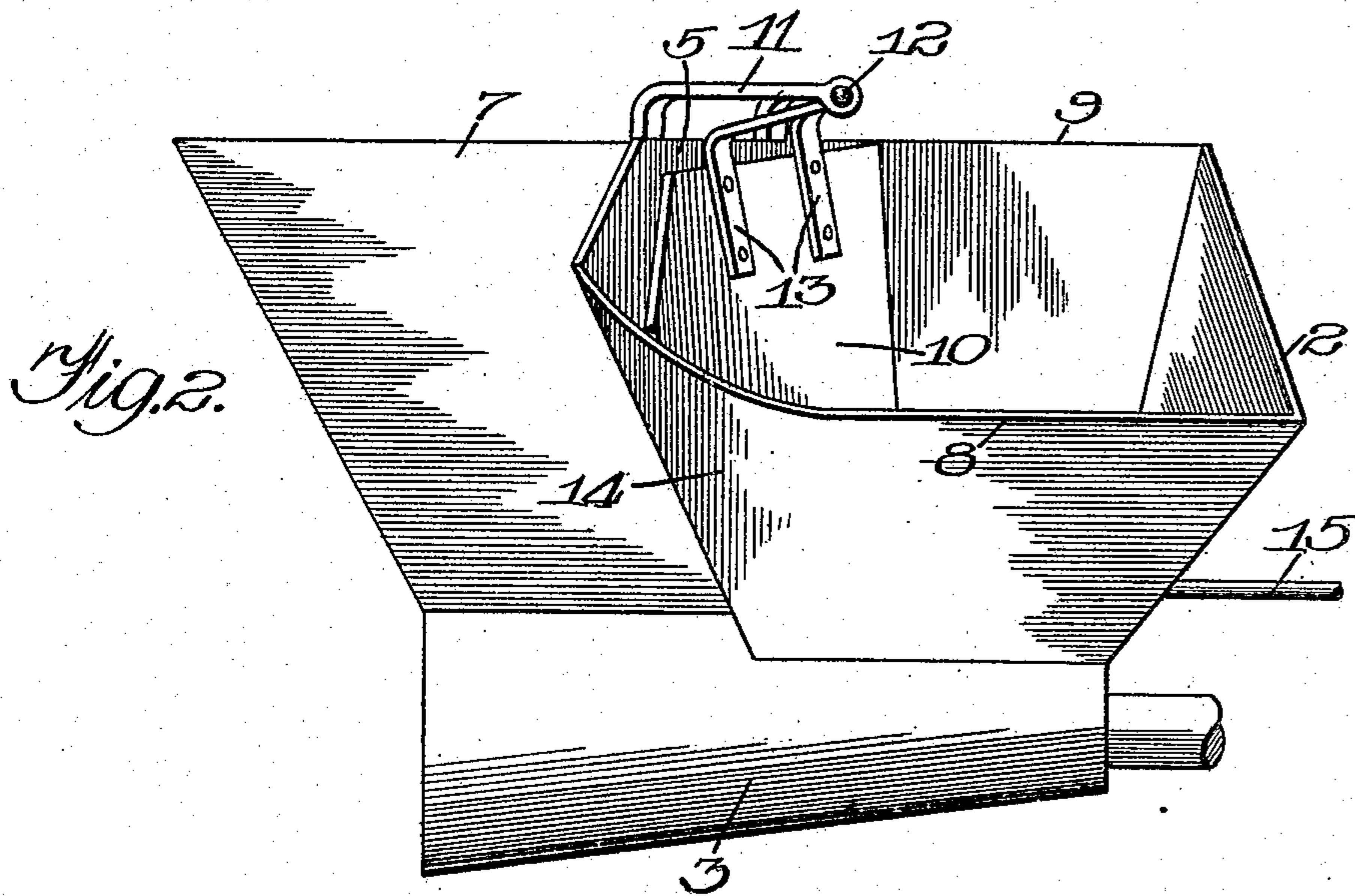
