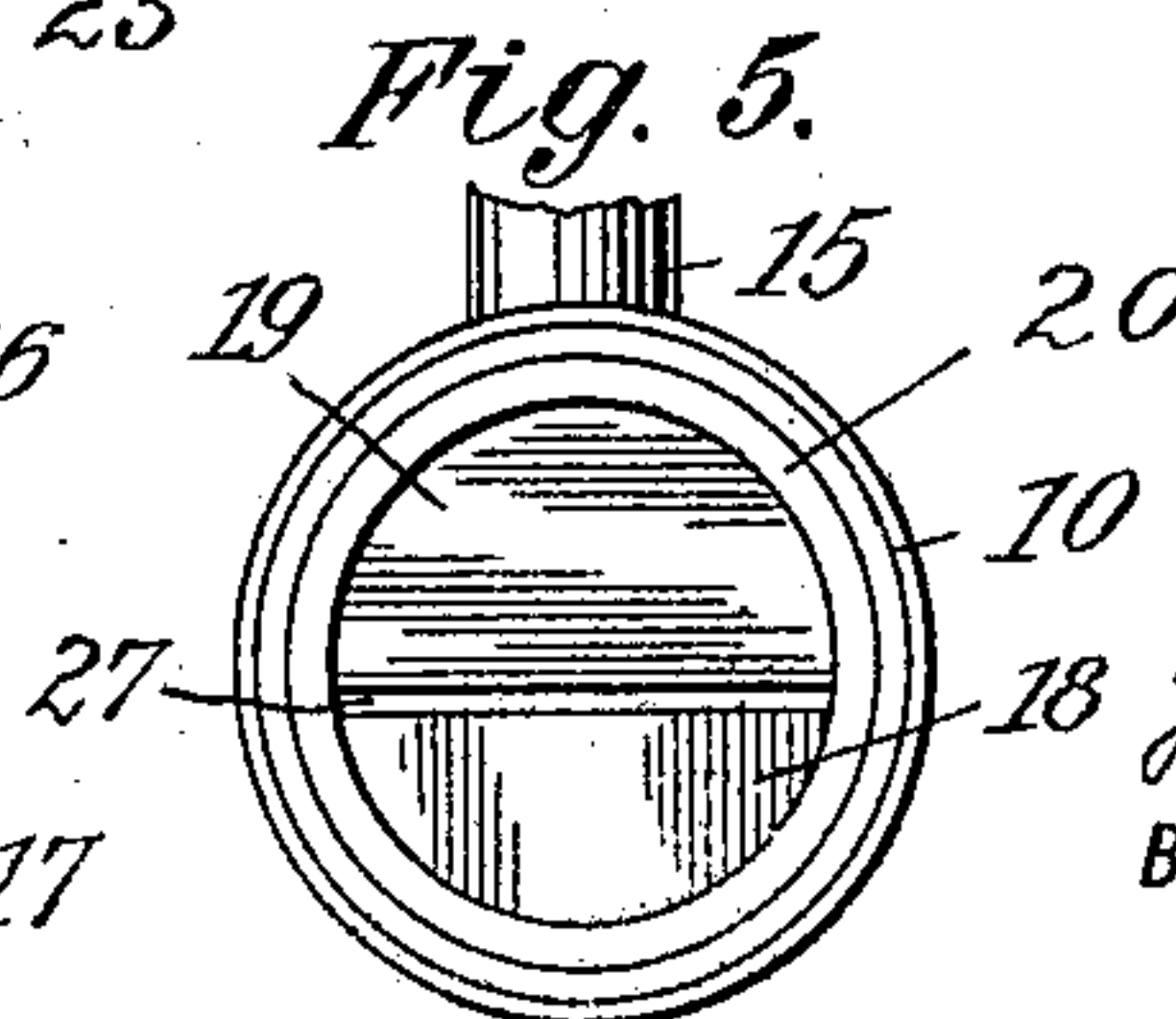
