G. M. MYERS.

TILE MAKING MACHINE.

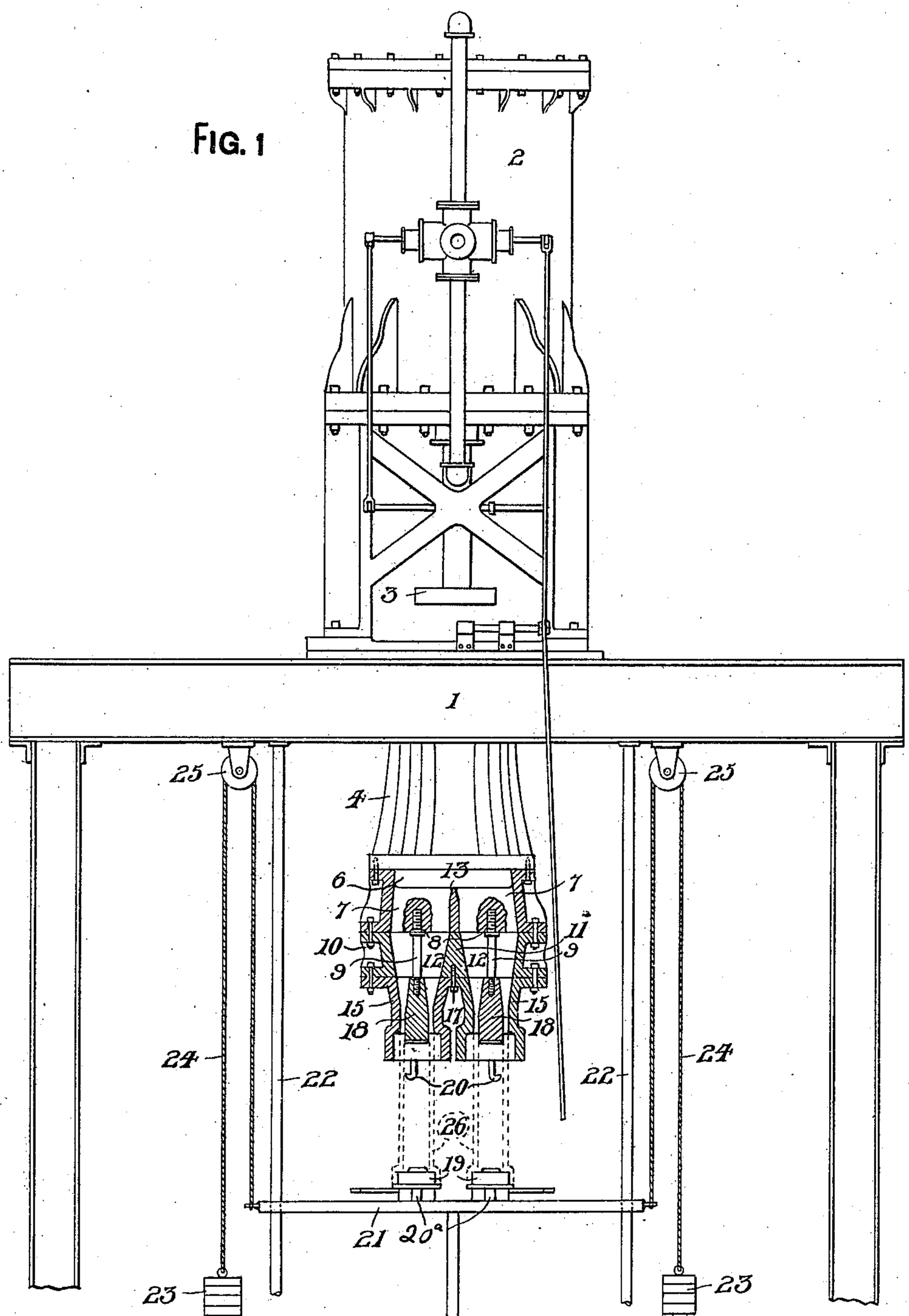
APPLICATION FILED JAN. 11, 1910.

975,062.

Patented Nov. 8, 1910.

3 SHEETS—SHEET 1.

FIG. 1



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3 SHEETS—SHEET 2.

