

(No Model.)

2 Sheets—Sheet 1.

W. J. PTOMEY.  
BLACKSMITH'S FORGE.

No. 477,699.

Patented June 28, 1892.

FIG. 1.

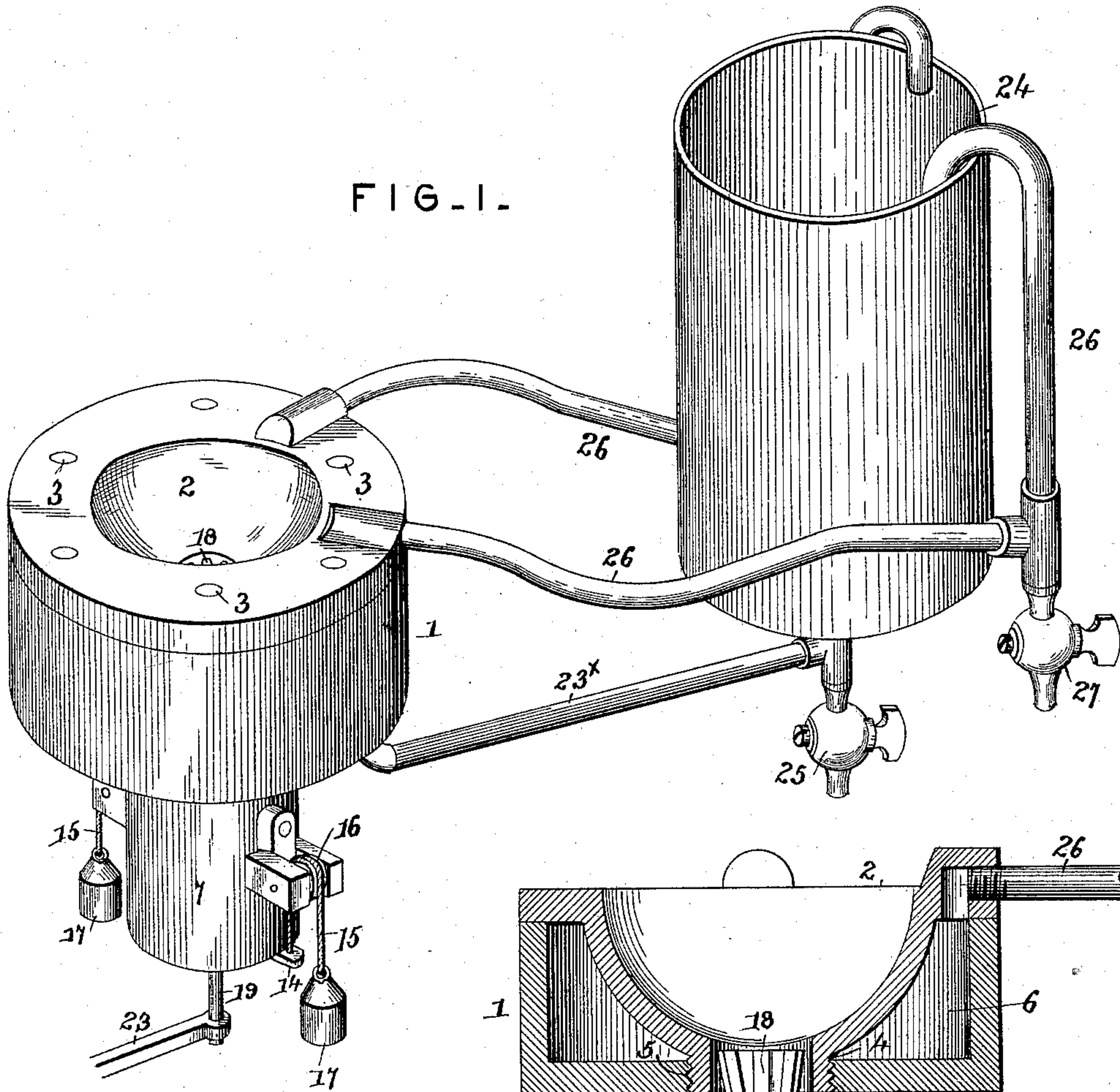
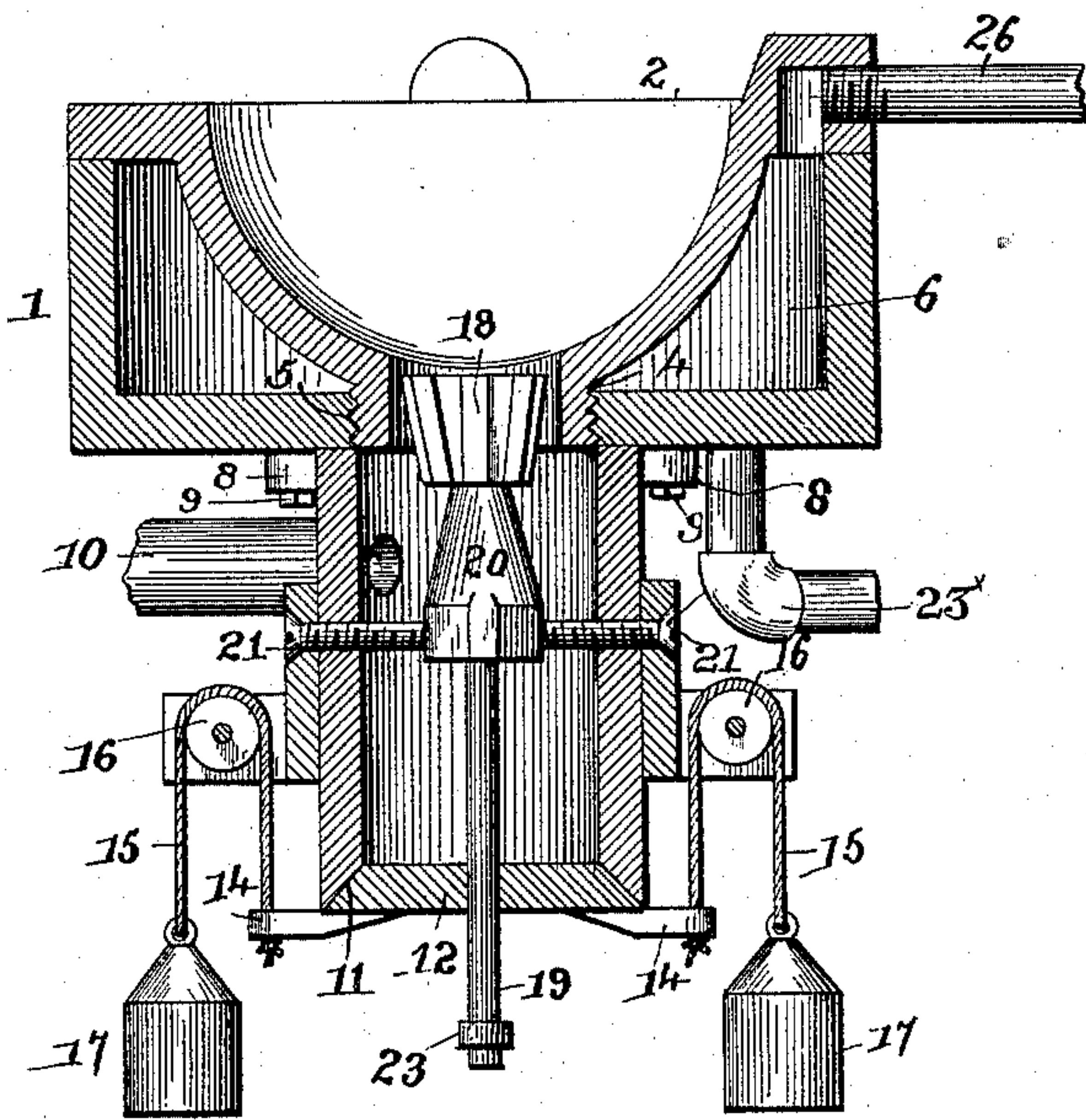


