

No. 736,836.

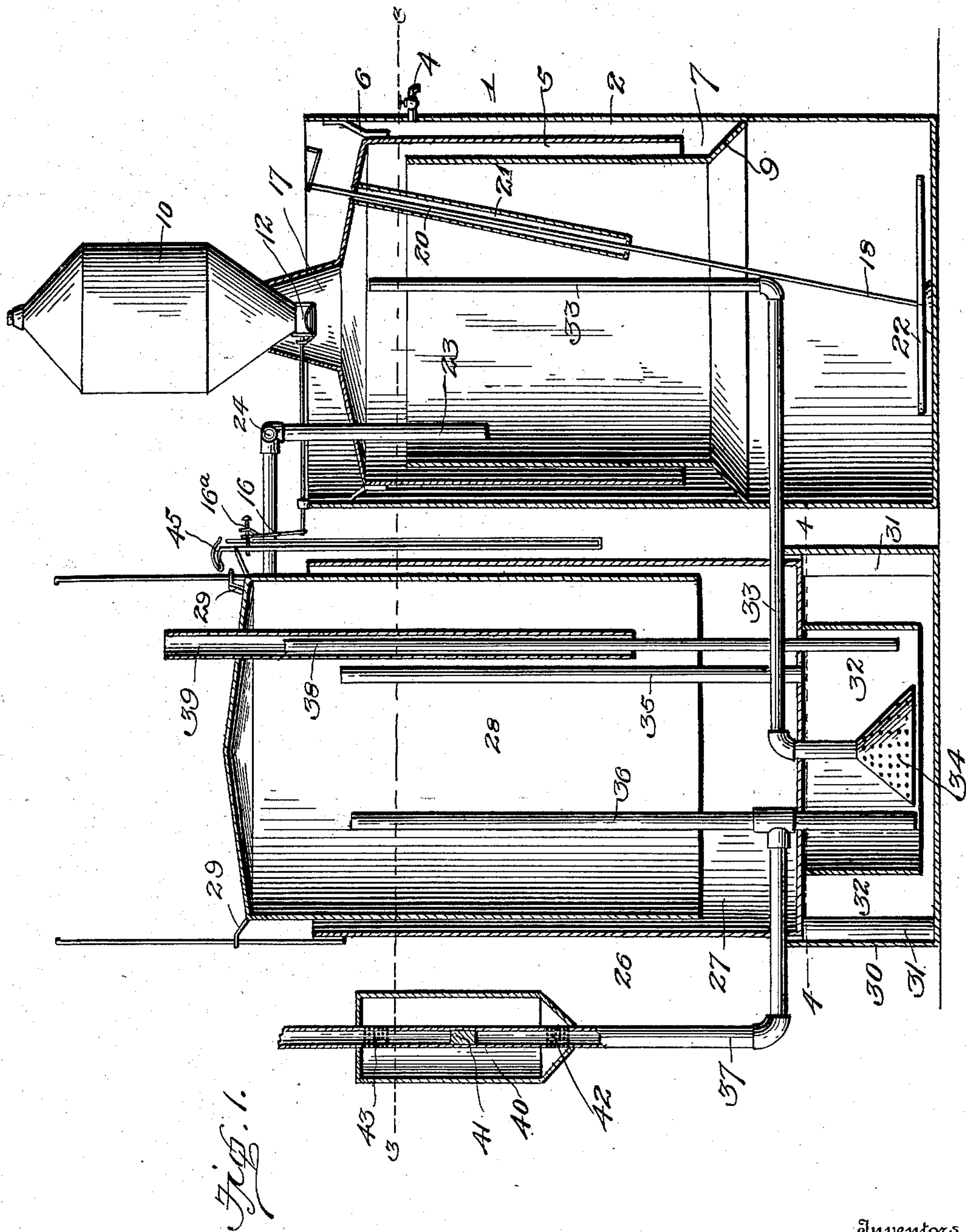
PATENTED AUG. 18, 1903.