FIG. 2

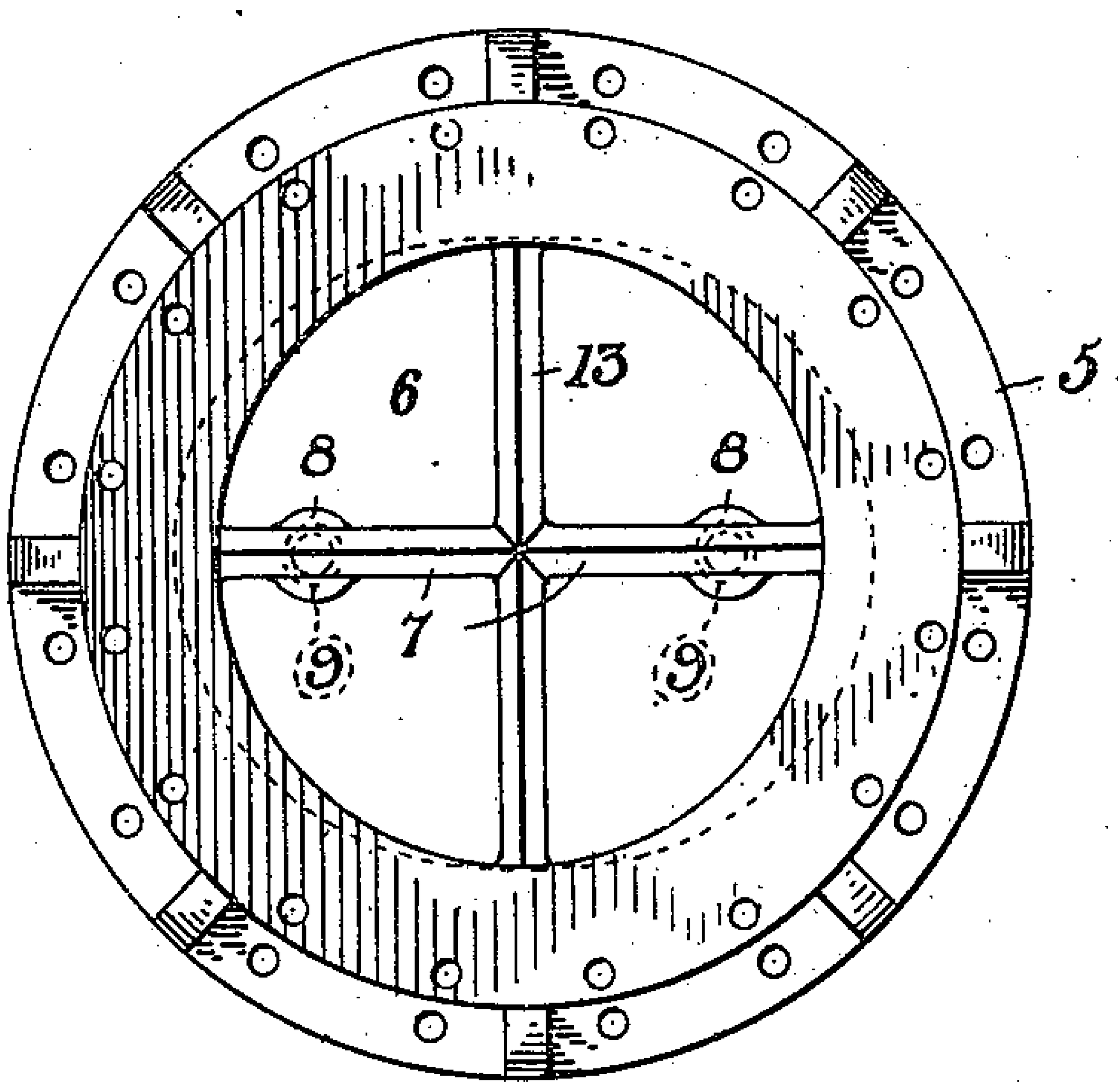


FIG. 3

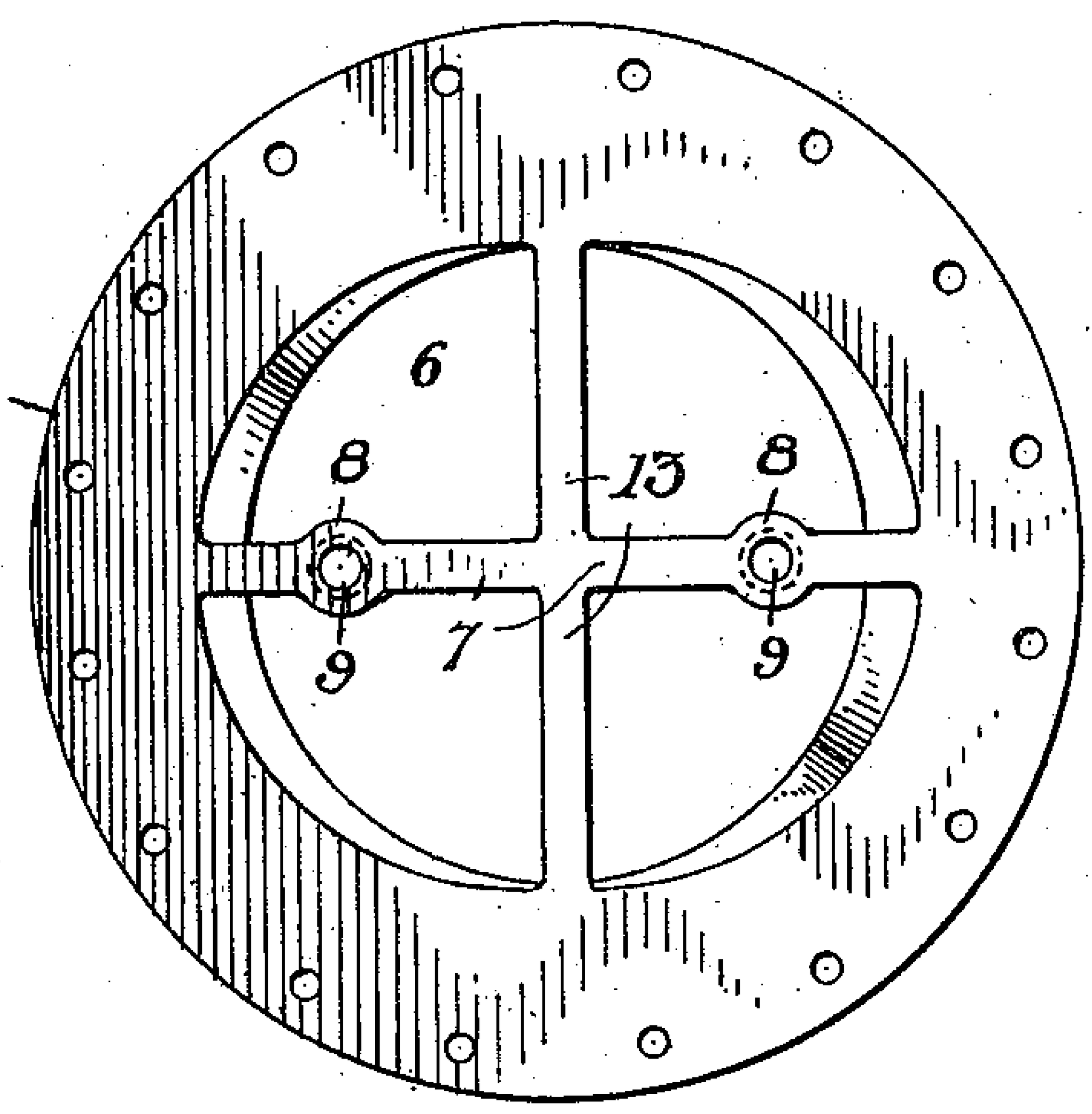


