

L. AUGUSTIN.

RETORT.

APPLICATION FILED JUNE 1, 1908.

Patented June 8, 1909.

924,305.

2 SHEETS—SHEET 1.

Fig. 1.

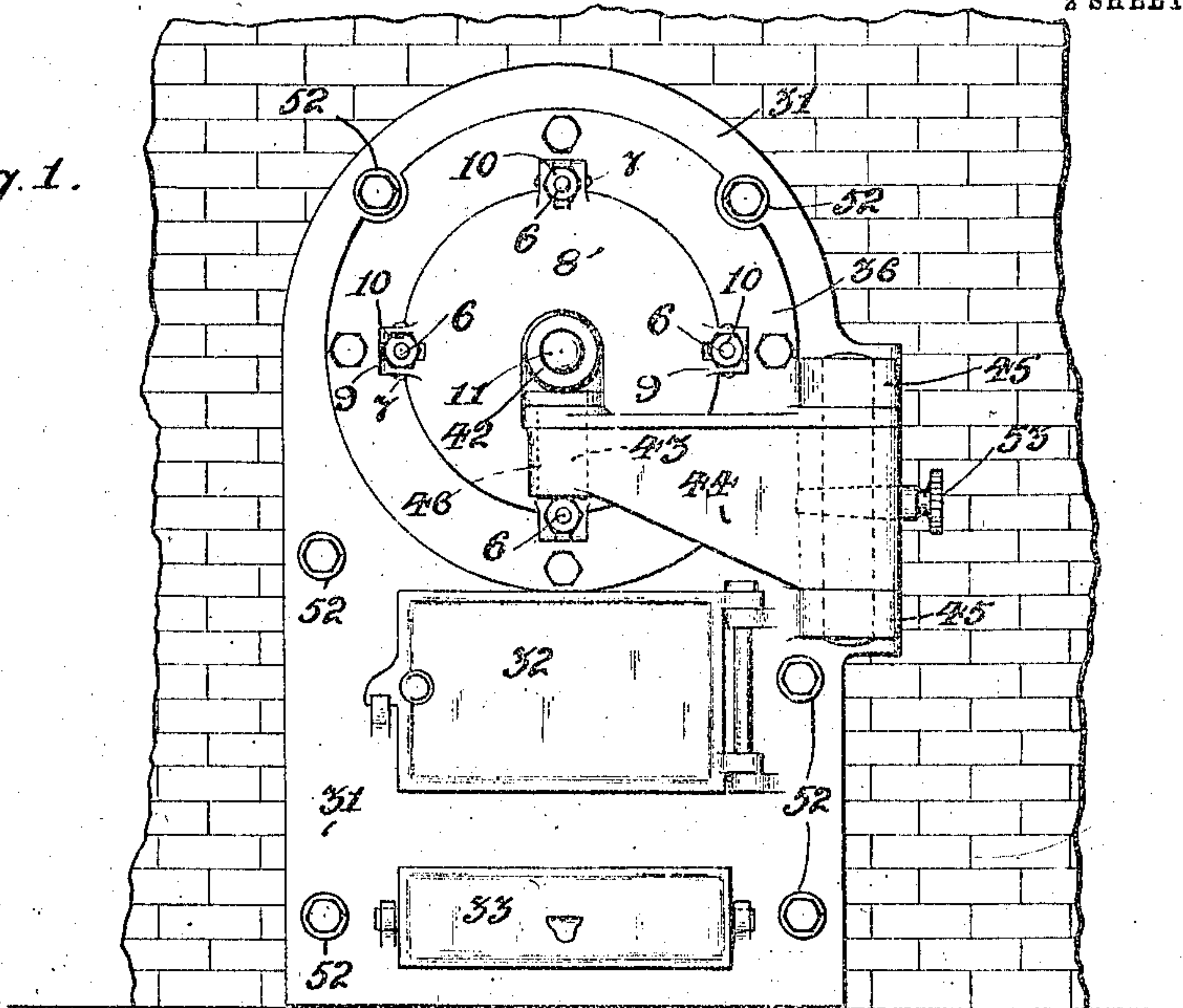
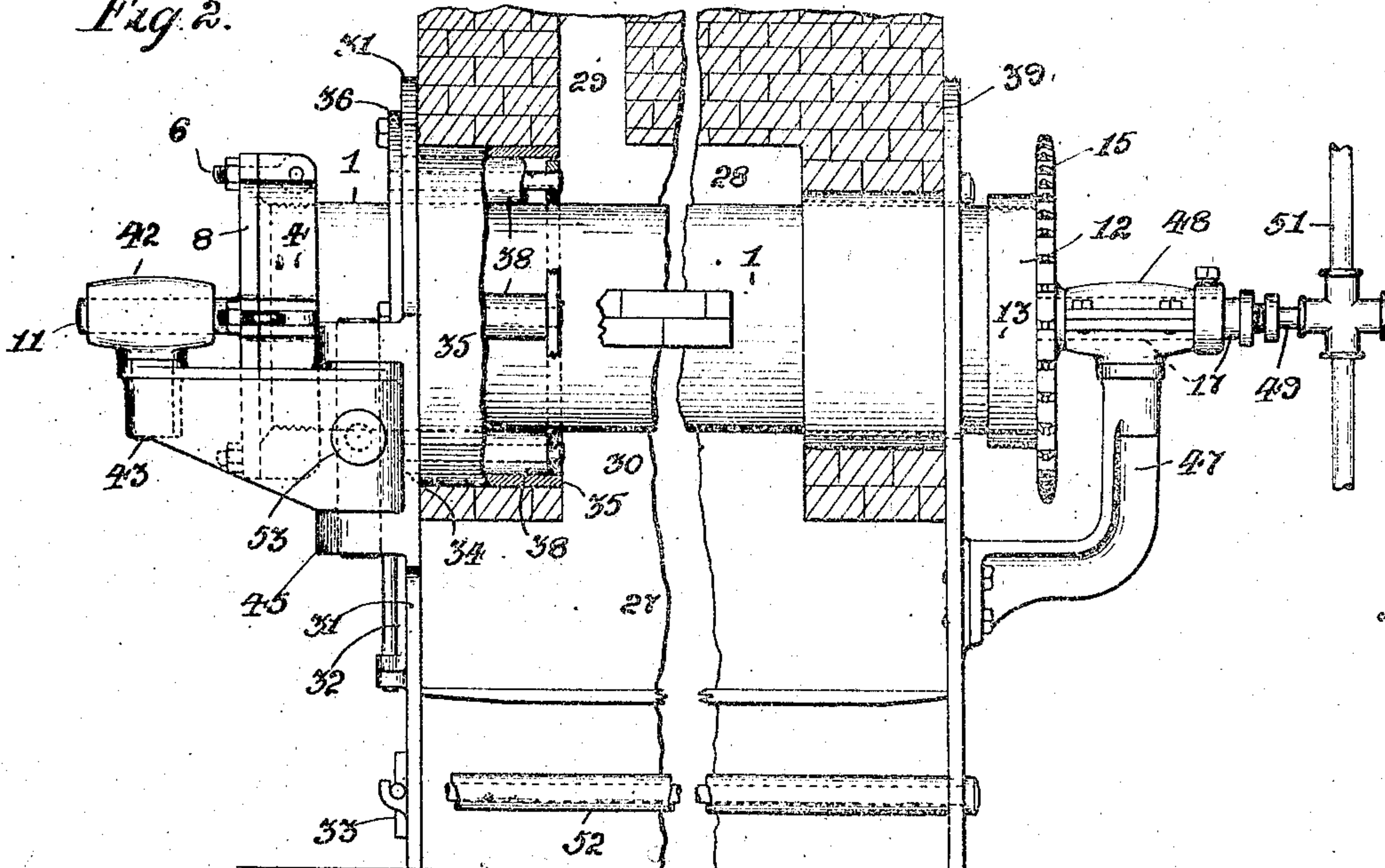


