

(No Model.)

2 Sheets—Sheet 1.

H. FRASCH.
AGITATOR FOR STILLLS.

No. 553,191.

Patented Jan. 14, 1896.

FIG. 1.

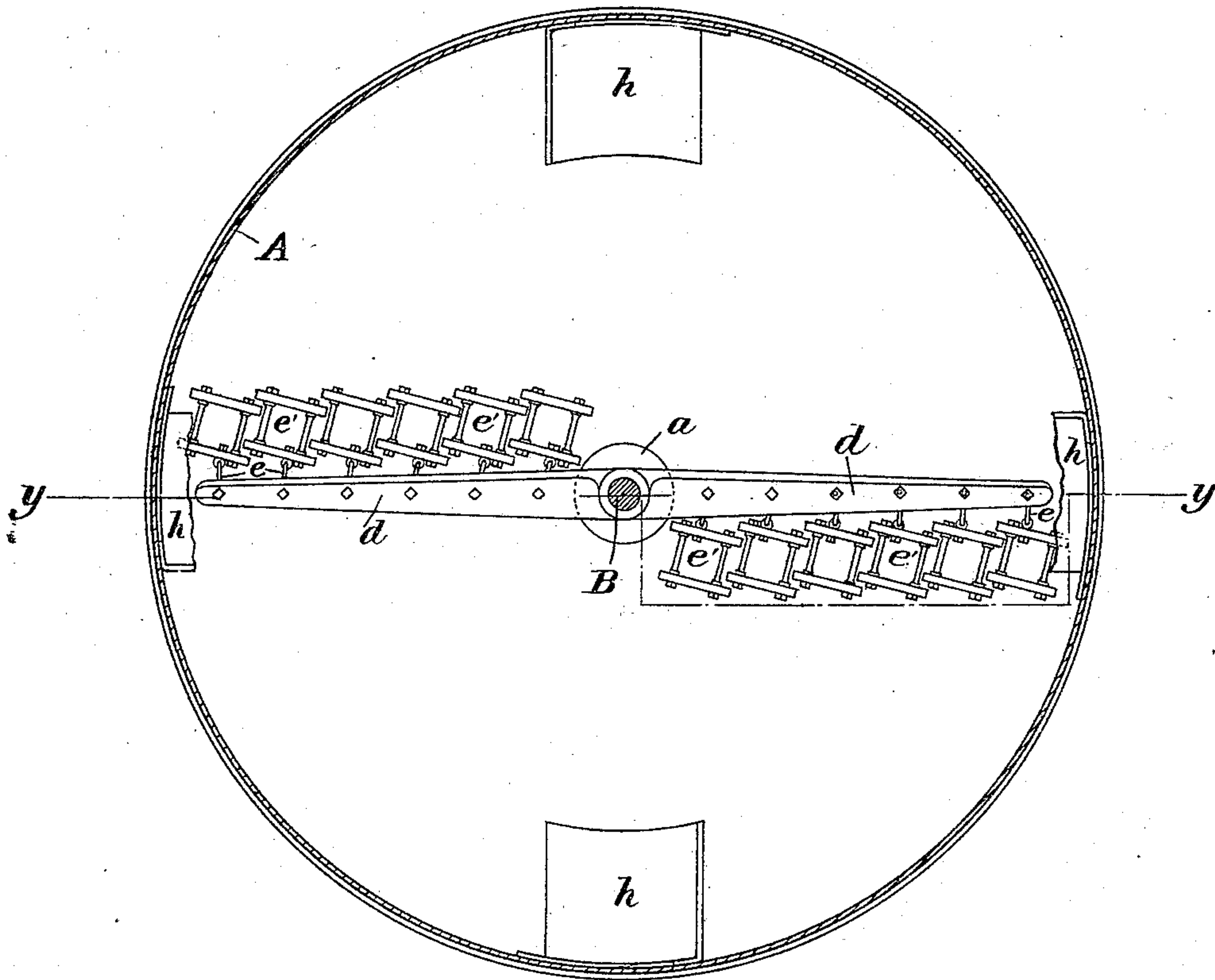
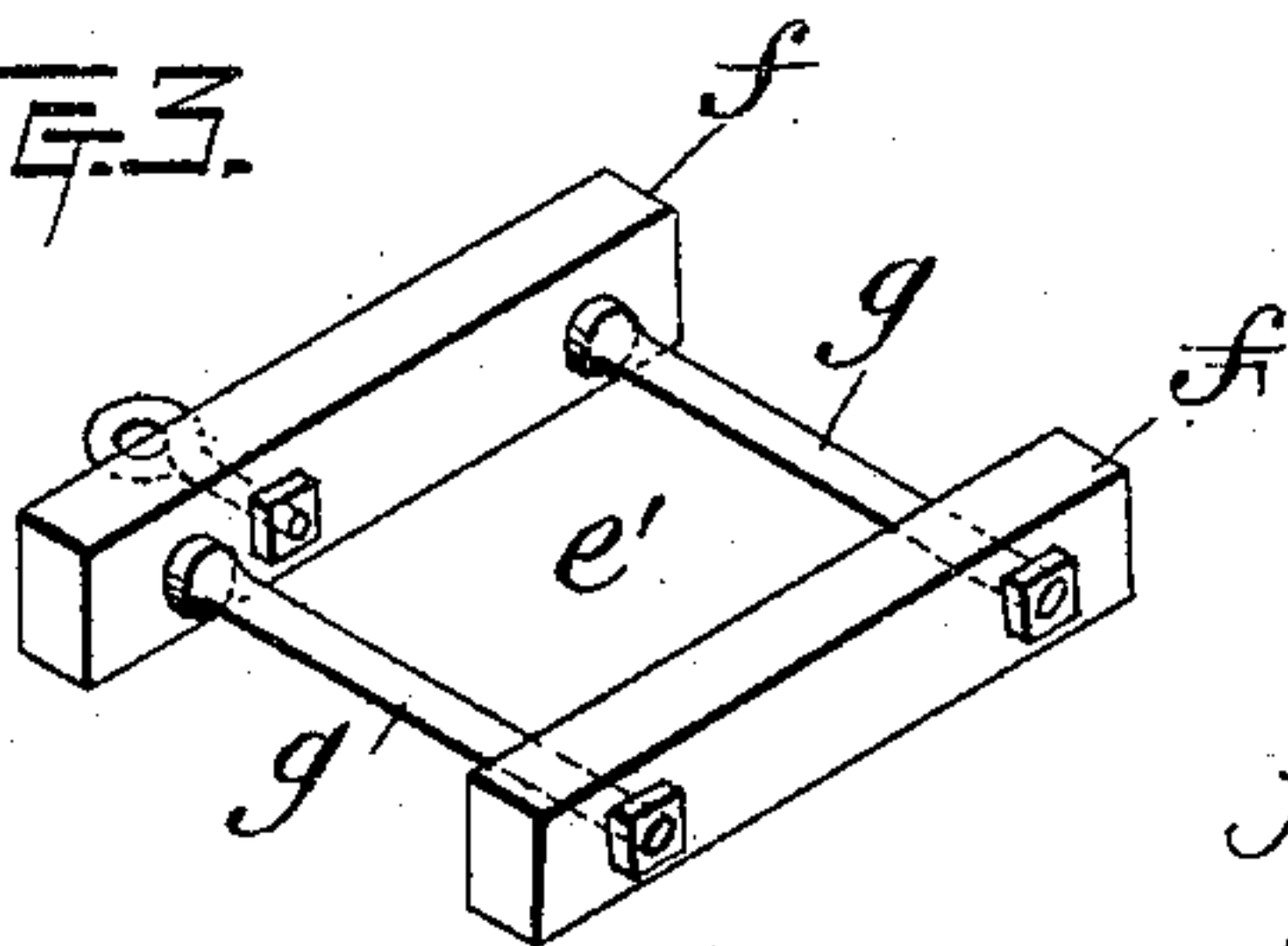