FIG. 3.



Witnesses

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2 Sheets—Sheet 2.

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FIG. 2.

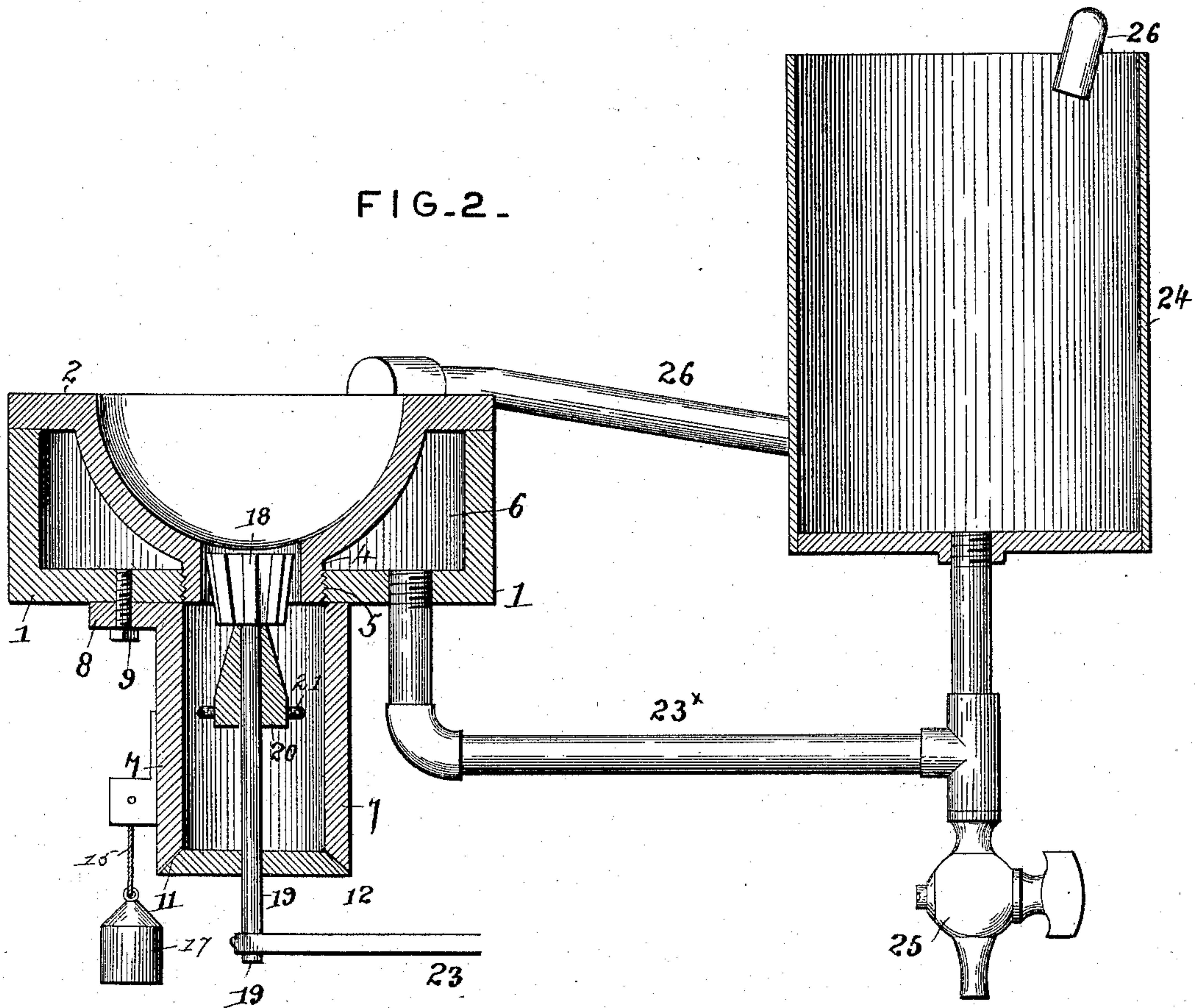


FIG. 4.