Fig. 2.



Witnesses

H. Davis.

C. Shee.

Inventor.

L. Augustin
By J. Fetherstonhaugh
att'y

L. AUGUSTIN.

RETORT.

APPLICATION FILED JUNE 1, 1908.

Patented June 8, 1909.

2 SHEETS—SHEET 2.

924,305.

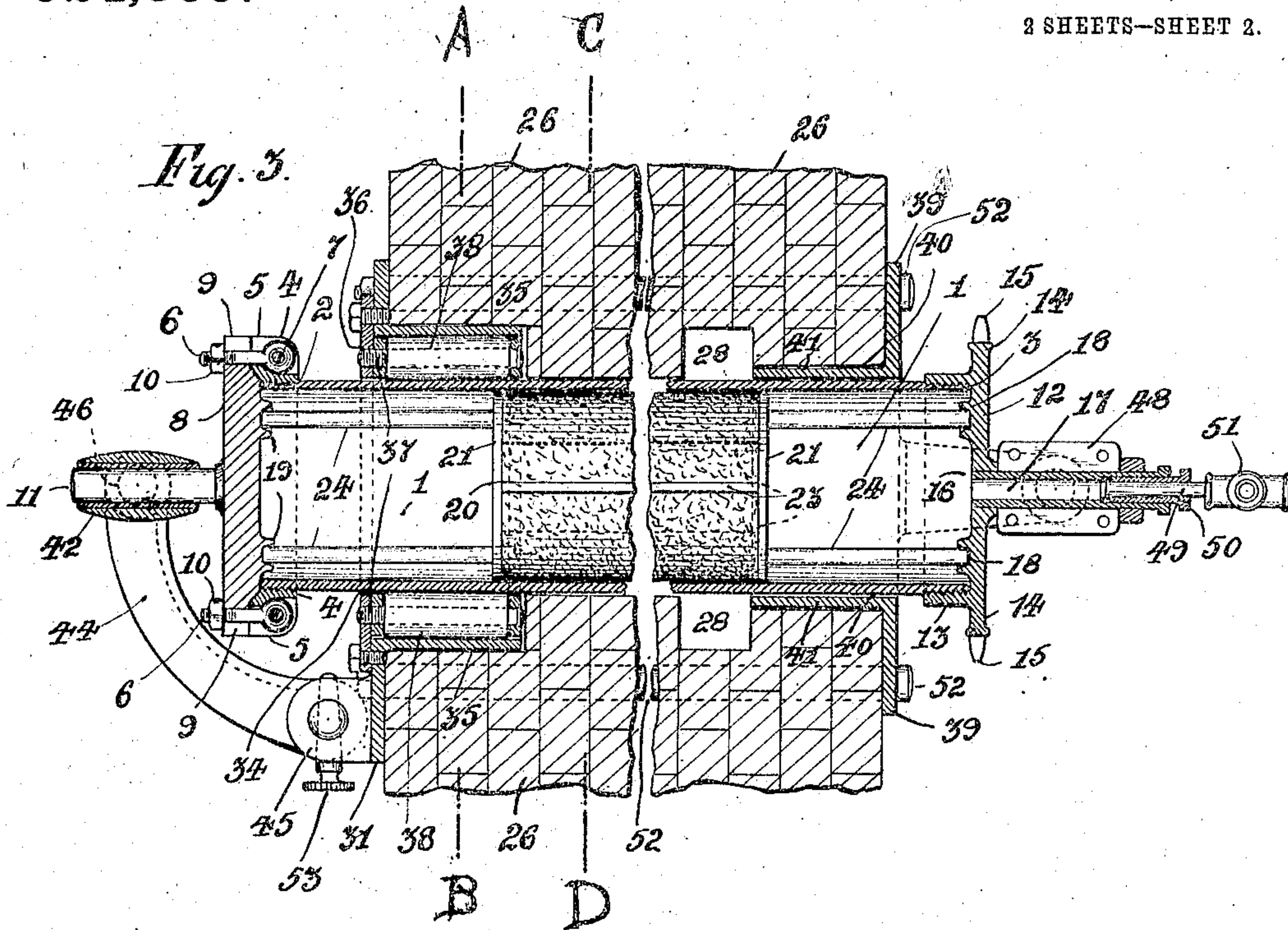


Fig. 4.