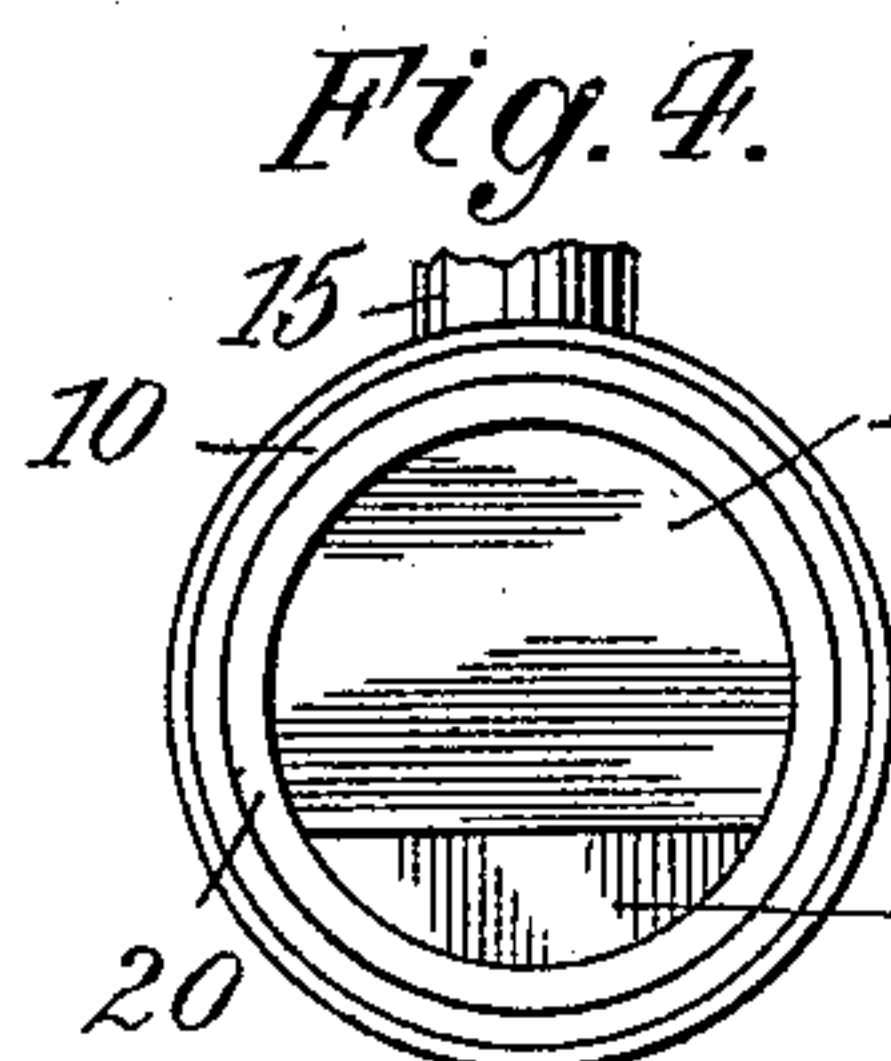
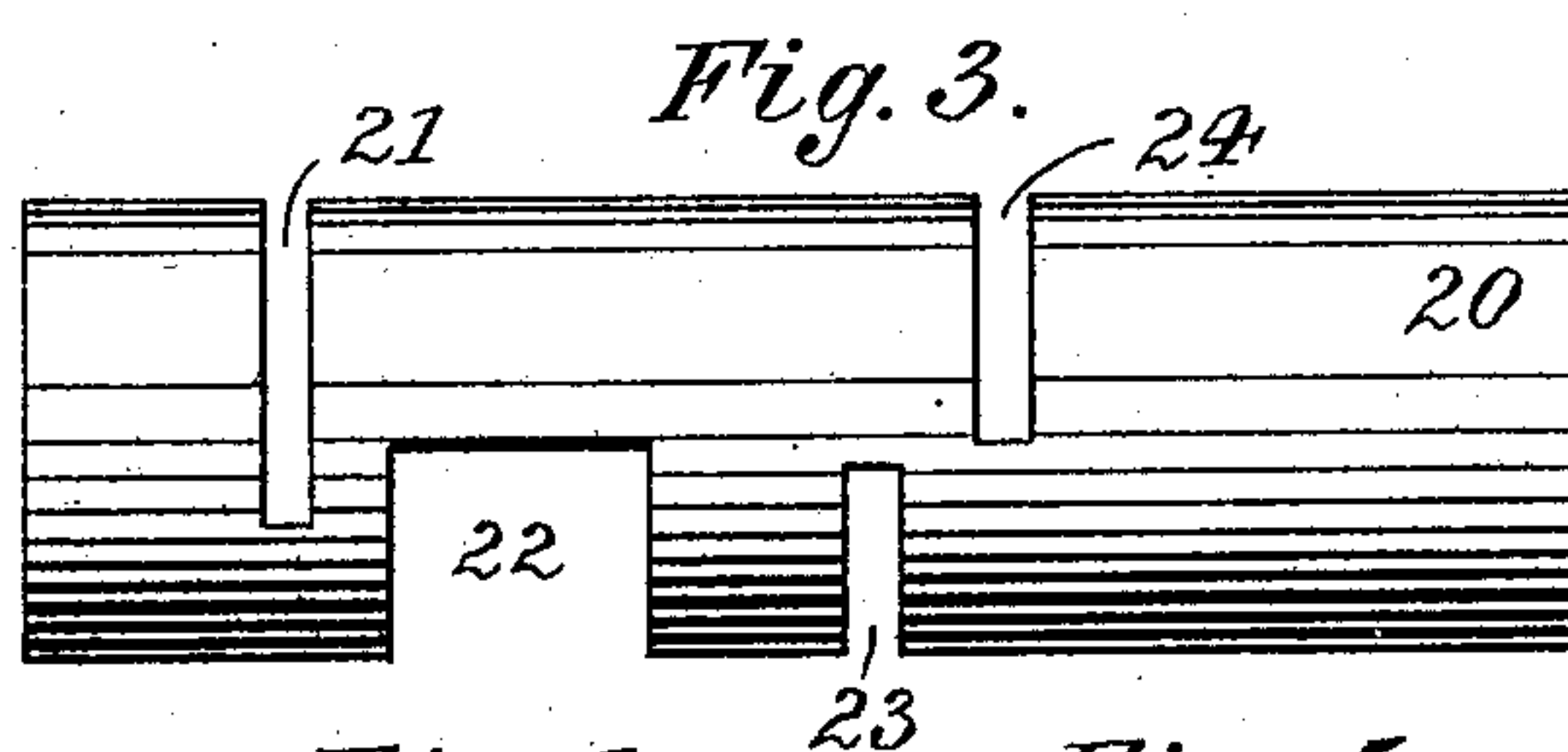
