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R. DEEVES.
CENTERING FOR CONCRETE FOUNDATIONS FOR GAS TANKS OR OTHER
CONCRETE WALLS.

APPLICATION FILED MAY 1, 1905.

2 SHEETS—SHEET 1.

Fig. 1

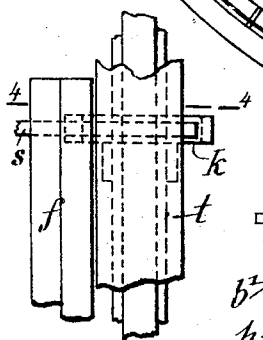
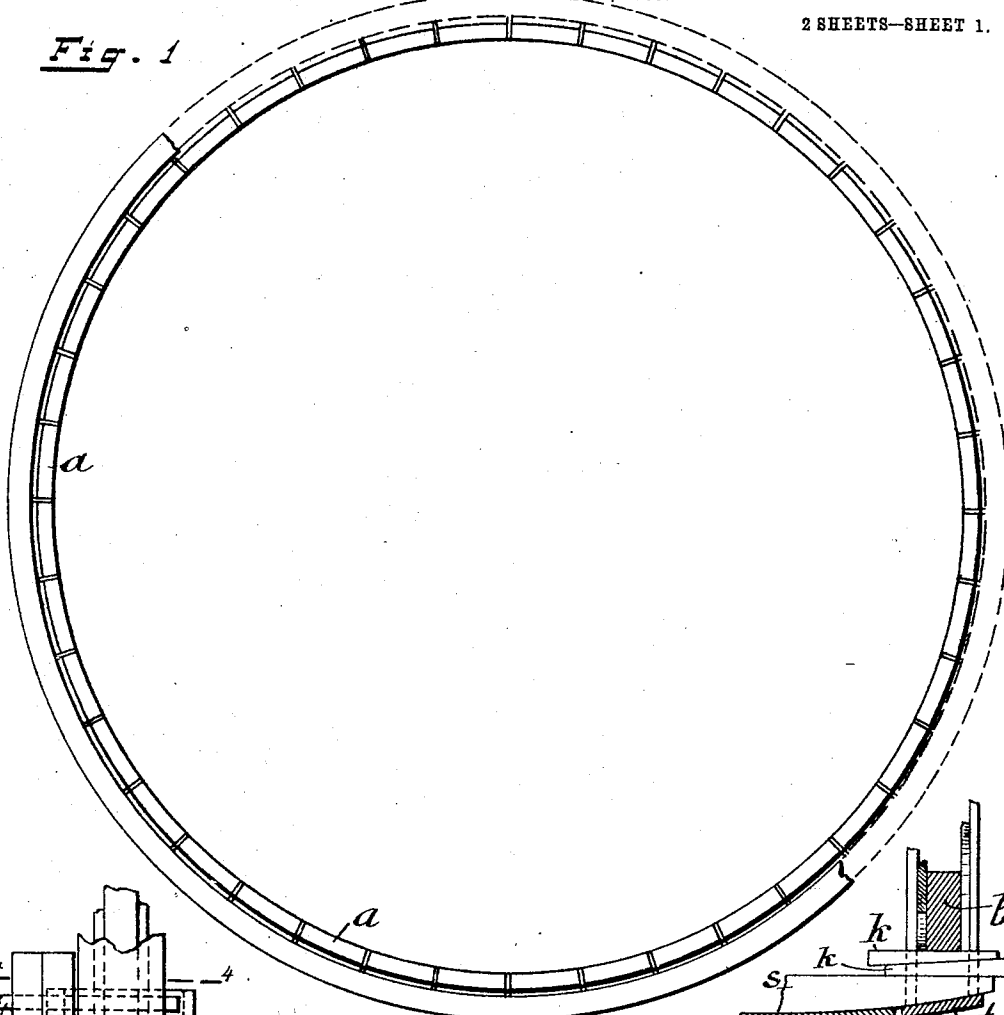