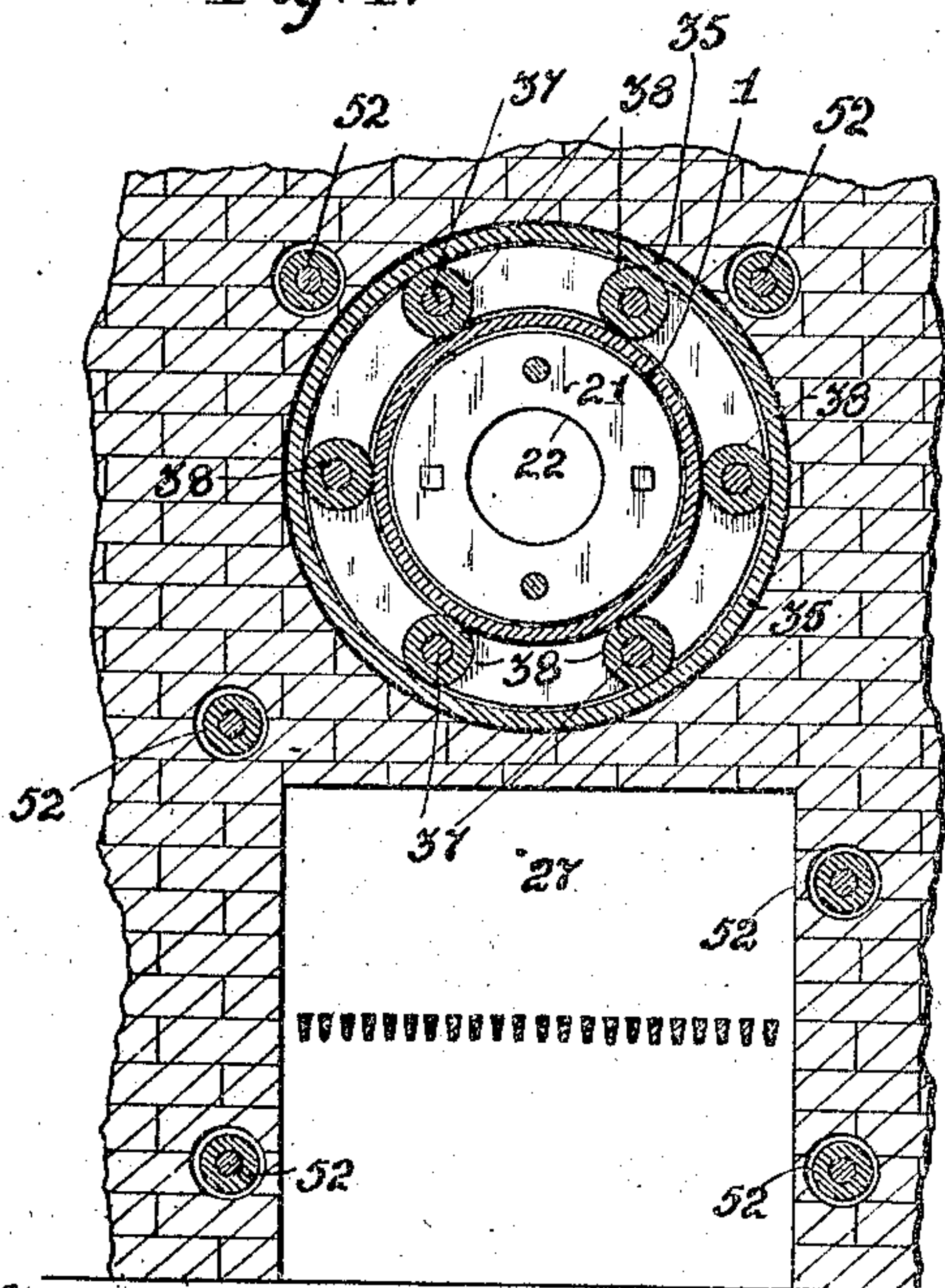
