E. A. CUSTER.

ACTUATING MECHANISM FOR TURN TABLE PIPE CASTING APPARATUS.

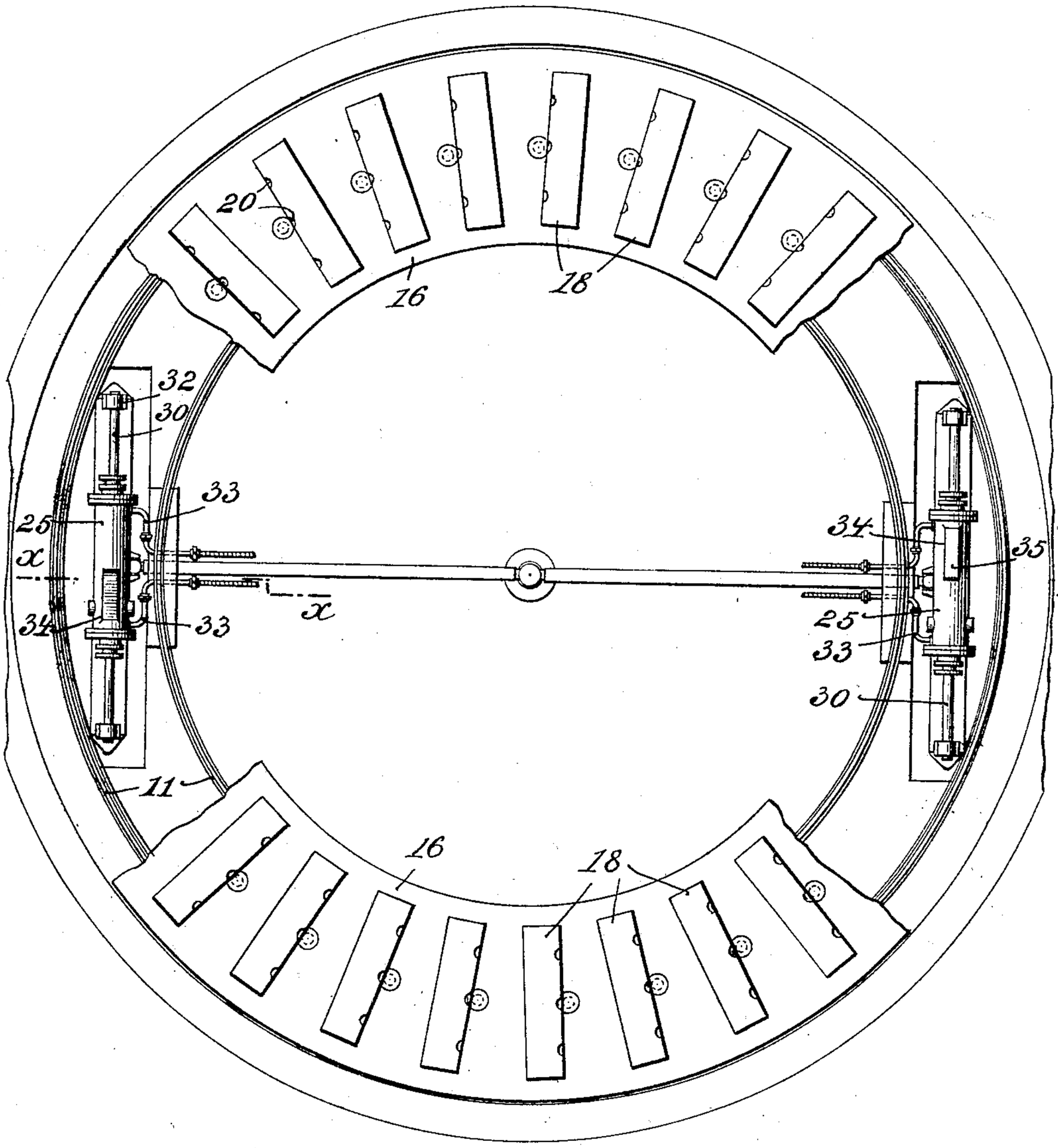
APPLICATION FILED MAR. 27, 1908.