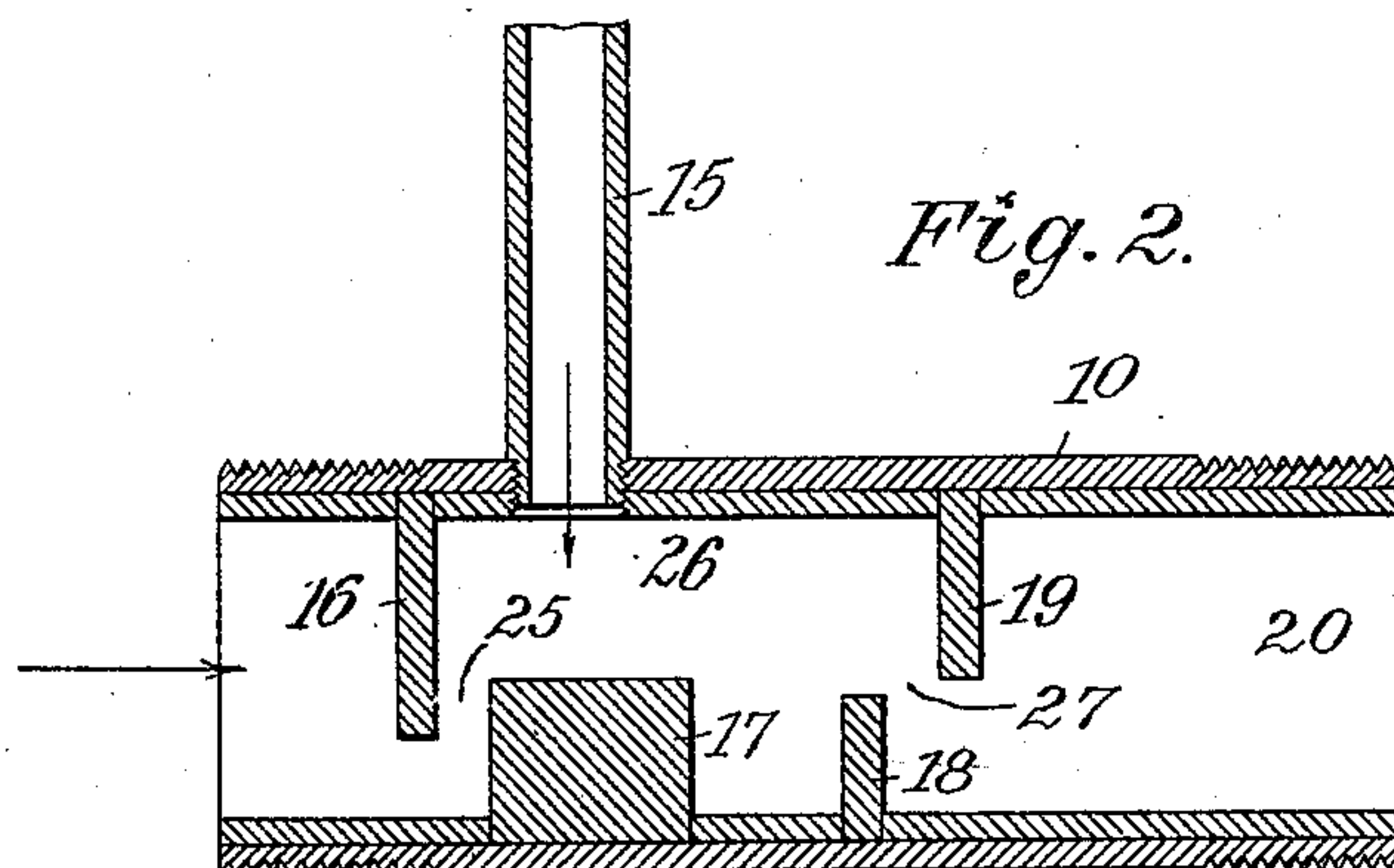