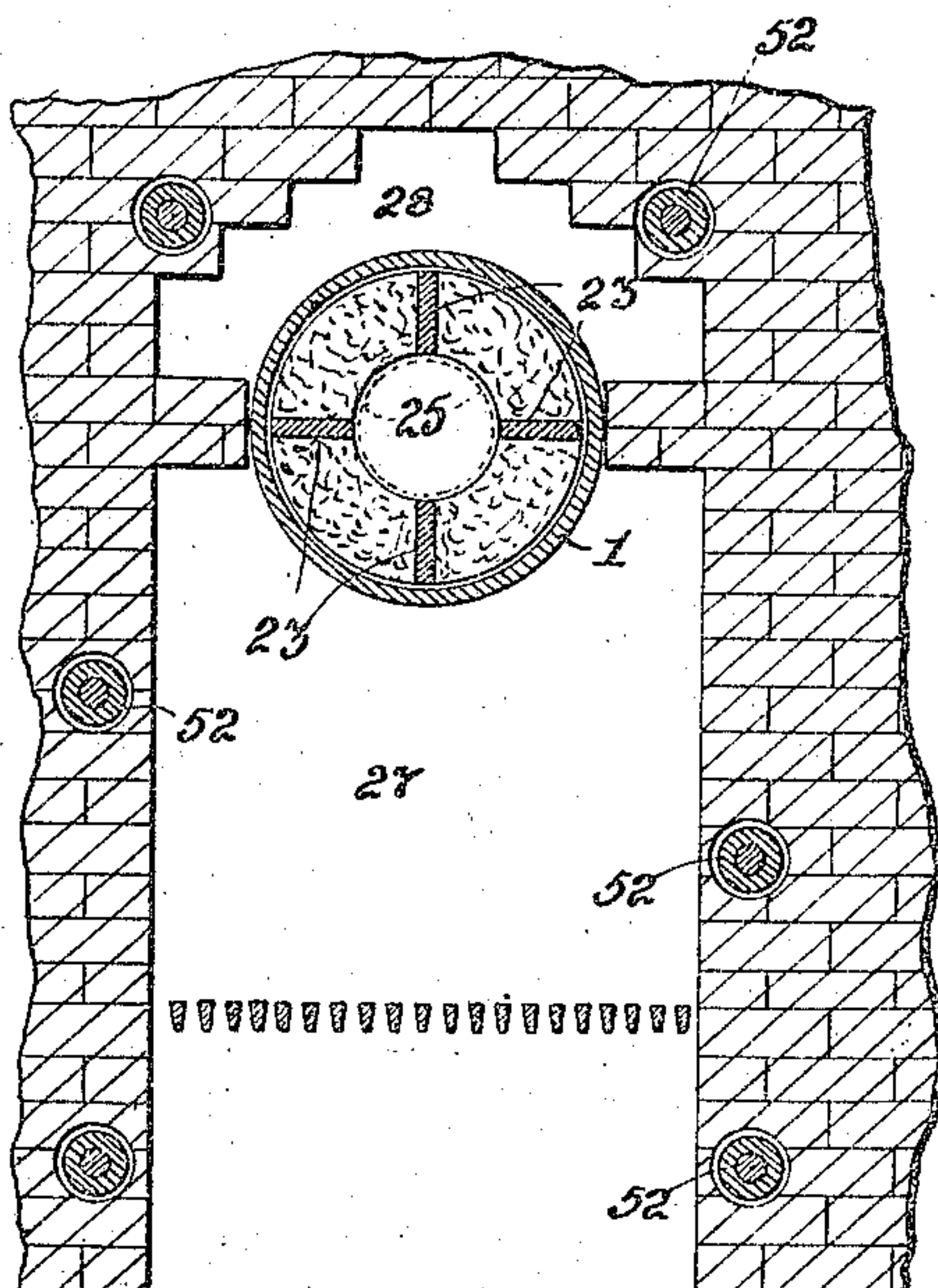