FIG. 4

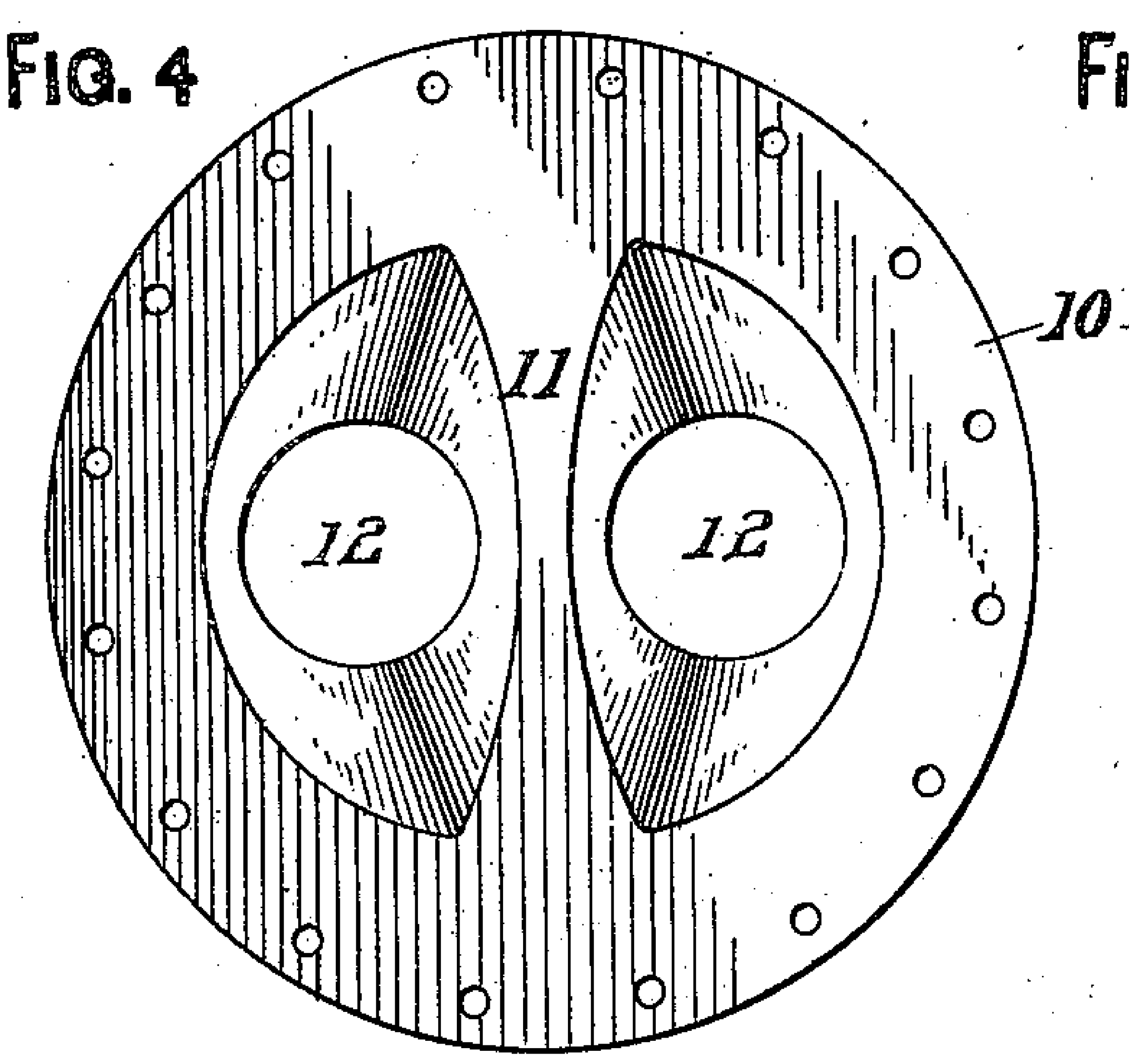


FIG. 5