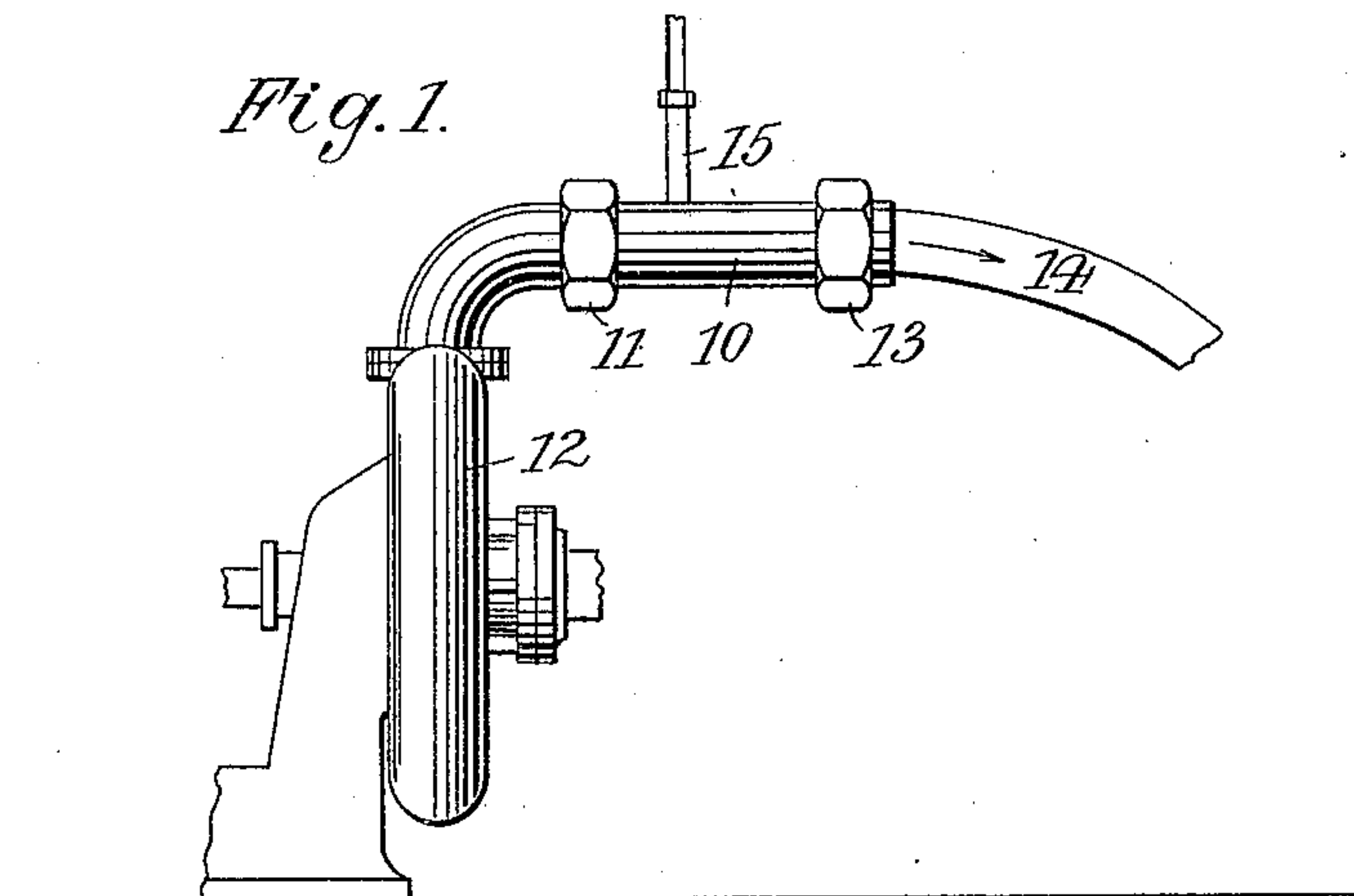


