A. D. W. JOHNSON.

SILO ROOF.

APPLICATION FILED OCT. 2, 1919.

1,425,860. Patented Aug. 15, 1922.

2 SHEETS—SHEET 1.

FIG. 1

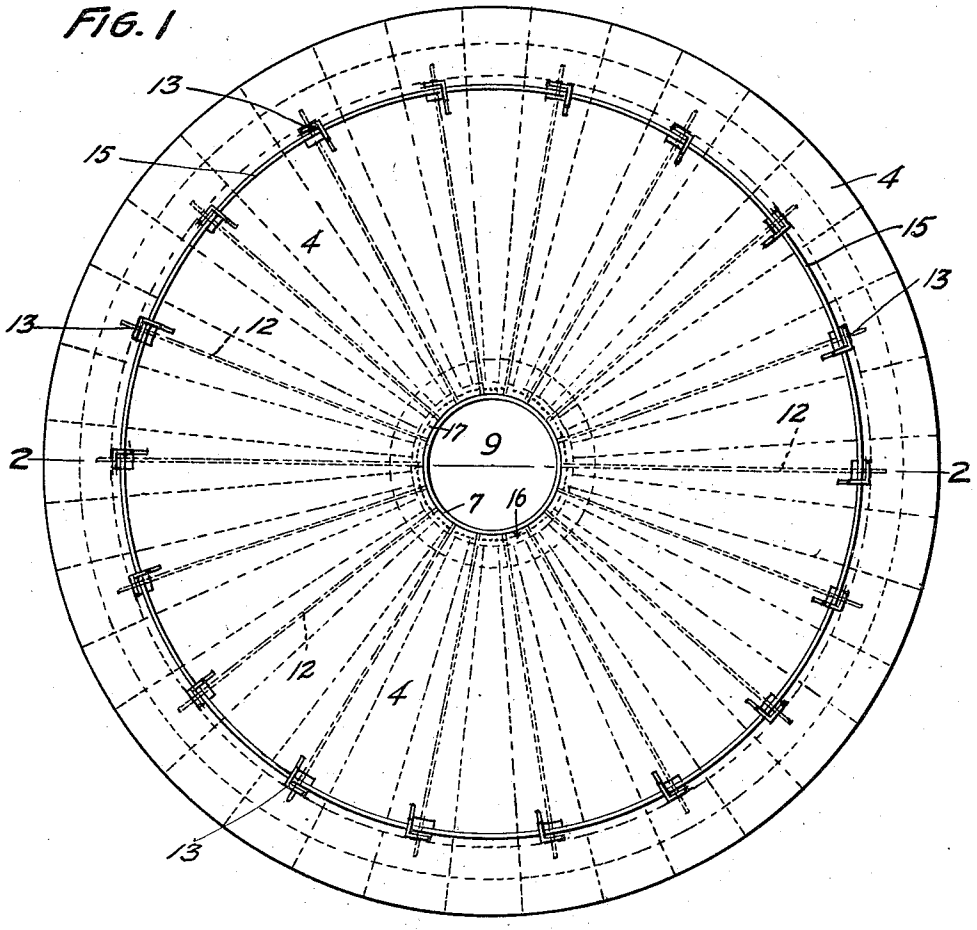
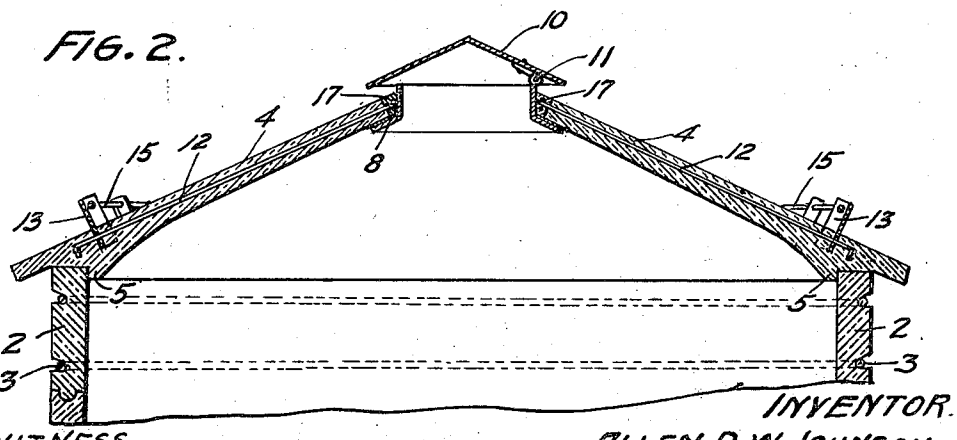


FIG. 2.