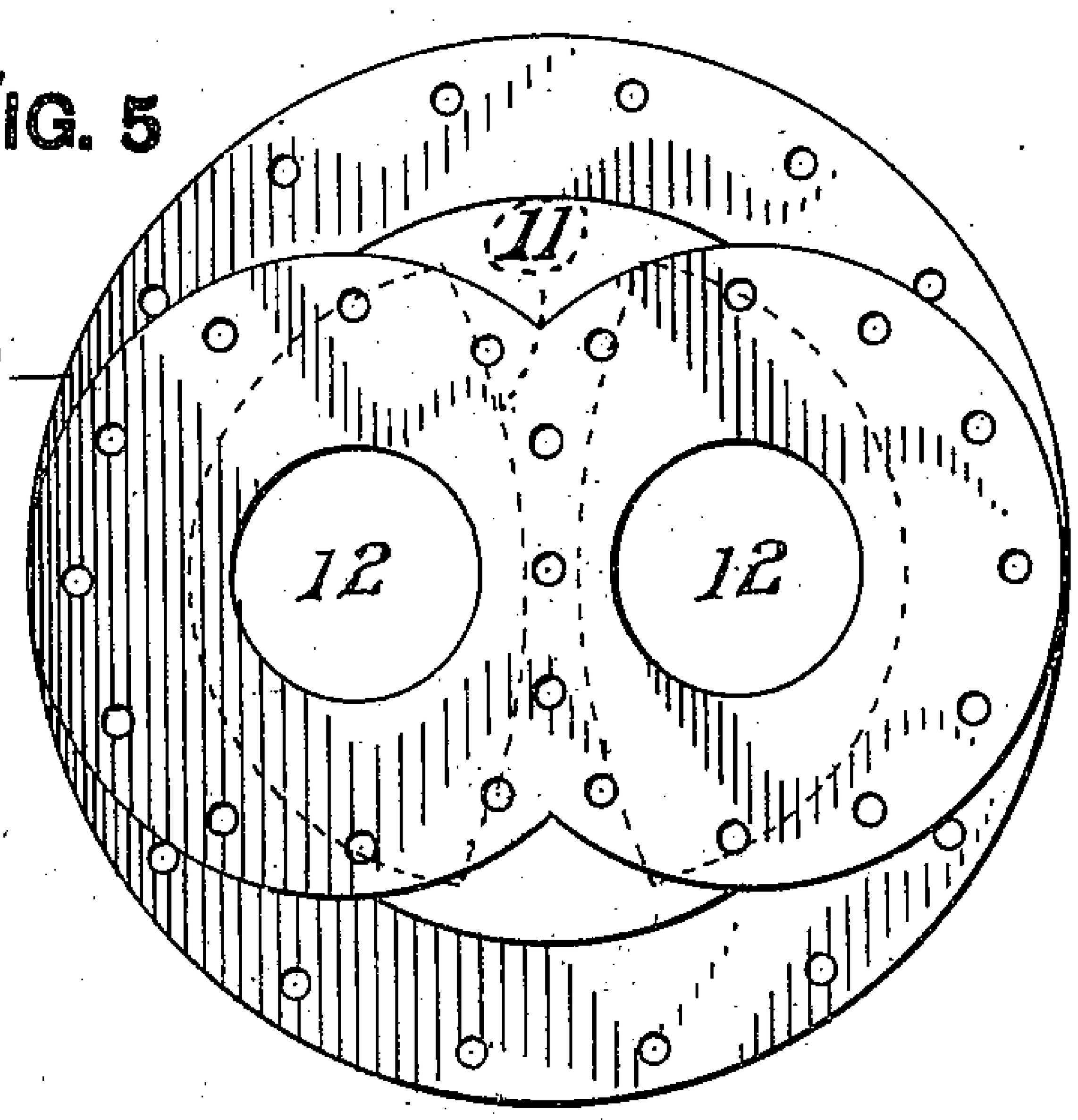


FIG. 6

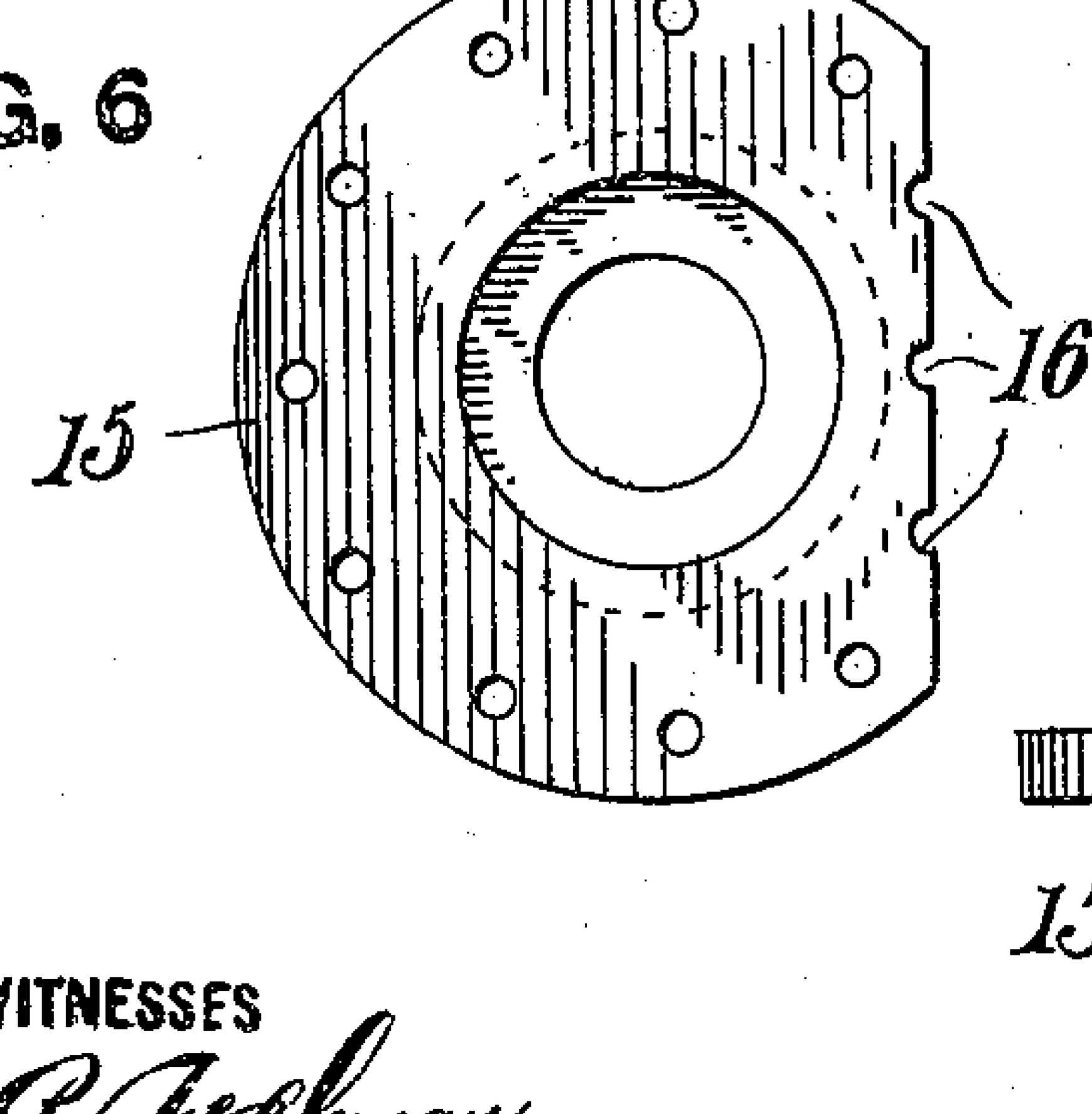


FIG. 7

