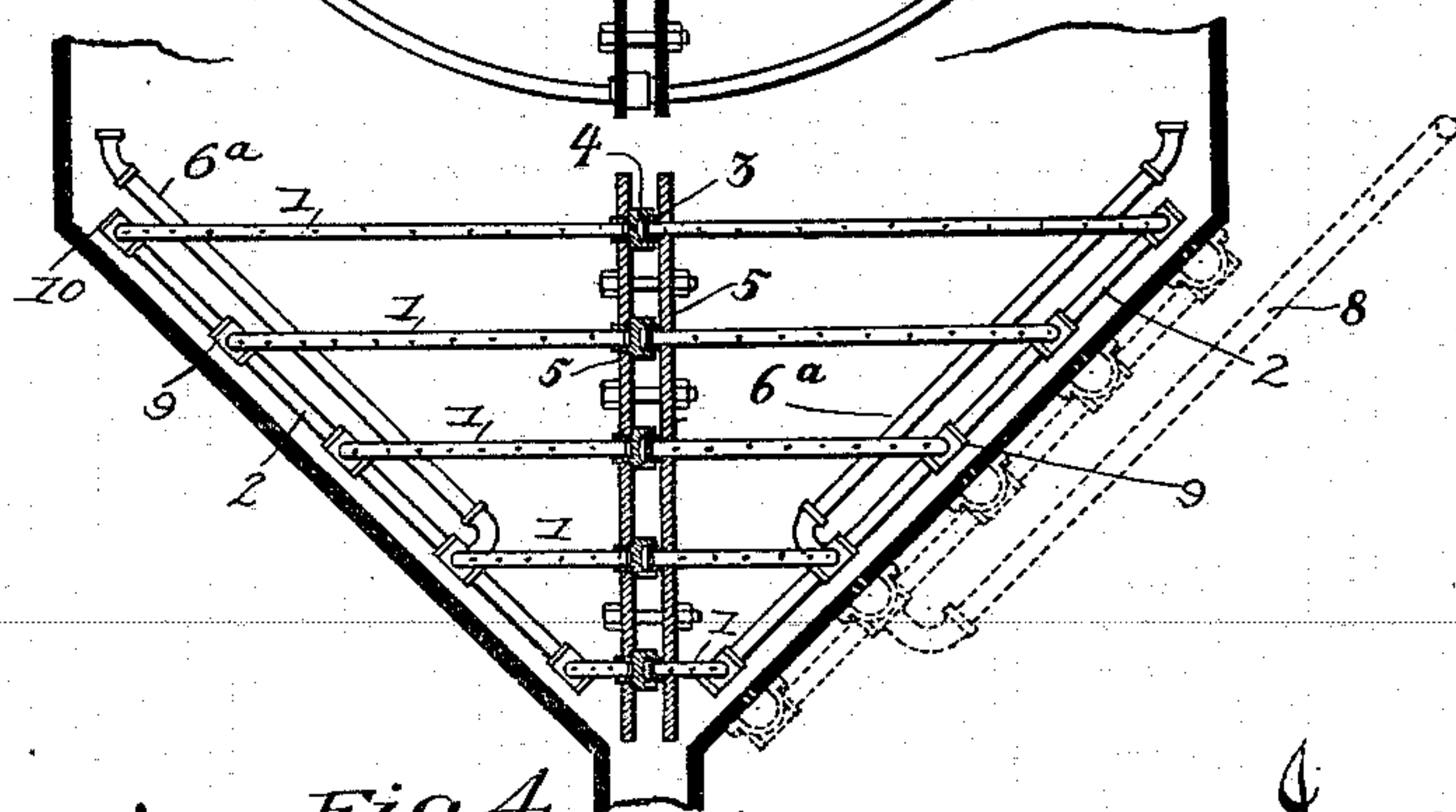


Fig 3.

