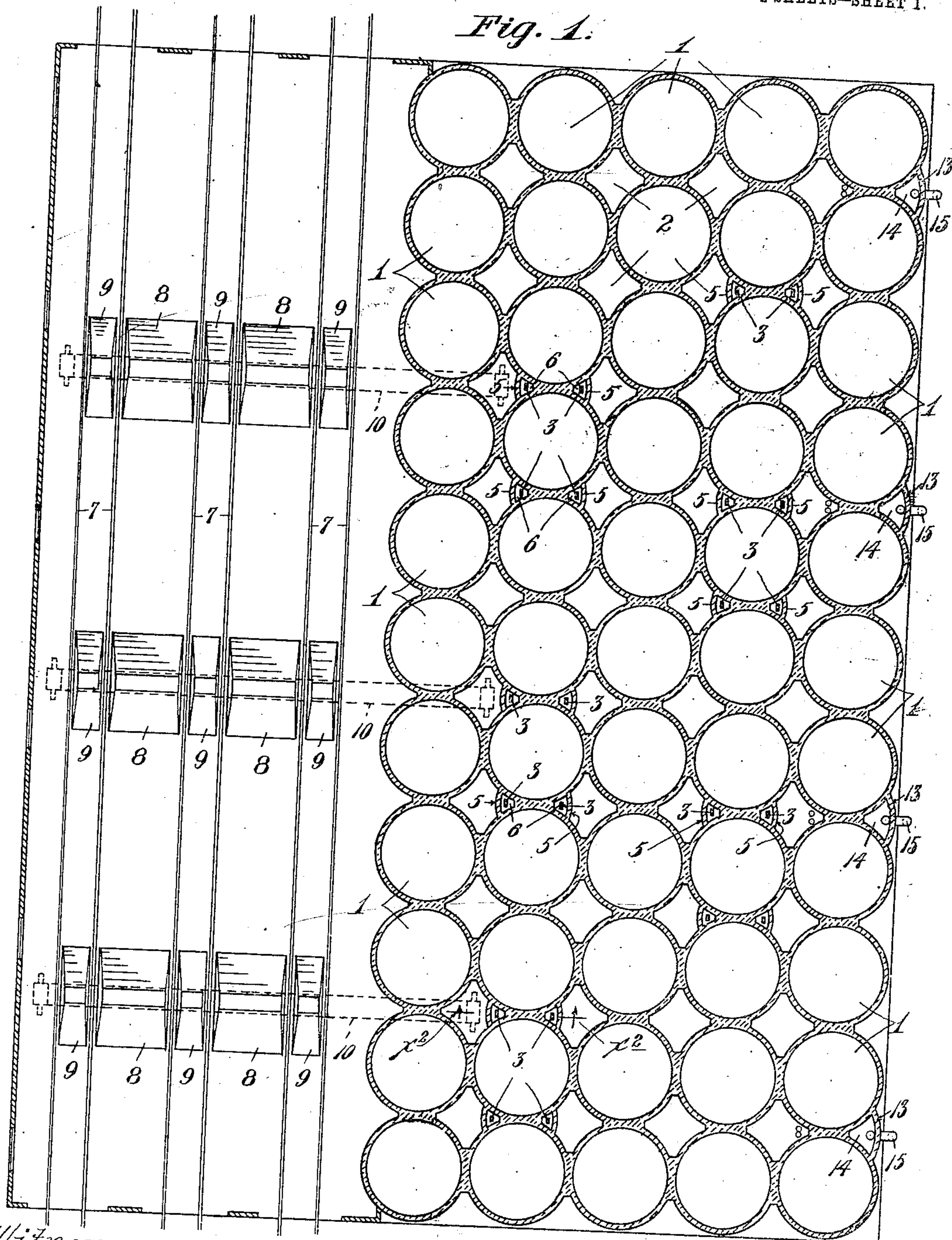


No. 873,774.

PATENTED DEC. 17, 1907.

F. R. McQUEEN.  
GRAIN STORAGE ELEVATOR.  
APPLICATION FILED MAY 17, 1906.

2 SHEETS—SHEET 1.



Witnesses.

E. W. Juppert.

A. H. Osahl

Inventor.

Finley R. McQueen.

By his Attorneys.