Fig. 3

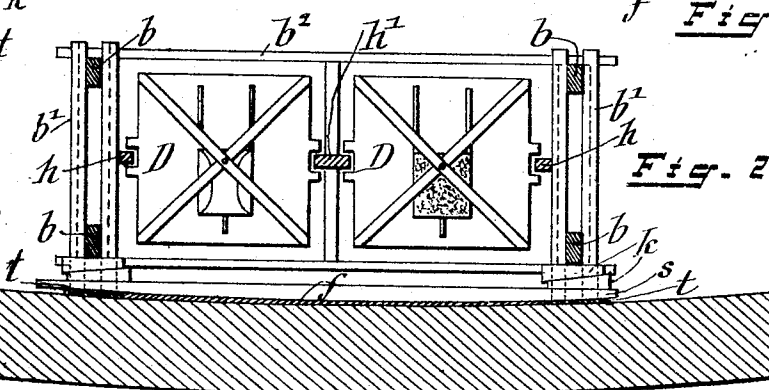


Fig. 2

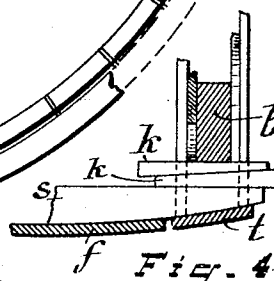


Fig. 4

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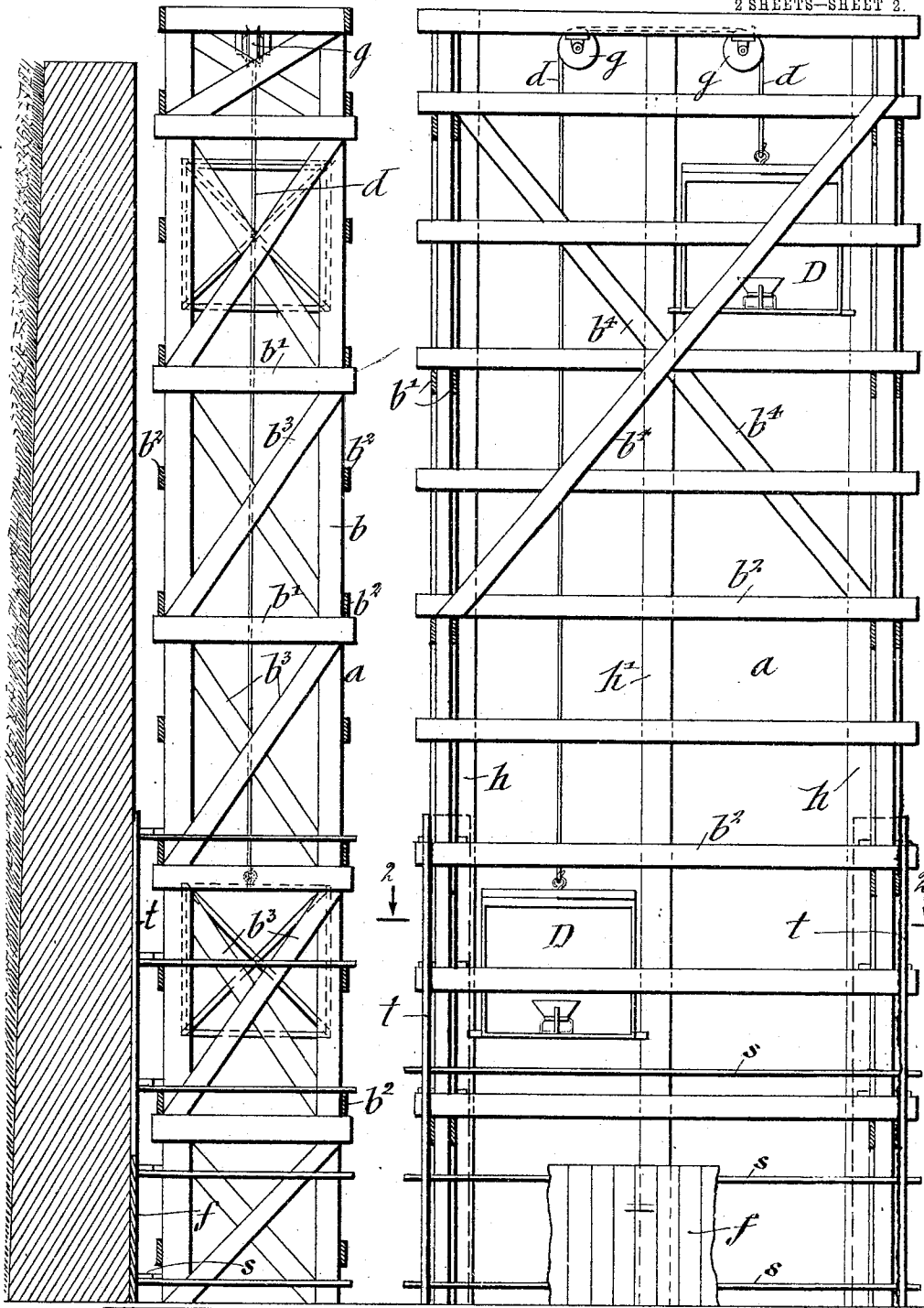
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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CENTERING FOR CONCRETE FOUNDATIONS FOR GAS-TANKS OR OTHER CONCRETE WALLS.

