

(No Model.)

J. FREEL.
RETORT FOR STILLLS.

No. 504,917.

Patented Sept. 12, 1893.

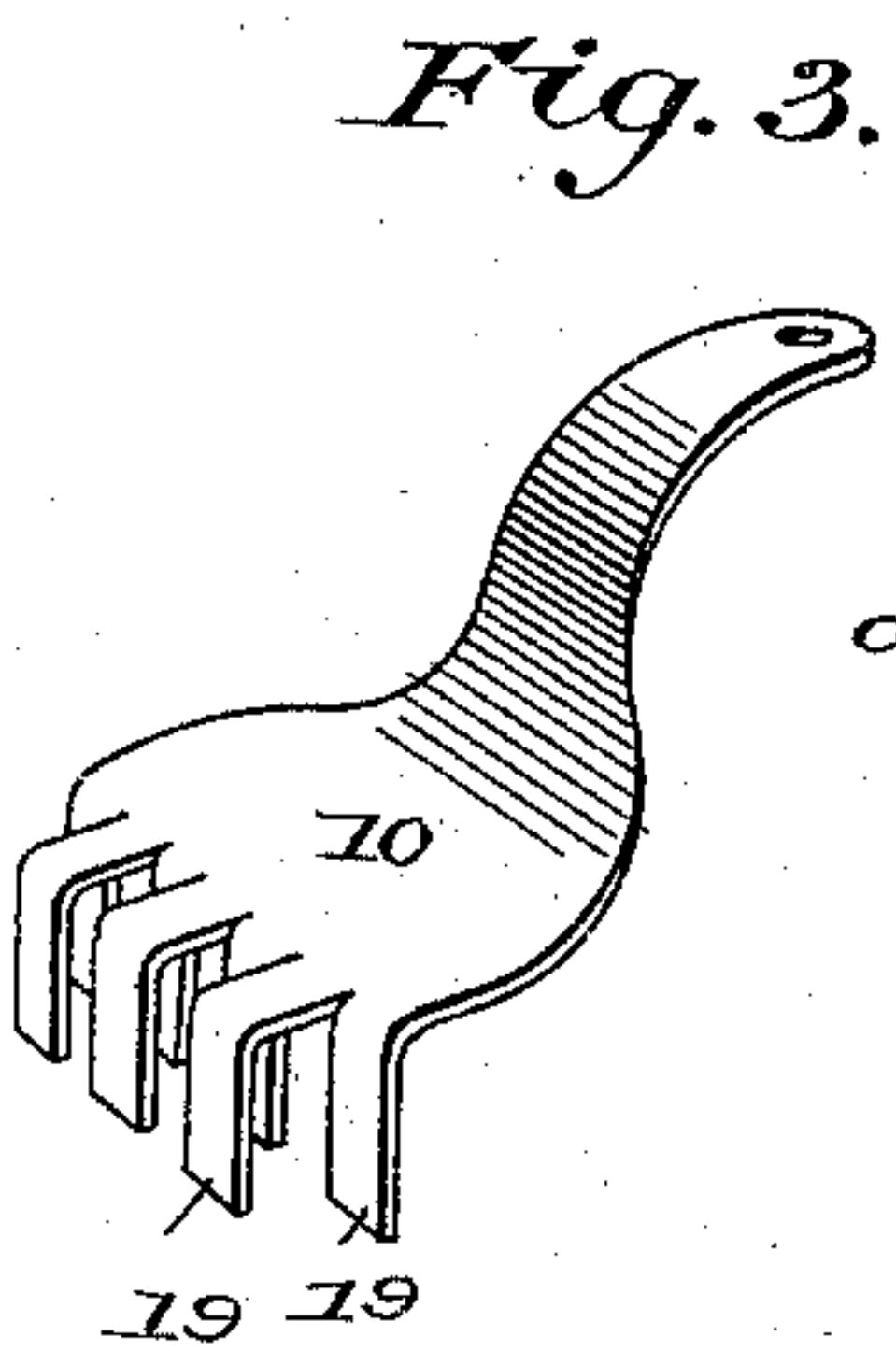
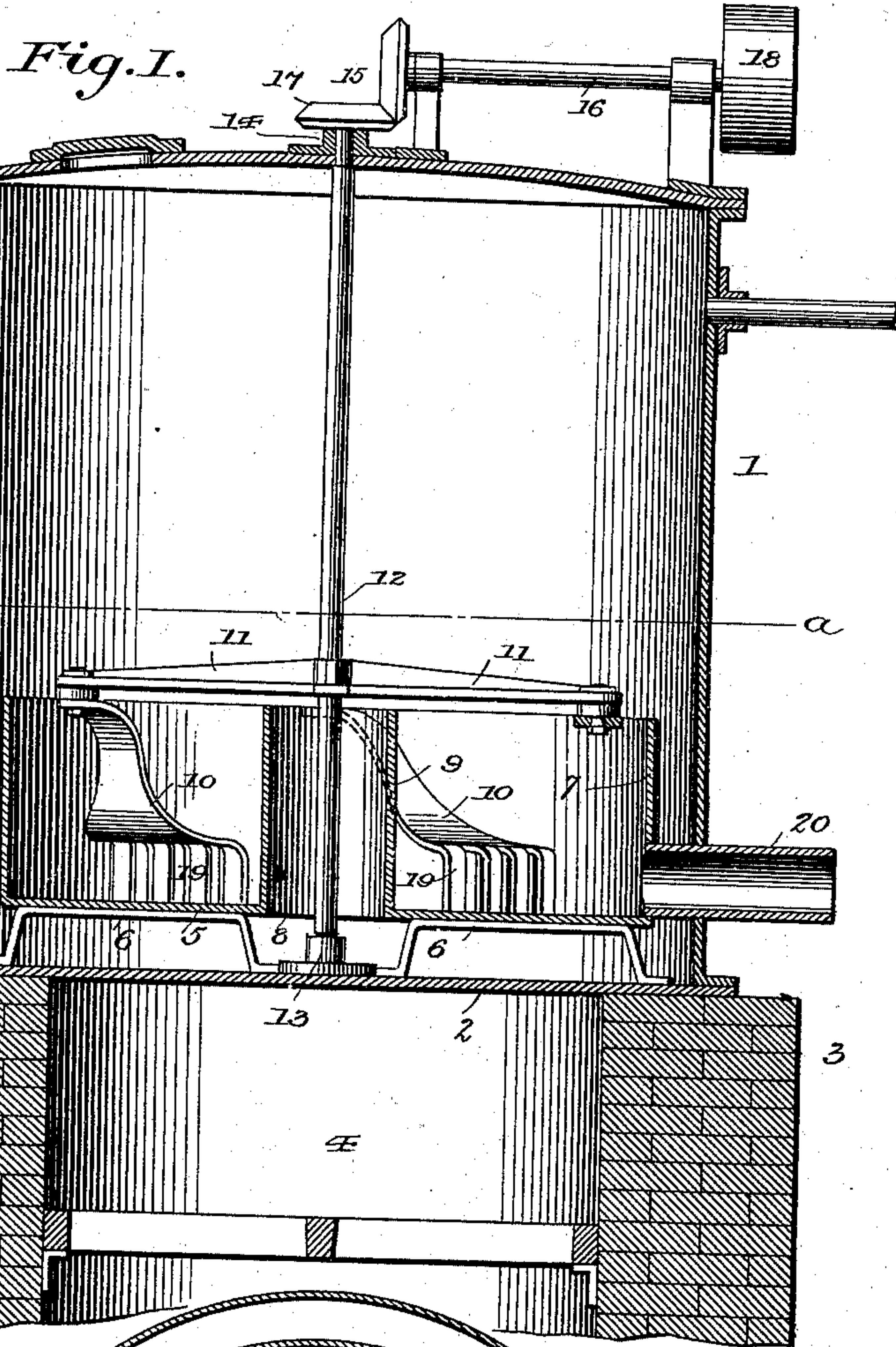
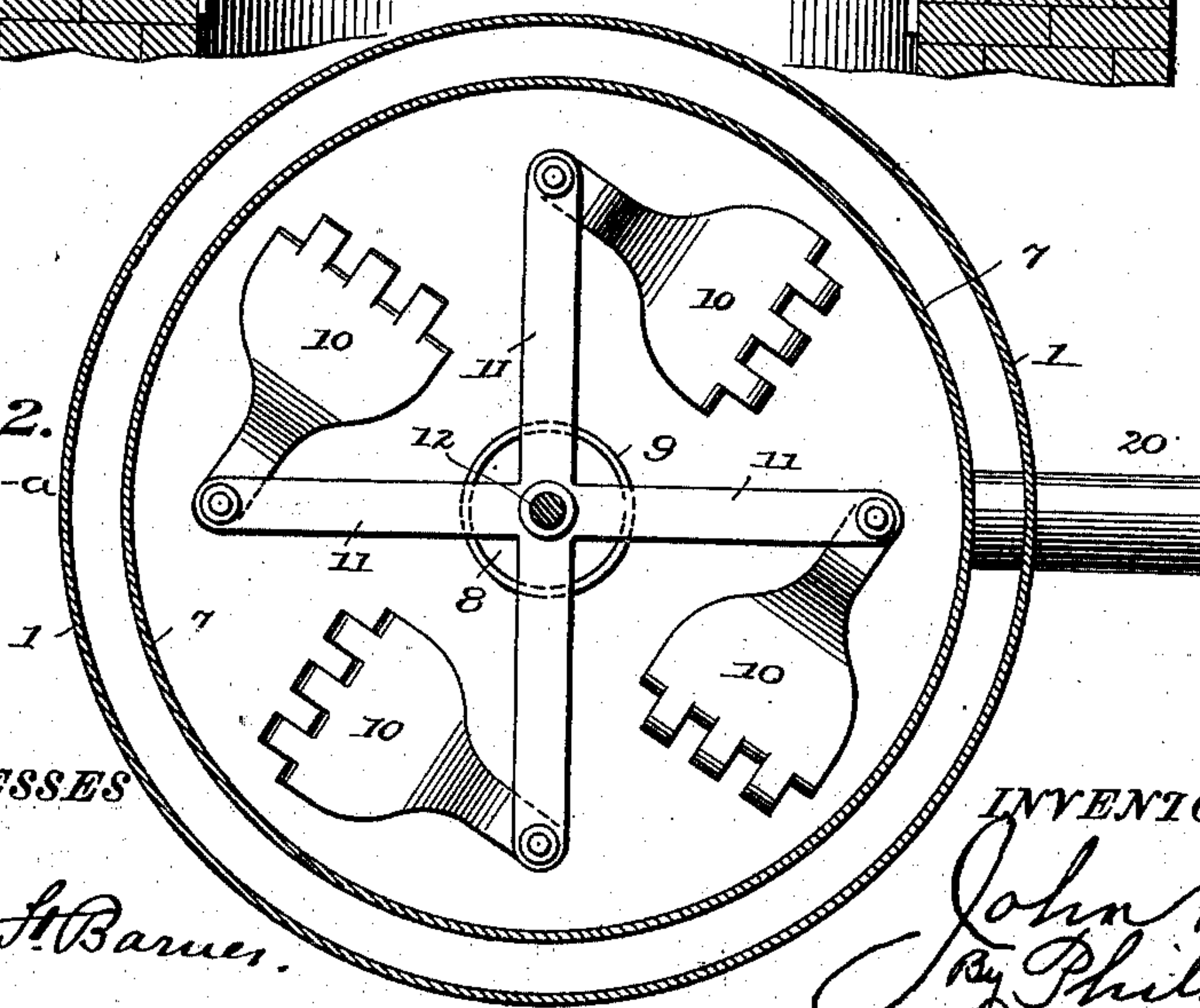