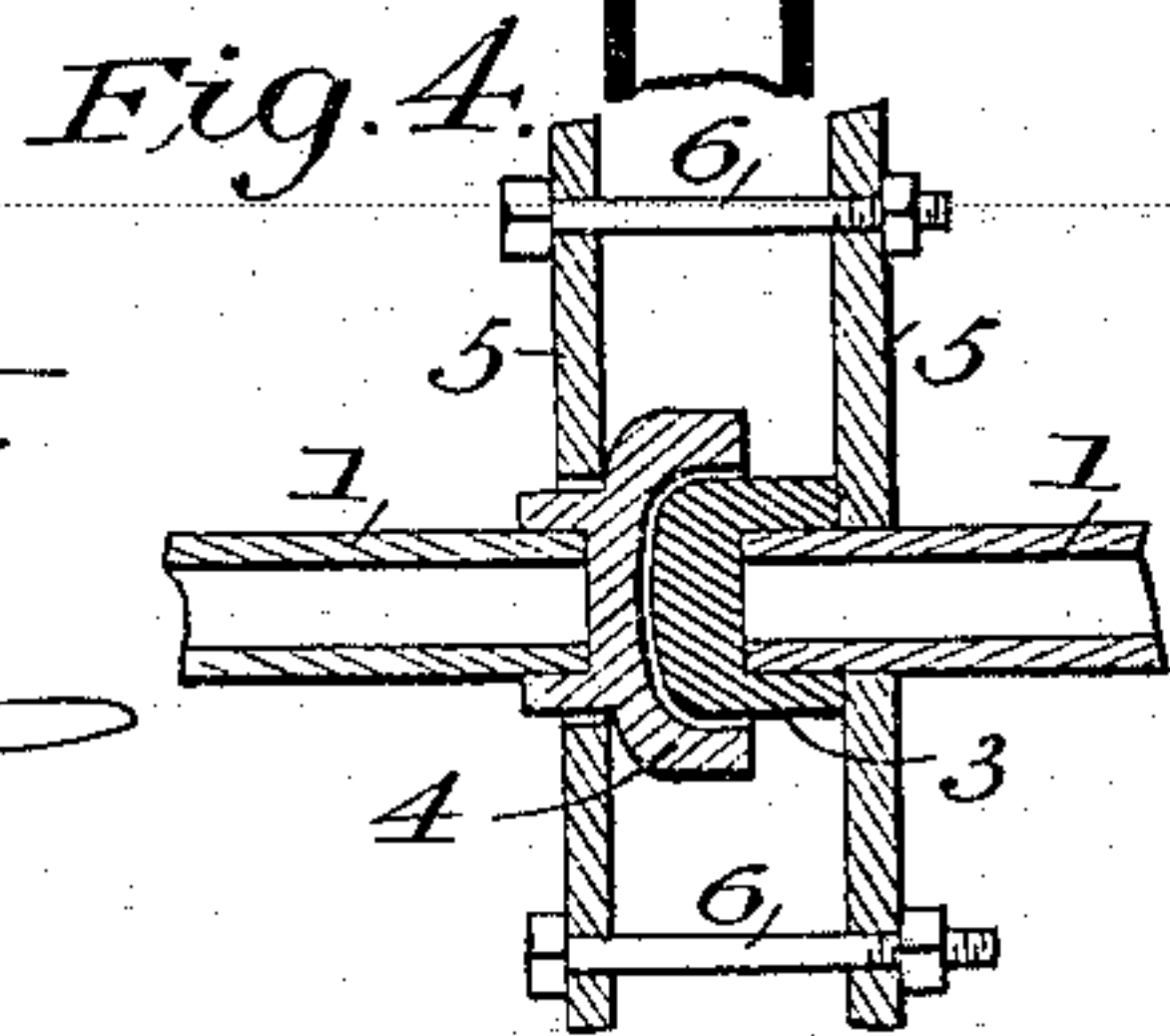


Fig. 4.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MALTING GRAIN.

SPECIFICATION forming part of Letters Patent No. 612,386, dated October 11, 1898.

Application filed February 26, 1897. Serial No. 625,077. (No model.)

To all whom it may concern:

Be it known that I, JOHN WM. HASSMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Malting Grain; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel apparatus for steeping and malting grain, the object being to provide an apparatus in which the grain is steeped and after the steeping process has been completed the germination is begun without removing the steeped grain from the steep-tanks; and it consists in the features of construction hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a vertical sectional view of an apparatus for steeping and malting grain, taken on the line 1 1 of Fig. 2. Fig. 2 is a top plan view of the same. Fig. 3 is a sectional view similar to Fig. 1, showing the manner of securing the ends of the semicircular pipe-sections together in section, and also showing a modified form of construction in dotted lines. Fig. 4 is a detail sectional view showing the manner of joining the semicircular pipe-sections together.