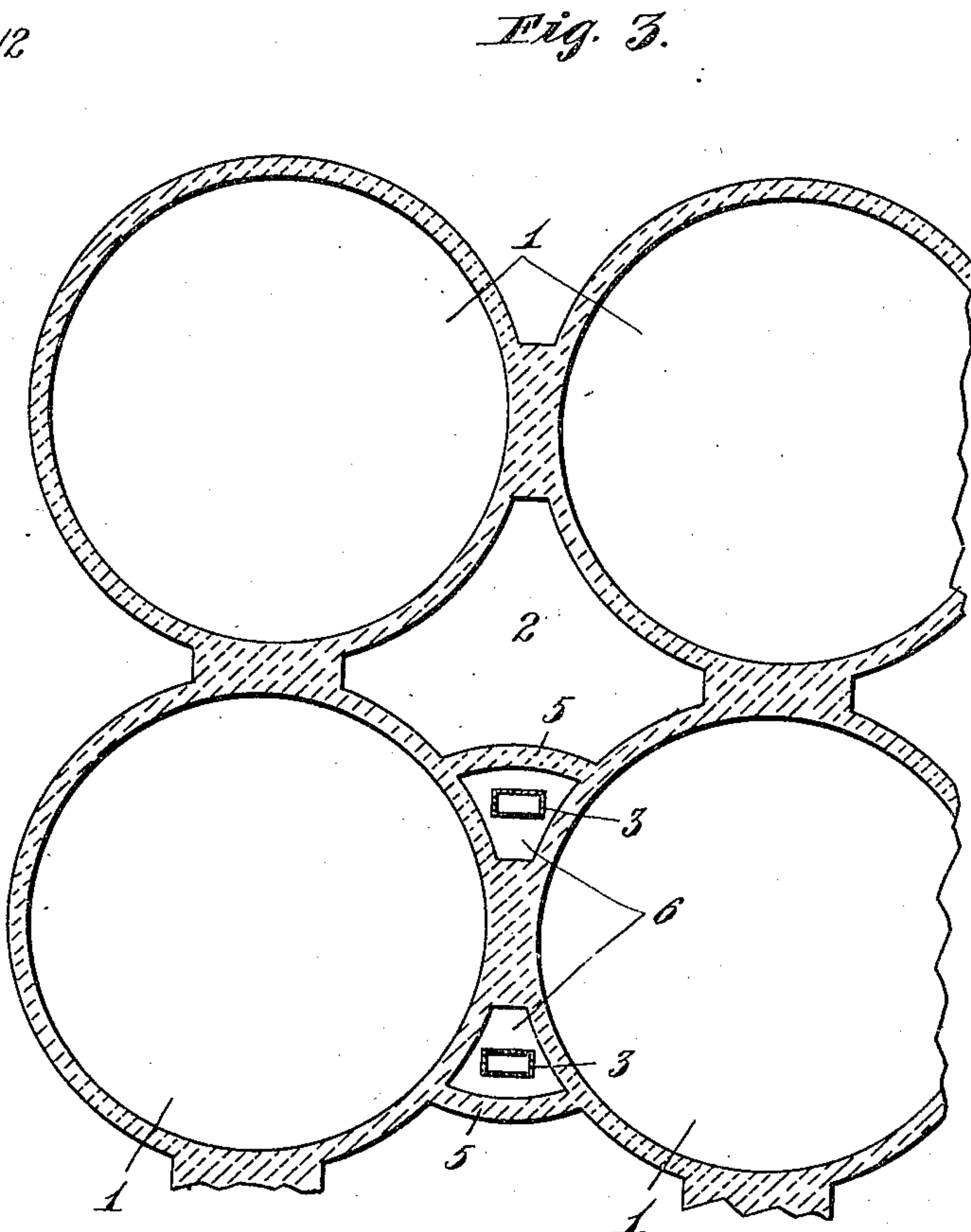
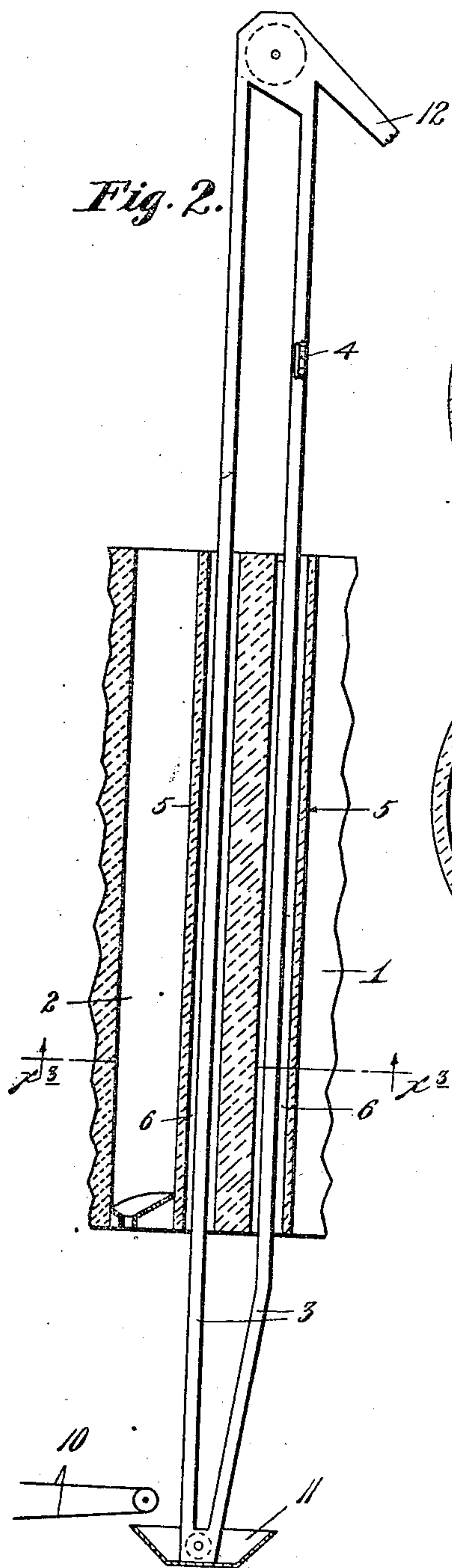
Williamson Merchant

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2 SHEETS—SHEET 2.