Fig. 5.



Witnesses.

A. Davis

P. Shee

Inventor

L. Augustin

By E. J. Fetherstonhaugh
Att.

UNITED STATES PATENT OFFICE.

LOUIS AUGUSTIN, OF ST. HYACINTHE, QUEBEC, CANADA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-FOURTH TO LOUIS DAUDELIN, OF ST. HYACINTHE, CANADA, AND E-HALF TO PEAT, GAS AND COAL COMPANY, OF MONTREAL, CANADA.

RETORT.

No. 924,305.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed June 1, 1908. Serial No. 436,128.

To all whom it may concern:

Be it known that I, LOUIS AUGUSTIN, a subject of the King of Great Britain, resident of St. Simon street, in the town of St. Hyacinthe, in the Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Retorts, of which the following is a specification.

The invention relates to improvements in retorts, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel arrangement and construction of parts whereby a cylindrical casing is revolvably arranged over a fire box and rotated to expose a complete circumferential surface to the heating gases at each revolution.

The objects of the invention are to derive the fullest benefit from the fuel consumed, to distribute the heat evenly throughout the contents of the retort casing, to facilitate the charging and emptying of said casing and generally to devise a simple and effective machine.

In the drawings, Figure 1 is a front elevation of the retort. Fig. 2 is a sectional side elevation showing the length broken away centrally for the better illustration of the front and rear ends. Fig. 3 is a sectional plan view of the machine broken away centrally to show the arrangement at the front and rear ends. Fig. 4 is a cross sectional view through the line A—B in Fig. 3. Fig. 5 is a cross sectional view through the line C—D in Fig. 3.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the cylindrical casing having the externally threaded front and rear ends 2 and 3 respectively. 4 is a collar having its inner wall threaded correspondingly and turning on the front threaded end 2 of the casing 1, said collar having the outwardly extending slotted lugs 5 therefrom. 6 are eye-bolts threaded and having their eye ends inserted in said slotted lugs, held therein by the pins 7, the threaded ends of said bolts extending forwardly beyond the casing.

8 is the front head of the casing 1 having the laterally extending lugs 9 into which the threaded ends of the bolts 6 are introduced. 10 are nuts on the threaded ends of the bolts

6 and rigidly securing said head 8 to the casing 1.

11 is a stub shaft projecting outwardly and centrally from the head 8 and rigid therewith.

12 is the rear head of the casing 1 having the inwardly extending flange 13 threaded in its interior wall correspondingly to the rear threaded end 3 of the casing 1 and screwing on said casing, and the flange 14 extending laterally beyond the flange 13, and flange 14 at the outer edge thereof being formed into the teeth 15 and forming the said head 12 into a large sprocket wheel, said head 12 also having the central orifice 16 therethrough from the edge of which projects the shaft 17, said shaft being hollow and rigid with said head.

18 are sockets formed on the inner face of the head 12 and preferably part with said head.

19 are sockets formed on the inner face of the front head 8 preferably forming part therewith.

It will now be seen that a cylindrical retort casing is formed having removable heads and central shafts extending from each of said heads, by means of which the said retort may be journaled, and a sprocket wheel at one end, by means of which said retort may be operated in its journal bearings.

20 is a frame for holding the charge in the cylindrical casing 1, in which 21 are disks having the central holes 22, the said disks being joined by the longitudinal plates 23 rigidly secured to said disks and radially arranged thereon extending from the edge thereof inwardly to the central hole 22.

24 are rods rigidly secured to the outer faces of the disks 21 and extending longitudinally therefrom, the said disks, plates and rods forming a frame to receive the charge of material to be baked in the retort, the outer ends of the rods 24 fitting into the sockets 18 and 19 respectively when the retort is completely closed. In filling the said charge frame with material, a core piece 25 is inserted through the holes 22 and remains therein while the said frame is being filled with peat or other material. The said core piece 25 is removed previous to baking the material, the latter holding together sufficiently to leave the longitudinal hollow in the center through which the gases produced

from the said material by the heat find passage.

26 is the brick portion of the furnace structure, having the fire box 27 and heating gas passages 28 through to the flue 29, the retort casing chamber 30 being formed in said brick work, and crossing said heating passages 28.

31 is a front plate of the furnace extending upwardly having the furnace doors 32 and 33 therein arranged and the circular opening 34 leading into the casing chamber 30, the annular flange 35 extending inwardly from said plate around the inner wall of said chamber 30.

36 is a ring plate arranged at the inner end of the flange 35.

37 are pins rigidly secured in the front plate 31 around the opening 34 and extending inwardly and rigidly secured in the ring plate 36.

38 are rollers journaled on the pins 37.

39 is the rear plate of the furnace having a circular opening 40 therethrough in alignment with the circular opening 34, said openings being of slightly larger dimensions than the casing 1, so that the said casing turns freely in said openings, the annular flange 41 extending inwardly from the rear plate 39 at the edge of the opening 40 and encircling said casing 1, when the said casing is in position in the casing chamber 30, the rollers 38 at the front end engaging the periphery of the retort casing 1 as it revolves. 42 is the bearing at the front end for the shaft 11 from the front head 8 to the said cylindrical casing, said bearing 42 having the stud 43 extending downwardly therefrom.

44 is an arm swinging laterally from the bracket 45, the latter being rigidly secured to the front plate 31 to one side of the casing chamber 30.

46 is a vertical journal orifice in the outer extremity of the arm 44 and receiving the stud 43, consequently providing a pivotal and self-aligning bearing for the shaft 11, supporting the retort casing 1 at the front end.

It will readily be understood that on the removal of the head 8 from the retort casing 1, which is accomplished in a very simple manner by removing the nuts 10 from the eye-bolts 6 and the said eye bolts from the slotted lugs 9, that the said head and shaft 11 journaled in the bearing 42 may be swung away from the said cylindrical casing and leave the said casing quite open at the front end. The core or charge frame may then be taken out and re-filled after the removal of the charred remains of the material, from which gas has been produced.