J. M. & P. M. FLUGSTAD.
ACETYLENE GAS GENERATOR.

APPLICATION FILED SEPT. 25, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

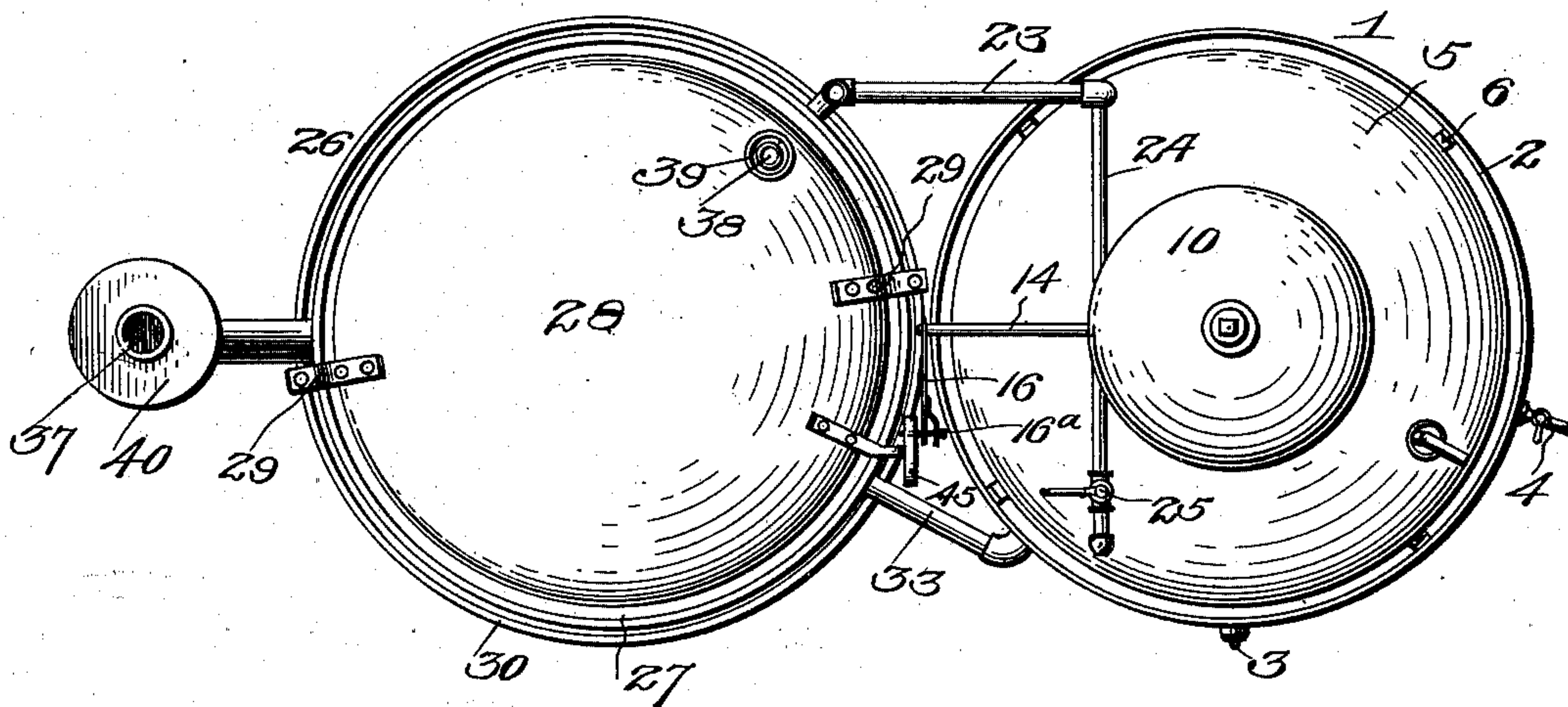
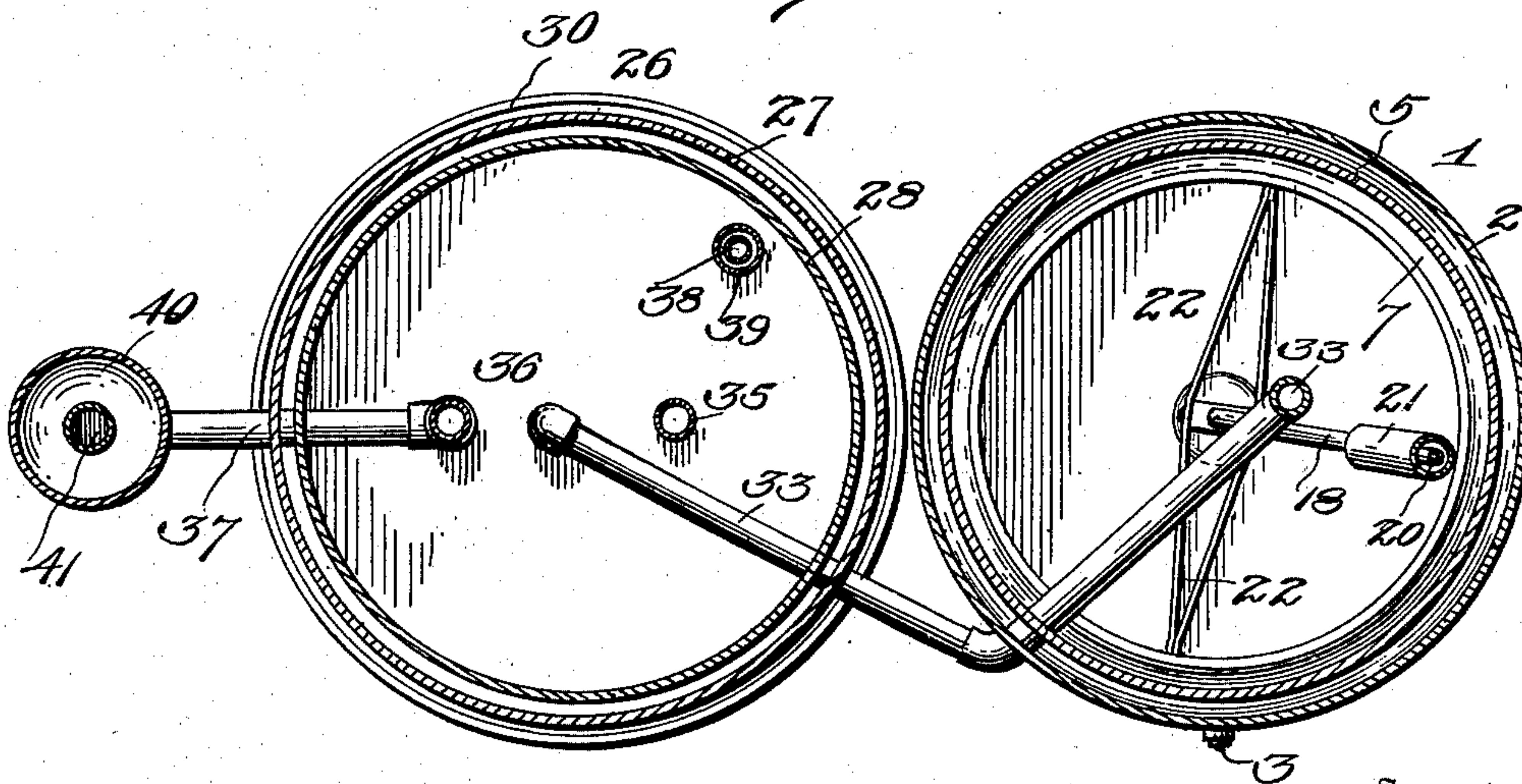