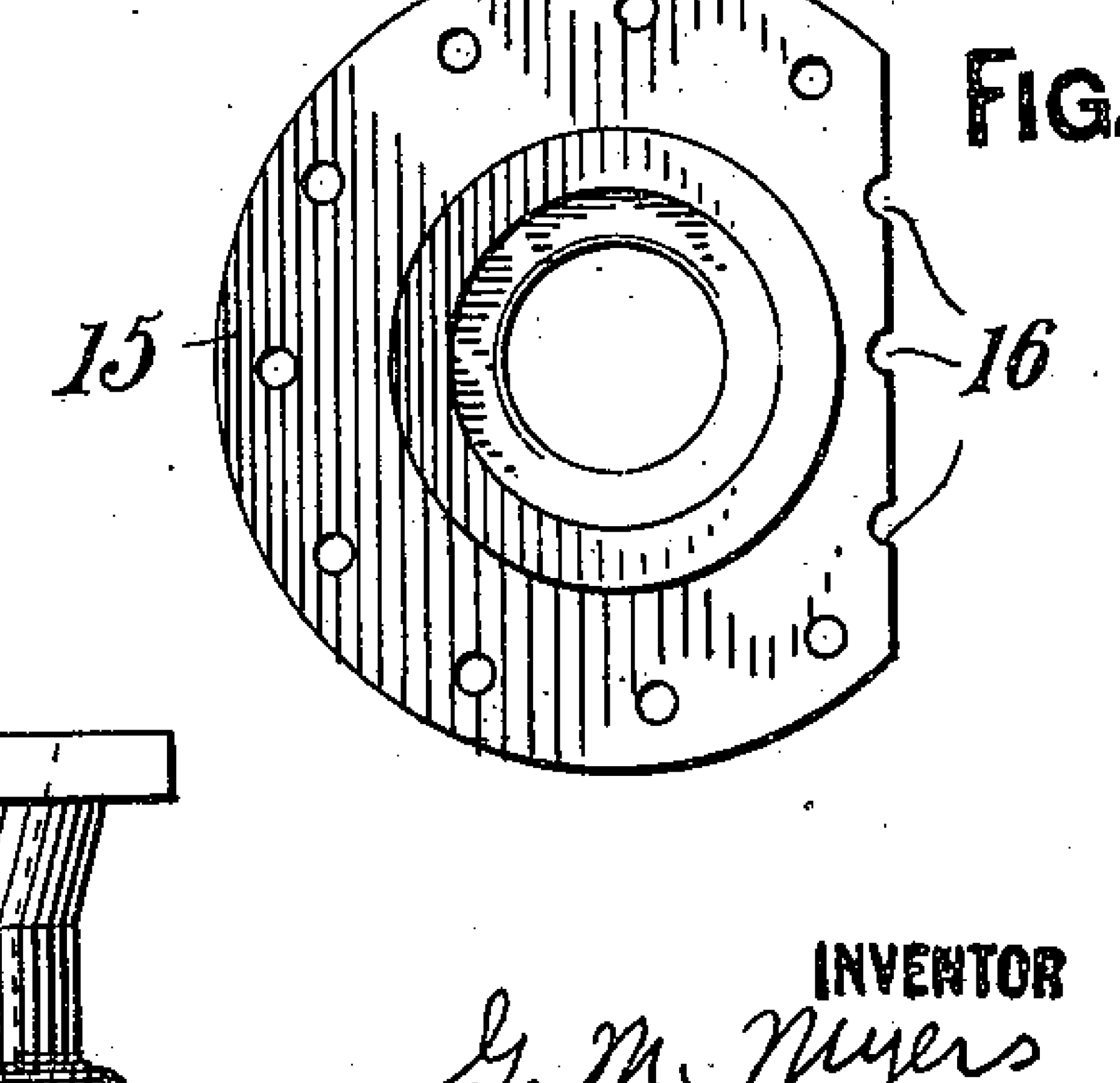
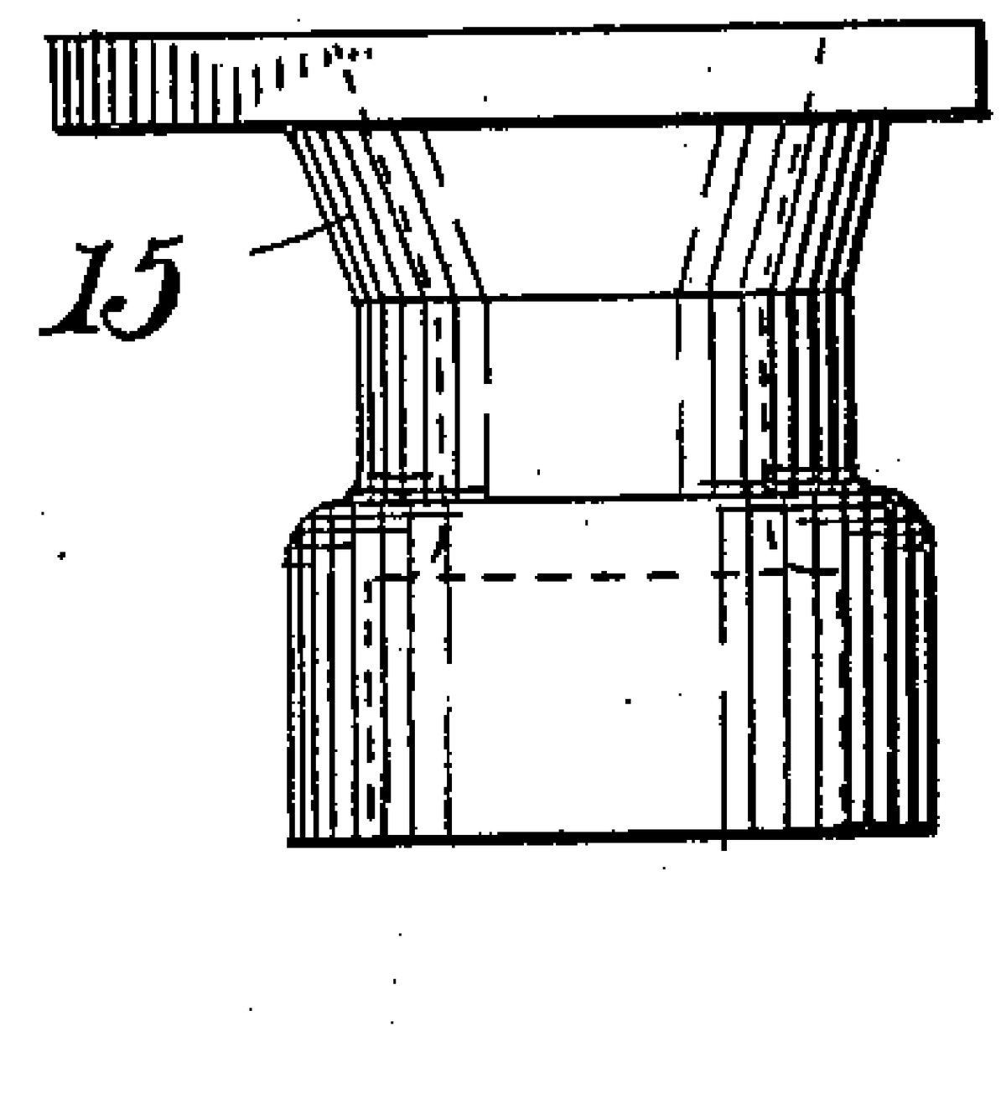