No. 796,823.

Specification of Letters Patent.

Patented Aug. 8, 1905.

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To all whom it may concern:

Be it known that I, RICHARD DEEVES, a citizen of the United States, residing in New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Centerings for Concrete Foundations of Gas-Tanks or other Circular Walls, of which the following is a specification.

This invention relates to the improved centering of gas-tanks or other circular walls which are made of concrete, the centering being so constructed that concrete can be readily dumped and tamped in the space between the circumference of the excavation and the walls of the centering, said walls being in sections and raised as the work of building the foundation proceeds, the entire centering being formed in removable sections, so as to be taken apart as the concrete foundation is built up and also to be used for making the foundations of other structures; and for this purpose the invention consists of a centering for the concrete foundations of gas-tanks and other walls which is comprised of a plurality of vertical truss-sections provided with guide-rails, curved face-panels guided on said vertical guide-rails, means for locking said curved panels in position for permitting the dumping and tamping between the faces of the excavations and the panels, and movable platforms supported in cross-ribs of the truss-sections and adapted to be raised on the upper and lower ends of the same as the work of building the foundation proceeds.

The invention consists, further, of certain details of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of my improved centering for concrete foundations. Fig. 2 is a plan view, partly in horizontal section on line 2 2, Fig. 6, of a section of the centering, drawn on a larger scale, and the foundation-wall adjacent thereto. Figs. 3 and 4 are respectively a detail front view and a horizontal section on line 4 4, Fig. 3, of the locking-piece for supporting the face-wall of each section of the centering. Fig. 5 is a vertical transverse section through one of the truss-sections of the centering, drawn on a larger scale; and Fig. 6 is a front elevation of the truss-section.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

In building the foundation-walls for gas-tanks of concrete it is necessary to first excavate the earth to the depth required below the surface and then to put up a centering of circular shape in the excavation, the diameter of said centering being somewhat less than the diameter of the excavation, so as to leave sufficient space between the centering and the excavated ground for the concrete foundation-wall to be made. The centering is composed of as many sections as are required for the size and circumference of the excavation.

Each section *a* is built up of four corner-uprights *b*, which are connected by horizontal side braces *b'* and transverse outer and inner braces *b''*, the side braces being connected by diagonal trusses *b'''* on both sides of the corner-uprights *b*. The upper part of each truss-section is further stiffened by diagonal struts *b''''*, as shown in Fig. 6. Each truss-section *a* is made of slightly greater height than the depth of the excavation, so that the uppermost portion extends somewhat above the top of the foundation-wall that is cast of concrete in the space between the face-panels of the truss-sections and the upright portion of the excavation. The uppermost portion is preferably made of less height than the lower portions of each truss-section and provided with two guide-pulleys *g*, which are suspended in hangers attached to cross-pieces of the truss-sections, over which are passed suspension-ropes *d*, from which are suspended cages *D*, which are open at both sides; so as to permit the wheelbarrows containing the concrete to be moved into the cages when they are in the upper part of the truss-sections, the loaded wheelbarrows producing by gravity the lifting of the cages with the empty wheelbarrows. A suitable framework is used for conducting the loaded wheelbarrows to the cages when they are in their uppermost position. When the cages arrive at their lowermost position, they are arrested by platforms, which may be placed on the outer and inner cross-ribs *b''*, and then dumped directly into the space where the concrete is required for building up the foundation-wall.

