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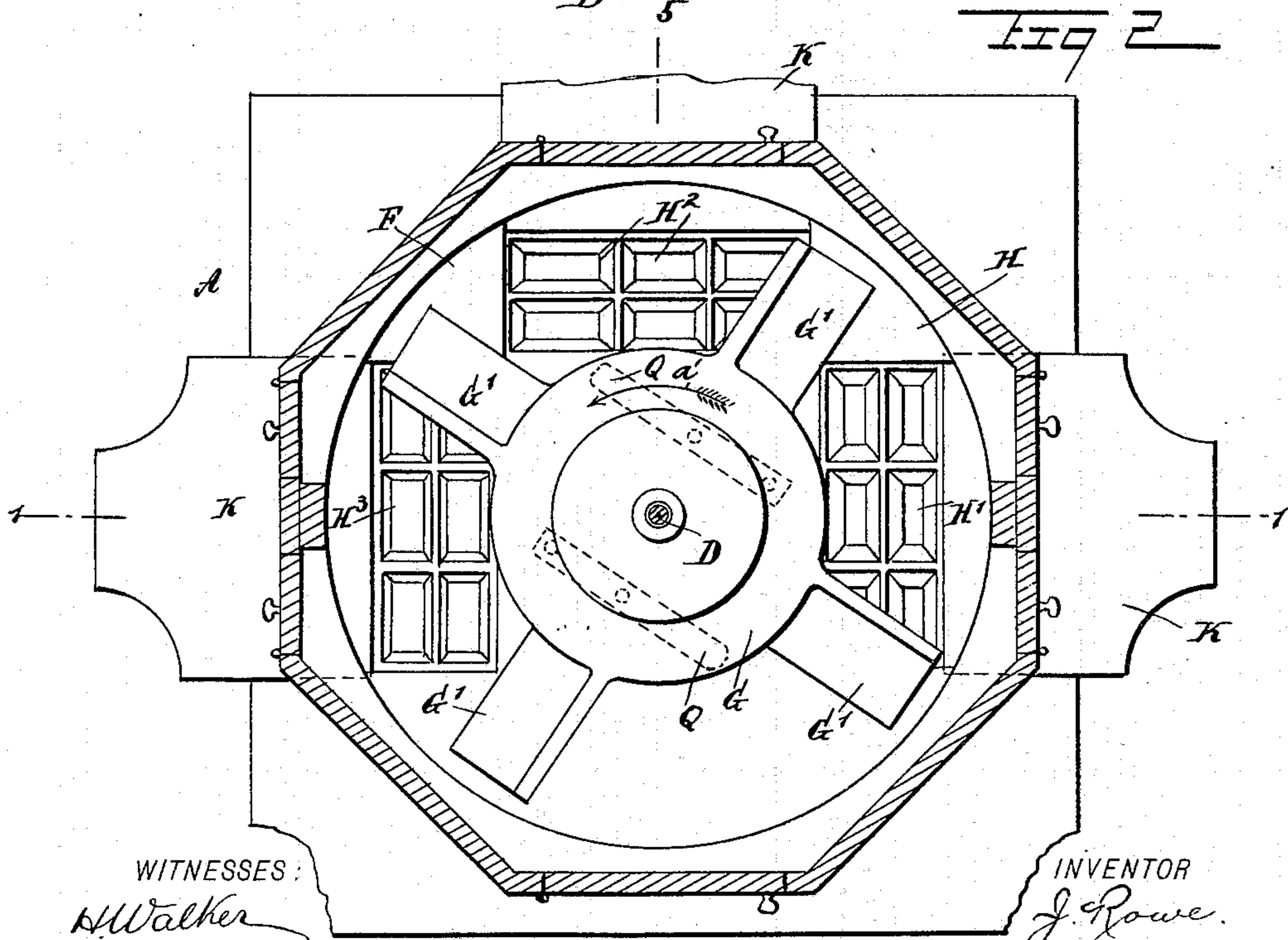