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

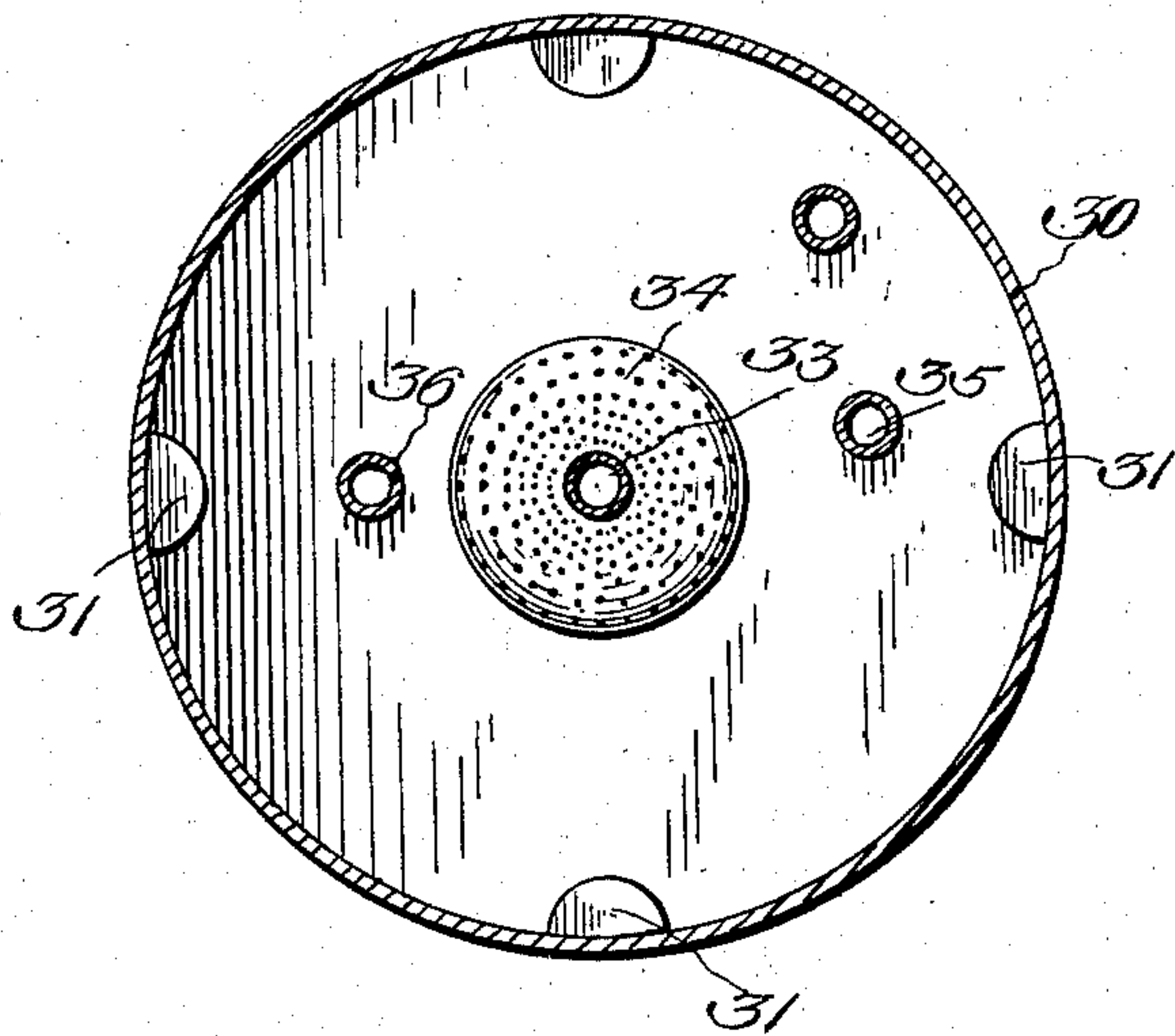


Fig. 7.

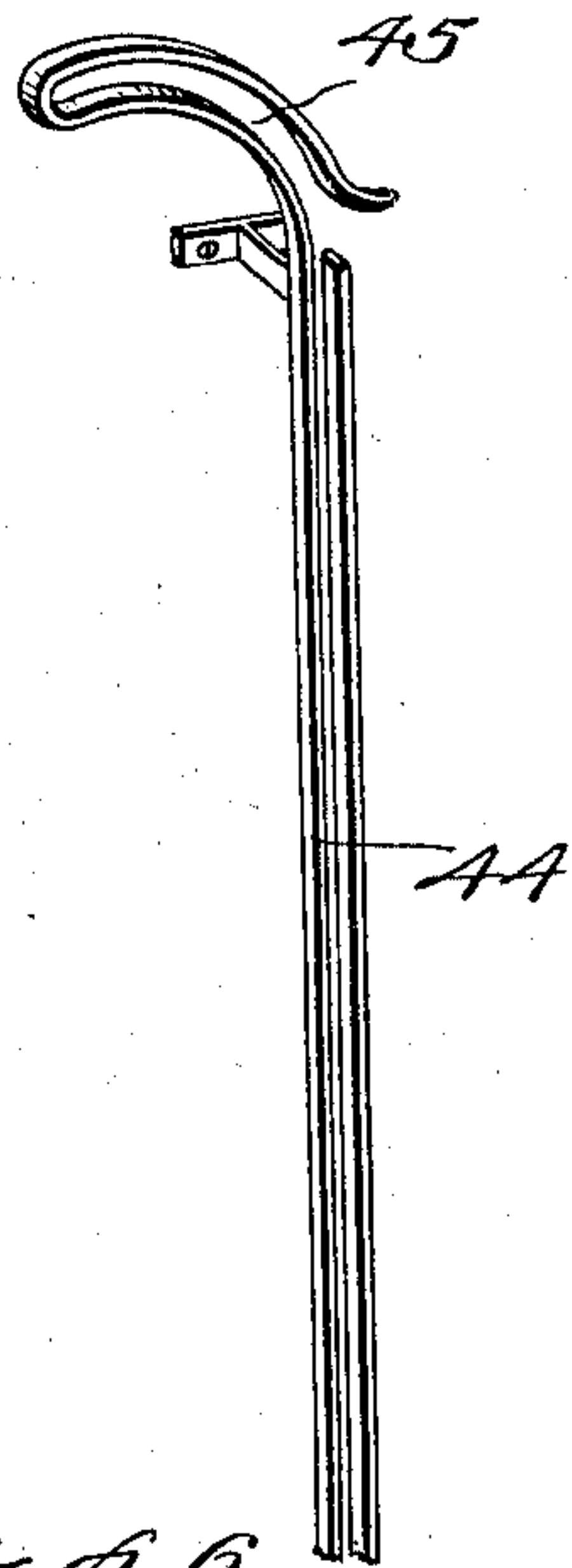


Fig. 5.