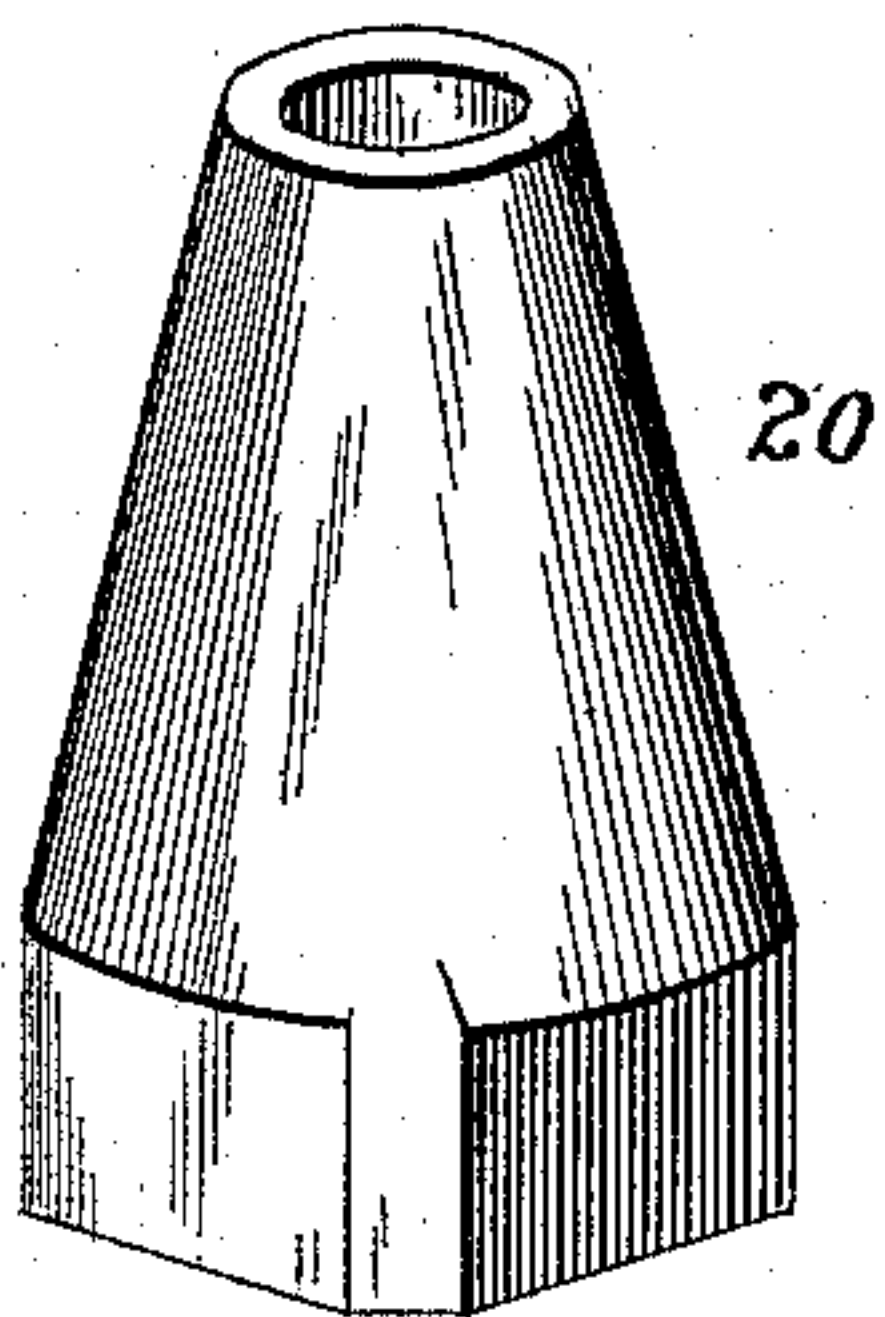
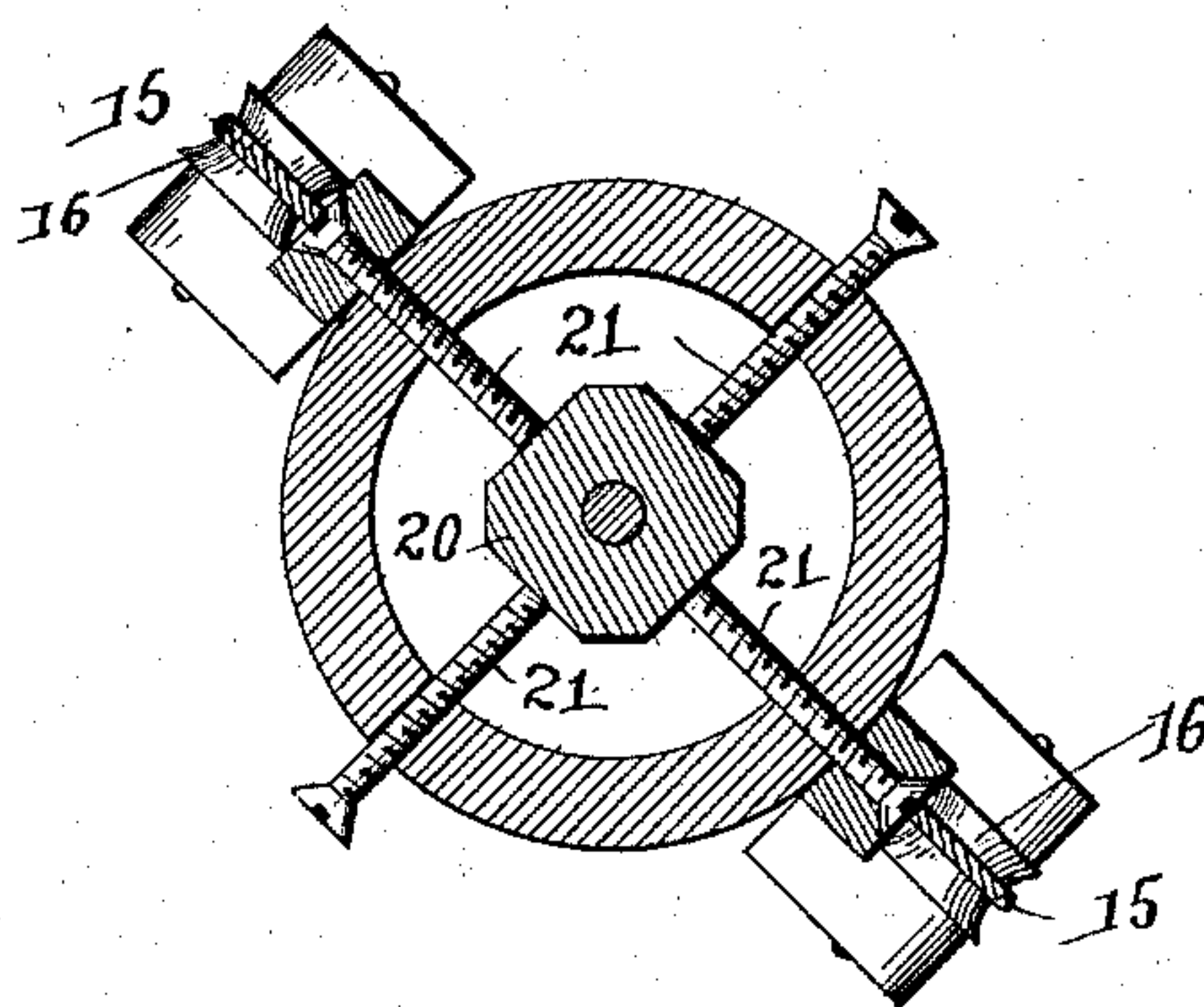