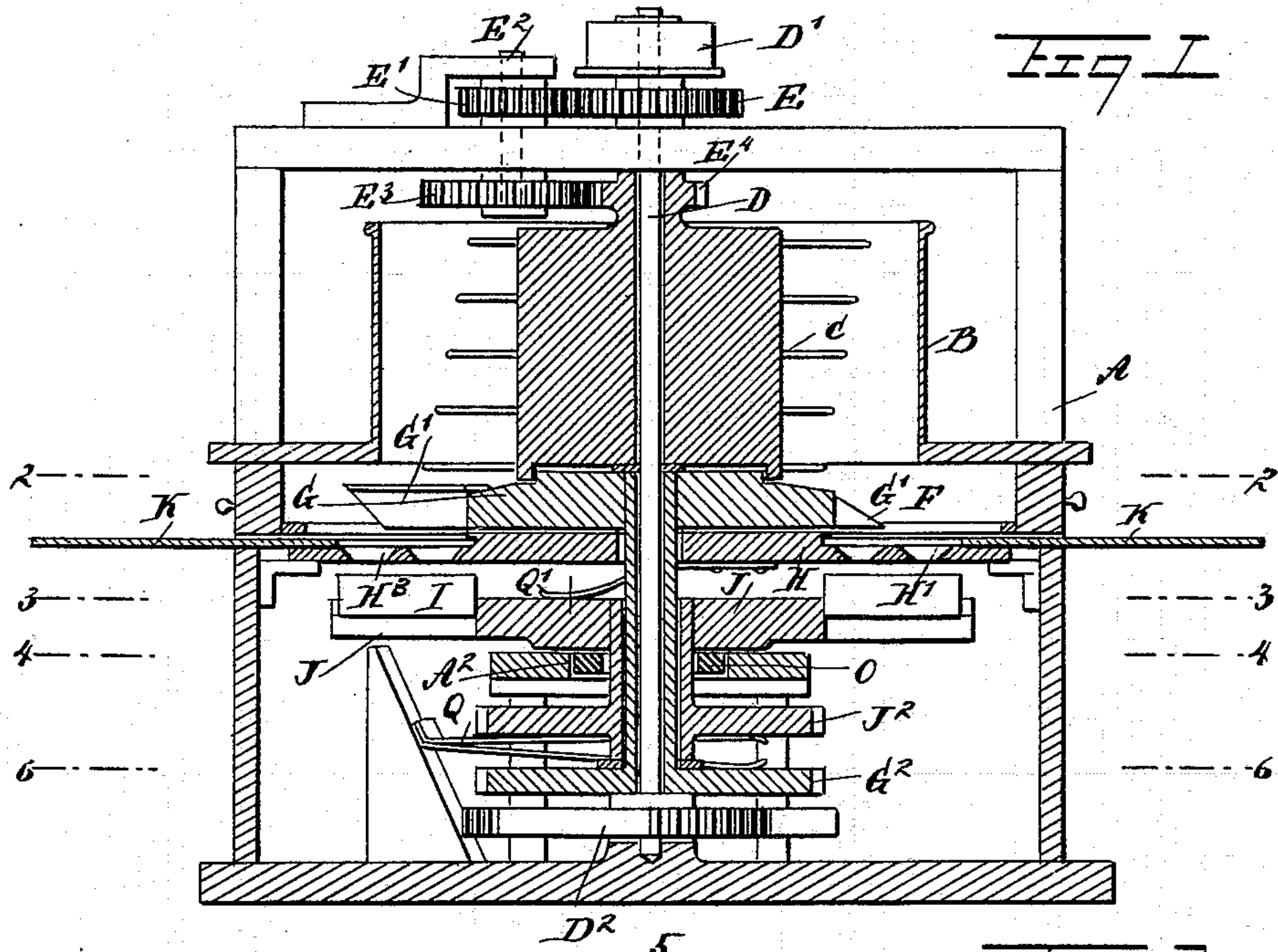
Patented Oct. 11, 1898.