Witnesses.

E. W. Jupp.

A. H. Opsahl

Inventor:

Finlay R. McQueen.

By his Attorneys.

William M. Merchant



# UNITED STATES PATENT OFFICE.

FINLAY ROBERT McQUEEN, OF MINNEAPOLIS, MINNESOTA.

## GRAIN-STORAGE ELEVATOR.

No. 873,774.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed May 17, 1906. Serial No. 317,317.

*To all whom it may concern:*

Be it known that I, FINLAY ROBERT McQUEEN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Grain-Storage Elevators; 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 present invention relates to grain storage elevators, and particularly to concrete or concrete steel, or other fire-proof structures, wherein a multiplicity of cylindrical bins are employed, the said bins being placed in close juxtaposition with the space between the cylindrical bins arranged to serve as supplemental storage bins.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view partly in plan and partly in horizontal section, illustrating an elevator designed in accordance with my invention. Fig. 2 is a vertical section taken on the line  $x^2 x^2$  of Fig. 1; and Fig. 3 is a horizontal section taken on the line  $x^3 x^3$  of Fig. 2, the parts being shown on an enlarged scale, some parts being broken away.

The numeral 1 indicates the cylindrical grain bins, which bins are arranged in rows in two directions, and are formed monolithic, or otherwise rigidly united at their adjoining peripheral portions, so that there is left between each four bins, a supplemental bin or storage space 2.

It will be noted that by arrangement of the cylindrical bins in rows in two directions, the intersecting rows extending approximately at right angles to each other, a four-sided supplemental bin is formed between each four adjoining cylindrical bins.

The numeral 3 indicates a bifurcated elevator leg of the usual construction and in which works a power driven, endless, cup-equipped belt 4. The branches of this elevator leg 3 are passed vertically through the adjacent supplemental bins 2; and the said supplemental bins through which the said

leg passes are formed with vertical webs or partitions 5 that form leg passages 6 from top to bottom of the bins, and separate the said leg passages from the respective supplemental bins 2. Any desired number of the supplemental bins 2 may be thus formed with the leg passages 6.

With the construction above described, the elevator leg is thoroughly protected from lateral pressure of the grain in the bins, and the said leg may be removed, at any time, or repaired without opening up any of the said grain bins. Furthermore, the vertical webs or partitions 5 increase the rigidity of the entire bin structure.

It will of course be understood that the bins above described may be constructed either of concrete, brick, or other material, and the same usually will, in practice, be reinforced by embedded steel members.

The term "masonry" is herein used in a sense broad enough to include either concrete, brick, tile or similar material.

In the arrangement of the bins illustrated in the drawings, the said bins are assumed to be supported with their lower ends above the ground. The main bins 1, as well as the supplemental bins 2, will, of course, be provided with hopper bottoms of the usual or any suitable construction.

In Fig. 1, the numeral 7 indicates railway tracks which run along the side of the group of bins; and the numerals 8 and 9 indicate hoppers located below the tracks and adapted to receive grain from cars standing on the tracks, and to deliver the same to conveyers 10 shown by dotted lines only in Fig. 1, and by full lines in Fig. 2. These conveyers 10 deliver the grain to pits 11, in which pits the lower extremities of the elevator legs 3 terminate, and from which pits the elevator belts 4 take up the grain. The elevator belts 4 deliver the grain to discharge spouts 12 at the upper ends of the legs 3. From the spout 12, the grain may be delivered to the other bins by the usual or any suitable distributing spout, (not shown).

Certain of the bins 1 that are at the exterior of the structure are tied together by vertical reinforcing ribs or webs 13 that cooperate with the diverging portions of the said bins 1, to form angular spout passages 14 through which grain delivery spouts 15 are adapted to be passed.

The construction above described, while



simple, and adding little cost to the structure, adds great strength thereto and effects great economy in the use of space.

What I claim is:

- 5 1. A plurality of grain bins 1 arranged in rows in two directions, and having their adjoining sides rigidly united so as to form supplemental bins 2, certain of said bins 1 being tied together by vertical partitions or webs 5  
10 that extend across angular portions of certain of said supplemental bins 2, and form vertical leg passages 6, in combination with bifurcated elevator legs having their branches extended vertically through adjacent leg  
15 passages 6, substantially as described.

2. A plurality of cylindrical grain bins

forming a monolithic structure and having their adjacent peripheral portions rigidly connected, and forming supplemental storage bins in the intervening spaces, vertical webs extending through adjacent supplemental bins to form leg passages, in combination with bifurcated elevator legs extending from below said bins through adjacent leg passages, substantially as described. 20 25

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

FINLAY ROBERT McQUEEN.

Witnesses:

MALIE HOEL,

WILLIAMSON MERCHANT.