FIG. 3.



WITNESSES.

Thos. E. Parker.
Henry Jarvey.

INVENTOR.

Herman Frasch
& Chas. J. Hedrick
his attorney

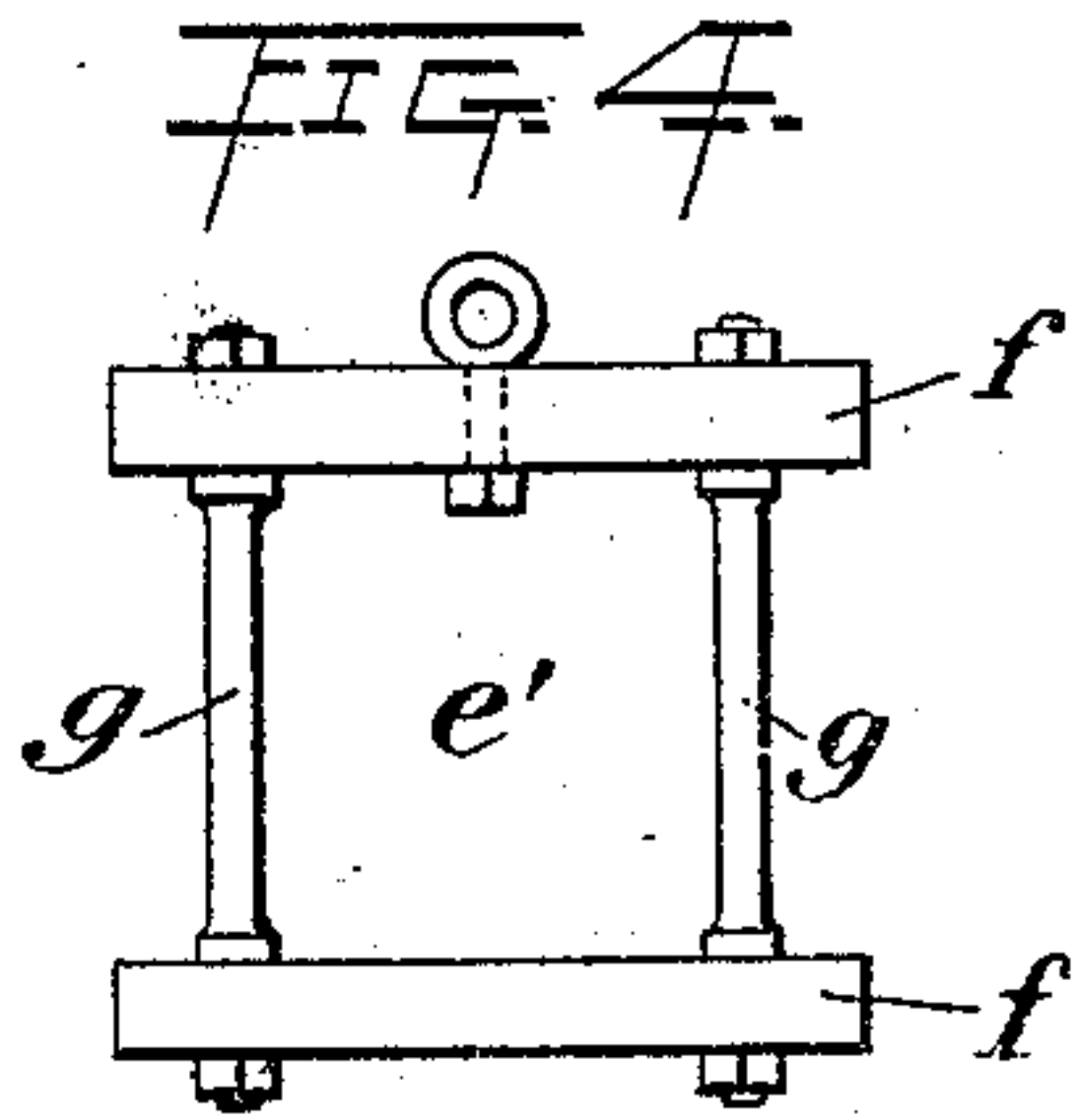
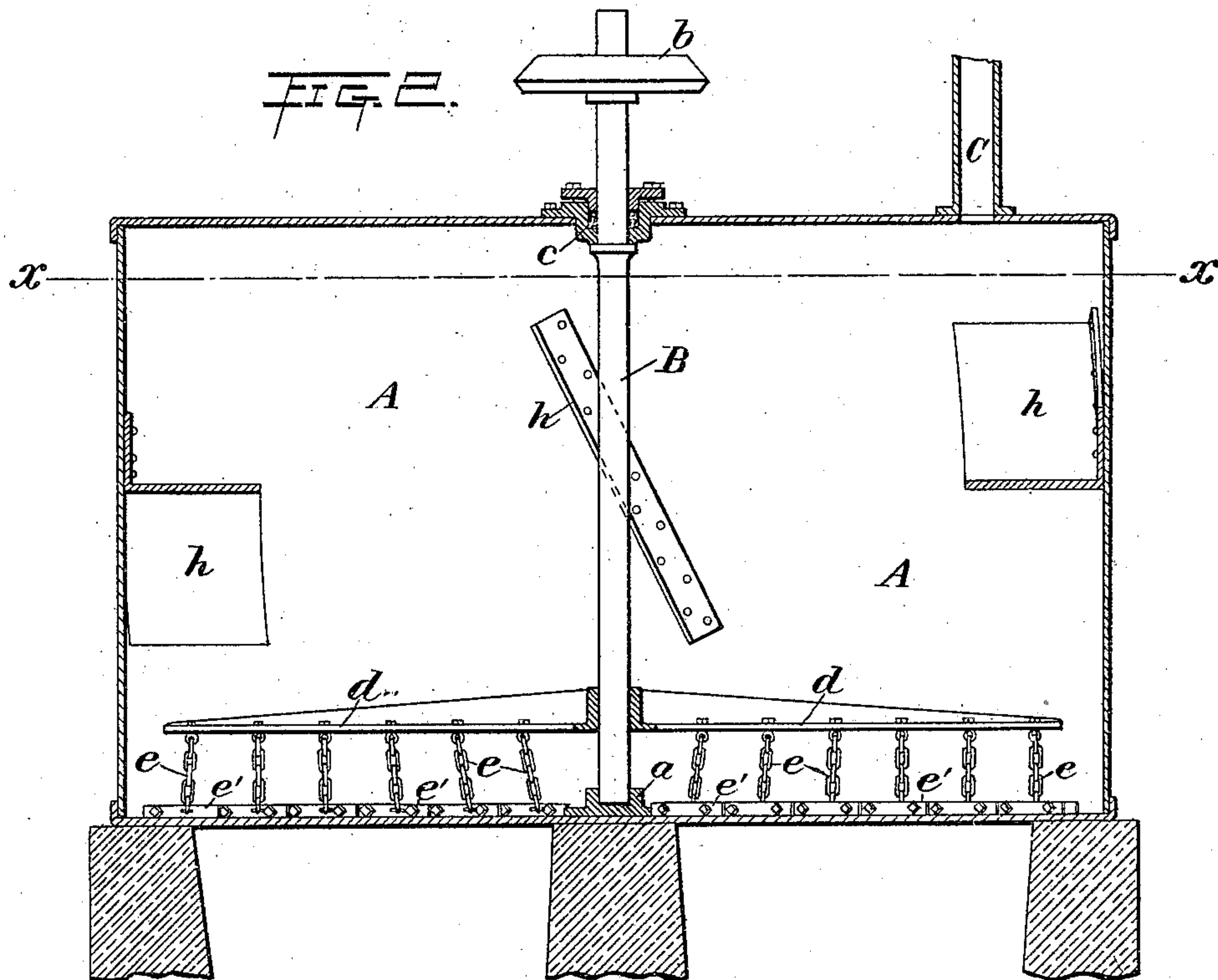
(No Model.)