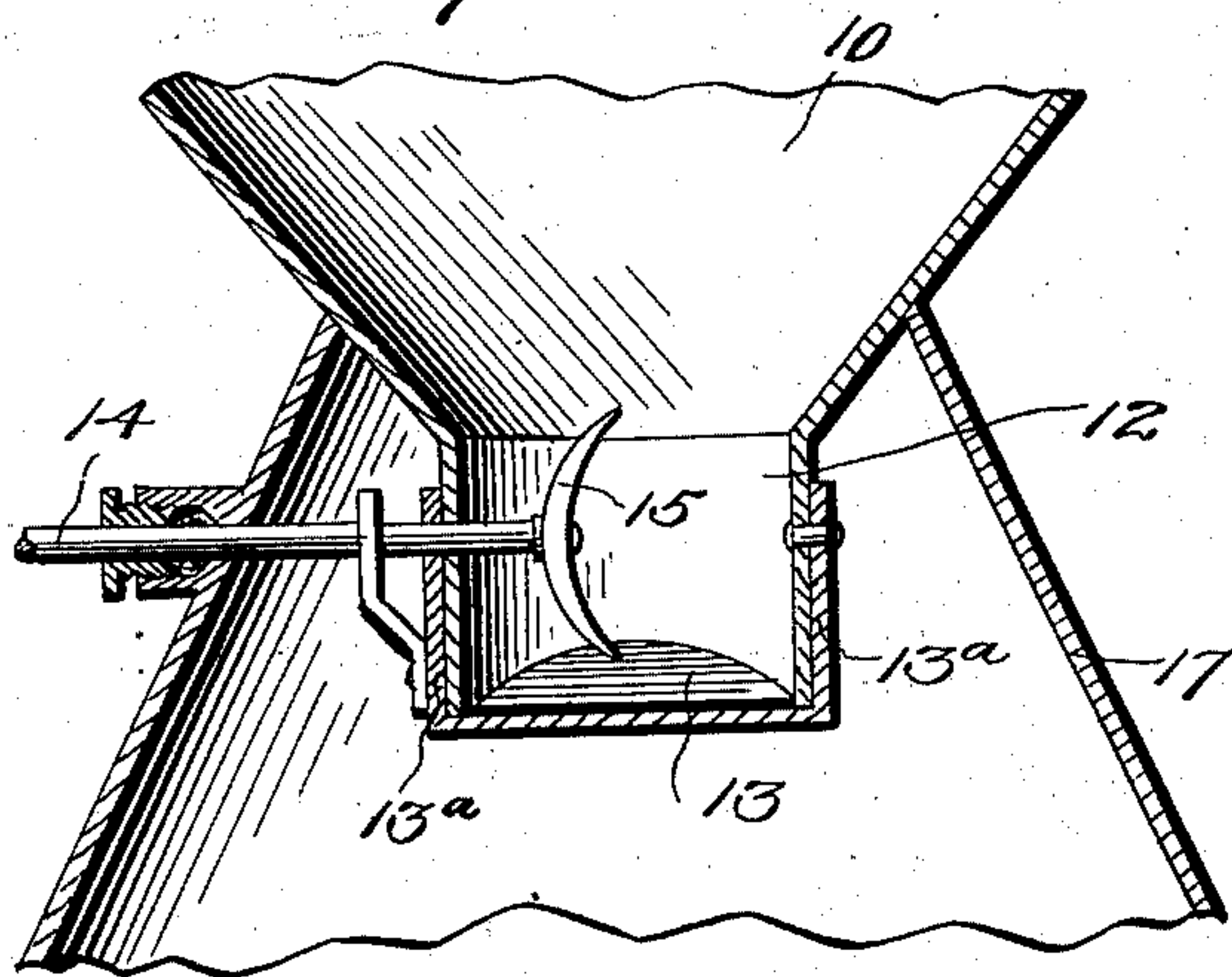