WITNESS

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2 SHEETS—SHEET 2.

FIG. 3

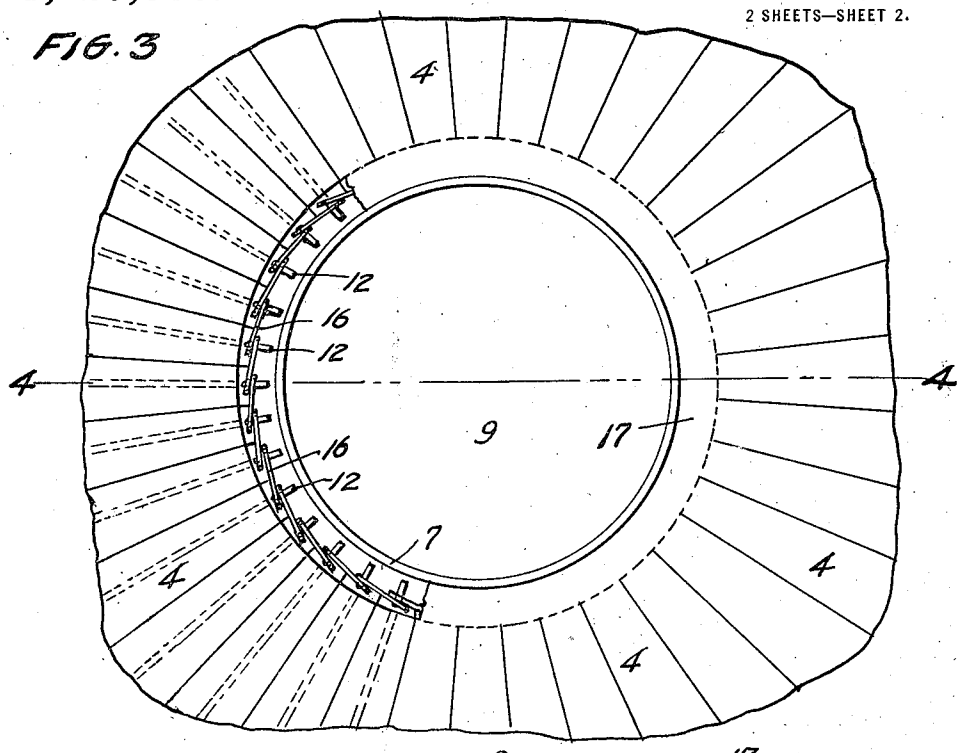
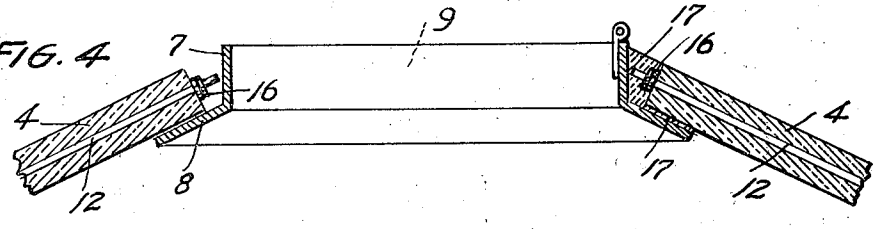


FIG. 4



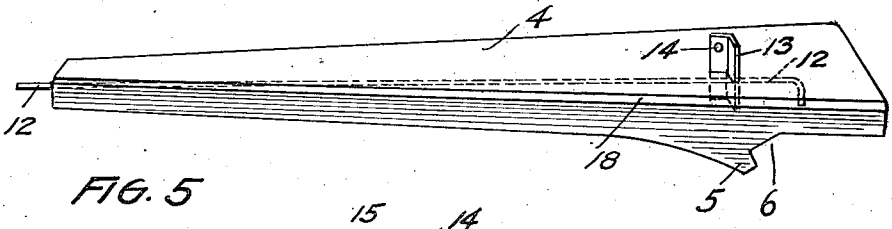


FIG. 5

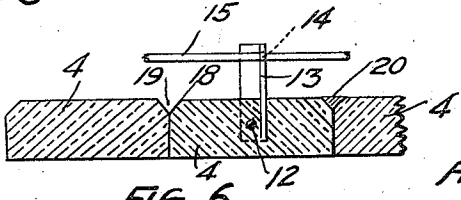


FIG. 6.