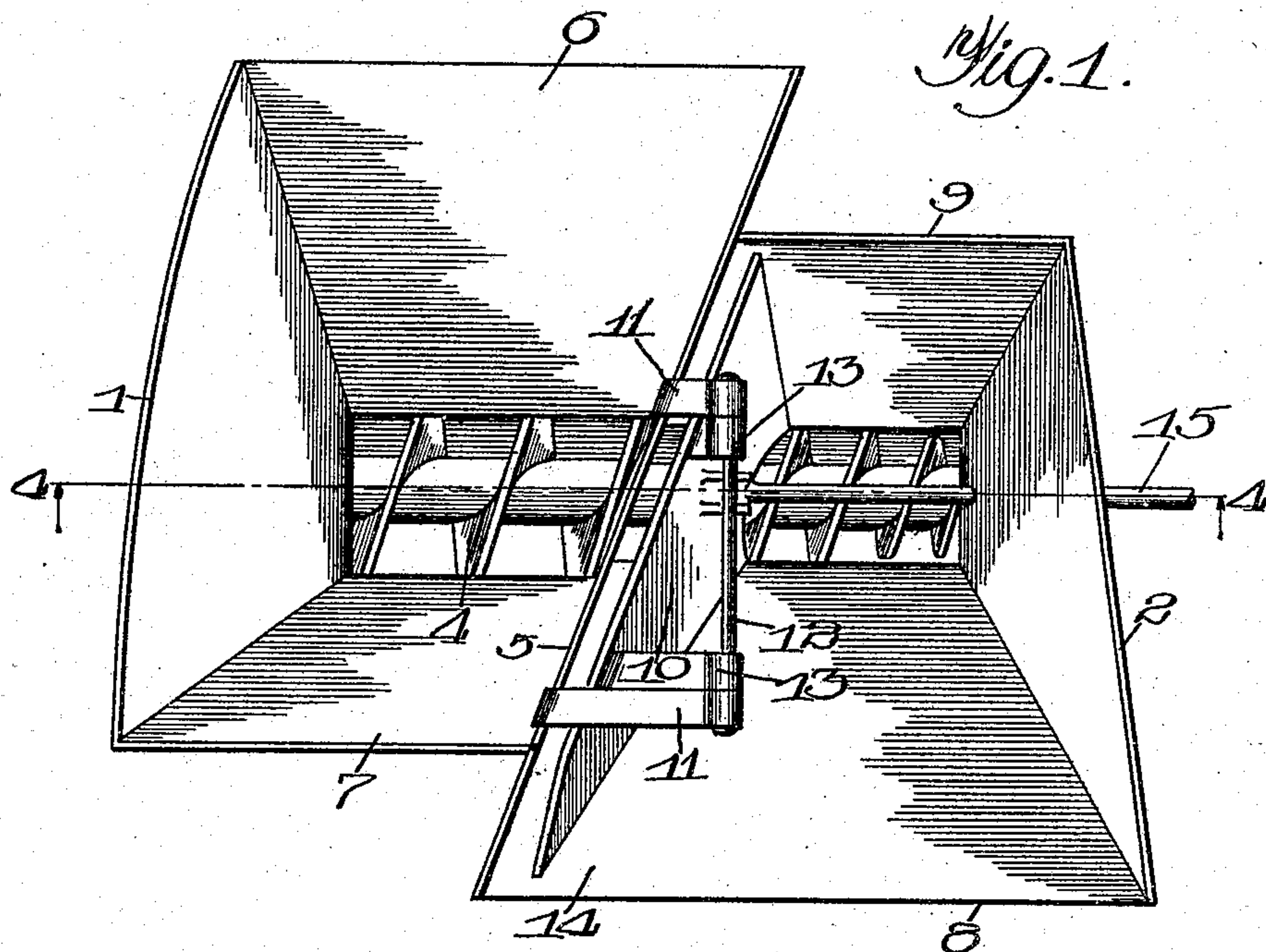