898,441.

Patented Sept. 15, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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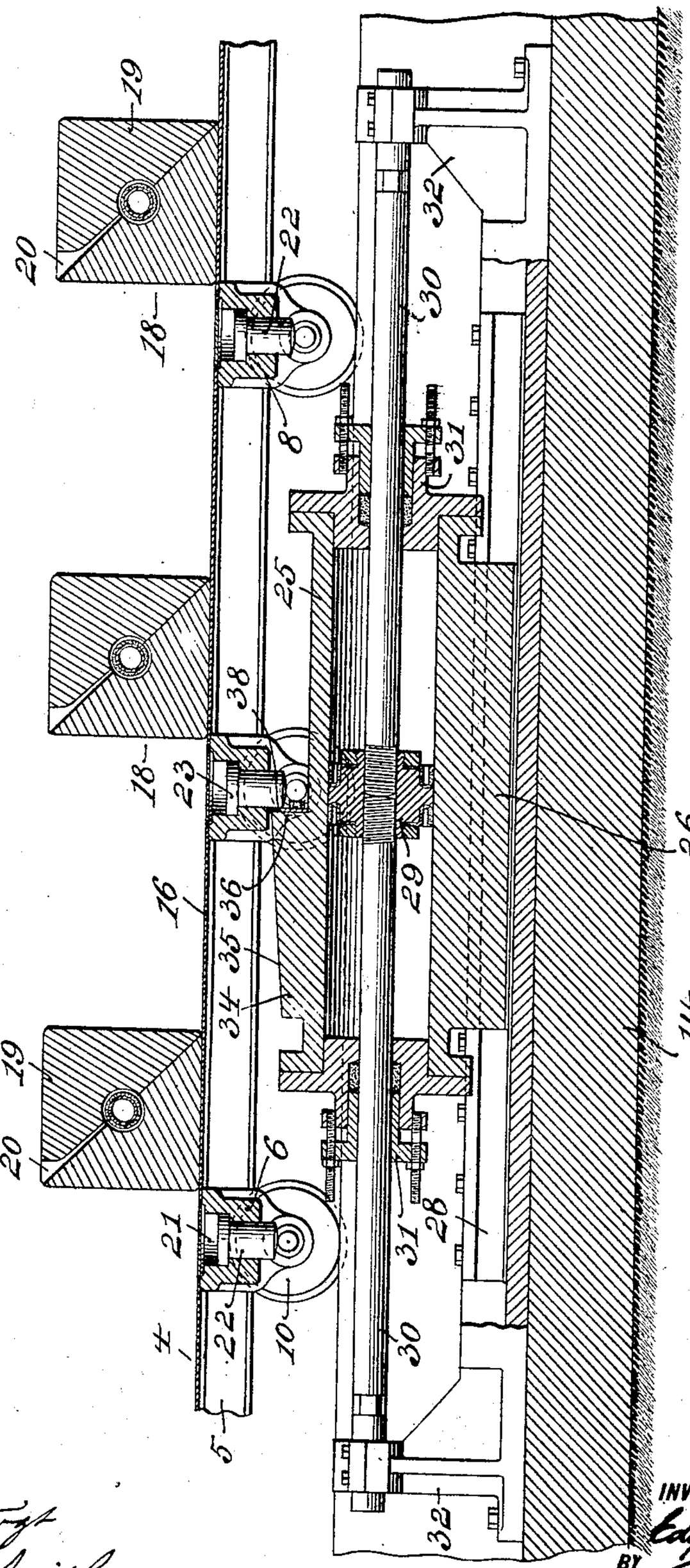
Fig. 2.