FIG. 8



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TILE MAKING MACHINE.

APPLICATION FILED JAN. 11, 1910.

975,062. Patented Nov. 8, 1910.

3 SHEETS—SHEET 3.

FIG. 9

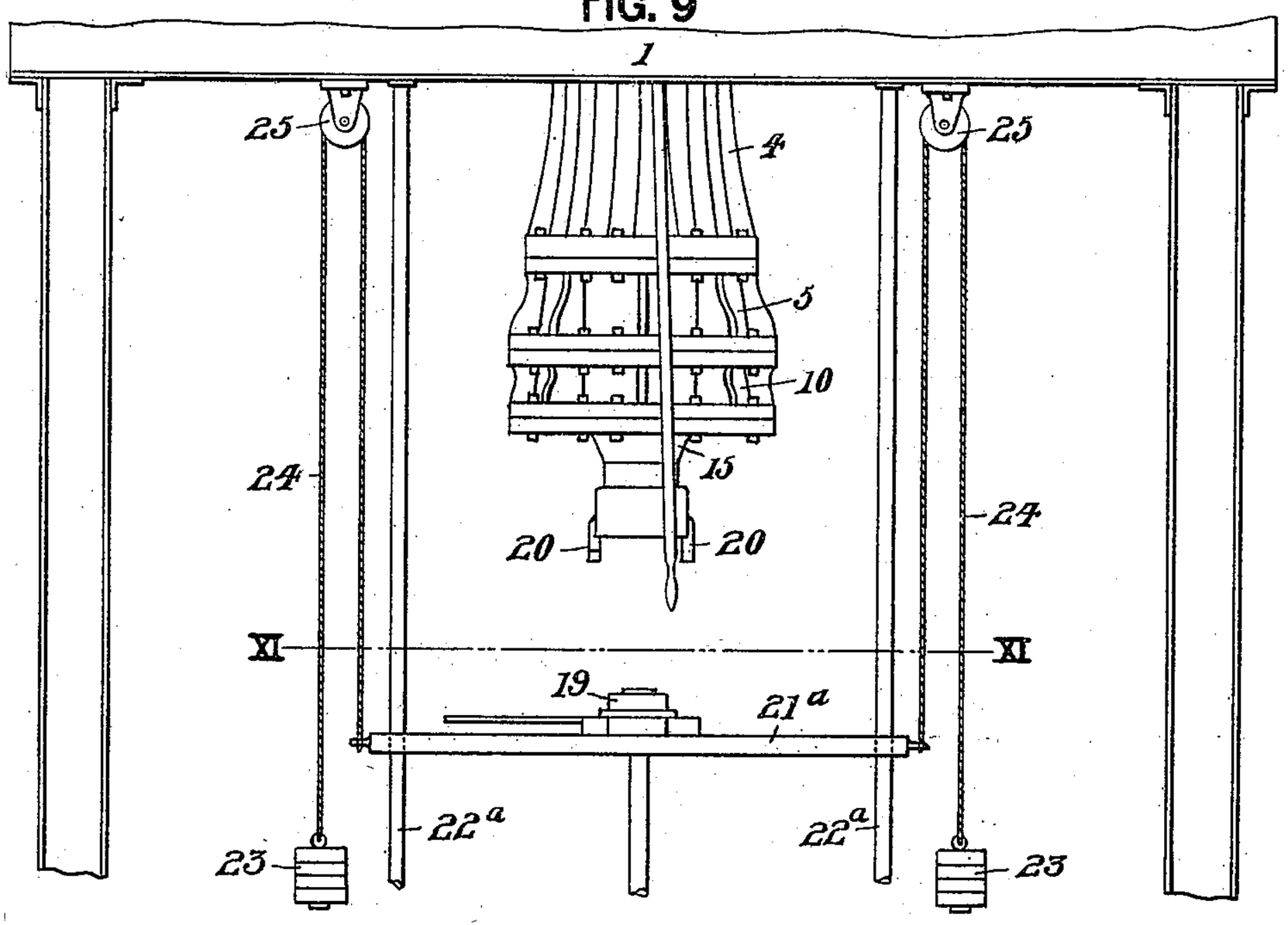


FIG. 10

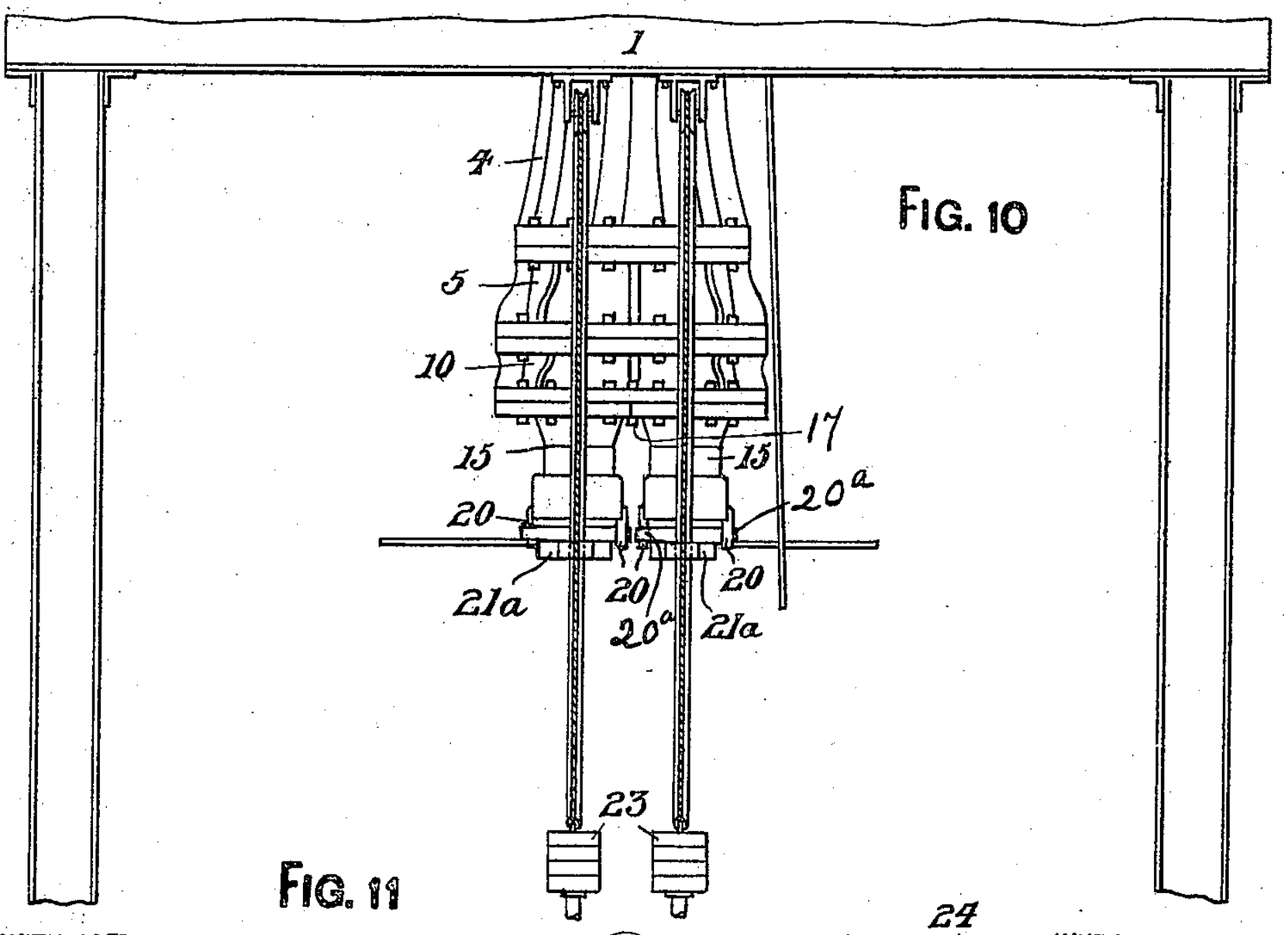
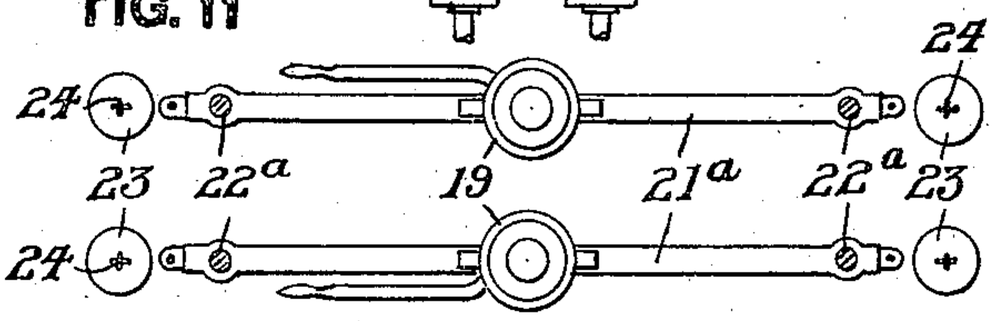


FIG. 11



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UNITED STATES PATENT OFFICE.

GEORGE M. MYERS, OF TORONTO, OHIO.

TILE-MAKING MACHINE.

975,062. Specification of Letters Patent. Patented Nov. 8, 1910.

Application filed January 11, 1910. Serial No. 537,461.

To all whom it may concern:

Be it known that I, GEORGE M. MYERS, a citizen of the United States, residing at Toronto, in the county of Jefferson and State of Ohio, have invented or discovered new and useful Improvements in Tile-Making Machines, of which the following is a specification.

My invention relates to machines for making sewer pipe or like articles.

It is the object of my invention to so modify existing machines that they may each produce more than one pipe at an operation. By constructing a machine so that it will make two pipes at each operation instead of one pipe, I am enabled to greatly reduce the cost of manufacture, as the cost of making a single pipe in a single-die machine costs almost as much as to produce two pipes.

My invention is applicable to existing machines by substituting three rings for those in the machines. It requires but a few minutes to exchange one set of rings for another so that pipes of different sizes may be simultaneously made, or that two pipes may be made in place of one.