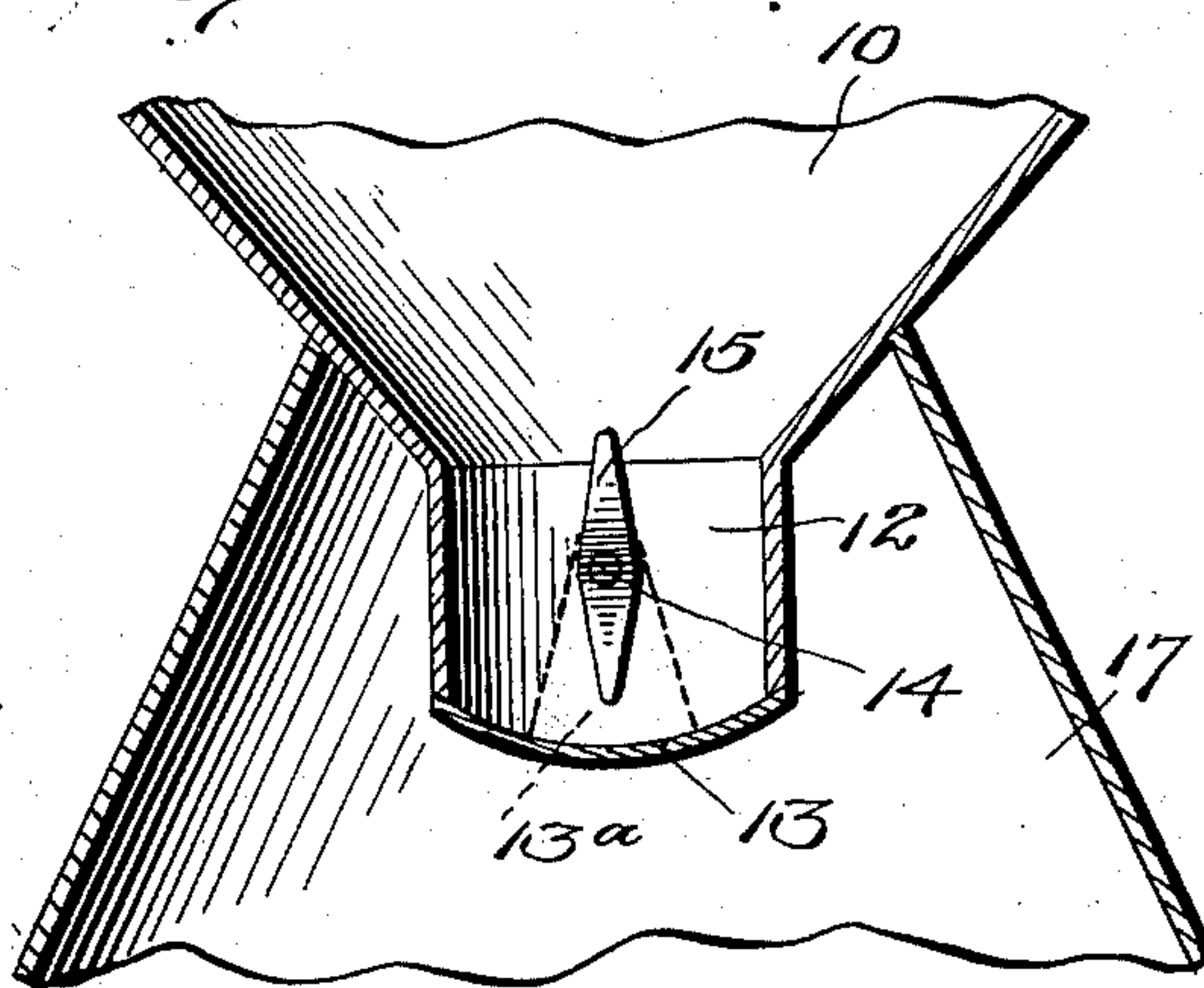