G. DETLEFSEN.
 APPARATUS FOR MIXING LIQUIDS WITH GASES.
 APPLICATION FILED OCT. 2, 1908.

917,019.

Patented Apr. 6, 1909.



WITNESSES
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GUSTAV DETLEFSEN, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR MIXING LIQUIDS WITH GASES.

No. 917,019.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed October 2, 1908. Serial No. 455,859.

To all whom it may concern:

Be it known that I, GUSTAV DETLEFSEN, a citizen of the United States, residing at Jersey City, Hudson county, State of New Jersey, have invented new and useful Improvements in Apparatus for Mixing Liquids with Gases, of which the following is a specification.

This invention relates to an improved apparatus for mixing liquids with gases, the device being more particularly designed for charging beer with carbonic acid gas while the beer flows from the chip cask to the racking apparatus. The construction is such that the liquid is thoroughly agitated while being charged with the gas, so that an intimate admixture is obtained.

In the accompanying drawing: Figure 1 is a side elevation of my improved apparatus, showing it coupled to a beer pump; Fig. 2 is a longitudinal section through the apparatus; Fig. 3 a detail of the lining; Fig. 4 a left hand end view of Fig. 2, and Fig. 5 a right hand end view thereof.

A tubular casing 10 is adapted to be connected at one end by coupling 11 to a beer pump 12, and at its other end by coupling 13 to a hose 14 leading to the racking apparatus. Within casing 10 are contained a series of baffle plates that extend partly across the same and are adapted to vigorously agitate the beer while the latter is driven through the casing by pump 12. The carbonic acid gas is conveyed into casing 10 through a pipe 15 communicating with the casing intermediate the baffle plates, so that the intermixture between liquid and gas takes place while the former is in its agitated condition. As shown, there depend from the roof of casing 10, a pair of baffle plates 16, 19, arranged at opposite sides of gas pipe 15. Plates 16, 19, flank a pair of upwardly extending baffle plates 17, 18, of which plate 17 is made in the form of a thick block located opposite pipe 15, while plate 18 is arranged sidewise of such pipe. The baffle plates are of segmental shape and their relative size is such, that while the free edge of plate 16 extends below the free edge of plate 17, a clearance is formed between the free edges of plates 18 and 19. Further, plates 16, 17 are placed into close proximity, plates 17, 18 are spaced a comparatively,

greater distance, and plates 18, 19 are again placed into close proximity. If desired the baffle plates may be fitted into casing 10 by means of a tubular lining 20 which is encompassed by the casing and is slotted as at 21, 22, 23, 24, for the reception of plates 16, 17, 18, 19, respectively. By this construction the assemblage of the parts is facilitated and the plates are securely anchored to the casing. However, the entire device may be made in a single casting.

In use, the liquid is forced by pump 12 through the comparatively small opening beneath plate 16, and up along the contracted duct 25 intermediate plates 16, 17 to be thrown as a subdivided jet toward the gas that enters, by pipe 15, the mixing chamber 26 formed between plates 16, 19. By placing the comparatively thick baffle plate 17 opposite the entrance of the carbonic acid pipe 15, the agitated liquid is held in close proximity to pipe 15 for a length of time sufficient for causing a thorough absorption of the carbonic acid by the liquid. The peculiar arrangement of the baffle plates provides a large mixing chamber between plates 16, 19, in which plate 18 serves to break up the stream flowing over plate 17, and to whirl it toward the narrow discharge passage 27, so that a thorough saturation of the liquid with the gas is obtained.

I claim:

1. A device of the character described, comprising a tubular casing having a liquid inlet at one end thereof, a series of opposed baffle plates within the casing, of which one plate is thicker than the other plates, and a gas inlet opposite said thicker plate, substantially as specified.

2. A device of the character described, comprising a casing having a liquid inlet, a slotted lining inclosed by the casing, baffle plates engaging the lining-slots, and a gas inlet intermediate said plates, substantially as specified.

Signed by me at New York city, Manhattan, New York, this first day of October, 1908.

GUSTAV DETLEFSEN.

Witnesses:

FRANK V. BRIESEN,
W. R. SCHULZ.