47 is a bracket secured to the rear plate 39 extending outwardly and upwardly therefrom having at the upper end a vertical journal orifice pivotally supporting the bearing 48, in which the shaft 17 is journaled forming the rear journaled support for the casing 1.

The shaft 17 extends beyond the bearing 48 and the gas pipe 49 extends thereinto, the gland 50 being formed between said gas pipe and said shaft 17. 51 is a pipe joint joining said gas pipe 49 with the draft pipes leading to the gasometer or storage tanks.

52 are tie rods extending through the structure from the front plate 31 to the rear plate 39.

The operation of the machine is fairly well explained in the detailed description of the parts, but a few advantages may be mentioned to more clearly prove the usefulness of the invention. The brick structure is so arranged that the heating gases from the fire box pass around and about the cylindrical casing at the central portion thereof, the chamber for said gases extending above said casing and leading to the flue, thus ordinarily the retort casing 1 will be heated completely therearound without revolving, but the heat would be very unevenly divided in the interior of said retort casing, therefore the said casing is rotated by a chain and sprocket arrangement at the rear end turning said casing in its journal bearings very slowly during the baking process. It will be thus seen that the charge of peat or other substance gathered in the frame for that particular purpose will be evenly heated and baked throughout, with the consequence that when the said charging frame is removed, the gas has been drawn away from every part of said peat, no matter where the said peat was contained in the charging frame, leaving nothing but the charred remains in the form of coke. The facility with which the charge frame may be removed must be particularly emphasized, as that operation can be done while the casing 1 is still rotating, said casing having a bearing at the front portion thereof on the rollers journaled on pins from the front plate and extending inwardly, and further it may be mentioned that the said retort casing itself is quite easy to remove in the event of it becoming buckled or in any way requiring repair or replacement, as the front head being swung away from the contact therewith, it only remains for the rear head to be removed and then said casing can be pulled through.

There may be many details in the general construction of this retort that may be modified or changed to suit existing conditions under which the retort is used and therefore it is provided in this specification that such modifications and changes may be made without departing from the spirit of my invention.

In swinging the bracket or arm 44, hinged in the lug or bracket 45, the bearing 42 is brought immediately in front and in central alignment with the said front head when the said front head is in position on the said cylindrical casing 1 and to retain it in said

position a locking pin 53 is inserted through the lug or bracket 45 and through the hinged pin.

What I claim as my invention is:

1. In a retort for gas producing purposes, the combination with a rotating cylindrical casing, of a cartridge formed of a frame supporting a cylindrical mass of peat and spaced from the heads of said casing and rigid in rotation therewith.

2. In a device of the class described, in combination, a cylindrical casing having removable heads, a furnace chamber containing said casing and having a recess in the front wall thereof surrounding said casing and a fire box therewith arranged, shafts extending outwardly from said heads, one of said shafts being hollow and forming an egress passage for the gas, a fixed bearing, a bearing pivotally supported, said shafts being journaled in said bearings and supporting said casing in rotation, roller bearings suitably journaled and in said recess and forming an intermediate bearing for said casing adapted to replace said swinging bearing during charging operations, and means for rotating said casing.

3. In a device of the class described, in combination, a rotatable cylindrical casing having removable heads closing the ends of said cylindrical casing, a hollow shaft extending centrally through one of said heads, a solid shaft extending outwardly and centrally from the other head, a bearing for said solid shaft, a hinged bracket supporting said bearing and carrying said head clear of said retort, a bearing for said hollow shaft, a bearing for the front end of and supporting said casing on the swinging of said solid shaft bearing, a fire box, and means for rotating said casing.

4. In a device of the class described, in combination, a rotatable cylindrical casing having suitable heads, shafts extending outwardly from said heads, one of said shafts being hollow and forming an egress passage for the gas, a furnace chamber and a fire box centrally arranged therein, bearings for said shafts, a removable charge containing member formed of an open frame supporting a cylindrical mass of peat inserted in said casing, rigid in rotation therewith and holding the charge centrally therein in relation to the length thereof and over said fire box, and means for rotating said casing.