Fig. 2.
on line a-a



WITNESSES

Raymond H. Barnes.
D. B. Gallatin

INVENTOR

John Freel.
By Phil. S. Dudge
Attorney

UNITED STATES PATENT OFFICE.

JOHN FREEL, OF WHITING, INDIANA.

RETORT FOR STILLs.

SPECIFICATION forming part of Letters Patent No. 504,917, dated September 12, 1893.

Application filed March 1, 1893. Serial No. 464,246. (No model.)

To all whom it may concern:

Be it known that I, JOHN FREEL, of Whiting, county of Lake, and State of Indiana, have invented a new and useful Improvement in Retorts for Stills, of which the following is a specification.

My invention relates to stills, and has reference more particularly to retorts for petroleum stills.

10 In practice great trouble has been caused by reason of the incrustation of the bottom of the retort, owing to the accumulation thereon of the solid matters contained in the crude oil, and of the accumulation of solid deodorizing compounds which it is usual to place in the oil during the distilling process. This incrustation necessitates the frequent renewal of the bottom of the retort, thus entailing considerable expense.

20 The object of my invention is to overcome this objectionable incrustation, and it consists in providing the retort with a false bottom adapted to retain the solid matters, and constructed to permit a free circulation of the oil, so that the latter will act as a conductor of heat between the main and false bottoms, and will serve to prevent the flame from acting injuriously upon the retort.