Each truss-section is provided with a face-panel at its outer side, which panel is made of horizontal supporting-pieces *s*, that are curved on their outer edges, according to the inner diameter of the foundation-wall to be built, and of vertical planks which are attached to the horizontal supporting-pieces so as to

form an arc of the circle corresponding to the inner curvature of the foundation. The panels are guided at their ends on vertical guide-strips *t*, which are attached to the ends of the horizontal platforms supported on the outer and inner cross-ribs *b*², the platforms serving for the purpose of arresting the cages *D* as they descend under the weight of the wheelbarrows. When the face-panels are in position, they are locked to the truss-sections by two wedge-keys *k*, which are driven in at opposite sides through the panels and the horizontal supporting-pieces of the same, as shown clearly in Figs. 2 and 4, so that they are locked firmly in position to the face of the trusses. When the panels are placed in the lower position at the ends of the trusses, the casting of the foundation-wall is commenced by dumping the loaded wheelbarrows as they are continually descending into the space between the ground and the face-panel, so that the lowermost section of the foundation-wall is finished all around the entire circle of the centering after the concrete is tamped and permitted to set sufficiently so as to permit the raising of the face-panels on the vertical guide-strips on the trusses to a sufficient height to permit the filling in of the concrete above the lowermost section just cast. For this purpose the platforms are moved and supported on the front and rear braces next the lowermost ones and the panels are locked again in position by their keys, so that the next portion of the foundation-wall can be cast with concrete and tamped in position, and so on, by gradually removing the face-panels until the entire foundation-wall is completed, the guide-strips and supporting-platforms being successively removed with the face-panels, so as to produce the continuous building up of the foundation-wall in sections of certain heights until the full height of the foundation-wall is obtained. As the casting and tamping of the concrete is continued uniformly in circular tiers up to the full height of the wall, a continuous solid concrete foundation-wall is obtained.

For the purpose of guiding the cages during the up-and-down motions it is preferable to guide the same on uprights *h*, attached to the side braces, and a center upright *h'*, immediately between the same, the center upright being held in position by transverse stiffening-pieces, as shown in Fig. 2. The bottoms of the cages are provided with parallel cleats for moving along the upright guide-pieces, so that the cages are steadied in their up-and-down motion and prevented from wobbling or hanging unevenly in case the load should not be placed in the center thereof.

The truss-sections of the centering can be made of wood, iron, or other suitable material, being assembled and put in place whenever a foundation is to be made. When the parts are bolted together, they can be readily

taken apart again and used for the next foundation-wall to be built. In this manner the concrete foundations for gas-tanks can be built in an effective and substantial manner and at considerably less expense than the brick or stone foundation-walls heretofore used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A centering for concrete foundations, comprising a plurality of truss-sections arranged side by side, face-panels applied to said truss-sections, and a vertically-movable cage suspended from the top of each of said sections.

2. A centering for concrete foundations, comprising a plurality of truss-sections arranged side by side, face-panels applied to said truss-sections, and cages suspended from the top of each section, one of said cages counterbalancing the other.

3. A truss-section for concrete foundation-centerings, including uprights, braces connecting said uprights, face-panels applied to one side of the section, and a cage movable vertically in the space between said uprights.

4. A truss-section for concrete foundation-centerings including in its construction a plurality of uprights, guide-strips spaced from said uprights, face-panels guided by said guide-strips, and wedge-keys inserted between said braces and said face-panels.

5. A centering for concrete foundations of gas-tanks or other circular walls, consisting of a plurality of truss-sections arranged in a circle at the interior of the excavation for the foundation-wall, each truss-section being provided with shiftable guide-strips and horizontal platforms adjacent to said guide-strips, panels guided on said guide-strips and provided with curved faces corresponding to the curvature of the foundation-wall to be built, means for locking said panels to the truss-sections for dumping the concrete, and cages suspended from the upper part of each truss-section and located in the open space in each section.

6. A centering for concrete foundations of gas-tanks or other circular walls, consisting of truss-sections arranged in a circle corresponding to the interior diameter of the foundation-wall, a curved face-panel for each truss-section, shifting guide-strips for said face-panels, removable platforms for supporting the guide-strips, cages for supplying the loaded wheelbarrows, and means for suspending the same from the upper part of the truss-sections.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

RICHARD DEEVES.

Witnesses:

PAUL GOEPEL,

HENRY J. SUHRBIER.