Referring to the accompanying drawings, Figure 1 is an elevation of an apparatus involving my invention, which is shown in vertical central section; Fig. 2, a top plan of the spider ring; Fig. 3, a bottom plan thereof; Fig. 4, a top plan of the extension ring; Fig. 5, a bottom plan thereof; Fig. 6, a top plan of one of the dies; Fig. 7, a bottom plan thereof; Fig. 8, a side elevation thereof; Fig. 9, an elevation of the lower half of Fig. 1, but with a slight modification; Fig. 10, an elevation of the lower half of my pipe making machine, showing individual tables for each die; and Fig. 11, a section on the line 11—11 of Fig. 9.

On the drawings, 1 designates a metal framework on which I mount the vertical steam cylinder 2 provided with the plunger 3 at its lower end.

To the frame 1 is secured the pendent hopper 4 arranged to receive the plunger 3 which forces the clay in the hopper down through the rings and dies attached to the lower end thereof.

All the apparatus referred to except the rings and dies is old and well known and needs no further illustration and description.

To the lower end of the hopper 4, I bolt the spider-ring 5 which has the central opening 6, through which the plunger pushes the clay from the said hopper. A cross-bar 7 extends diametrically across the spider-ring and is provided with two enlargements 8 in which there are screwed the upper ends of two vertical rods 9, one centrally over each of the two dies presently to be described.

To the lower end of the spider-ring 5, I bolt the extension-ring 10 which has diametrically across it the partition or divider 11, forming in the ring 10 two vertical openings 12 having upwardly flaring walls, as shown in Figs. 1 and 4, registering with the downwardly flaring walls of the spider ring, as shown in Fig. 1. The partition or divider 11 is at a right angle to the bar or core support 7 and preferably the spider-ring will have a cross-bar 13 having an upper knife edge, its lower edge being seated on the top of the partition 11.

To the lower end of the extension ring 10, I bolt the dies 15 preferably made separate and secured, one under each opening 12. As the dies are alike, a description of one will be sufficient. The die 15 has the upper part of its central opening flaring upwardly so as to register with the opening 12. The middle portion of the die 15 is contracted to the external diameter of the pipe which it is desired to make. The lower end of the die is widened to correspond to the outer diameter of the bell or socket of the pipe. The two dies 15 have their adjacent edges removed as shown in Figs. 1, 6, and 7, so as to leave straight lines in which notches 16 are made to receive half of the central securing bolts, one being shown on Figs. 1 and 10 and marked 17.

The cores 18 for shaping the interior opening of the pipes are held centrally in the dies by means of the rods 9 which extend from the bosses 8 down through the openings 12 in the extension-ring and are screwed into the tops of the cores.

The lower ends of the dies 15 are closed by the bottoms or plugs 19 which have the radial arms 20^a locked after a partial rotation of the plugs by engagement with the hooks 20 pendent from the bottom of the dies. These plugs rest on the horizontal table 21 guided on the vertical rods 22. The table is counter-balanced by the weights 23 secured to the cords 24 which pass over the fixed sheaves 25 and are attached to the ends of the table.

The parts being as in Fig. 1 with the table 21 up so as to support the plugs 19, which are locked to the dies 15 as aforesaid, clay in the hopper 4 is forced by the plunger 3 down through the spider-ring and the extension-ring and into the dies so as to completely fill the latter and properly compact the clay in the dies. The plugs 19 are then unlocked from the dies and the operation of the plunger 3 causes the clay to issue from the bottoms of the dies, the table yielding as the pipes issue. When the pipes are made of the desired length they are cut off at their upper ends. The pipes are removed from the table and the operation is repeated.

In case the clay should issue from one die faster than from the other, the table 21 would be forced away from the pipe more slowly formed, which might make the latter somewhat out of shape. In such case it would be advisable to provide an independent table 21[a] for each pipe as shown in Fig. 10, each table being guided on rods 22[a].

It will be seen that with my improved spider-rings, extension-rings, and dies, I am able to make more than one pipe at a time without any appreciable cost over the old method of making a single pipe. If pipes of a different size are required, it is only necessary to remove the dies 15 and substitute another pair of dies therefor having the required size. In case the change in size of the pipe is such that the required dies are not made to fit the extension-ring in use, a different extension-ring corresponding to the required dies would be used.

From Fig. 1 it will be seen that the partitions 13 and 11, and the inner portions of the upper end of the dies 15 form at each side continuous sloping surfaces which diverge to the place in the dies 15 where the bodies of the pipes 26 are shaped.

I claim—

1. In a pipe-forming machine, a hopper, a spider ring located beneath the hopper and having a cross-bar therein, rods depending from said cross-bar, one rod for each die, a removable extension ring beneath the spider ring having a divider therein forming openings in the extension-ring, pipe-dies beneath the extension-ring, one die for each opening in said extension ring, cores located within the dies and supported by the said rods depending from the said cross-bar, a plug to close the bottom of each die, and means to support the plugs and the pipes while they are forming the said hopper, the spider-ring, the extension-ring, and the pipe-dies being successively connected so as to form a casing.

2. In a pipe-forming machine, a hopper, a spider ring located beneath the hopper and having a cross-bar therein, rods depending from said cross-bar, one rod for each die, a removable extension ring beneath the spider ring having a divider therein forming openings in the extension-ring, removable pipe-dies beneath the extension-ring, one die for each opening in said extension ring, cores located within the dies and supported by the said rods depending from the said cross-bar, a plug to close the bottom of each die, and means to support the plugs and the pipes while they are forming the said hopper, the spider-ring, the extension-ring, and the pipe-dies being successively connected so as to form a casing.

3. In a pipe-forming machine, a hopper, a spider ring located beneath the hopper and having a cross-bar therein, rods pendent therefrom, one for each die, a die beneath the opening at each side of the cross-bar, a core in each die, secured to the lower end of each rod, and yielding means for supporting the pipes while they are forming the said hopper, the spider-ring, and the dies being successively connected so as to form a casing.

Signed at Pittsburg, Pa., this 10th day of January 1910.

GEORGE M. MYERS.

Witnesses:
F. N. Barber,
Suzanne S. Beatty.