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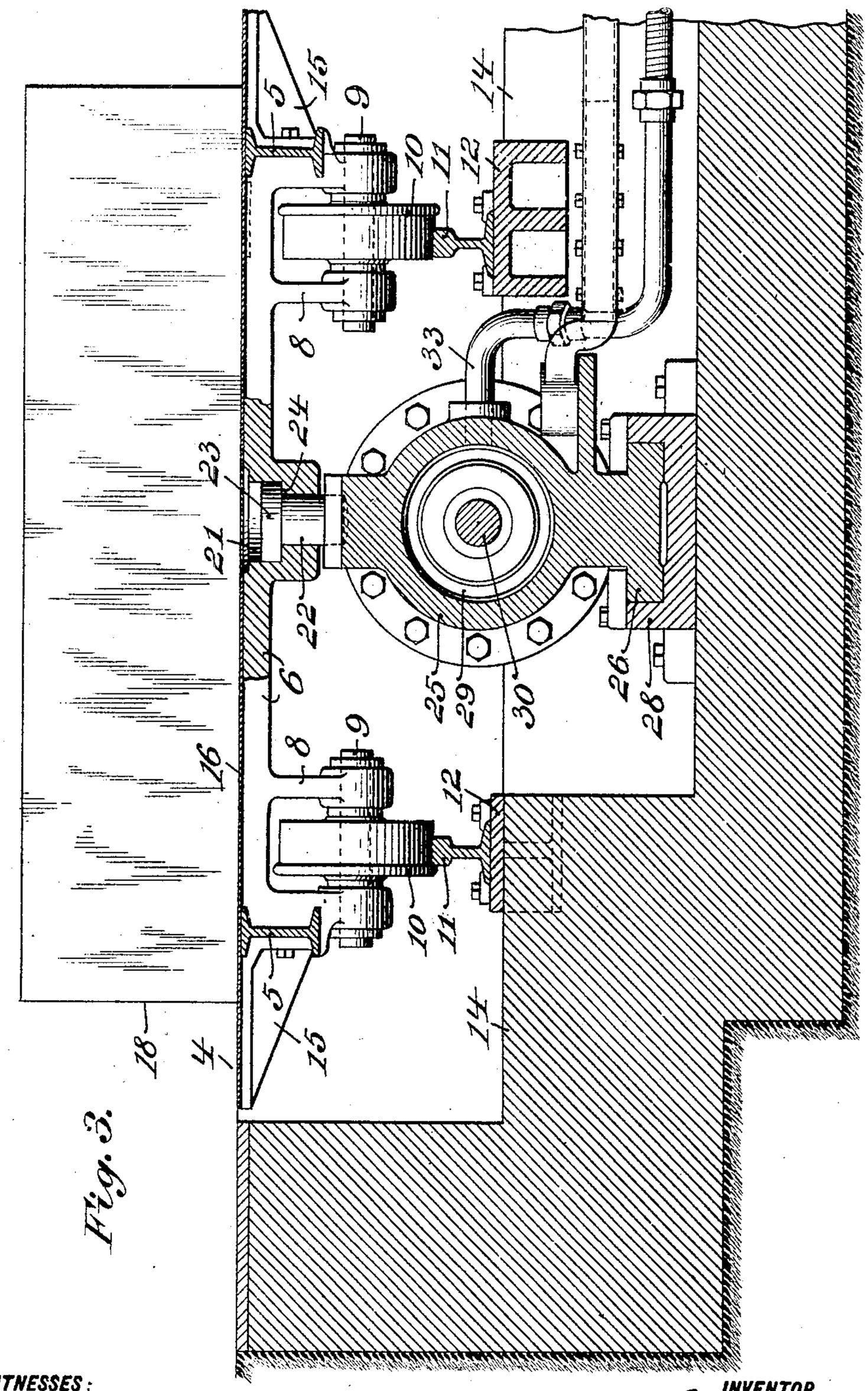

Fig. 3.

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UNITED STATES PATENT OFFICE.

EDGAR ALAN CUSTER, OF PHILADELPHIA, PENNSYLVANIA.

ACTUATING MECHANISM FOR TURN-TABLE PIPE-CASTING APPARATUS.