In the accompanying drawings, A indicates a steep-tank, which in this instance I have shown provided with a hopper-bottom and in which I set a series of perforated pipes 1, situated one above the other equidistant from the inner face of the hopper-bottom of said tank, which are connected together by means of pipes 2, extending between the same. Each of said pipes 1 consists of two semicircular pieces, the ends of which are closed by means of caps 3 and 4, Fig. 4, said cap 3 being adapted to enter a recess in an enlarged portion of said cap 4. Said caps 3 and 4 are adapted to be held in close engagement with each other by means of metal straps 5, adapted to fit over said pipes and engage the inner ends of said caps 3 and 4, which obviously form shoulders on said pipes and are adapted to be clamped together by means of bolts 6, thus clamping said caps 3 within said recesses

in said caps 4. Said perforated pipes 1 are fed by means of pipes 6^a, entering a coupling between the sections of pipe near the bottom of said steep-tank. One of said pipes 6^a is provided for each half of my apparatus, and both of said pipes are connected with a pipe 7, which is connected with a suitable source of supply of moist attemperated air under pressure. As before stated, each of said pipes 1 consists of two semicircular sections which are joined by means of the caps 3 and 4 at their ends, which are held in engagement by means of the straps 5. Each of said semicircular sections of said pipes 1 consists of two quarter-sections connected together by means of X-couplings 9, which also serve to connect the sections of the pipes 2 together and with said pipe 1. The uppermost X-couplings 9 are closed at their upper ends, as shown at 10.

It will be seen from the foregoing description that the above-described manner of constructing the apparatus for distributing the air is very advantageous, inasmuch as the same can be applied to any steep-tank at any time without interrupting the operation of the malt-house and can be manufactured ready to be applied to such tank of any form. Though I have not shown a flat or round bottom tank, it will be obvious that my device can be applied with equal advantage to any construction.

In Fig. 3 I have shown a modified form of construction in dotted lines which would also be suitable for the purpose, though the same cannot be advantageously used on account of the great expense in applying the same. In this construction I secure a plurality of flanged semipipe-sections which extend completely around the bottom of the steep-tank at intervals corresponding with the intervals at which the pipes 1 (shown in Fig. 1) are situated. Said pipe-sections communicate with the interior of the tank through perforations in the bottom thereof, and are connected with each other by means of cross-pieces extending between the same. The connection between the same and the source of supply of attemperating-air is made through the pipes 8, which are connected with one of the lowermost of said semipipe-sections in practically the same manner as in the construction shown

in Fig. 1. Said pipes 1 are preferably perforated on each side in horizontal alinement, so as to cause the air to blow out of the same horizontally toward the middle and outer portion of said tank, thus obviously thoroughly distributing said air throughout the mass of the grain.

I claim as my invention—

1. In an apparatus for steeping and germinating grain, a plurality of perforated air-ducts arranged concentrically around the bottom of the steep-tank, each of said ducts extending half-way around said bottom of said tank and being closed at its ends, pipes or passages establishing communication between all of said air-ducts on each side of said tank, and connection between said ducts and a suitable source of supply of air under pressure, substantially as described.

2. In an apparatus for steeping and germinating grain, a plurality of perforated air-ducts arranged concentrically around the bottom of the steep-tank, each of said ducts consisting of a semicircular pipe closed at its ends and connected at about its middle portion

with said other air-ducts and with a suitable source of supply of air under pressure, substantially as described.

3. In an apparatus for steeping and germinating grain, a plurality of perforated air-ducts arranged concentrically within the steep-tank, and connected together by means of pipes or passages extending between adjacent ducts, each of said ducts consisting of two semicircular pipes closed at their ends by means of caps, said caps on one of said sections being provided with recesses to receive the caps on the other of said sections, and plates for clamping said semicircular pipes together at their ends to form circular ducts provided with openings to receive said pipes and adapted to engage said caps and to be clamped together by means of bolts, substantially as described.

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

JOHN WM. HASSMANN.

Witnesses:

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