J. A. SVENSON.  
MIXING MACHINE.  
APPLICATION FILED JULY 6, 1908.

930,573.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.



Witnesses:  
G. V. Domarus Jr.  
B. F. Funk

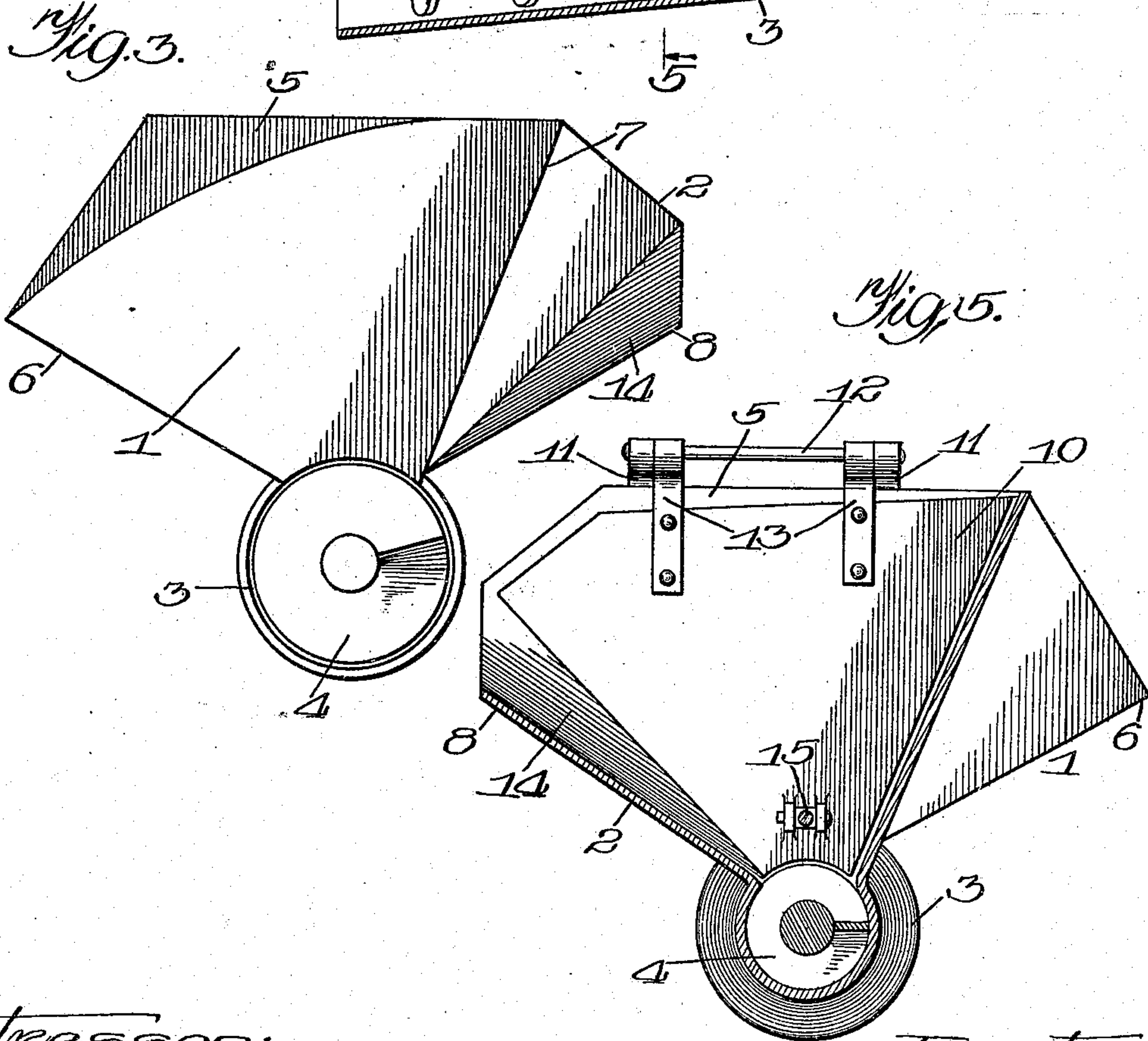
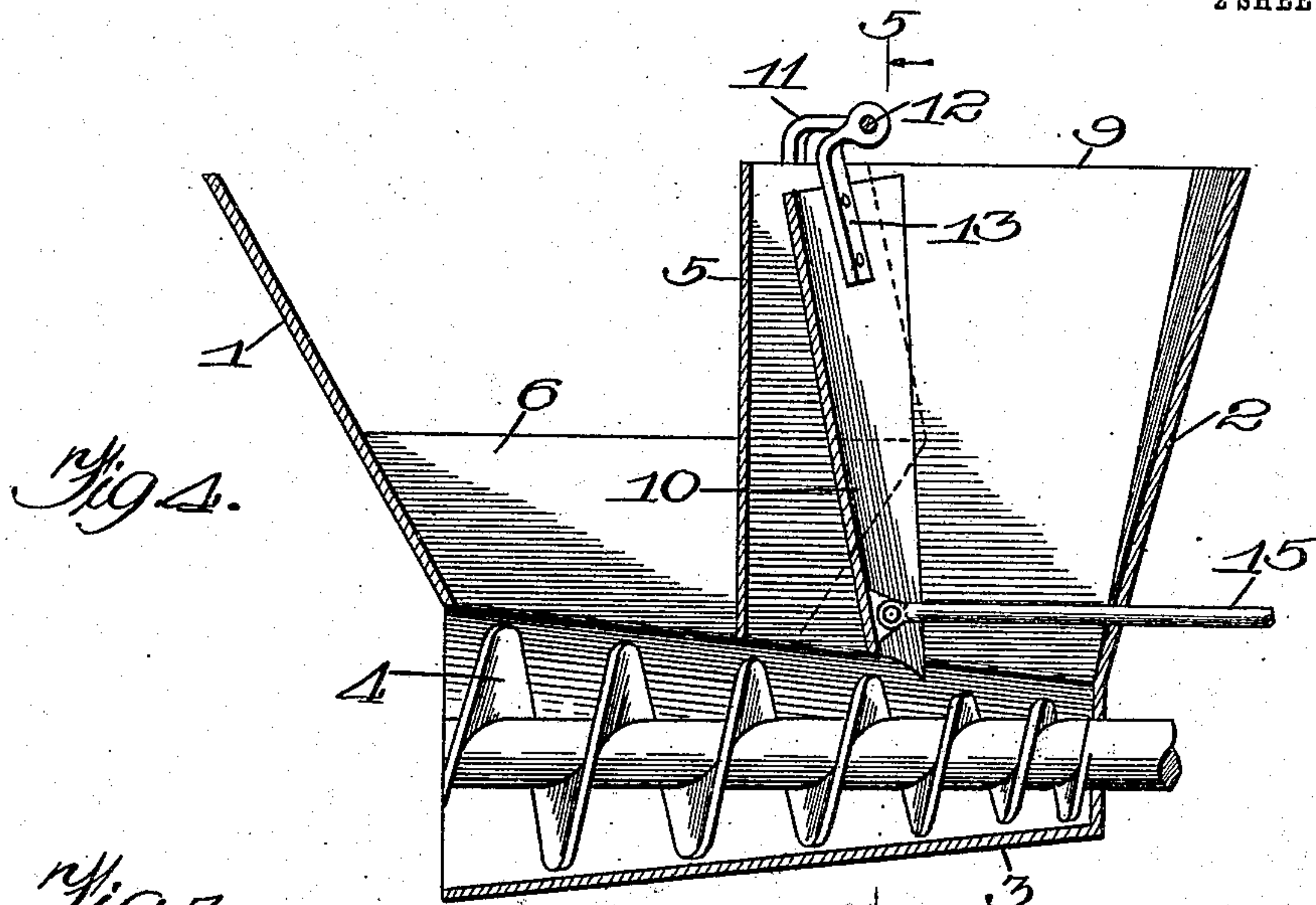
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2 SHEETS—SHEET 2.