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN M. FLUGSTAD AND PETER M. FLUGSTAD, OF CORVALLIS, MONTANA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 736,836, dated August 18, 1903.

Application filed September 25, 1902. Serial No. 124,819. (No model.)

To all whom it may concern:

Be it known that we, JOHN M. FLUGSTAD and PETER M. FLUGSTAD, citizens of the United States, residing at Corvallis, in the county of Ravalli and State of Montana, have invented certain new and useful Improvements in Acetylene-Gas Generators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in acetylene-gas generators of the class in which the carbid is automatically fed to the water in the generator.

The object of the invention is to produce such a generator in which the possibility of any gas escaping therefrom will be obviated and danger of explosion of the machine by an overproduction or too-rapid formation of the gas will be prevented.

A further object is to produce a machine of the character described which will be simple in construction, durable in use, efficient in its action, and well adapted to the purpose for which it is designed.

With these and other objects in view the device consists in the construction and arrangement of the parts, as will be hereinafter more fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal sectional view of the machine. Fig. 2 is a top plan view. Fig. 3 is a horizontal section on line 3 3 of Fig. 1. Fig. 4 is a similar view through the base of the gasometer on line 4 4 of Fig. 1. Fig. 5 is an enlarged sectional view of the lower end of the hopper and the discharge-valve. Fig. 6 is a similar view taken at right angles to Fig. 5, and Fig. 7 is a detail view of the valve-tripping mechanism.

In the drawings, 1 denotes the generator, consisting of an outer tank 2, open at its upper end and provided with a draw-off cock 3 and a gage-cock 4 for determining the proper amount of water to be put in the generator.

5 denotes a bell or inverted tank adapted to be placed within the tank 2 and supported therein by means of braces 6, connected to the upper end of the same and to the tank 2. The bell 5 being of less diameter than the

tank 2, a space is thereby formed between the same.

7 denotes a trap or seal located within the tank 2 some distance above the bottom thereof, and is formed by means of a concentrically-arranged wall of less diameter than the bell 5, connected at its lower end with the wall of the tank 2 by an inclined circular strip 9, forming a bottom to the space between the wall 8 and wall of the tank 2. The annular space or pocket thus formed is adapted to contain water at all times, and into this space and water the lower end of the bell 5 is adapted to terminate, thereby forming a seal for said bell. The upper closed end of the bell 2 terminates a short distance below the top of the tank 2 for a purpose hereinafter to appear.

10 denotes a carbid holder or hopper having a conical-shaped bottom, which is formed at its discharge end with a neck 12, which is preferably oval shape in horizontal section, the lower end of which is curved or formed on an arc of a circle and is normally closed by a curved plate 13, having upwardly-extending arms 13^a pivotally connected to the discharge end of the hopper.

14 denotes a valve stem or rod, the inner end of which passes through and is fixed to one of the arms 13^a of the valve and thence through one side of the neck 12, terminating within the discharge-opening of the hopper and having formed on its end an agitator-finger 15 to prevent clogging of opening by the carbid.

16 denotes an operating-arm fixed to the end of the valve stem or rod 14, the outer end of the arm being provided with a laterally-projecting screw-threaded bolt 16^a, the object of which will hereinafter appear.

The hopper 10 is arranged above the generator and supported in position by means of a frusto-conical-shaped flange 17, formed on the upper lid of the bell 5, and into the space formed by this flange is inserted the lower conical end of the hopper carrying the discharge neck and valve, the valve-rod 14 passing through a stuffing-box formed in the flange 17. The upper end of the hopper 10 is also conical in shape and closed at its apex or filling end by a cap.

18 denotes an agitator rod or shaft passing

obliquely through the top of the bell 5 and extending to the center of the bottom of the tank 2, where it is seated in a bearing. The upper portion of the rod 20 passes through a tube 21, fitted at its upper end in the top of bell 5 and extending considerable distance below the water-line in said bell, thus forming a trap and doing away with a stuffing-box for the rod 20. The upper end of the rod is provided with a crank-handle for rotating the same, and on the lower end of the rod above the bearing is formed agitator arms or blades 22.

23 denotes a blow-off pipe projecting through the top of the bell 5 and extending some distance below the water-line in said bell, the upper end of the pipe 23 leading to the atmosphere outside the building.

24 denotes a branch pipe connected to the pipe 23 and connecting with the interior of the bell 5 to admit air to the bell 5, and when it is desired to draw off the water therefrom the pipe 24 being provided with a valve 25 to control the admission of air to the bell.

26 denotes a gasometer consisting of an outer tank 27, the tank open at its upper end to receive a gas-bell 28 of slightly less diameter than the tank 27. The bell 28 is adapted to move up and down within the tank 27 and to be guided in such movement by guide brackets or lugs 29, fixed to the upper end of the bell and adapted to have sliding engagement with upright vertical rods fixed to the tank 27 and projecting considerable distance above the same.

30 denotes a tub or shallow tank located beneath the tank 27 and having formed around the inner side thereof a series of projections 31, upon which is adapted to rest the gasometer-tank 27. Upon the lower end of the said tank is formed a downwardly-projecting annular flange or wall 32, which extends into the tub 30 to within a short distance of the bottom thereof and forms a washing-chamber, as will be hereinafter described.

33 denotes a gas-delivery pipe which leads from the upper end of the generator-bell 5 through the lower end of the tank 27, thence downwardly through the bottom thereof and into the washing-chamber formed by the flange 32, and has formed on its discharge end a screen or strainer 34, through which the gas from the generator must pass, which causes the same to be broken up or disintegrated and to pass upward through the water in said chamber in small bubbles, in which condition it is thoroughly washed before reaching the gasometer-bell.