J. ROWE.
BRICK MACHINE.

(Application filed Oct. 19, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 3.

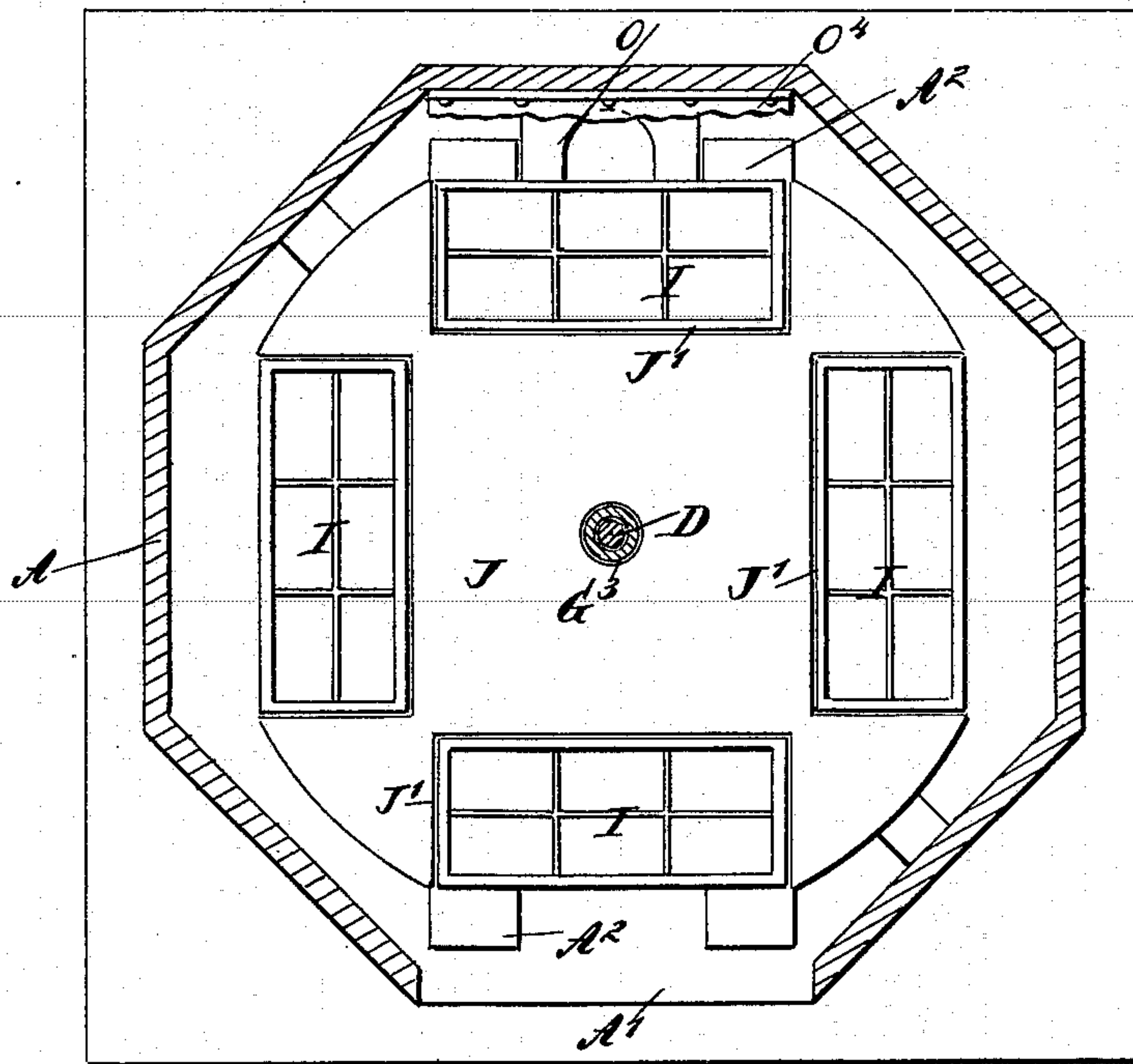
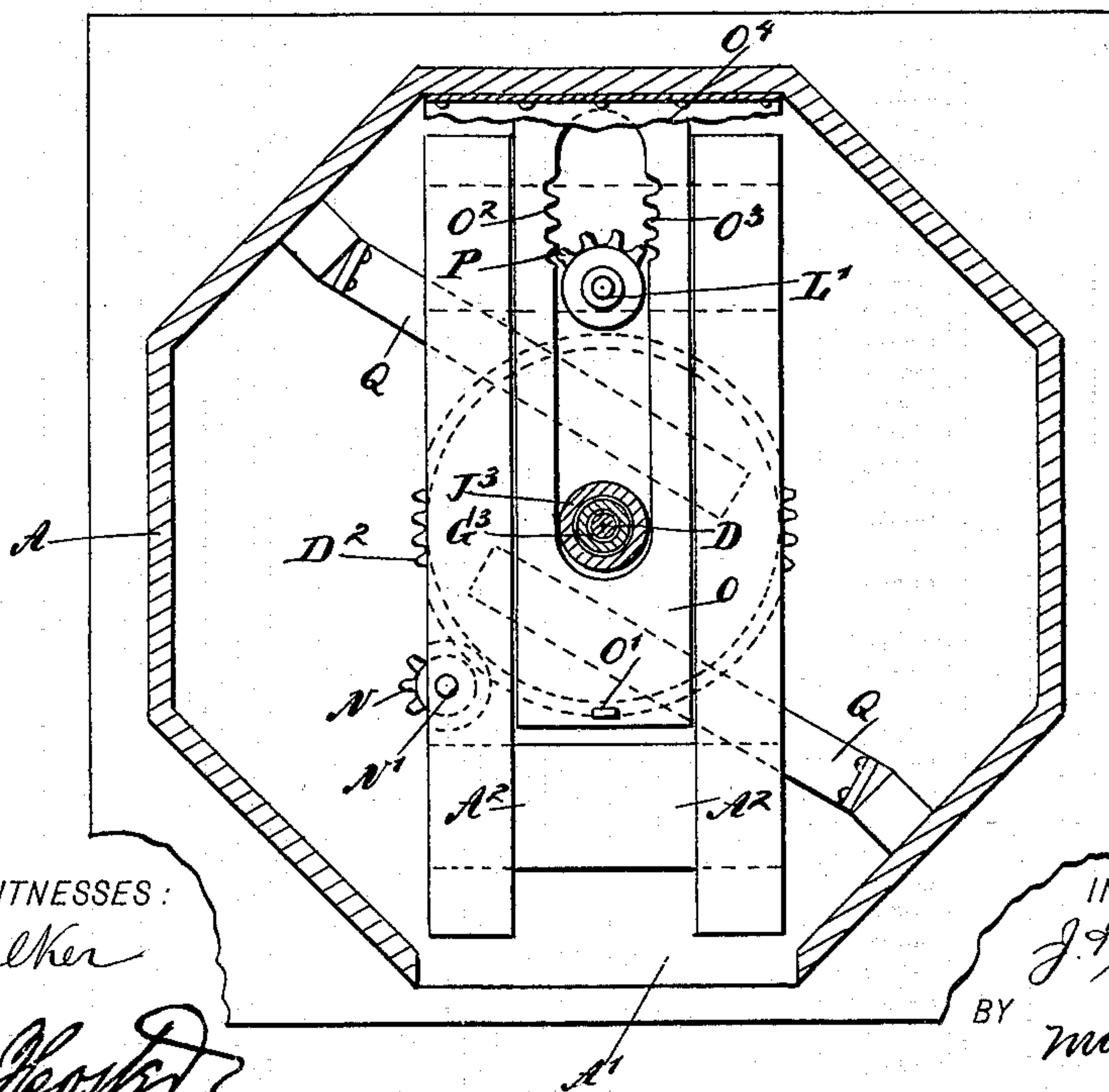