30 The invention also consists in combining with the false bottom an agitating device arranged to stir or agitate the solid matters thereon.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

35 In the accompanying drawings, Figure 1, is a vertical longitudinal section through a retort having my invention embodied therein. Fig. 2, is a horizontal section on the line *a-a*, Fig. 1. Fig. 3 is a perspective view of one of the agitator drags.

40 Referring to the drawings, 1 represents a retort consisting of a hollow cylindrical chamber provided with a main bottom 2, and supported by masonry 3, containing a furnace 4. The retort is provided in its top with a pipe for the supply of oil, and the discharge pipe for carrying off the vapors to be condensed. The foregoing parts may be of the usual and ordinary construction, as except so far as hereinafter indicated, they form no part of the present invention.

In carrying my invention into effect, I provide the retort with a false bottom 5, adapted to receive the solid matters as more fully described hereinafter, and sustained a slight distance above the main bottom, by means of legs or brackets 6 secured to the under side. The false bottom is provided at its edge with a vertical flange 7, extending a slight distance from the inner surface of the retort, so that an annular space will be left between the flange and the retort as plainly shown in Fig. 1. At its center the false bottom is provided with an opening 8, surrounded by a vertical annular flange 9, which serves to prevent the solid matters on the false bottom from passing to the main bottom, but which will admit of the free circulation of the oil through and beneath the false bottom.

70 From the foregoing construction it will be seen that the solid matters will accumulate on the false bottom, and be retained thereby, and owing to the film of oil between this and the main bottom, there will be no liability of injury resulting from incrustation.

In order that the solid matters contained on the false bottom may be continuously agitated and stirred, I provide a series of drags 10, which are piloted at their upper ends to the outer ends of radial arms 11, carried by a vertical rotating shaft 12, extending through the central opening in the false bottom, and through the annular flange surrounding the same. The shaft is mounted at its lower end in a step bearing 13, fixed to the main bottom, and at its upper end is extended through a box 14, fixed to the top of the retort. This shaft may be rotated in any suitable manner, but I prefer to drive it by a beveled gear 15, fixed to the end of a horizontal shaft 16, engaging a beveled gear 17, on the vertical shaft, the horizontal shaft being provided with a driving pulley 18, which may receive motion from any suitable source. Each of the drags I prefer to construct of spring steel, and form at its lower end, vertical fingers 19, adapted to travel in the solid matters on the false bottom.

100 In order that the solid matters may be removed on the false bottom after the distilling operation is completed, I provide a horizontal pipe 20, which extends through the vertical flange at the outer edge of the false bottom,

through the annular space between this flange and the inner side of the retort, to the outside.

While I have shown and described my invention as being embodied in its preferred form, it is to be understood that the details may be variously modified without departing from the limits of the invention, the essence of which consists in providing a retort having a main bottom with a false bottom adapted to receive and retain the solid matters contained in the oil, and constructed to admit of a circulation of the oil beneath the same.

Having thus described my invention, what I claim is—

1. In a still the combination of the retort provided with a main bottom, a false bottom adapted to receive and retain the solid matters, said false bottom being sustained a slight distance above the main bottom, and constructed to admit of a circulation of the oil below the same.

2. In a still the combination with a retort provided with a main bottom, of a false bottom being sustained a slight distance above the same and provided with a vertical annular surrounding flange extending a slight distance from the inner surface of the retort.

3. In a still the combination with a retort provided with a main bottom, of a false bot-

tom sustained a slight distance above the same and provided with a vertical annular surrounding flange extending a slight distance from the inner surface of the retort, and the pipe extending through the annular space between the flange and retort.

4. In a still the combination with the false bottom provided with the central opening and the surrounding annular flange, of the rotary shaft extending within said flange and the agitator drags carried by said shaft, and adapted to travel upon the false bottom.

5. In a still the combination with the retort, of the false bottom provided with the central opening, the vertical flange surrounding the same, the vertical annular flange extending from the outer edge of the false bottom and arranged a slight distance from the inner surface of the retort, the vertical rotary shaft extending within the opening in the false bottom, the radial arms carried by said shaft, and the drags carried by said arms and adapted to travel upon the false bottom.

In testimony whereof I hereunto set my hand, this 23d day of February, 1893, in the presence of two attesting witnesses.

JOHN FREEL.

Witnesses:

THOMAS H. FREEL,
W. C. KARR.