35 denotes a vertically-disposed pipe extending upwardly from the bottom of the tank 27 and is in communication at its lower end with the space above the water in the washing-chamber, the upper end being in communication with the space in the top of the gasometer-bell above the water-line of said bell. Through this pipe the washed gas passes to

the said space, from which space it passes as needed through a similarly-arranged pipe 36 to a discharge or service pipe 37, arranged without the gasometer, the lower end of the pipe 36 being extended through the bottom of the tank and into the water of the washing-chamber, which forms a seal therefor, at the same time forming a drain for the pipe 36.

38 designates a guide-pipe arranged within the tank 27 and secured to the bottom of the same. 39 denotes a blow-off pipe which operates on the said guide-pipe, and the upper end of which blow-off pipe projects through and is secured to the top of the bell 28. Should the pressure of gas within the bell become too great, it will be allowed to escape through the pipe 39 on the ensuing rising of the bell, as will be understood.

40 denotes a purifier, preferably consisting of a closed cylinder or drum, which surrounds the service-pipe 37 at a point adjacent to the gasometer. That portion of the service-pipe within the purifier is formed at about its central point with a stop or partition 41, which prevents a direct flow of gas through the pipe. Below the stop 41 and near the lower end of the purifier the service-pipe has formed therein several rows of perforations 42, through which the gas is adapted to pass into the purifier, which may contain any kind of purifying and drying material, such as raw cotton, and through which the gas must pass before again entering the service-pipe through perforations 43, formed in said pipe near the upper end of the purifier.

44 denotes a vertically-disposed guideway carried by the gasometer-bell 28 and extending approximately the length of the same. This guideway is formed at its upper end with a curved hook or offset 45, forming a cam. The guideway 44 is adapted to receive the end of the laterally-projecting bolt 16^a of the arm 16, which is fixed to the valve stem or rod 14, and by this means to hold the valve closed beneath the carbid-hopper except when the gas in the gasometer-bell is used up, when the consequent lowering of the bell will bring the curved hook or offset 45 into engagement with the bolt 16^a, thereby rocking the arm 16 and the valve stem or rod 14 and moving the valve from beneath the discharge-opening of the hopper to allow a charge of carbid to drop into the water, which immediately causes gas to form and enter the gasometer, raise the bell 28, guideway 44, and offset 45, which, because of its peculiar shape, will cause the bolt 16^a to move out of the same and again engage the guideway, thereby closing the valve and cutting off the discharge of carbid until the bell again lowers, when the operation will be repeated.

As the operation of the machine has been described in connection with the description of the parts, a further allusion thereto is not deemed necessary, and when taken together with the drawings the construction, as well as

the operation, will be thoroughly understood. It is desired, however, to call attention to the following points: The water in the tub 30 beneath the gasometer forms a cushion or yielding abutment for the gas within the bell 28. Should gas be formed in the generator more rapidly than it can be consumed or disposed of by the gasometer, the water in the generator-bell will be forced down out of the inside of the bell and up the space between the same and the wall of the tank 2 and on top of the bell a sufficient distance to clear the lower end of the blow-off pipe 23, when the gas will be allowed to escape through the same to the atmosphere. The seal or trays 7, into which the lower end of the bell 5 projects, effectually prevent any gas within the generator from escaping into the room or building when the water and residue is drawn off for recharging. Attention is also called to the fact that all the pipes are self-draining and that the gasometer may readily be lifted from the tub forming the base thereof and the ends of the pipes examined.

Various changes in the form, proportion, and minor details of the construction may be resorted to without departing from the principle of our invention or sacrificing any of the advantages thereof.

Having thus described our invention, we claim—

In an acetylene-gas machine the combination with a gasometer having a movable bell of a generator having a fixed bell, a carbide-hopper supported by said fixed bell and having a discharge-opening communicating with the interior of said bell, a valve adapted to open and close said opening, a stem or rod fixed to said valve, an arm fixed to said stem or rod, a laterally-projecting bolt carried by said arm, means carried by said movable gasometer-bell for engaging said bolt, and actuating said valve, said means comprising a vertically-disposed guideway supported by a bracket fixed to said bell, a curved hook formed on the upper end of said guideway, whereby when the gasometer-bell is lowered the said hook will engage said bolt, rock said arm and shaft and open said valve and upon an upward movement of said bell again to rock said arm and rod in an opposite direction to close said valve, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN M. FLUGSTAD.
PETER M. FLUGSTAD.

Witnesses:

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F. T. GILICK.