Fig. 4.



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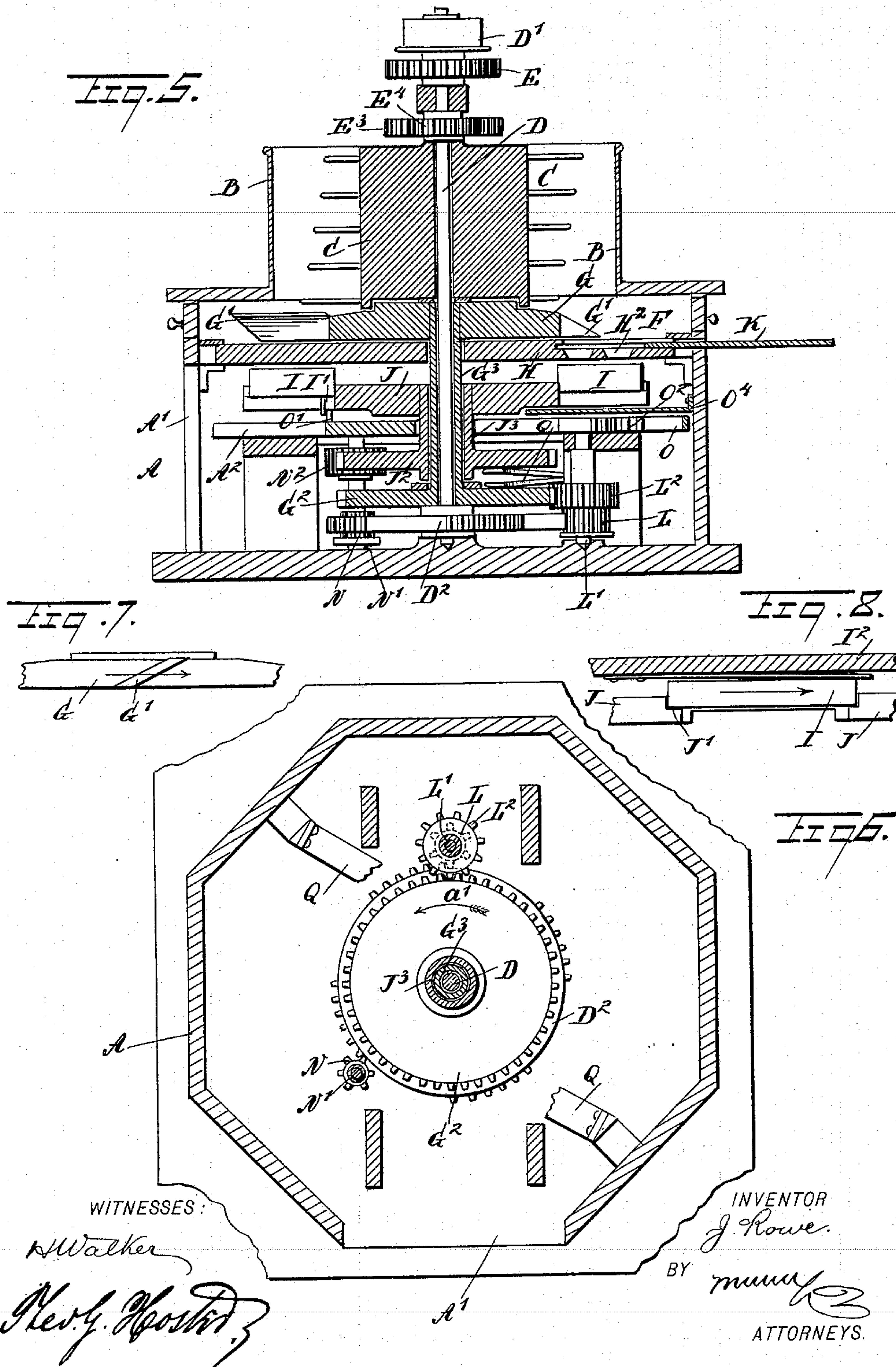
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

JOHN ROWE, OF SIDNEY, IOWA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 612,275, dated October 11, 1898.

Application filed October 19, 1897. Serial No. 655,740. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROWE, of Sidney, in the county of Fremont and State of Iowa, have invented a new and Improved Brick-Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved brick-machine arranged to properly mix the clay and press the material into the desired form, the manufacture of bricks being continuous, and by the use of the machine a large number of bricks can be turned out in a comparatively short time and without the aid of skilled labor.

The invention consists principally of a fixed former and an intermittently - revolving presser operating over the openings in the said former to press the material through the latter into shape and into a mold held below the former.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a similar view of the same on the line 3 3 of Fig. 1. Fig. 4 is a like view of the same on the line 4 4 of Fig. 1. Fig. 5 is a transverse section of the improvement on the line 5 5 of Fig. 2. Fig. 6 is a sectional plan view of the same on the line 6 6 of Fig. 1. Fig. 7 is a side elevation of part of the presser; and Fig. 8 is a side elevation of the moldboard-carrier and one of the molds, together with the scraper for the same.

The improved brick-machine is built on a suitably-constructed frame A, supporting in its upper portion a mixing-receptacle B, containing a revoluble agitator C for stirring the material, so as to properly mix the same previous to forming the bricks. The agitator C has a hollow hub through which passes loosely a driving-shaft D, set at its lower end in a suitable step in the bottom of the frame A

and journaled in its upper end in a bearing in the frame A, as shown in Figs. 1 and 5.

On the upper end of the shaft D is secured a pulley D', connected by belt with other machinery for imparting a rotary motion to the shaft D, or the latter may be directly turned by a suitable horse-power or other device. On the shaft D is secured a gear-wheel E, in mesh with a gear-wheel E', secured on a shaft E², carrying a large gear-wheel E³, in mesh with a pinion E⁴ on the hub of the agitator C, so that when the shaft D is rotated the gearing mentioned imparts a fast rotary motion to the agitator C, so as to cause the horizontally-disposed arms of the agitator to pass through the material contained in the receptacle B, for the purpose previously mentioned.