Witnesses:  
G. V. Somers Jr.  
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# UNITED STATES PATENT OFFICE.

JOHN A. SVENSON, OF PITTSBURG, PENNSYLVANIA.

## MIXING-MACHINE.

No. 930,573.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed July 6, 1908. Serial No. 441,974.

*To all whom it may concern:*

Be it known that I, JOHN A. SVENSON, a citizen of the United States, residing at Pittsburg, county of Allegheny, in the State of Pennsylvania, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification.

This invention relates to apparatus for mixing or otherwise treating a plurality of different materials, and especially to apparatus for this purpose which comprises a plurality of hoppers serving a common conveyer.

One of the objects of the present invention is to provide improved means for regulating the flow of the materials from the hoppers into the conveyer.

Another object of the invention is to improve the form and arrangement of the hoppers with a view to economizing in space and to facilitate the introduction of materials into said hoppers.

The invention also relates to the other improvements in proportioning and feeding means hereinafter set forth.

In the accompanying drawings, Figure 1 is a top plan view of a proportioning and feeding apparatus embodying the features of my invention. Fig. 2 is a side elevation of said apparatus. Fig. 3 is an end view thereof. Fig. 4 is a longitudinal sectional view taken on the plane of dotted line 4 4 of Fig. 1. Fig. 5 is a transverse section on dotted line 5 5 of Fig. 4.

The embodiment selected for illustration is especially designed for use in a concrete mixer. The mixing devices proper, not being involved in this invention, have been omitted from the drawing. In practice they are located at the left of the apparatus (Fig. 4) and are driven in any suitable way.

The hoppers 1 and 2, for the crushed stone and the cement respectively, are arranged above and communicate at their lower ends with a conical screw conveyer casing 3. In said casing is mounted a conical conveyer screw 4 arranged to be rotated by any suitable means (not shown). The larger or discharge end of the conveyer casing, in practice, is arranged to discharge the stone and cement into a trough or other structure containing the mixing paddles or similar devices.

In order to economize in space, it is very desirable that the conveyer be as short as

possible, and consequently the hoppers serving said conveyer should be as short as possible in the direction of the axis of the conveyer. On the other hand, in order that the workmen may conveniently shovel the materials into the hoppers, it is desirable that the latter be as large as possible in the same direction. In the present embodiment, I fulfil these opposing requirements by providing hoppers that flare upwardly and laterally, the common wall or partition 5 between the hoppers 1 and 2 being arranged in a substantially vertical plane and at an angle other than a right angle with the axis of the machine. The hopper 1 has a flaring side 6 which is lower than the opposite side 7 in order to facilitate the shoveling of materials into said hopper. The hopper 2 likewise has a flaring side 8 which is lower than the opposite side 9 of said hopper, the working sides of the two hoppers being at opposite sides of the machine, as shown. The sides 6 and 8 may be termed the inlet sides of their respective hoppers, said sides being made relatively wide and low, as stated, to facilitate the shoveling of materials into the hoppers.

In the present embodiment, means is provided in only one hopper for regulating the flow of material therefrom into the conveyer. The means herein shown for this purpose comprises a gate or hopper wall 10, which, when in what may be termed its open position, is arranged to extend in a substantially vertical plane and substantially parallel with the partition 5. In order, however, that said gate may move longitudinally of the hopper, said gate is supported upon an axis extending at right angles with the length of the hopper. In this instance the gate is supported upon bearing brackets 11 fixed to the partition 5 and supporting at their outer ends a shaft 12. Upon the latter are mounted hangers 13 which are attached to the gate. The lower end of the gate is curved to conform to the periphery of the conveyer screw 4.