FIG. 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM J. PTOMEY, OF MCCrackEN, KANSAS.

## BLACKSMITH'S FORGE.

SPECIFICATION forming part of Letters Patent No. 477,699, dated June 28, 1892.

Application filed November 10, 1891. Serial No. 411,491. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. PTOMEY, a citizen of the United States, residing at McCracken, in the county of Rush and State of Kansas, have invented a new and useful Blacksmith's Forge, of which the following is a specification.

This invention relates to tuyeres for blacksmiths' forges, and is designed as an improvement upon Letters Patent No. 406,767, granted to me July 9, 1889; and it has for its object to provide an improved tuyere having several improvements over said former patent that will render the same more complete and more efficient in operation, the said improvement being designed to specially improve the water-supplying devices, as well as the cinder-box cap and other minor points of my original tuyere.

With these and other objects in view, which will readily appear as the nature of my invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a forge-tuyere constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view through the tuyere proper. Fig. 4 is a detail in perspective of the grate-rod cone. Fig. 5 is a horizontal sectional view through the cone-securing screws and cinder-box.

Referring to the accompanying drawings, 1 designates the body of the tuyere, which is preferably circular in shape and is provided with the concaved cover 2, forming the fire-box of the forge and which is fastened by means of suitable bolts 3, passing through the wall of said circular box-tuyere and fastened to the same. The said concaved fire-box and cover is provided with a downwardly-extending neck 4, projecting through and within a perforation 5 in the bottom of the tuyere-casing, and thus forms with the inner wall of said casing an inclosed water-space 6, all of which is constructed in substantially the same manner as the tuyere described in my former patent. A cylindrical cinder-box 7 is designed to be located directly beneath the opening