The lower end of the mixing vessel or receptacle B opens into a chamber F, formed in the frame A, and containing a presser G, receiving an intermittent rotary motion, as hereinafter more fully described, said presser being provided with a series of angularly-disposed wings G' (see Fig. 7) for pressing the mixed material through groups or sets of openings H' H² H³, formed in a stationary former H, held within the frame A and practically forming the bottom of the chamber F. Below each group of openings is arranged a mold I, slidable in suitable guideways J', formed on a carrier J, receiving an intermittent rotary motion similar to the presser G, as hereinafter more fully described.

The former H, as shown in Fig. 2, has three groups or sets of openings H' H² H³, over which operate successively the wings G', the groups or sets of openings being disposed in such a manner that two, H' H³, are located diametrically opposite each other, and with the other, H², at the rear of the former, as plainly indicated in Fig. 2, the front of the former being without a group of openings, as at this point of the machine, at the opening A', the empty molds I are introduced and the filled molds are removed, as hereinafter more fully described.

The first group or set of openings H' at the right-hand side of the machine has each of its openings somewhat less in size than the openings in the following set H². The openings

in the latter set are somewhat less in size than the openings in the set H^3 , and the openings in the set H^3 are somewhat less in size than the size of the compartments in the mold I and the finished brick. By this arrangement the sand adhering to the sides of each mold previous to its introduction into the machine is not disturbed by the successive introduction of the clay into the compartments of the molds, and hence the finished brick readily discharges out of the mold after the filled mold has been removed from the machine and is placed upside down on the drying-boards in the yard. It is understood that all the molds are sanded in the usual manner before use, and the material pressed through the first set of openings H^1 into the compartments of the mold occupies but a small space therein and does not touch the sanded sides of the mold, and the material pressed through the second set of openings H^2 likewise does not touch the sanded sides above the level of the material introduced, and only when the material is pressed through the third set of openings H^3 the mold-compartments become completely filled.

The openings H^1 are closed upon starting the machine by suitable slides K , fitted to slide in guideways in the former H , the handles of which extend to the outside of the frame A , as is plainly indicated in the drawings.

In order to impart the desired intermittent rotary motion to the presser G and the carrier J , I provide the lower end of the shaft D with a gear-wheel D^2 , formed with four sets of teeth with spaces between the same, as is plainly indicated in Fig. 6. The gear-wheel D^2 is adapted to mesh with sets of teeth successively with a pinion L , held on a shaft L' , journaled in suitable bearings in the frame A , the said shaft carrying a gear-wheel L^2 , in mesh with a gear-wheel G^2 , attached to the hub G^3 of the presser G , the said hub having its bore sufficiently large for the free passage of the shaft D . The gear-wheel D^2 is also adapted to mesh with its sets of gear-teeth, with a pinion N , secured on a vertically-disposed shaft N' , journaled in suitable bearings on the frame A and carrying a gear-wheel N^2 , in mesh with a gear-wheel J^2 , attached to the hub of the carrier J . Now it is evident that when the shaft D and its gear-wheel D^2 are rotated in the direction of the arrow a' (see Fig. 6) then the said gear-wheel imparts first a rotary motion to the pinion N , the shaft N' , and the gear-wheel N^2 to rotate the gear-wheel J^2 and the carrier J , so as to give the latter a one-quarter revolution to bring one mold I from one set of openings H^1 H^2 H^3 to that of the other and the filled mold to the opening A' in the frame A for removal of the filled mold. When this has been done, an empty mold is substituted in its place. The gear-wheel D^2 next imparts a rotary motion to the pinion L to rotate the shaft L' and the gear-wheel L^2 , to turn the gear-wheel G^2 of the presser G , to move the

wings thereof over the former H , and to press part of the material by the said wings through the openings in layers into the molds, as previously described. In the meantime a continuous rotary motion is given to the agitator C , so that the material is always properly kept stirred up and mixed for the wings to act on.