WITNESS

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UNITED STATES PATENT OFFICE.

ALLEN D. W. JOHNSON, OF ANOKA, MINNESOTA.

SILO ROOF.

1,425,860. Specification of Letters Patent. Patented Aug. 15, 1922.

Application filed October 2, 1919. Serial No. 327,916.

To all whom it may concern:

Be it known that I, ALLEN D. W. JOHNSON, a citizen of the United States, and a resident of Anoka, county of Anoka, State of Minnesota, have invented certain new and useful Improvements in Silo Roofs, of which the following is a specification.

The object of my invention is to provide a silo roof construction adapted particularly for silos made or composed of concrete.

A further object is to provide a silo roof of simple but strong and durable construction and one which will permit the convenient and safe attachment of a feed elevator or spout to the top of the silo.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a plan view of a silo roof embodying my invention,

Figure 2 is a sectional view on the line 2—2 of Figure 1,

Figure 3 is a partial plan view showing the preferred manner of securing the inner or upper ends of the roof panels together,

Figure 4 is a sectional view on the line 4—4 of Figure 3,

Figure 5 is a perspective view of one of the panels of which the roof is composed,

Figure 6 is a detail sectional view showing the manner of closing the longitudinal joints between the slabs.

In the drawing, 2 represents the vertical walls of the silo composed of suitable blocks and encircled by hoops 3. The roof of the silo is composed of slabs, also of concrete, said slabs being interchangeable and tapered from their outer toward their inner ends and indicated in the drawings by reference numeral 4. Near the outer end of each slab on the underside thereof I provide a shoulder 5 forming with the slab a recess 6 to rest upon the wall of the silo, the shoulder 5 bearing on the inner vertical face of the wall and preventing outward longitudinal movement of the slab.

At the apex or center of the roof I provide a collar or ring 7 having a flaring flange 8 at its lower edge upon which the inner ends of the slabs are seated. This ring is of sufficient size to provide an opening 9 through which access may be had to the interior of the silo for filling purposes and a door 10, preferably cone-shaped, is hinged at 11 to one side of the ring 7 and whenever desired this cover may be tilted backwardly to expose the opening 9. In filling the silo, an elevating means is attached to the top by which the ensilage is lifted and discharged into the silo through the opening in the roof.

The slabs are preferably provided with longitudinal reinforcing rods 12 and near the outer ends of these rods I provide upright angle plates 13 having their lower ends embedded in the slab and provided with holes through which the rods 12 are inserted, the ends of the rods near the outer ends of the slabs being bent slightly for the purpose of more securely locking them in the concrete. The projecting portion of the plates 13 is provided with a hole 14 and through this hole a rod 15 is inserted to extend entirely around the silo, forming a railing near the edge of the roof. This railing forms a convenient attaching means for the elevating device that is connected with the top of the silo and also forms a very convenient foot rest for a person seated on the roof and pulling or lifting the elevating device to its working position. The rod 15 in effect is a guard rail to prevent a person from accidentally slipping off the silo roof besides forming a convenient attaching means, as stated.

The inner ends of the slabs are spaced from the ring 7 and the rods 12 project into this space and around these projecting ends I wrap a wire 16 for the purpose of locking the tapered ends of the slabs together and this having been done, I fill the space between the slabs and the ring 7 with concrete in plastic form. This concrete flows in under the ends of the slabs and upon

becoming hardened forms a tight joint at this point and co-operates with the concrete between the slabs and the ring 7 to hold slabs rigidly in place.