through the neck of said fire-box, and the same is provided at its upper end with the radially-extending perforated flanges 8, by means of which said cinder-box, which may be either rectangular or cylindrical in shape, is secured to the under side of said tuyere-box by means of the fastening-bolts 9, which connect said cinder-box with the tuyere in such a manner as to allow the same to be adjusted in various positions by turning the same so that the various flanges may be made to interchange places with each other, so that the tuyere may accommodate itself to any position in which the bellows is located. The said cinder-box is further provided with a laterally-extending pipe 10, which is connected in any suitable manner with a pair of bellows or with a rotary blower of suitable construction, and the lower end of said cinder-box is further provided with a beveled lower edge 11, that is designed to form a seat for the cone-shaped bottom or cover 12, provided with a central perforation 13 and the laterally-extending arms 14, to which are connected the weighted cords 15, passing over pulleys 16, secured to opposite sides of the tubular cinder-box 7. The cords are provided at their lower ends with suitable weights 17, by means of which said bottom or cover is always normally held in position over the lower end of said cinder-box, and thus providing means whereby accumulations of cinders within the cinder-box may be easily and readily removed. As in my former patent, the upper end of the cinder-box communicating with the lower end or neck of the fire-box allows the blast of air entering the cinder-box through the pipe 10 to be discharged directly in the center of the bottom of the fire-box. Located in the bottom of said fire-box and directly within the lower neck thereof is the rotary grate 18, which is mounted upon one end of the vertical operating-rod 19, extending downwardly through the cinder-box and having its bearings in a suspended cone bearing-block 20, supported centrally within said cinder-box by means of the set-screws 21, passing radially through said cinder-box and impinging against the periphery of said cone bearing-block, which, on account of its conical shape, prevents the cinders from lodging thereagainst and allows the same to fall directly down upon the



weight-pressed cover or bottom 12 referred to. The lower end of the operating-rod 19 projects through the central perforation 13 in the bottom or cover 12 and is provided with a crank or handle 23, whereby the same may be conveniently manipulated, so as to rake the fire and cinders and cause the latter to drop into the cinder-box, from which they may be afterward removed through the cover.

10 A water-supply pipe 23<sup>x</sup> passes through the bottom of said tuyere-box and communicates with the water-space 6, inclosed between the same and said fire-box, and is connected at its outer end with the bottom of an elevated

15 water tank or reservoir 24, from which water may be supplied from the same through the pipe 23<sup>x</sup> to the tuyere-box 1, and said supply-pipe 23<sup>x</sup> is provided directly below said tank or reservoir with a drain or draw-off cock 25,

20 by means of which the water may be drawn off from said reservoir and from said water-space when desired.

Circulating and return pipes 26 are connected through the top of the fire-box and

25 tuyere-cover with the inclosed water-space and are curved up over the top of the tank or reservoir, so as to discharge the returned water into the same and provide a continuous circulation of the water. Said circulating and return

30 pipes are provided at their lowest points with cocks 27, by means of which the water may be drawn off in order to clean the same or to prevent freezing in the pipes. The uses and advantages of having an inclosed water-space

35 and a supplying reservoir or tank are fully set forth in my former patent and need not be further enlarged upon in the present application.

The extent and nature of the improvements

40 upon my former patent are thought to be apparent without further description.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

45 1. In a blacksmith's forge, the combination of the tuyere-box, a tubular cinder-box removably connected to the under side of the tuyere-box and provided with a blast-pipe, said box being designed to be circularly ad-

50 justed beneath the tuyere-box to accommodate the blast, a cover or bottom normally closing said cinder-box, and weights flexibly connected with said cover and suspended to

draw the same against the cinder-box, substantially as set forth.

2. In a blacksmith's forge, the combination of a tuyere and fire box having a bottom opening, a tubular cinder-box removably connected to the lower or under side of said tuyere-box and provided with a lower beveled seat, a conical cover fitting said beveled seat or lowered end, pulleys secured to opposite sides of said cinder-box, and weighted cords connected to said bottom or cover and passing over said pulleys, substantially as set forth.

3. In a blacksmith's forge, the combination of a tuyere and fire box having a bottom opening, a tubular cinder-box having a blast-pipe and removably connected to the lower under side of said tuyere-box, a cover or bottom normally closing the bottom of said cinder-box, suspended weights connected with said cover to hold the same against the cinder-box, a rotary grate located in said bottom opening and having an operating-rod extending down through said cinder-box and the bottom or cover thereof, and a conical guide-block suspended centrally within said cinder-box and adapted to receive said grate-operating rod, substantially as set forth.

4. In a blacksmith's forge, the combination of a combined tuyere and fire box having an inclosed water-space, a blast-receiving and cinder box removably secured to the under side of said tuyere and fire box, a cover normally closing the lower end of said cinder-box, weights suspended from the sides of the cinder-box and flexibly connected with said cover or bottom, a water tank or reservoir adjacent to said tuyere and located above the same, a supply-pipe connecting the lower ends of said reservoir with said inclosed water-space, a draw-off cock connected with said supply-pipe below the tank, circulating and return pipes connected to the top of said water-space and projecting within the top of said tank or reservoir, and draw-off cocks connected with said circulating and return pipes at their lowest points, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM J. PTOMEY.

Witnesses:

J. R. STOCK,

G. C. ZICKEFOOSE.