In order to assist in the removal of the filled mold through the openings A' , I provide a pusher O , fitted to slide laterally in suitable bearings A^2 , formed in the frame A . The pusher O has a lug O' for engagement with a pin I' on the under side of a mold, and the rear end of said pusher is provided with two oppositely-arranged sets of rack-teeth O^2 O^3 , adapted to be alternately engaged by a segmental gear-wheel P , attached to the upper end of the shaft L' . Thus when the latter is rotated at the time the presser G is rotated a forward-and-backward sliding motion is given to the pusher O , so as to push the filled mold I forward on its bearings J' to assist in the convenient removal of the said mold. A cover O^4 , secured to the frame A , extends over the pusher O at the rack-teeth O^2 O^3 and the segmental gear-wheel P to protect the same against sand, clay, and the like that may drop down from the mold and carrier above.

It is expressly understood that during the time the pusher O and the presser G are working the carrier J , with its mold, is stationary, and when the carrier J receives an intermittent rotary motion the presser G and the pusher O are stationary.

Springs Q , secured to a bracket on the frame A , press with their free ends against the adjacent faces of the gear-wheels G and J^2 to prevent the said wheels from being rotated too far by the respective gear-wheels L^2 and N^2 . A similar spring Q' is secured to the former H and presses with its free end on the upper face of the carrier J for the same purpose and to insure a proper register of the molds I with the openings H^1 , H^2 , and H^3 .

A scraper I^2 (see Fig. 8) is secured to the frame A and under it passes the filled mold I from its last position to the opening A' , so that the bricks are properly finished on the top before the mold is removed through the opening A' .

The operation is as follows: When first starting the machine, the slides K are closed to cover up the sets of openings H^1 , H^2 , and H^3 in the former H . The mixing chamber or receptacle B is now filled with clay or other material to be formed into bricks, and a rotary motion is given to the shaft D to rotate the agitator C within the chamber B . At the same time the carrier J is filled with empty molds as the guideways J' come around to the opening A' , and when the material is mixed to the proper consistency then the gates or slides K are pulled out to allow the presser-wings G' to press the material through the openings of the former into the molds below,

as above described. At the next intermittent rotary movement a mold I, filled with clay to form finished bricks, reaches the opening A', and is pushed outward on the guideways J' by the pusher O to be finally removed by the operator, who now places an empty mold on the said guideways. This empty mold is by the next intermittent movement of the carrier J brought to the first set of openings H' to be filled with the material by the corresponding wing G' of the presser G.

Now it will be seen that by the arrangement described a very large number of bricks are continually formed in a very simple manner and without the aid of any skilled labor.

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

1. A brick-machine provided with a former having sets of openings, of which the openings in a succeeding set are larger than those in the preceding set, a presser operating in conjunction with the said former to press the material successively in layers through the sets of openings into the registering compartments of the sanded molds, and means for bringing the sanded molds into position at the said openings of the former, substantially as described.

2. A brick-machine, provided with a former having sets of openings, of which the openings in a succeeding set are larger than in the preceding set, substantially as shown and described.

3. A brick-machine, provided with a former having sets of openings and a presser, the latter and the said former operating in conjunction with each other to press the material successively in layers through the sets of openings into the registering compartments of the sanded mold, and means for bringing the sanded molds into position at the said openings of the former substantially as shown and described.

4. A brick-machine provided with a fixed former having sets of openings, means for

bringing the sanded molds into position at the said openings and an intermittently-revolving presser operating over the openings in the former, to press the material successively in layers through the former and into a mold held below the former, substantially as shown and described.

5. A brick-machine provided with a fixed former having sets of openings, an intermittently-revolving presser operating over the openings in the former, to press the material successively in layers through the former and upon a mold held below the former, and an intermittently-rotating mold-carrier, for carrying the molds under the said openings, as set forth.

6. A brick-machine comprising a mixing-chamber containing a continuously-revolving agitator, a former having sets of openings arranged in the bottom of said chamber, a presser having angular wings, and arranged to rotate intermittently above the said former and below the agitator, to press the material through the former and openings, and an intermittently-rotating carrier arranged below the said former, and adapted to carry removable molds, substantially as shown and described.

7. A brick-machine comprising a mixing-chamber containing a continuously-revolving agitator, a former having sets of openings arranged in the bottom of said chamber, a presser having angular wings, and arranged to rotate intermittently above the said former and below the agitator, to press the material through the former and openings, an intermittently-rotating carrier arranged below the said former, and adapted to carry removable molds, and means, substantially as described, for rotating the said carrier and said presser intermittently, but at different times, as set forth.

JOHN ROWE.

Witnesses:

JOHN W. CARTS,
LEMON F. KLINE.