No. 898,441. Specification of Letters Patent. Patented Sept. 15, 1908.

Application filed March 27, 1908. Serial No. 423,725.

To all whom it may concern:

Be it known that I, EDGAR ALAN CUSTER, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Actuating Mechanism for Turn-Table Pipe-Casting Apparatus, of which the following is a specification.

My invention has relation to an actuating mechanism for the turntable of a pipe casting apparatus especially such as has been described and claimed in the United States Letters Patent No. 870,817 granted to me under date of November 12th, 1907; and in such connection it relates more particularly to the constructive arrangement of means for imparting to a turntable a step-by-step rotary movement in one direction thereof.

The principal objects of my invention are first, to arrange the actuating mechanism so as to rotate the turntable from two diametrically opposite points to reduce strain incidental to movement of structures of the turntable; second, to provide a turntable with blocks at predetermined distances apart and to so arrange the same in the table as to permit the actuating means on the one hand to move the blocks out of operative position and on the other hand to permit the same to drop by gravity back into an initially operative position, whereof the blocks form a connecting means between the turntable and the actuating mechanism thereof; third, to provide the actuating means with a cam or throw portion for moving the blocks out of their normally operative position; and fourth, to provide as actuating means a cylinder which by being movably arranged on a fixed piston and rod serves to support the cams and in conjunction therewith and blocks to impart to the turntable a step-by-step rotary movement in one direction thereof.

The nature and scope of my present invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which

Figure 1 is a view, illustrating in top or plan, a portion of a turntable, the molds carried by the same, a portion of track supporting the table, and actuating mechanism therefor. Fig. 2 is a view enlarged, illustrating partly in section and partly in elevation, a portion of the turntable, molds carried thereby, a cylinder sliding on a fixed piston and rod and coupling blocks for connecting the table with said cylinder; and Fig. 3 is a cross-sectional view, enlarged, on line x—x of Fig. 1.

Referring to the drawings 4, is a turntable of the type described and shown in Letters Patent No. 870,817 and No. 870,870 granted to me under date of November 12th, 1907, and preferably consisting of I-beams 5, connected with each other by cross-pieces 6, having formed integral therewith, bearings 8, for the shafts 9, of traction-wheels 10, engaging rails 11, supported in the present instance by carriers 12, embedded in a base 14, of concrete or other suitable material. To the I-beams 5, are secured outwardly extending brackets 15, forming in conjunction with the I-beams 5, and cross-pieces 6, a frame for supporting a plate 16, annular in outline. Upon the plate 16, are placed at predetermined distances apart permanent molds 18, preferably of the type described and shown in Letters Patent granted to me under date of May 12th, 1908, under the No. 887,070, the parting line of which is arranged at an angle to the horizontal and having pour-holes 20, arranged in the cope 19, at the upper end of the parting line, as shown in Figs. 1 and 2. Each of the cross-pieces 6, of the table 4, is provided, preferably integral therewith, with a pocket or chamber 21, in which is loosely arranged a bolt or block 22, extending through and beyond the pocket 21, and held in this normal or operative position by the head 23, resting in this position on a shoulder 24, of the pocket 21.

As shown in Fig. 1, on the base 14, and at two diametrically opposite points intermediate of the rails 11 and directly below the bolts 22, of the turntable 4, are cylinders 25, supported by a base 26, having a range of sliding movement in a bed or guide plate 28, suitably secured to the base 14. Each of the cylinders 25, is provided with a piston 29, held in a fixed position by means of a piston-rod 30, which passes through stuffing boxes 31, of the cylinder 25, and is removably secured at the respective outer ends in guide-plates 28, by means of brackets 32, preferably formed integral with the plates 28. Fluid