5. In a retort, the combination with a furnace structure having front and rear plates and the fire box arranged therein, of a cylindrical casing forming the retort chamber and extending through said front and rear plates above said fire box having its rear head firmly secured thereto and a central orifice therethrough and a sprocket formed from an extending flange from said head and its front head firmly secured and readily removable

therefrom, a hollow shaft extending centrally from said rear head, a solid shaft extending centrally from said front head, a journal bearing supported by said front head, a journal bearing supported by said structure and receiving said hollow shaft, a swinging bracket supported from the structure at the front end, a journal bearing supported in said swinging bracket and receiving said solid shaft, and means connected with said sprocket on said rear head for rotating said retort casing.

6. In a retort, the combination with a furnace structure having front and rear plates and the fire box arranged therein, of a cylindrical casing forming a retort chamber and extending through said front and rear plates above said fire box and having threaded ends and a rear head with an inwardly extending threaded flange turning on said rear threaded end and a central orifice through said rear head and a front head having laterally extending slotted lugs, a threaded collar turning on said front threaded end of the casing having slotted lugs laterally extending therefrom, eye-bolts suitably pinned in said slotted lugs in the collar and having threaded ends extending through said slots in the head and nuts turning on said bolt ends and securing said head to said casing, a solid shaft extending centrally from said front head, a curved bracket pivotally secured to said structure and having a vertical orifice at the extremity thereof, a journal bearing having a stem extending downwardly therefrom into said vertical orifice and receiving said solid shaft, a hollow shaft extending from said rear head, a rigid bracket extending from the structure and having a vertical orifice at the extremity thereof, a journal bearing having a stem extending downwardly therefrom into said vertical orifice and receiving said hollow shaft, and means for rotating said casing.

7. In a device of the class described, in combination, a brick structure having a fire box arranged therein and a horizontal chamber above said fire box and a central passage from said fire box leading through said horizontal chamber to a suitable flue, a front plate closing in said fire box and having a circular opening into said horizontal chamber and an inwardly extending flange lining the wall of said chamber, a ring at the rear end of said flange, pins rigidly secured to said front plates extending to said ring, rollers journaled on said pins, a rear plate having an inwardly extending flange from a circular opening into said horizontal chamber, a rotatable cylindrical casing forming a retort chamber having suitable heads and suitably journaled and inserted between said rollers and through said front and rear plates, and means for rotating said casing.

8. In a device of the class described, in combination, a brick structure and fire box

arranged therein, a cylindrical casing forming a retort chamber and supported over said fire box having suitable heads removable therefrom, shafts supporting said heads in
5 said casing, a plurality of bearings supporting said shafts, one of said bearings being adapted to swing outwardly and carry a shaft therewith from one of said removable heads, and means for supporting said casing at the
10 front end thereof during rotation independent of said swinging bearing.

9. In a device of the class described, in combination, a cylindrical casing forming the retort chamber having suitable heads, a
15 charge frame inclosed in said cylindrical casing having end disks and radial bars or wing pieces joining said disks and spacing rods from said disks to said heads.

10. In a device of the class described, in combination, a cylindrical casing having suitable heads and sockets formed on the inner face of each of said heads and a charge frame formed of disks and bars or wing pieces joining said disks and rods rigid with said disks
20 and extending from the outer face thereof into said sockets.

11. In a device of the class described, in combination, a cylindrical casing having suitable heads and sockets formed on the inner
30 faces of said heads, a pair of disks having

central holes therethrough, bars or wing pieces extending from the outer edge of said disks to the edge of said hole and in radial arrangement and spacing rods rigid with the outer face of said disks extending into
35 said heads.

12. In a device of the class described, in combination, a brick structure and a fire box therein arranged, front and rear plates having circular openings toward the upper ends
40 thereof leading into said structure and suitable openings to the fire box said front plate having a lug to one side of said circular opening, an arm or bracket of curved formation hinged to said lug and having a vertical ori-
45 fice at the outer end thereof, a journal bearing having a pin extending therefrom into said vertical orifice and turning therein, a locking pin extending into said lug and through the hinge pin, a bracket rigidly se-
50 cured to the rear plate, a journal bearing supported by said rear bracket, and a cylindrical casing suitably journaled in said bearings.

Signed at the city of St. Hyacinthe this
55 twelfth day of May 1908.

LOUIS AUGUSTIN.

Witnesses:

LEÓN RINGUET,
M. A. DAVID.