It is desirable that the gate 10 shall move as close to the side walls of the hopper 2 as possible, in order that the cement shall not make its way between said gate and said walls into the space to the rear of the gate. On account of the gate being located to one side of the pivotal support 12, it will be apparent that the gate will move downward as well as forward when swung to decrease the flow of the material from the hopper 2 into



the conveyer. In order to accommodate such downward movement of the gate and prevent the formation of an open space between said gate and the adjacent side wall of the hopper, said side wall is formed upon a curve as shown at 14 in Figs. 2 and 3.

The gate 10 may be moved by any suitable means, such, for example, as a rod 15 attached to the lower end of said gate and extending through an opening in the forward end wall of the hopper 2. Said rod may be locked in position by any preferred means (not shown).

By reason of its conical form, the screw conveyer 4 is capable of receiving material at any point in its length. The outflow of material from the hopper 2 is controlled by means of the gate 10, the movement of the lower end of said gate toward the head end of the machine restricting the flow by causing such flow to take place where the diameter of the screw 4, and consequently its capacity, is relatively small. Owing to the peculiar mounting of the gate, its movement does not interfere with the men who are supplying material to the hopper. The flaring form of the hoppers enables several men to shovel into each of said hoppers, and permits of the use of a comparatively short conveyer.

The foregoing detailed description has been given for clearness only and is not to be regarded as in the nature of an undue limitation.

I claim as my invention:

1. The combination of two flaring hoppers abutting side by side, the common wall of said hoppers extending at an angle other than a right angle with the length of the hoppers, when the hoppers are viewed in top plan.

2. The combination of two alined flaring hoppers having oppositely facing inlet sides, each of said inlet sides being wider and lower than the side directly opposite to it.

3. The combination of two alined hoppers that flare outwardly and upwardly and have a common wall extending in a vertical plane and at an angle other than a right angle with the length of said hoppers, when the hoppers are viewed in top plan, said hoppers having oppositely facing inlet sides.

4. The combination with a conical screw conveyer of a plurality of abutting hoppers serving said conveyer, said hoppers being flaring in the direction of the axis of the conveyer, and having flaring, oppositely facing inlet sides, each of said inlet sides being wider than the side directly opposite it.

5. The combination, with a conveyer, the capacity of which differs at different points in its length, of a hopper serving said conveyer, said hopper having a wall extending at an angle other than a right angle with the length of said conveyer, of a gate arranged to lie close to said wall and mounted to move longitudinally of said conveyer.

6. The combination, with a conveyer, the capacity of which differs at different points in its length, of a hopper serving said conveyer, said hopper having a wall extending at an angle other than a right angle with the length of said conveyer, of a gate arranged to lie close to said wall and pivotally mounted upon an axis extending at right angles with the conveyer.

7. The combination, with a conveyer, of a hopper serving said conveyer, and a gate in said hopper extending at an angle other than a right angle with the conveyer and pivotally mounted upon an axis extending at right angles with the conveyer, one wall of said hopper being curved to accommodate the swinging movement of said gate.

8. The combination, with a conical screw conveyer, of two hoppers communicating at their lower ends with said conveyer, the partition between said hoppers extending in a vertical plane and at an angle other than a right angle with the conveyer, each of said hoppers having a flaring end and a flaring inlet side, said inlet sides facing in opposite directions, and a gate pivotally supported from said partition upon an axis extending at right angles with the conveyer, said gate being arranged to extend substantially parallel with said partition, and one wall of one of said hoppers being curved to accommodate the swinging movement of said gate.

JOHN A. SVENSON.

Witnesses:

S. B. FRITZ,  
ALICE A. TRILL.