under pressure from a suitable source, not shown, is introduced by means of pipes 33, into each of the cylinders 25, alternately on opposite sides of the pistons 29 thereof, whereby the cylinders are reciprocated on the pistons and piston-rods 30, in the guide-plates 28. This reciprocatory movement is utilized to move the blocks or bolts 22, alternately into an inoperative position and to impart to the turntable 4, with the aid of the blocks or bolts 22, a step-by-step rotary movement of the table in one direction by the following preferred mechanism:—Each of the cylinders is provided at the upper portion with a projection 34, terminating substantially in the central portion thereof, and having an inclined portion 35, serving as a cam. When the cylinders 25, are moved from right to left in Fig. 2, the cam portion 35, of the projection 34, is brought into engagement with the lower face of the block nearest the cylinders, and by lifting the same into the pockets 21, shifts the blocks into an inoperative position until the end of the projections 34, are reached, at which point the blocks now unsupported will drop by gravity back into their normally operative position in front of the projection 34, now forming in conjunction therewith a coupling between the cylinders and turntable. When the cylinders 25, are moved forward from left to right in Fig. 2, the projection 34, by abutting against the block or bolt 22, directly in front of the same shift the table forwards and by such movement bring the molds 18, carried by the table successively into a metal receiving position with respect to a pouring mechanism, preferably of the type described and shown in an application for a patent filed by me under date of March 14th, 1908, under Serial No. 421,054. As the turntable 4, is simultaneously actuated by the cylinders 25, arranged diametrically opposite to each other the strain on the said mold structures thereof, incidental to such movements of the table is greatly lessened and uniformly distributed over the same. In order to reduce wear on the projection 34, the same as to the actuating face 36, is provided with a removable bearing-plate 38.

Having thus described the nature and objects of my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a mechanism of the character described, a table carrying molds, means movably arranged in the table and normally projecting therefrom, and means reciprocally arranged below the table and having means for raising the movable means and in conjunction therewith adapted to impart to the table a step-by-step rotary movement of the table in one direction thereof.

2. In a mechanism of the character described, a table carrying molds and actuating means for said table, said actuating means, consisting of blocks or bolts movably arranged in said table and normally projecting therefrom, and a movable cylinder having a cam for raising said blocks or bolts into an inoperative position, when moved in one direction and imparting in conjunction with the same to said table a step-by-step rotary movement, when moving in an opposite direction.

3. In a mechanism of the character described, a table carrying molds and combined coupling and actuating means, said means consisting of blocks forming one member of the coupling movably arranged in said table and normally occupying an operative position by projecting from the table and a cylinder having a projection forming the other member of the coupling connecting the table with said cylinder, the projection of said cylinder adapted when moved in one direction to raise the blocks into an inoperative position and when moved in an opposite position to impart in conjunction with said blocks to the table a step-by-step rotary movement thereof.

4. In a mechanism of the character described, a table carrying molds, blocks movably arranged in said table and normally projecting therefrom, a piston and rod held in a fixed position below the table, a cylinder adapted to reciprocate on the piston and piston-rods and having a projection, said projection adapted when the cylinder is moved in one direction to prevent movement of the table by raising said blocks into inoperative position and when the cylinder is moved in an opposite direction to shift the table in one direction by the engaging of said blocks.

5. In a mechanism of the character described, a turntable provided with a depending movable block, a fixed piston and rod and a cam surface cylinder adapted within guides to be reciprocated on said piston and rod to alternately hold and move said turntable.

6. In a mechanism of the character described, a turntable provided with a gravity bolt or block, a fixed piston and rod, a cam surface cylinder adapted to be moved on said piston and rod, said gravity bolt or block adapted to engage said cylinder to move the table in one position thereof and in the other to hold the table in a fixed position.

7. In a mechanism of the character described, a turntable provided with a gravity bolt or block, a fixed piston and rod, a cylinder provided with an offset or cam surface, said cylinder riding on said piston and rod whereby through the movement of said bolt

or block in one position thereof by engaging the offset portion of the cylinder to hold said cylinder in a fixed position and in the other position of said bolt or block to permit of the movement of the cylinder to shift the position of said table.

In witness whereof, I have hereunto set my signature in the presence of two subscribing witnesses.

EDGAR ALAN CUSTER.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.