The slabs are preferaby provided with beveled edges 18 which form a V-shaped recess 19 between them, when assembled in the roof, and into this recess I pour a plastic material 20, which, flowing down to the bottom of the recess, will seal the joint between the slabs against the entrance of moisture and will present a smooth, finished appearance to the upper surface of the roof. When these slabs are assembled and the roof completed, the collar 7 will be firmly held between the inner ends of the slabs and the elevating means for filling the silo can be conveniently and safely attached to the roof and a considerable load may be carried by the roof without danger of collapsing.

In assembling the sections of the roof, I usually place a wooden falsework and lay the slabs thereon, then insert the ring from the inside of the silo and pour the concrete between it and the ends of the slabs. The falsework may then be removed and the sleeves and ring will securely brace each other. The dome or cover 10 is placed on the ring after the roof is completed. This is shown clearly in Figure 4, where one side of the roof is shown with the cement poured between the ring and the slab while the opposite side is incomplete and the cover is omitted entirely.

I claim as my invention:

1. A building roof having a central ring and a flange radiating therefrom, slabs having their inner ends seated on said flange, reinforcing rods provided longitudinally in said slabs and projecting therefrom into a space provided between said slabs and said ring, and a plastic material for closing the joint between said slabs and ring and said flange.

2. A building roof comprising a ring, slabs seated at their outer ends on the wall of the building and having their inner ends supported by said ring, reinforcing rods provided in said slabs, a space being provided between said ring and the inner ends of said slabs into which space said rods project a wire twisted around said rods and encircling said ring, and a filler for covering and concealing the ends of said rods and wire deposited in plastic form in said recess.

3. A building roof having a central opening therein and slabs of concrete radiating from said opening, said slabs being tapered in form and supported by the building walls, upright plates mounted in said slabs and having holes therein and a foot rail passing through the holes in said plates around said roof.

4. A building roof comprising a centrally arranged collar having an outwardly flaring lower portion, a series of concrete slabs tapered from their outer toward their inner ends and seated at their inner ends on the flaring portion of said collar, the outer ends of said slabs having flat under surfaces lying in a plane at an angle to the longitudinal axis of the slabs to adapt the surfaces for resting squarely upon the top of the building wall, and said slabs having depending shoulders adjacent said flat surfaces and provided with vertical faces for engaging the inner face of the wall and preventing outward movement of the slabs thereon.

5. A circular building roof composed of concrete slabs tapered from their outer toward their inner ends, a flanged ring whereon the inner ends of said slabs are seated, said slabs having reinforcing rods extending longitudinally therein and projecting beyond the inner ends of said slabs and means for locking the inner ends of the rods together, the longitudinal tapered edges of said slabs having means for closing the joint between them, the outer ends of said slabs having under surfaces adapted for fitting snugly on the top of the building wall and contacting with the inner face thereof, and said slabs being self-supporting and presenting an unbroken concrete surface on the inside of the silo.

6. A silo roof composed of a centrally arranged ring and a series of reinforcing concrete slabs supported at their inner ends by said ring and seated at their outer ends on said wall, the building slabs being tapered from their outer toward their inner ends and having their longitudinal edges fitting snugly together, with means for closing the joint between them, the outer ends of said slabs having depending integral shoulders provided with vertical bearing surfaces for engaging the inner face of the building wall to hold the slabs against outward movement thereon, and said slabs forming the only support for the ring interposed between them.

7. A silo roof composed of a plurality of concrete slabs placed edge to edge, a support for the inner ends of said slabs, said support having an upright portion encircling the filling opening of the silo, a space being formed between said upright portion and the ends of the slabs and concrete in plastic form for sealing the joint between said support and slabs.

8. A building roof comprising a centrally arranged ring having a vertical upper portion and a flaring lower portion and providing an opening through which access may be had through the roof, a cover mounted on the upper portion of said ring and normally closing said opening, and a series of reinforcing concrete slabs having their inner

ends seated on the flaring portion of said ring and their outer ends resting on the top of the wall of the building and provided with means for engaging said wall to prevent outward movement of the slabs thereon, and said slabs being tapered from their outer toward their inner ends and having their longitudinal edges fitting snugly together, with means for closing the joint between them and means filling the gap between the inner ends of said slabs and the upright portion of said ring and sealing the joint between said slabs and ring.

In witness whereof, I have hereunto set my hand this 18″ day of September, 1919.

ALLEN D. W. JOHNSON.