2 Sheets—Sheet 2.

H. FRASCH.
AGITATOR FOR STILLs.

No. 553,191.

Patented Jan. 14, 1896.



WITNESSES.

Fred E. Parker.
Henry Dorsey.

INVENTOR.

Herman Frauch
by Chas J. Hedrick
his attorney

UNITED STATES PATENT OFFICE.

HERMAN FRASCH, OF CLEVELAND, OHIO, ASSIGNOR TO THE SOLAR
REFINING COMPANY, OF OHIO.

AGITATOR FOR STILL.

SPECIFICATION forming part of Letters Patent No. 553,191, dated January 14, 1896.

Application filed September 7, 1888. Serial No. 284,829. (No model.)

To all whom it may concern:

Be it known that I, HERMAN FRASCH, of the city of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and
5 useful Improvement in Agitators for Stills; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in
10 agitating devices for mixing or stirring up solid purifying agents which are used in the treatment of oil during the distilling process for the purpose of keeping such parts of the purifying agents which are undissolved in the oil in a state of suspension therein and of pre-
15 venting them from settling to the bottom of the still, where their purifying properties could not be exercised. Agitators of the usual kind, which simply stir the oil in the still in the middle or upper portion, could not
20 be successfully used for the purposes which I have indicated in cases where the specific gravity of the solid purifying agent is much greater than that of the oil, because the strong tendency of the solid to settle would
25 gradually take it to the bottom of the still beyond the influence of the agitator, and the proper diffusion of the solid particles in the oil to be treated could not be maintained.

I have devised my present improvement especially for use in the practice of methods of refining Canadian and Lima oils, for some of which methods I have filed an application in the United States Patent Office and for others of which I have obtained Letters Patent No.
35 378,246, and I shall describe the apparatus and its uses in connection therewith, premising, however, that it may also be employed in analogous methods of purification, where a like object is to be attained.

40 I shall now describe the apparatus which I have invented, and in so doing I shall refer to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a horizontal section of a still,
45 showing the construction of my improved agitating apparatus. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective view of one of the drags; and Fig. 4 is a plan of the same, only in this last figure the draft-eye is
50 shown in the middle of the front bar (where

it may be placed) instead of at one side, as shown in Fig. 1.

Like symbols of reference indicate like parts in each.

In the drawings, A is a cylindrical iron still, 55 which is designed to be heated by a furnace, and except as hereinafter described is constructed in the usual manner. In the center of the still is a vertical shaft B, the lower end of which rests in a step *a* on the bottom of 60 the still, and to the upper end of which is keyed a bevel-wheel *b* or band-wheel or other gearing, by which a rotary motion is communicated to the shaft B. The top of the still is furnished with a stuffing-box *c*, through 65 which the revolving shaft passes, to prevent the escape at that point of the vapors of distillation which pass from the still through the gooseneck C.

The shaft B has attached to it two or more 70 stirrers in the form of horizontal arms *d* placed near the bottom of the still and parallel therewith. To these stirrers or arms *d* are flexibly attached by short chains *e* a number of drags having flat supporting and scraping 75 bases, which may consist of frames composed of two short bars *f*, connected by bars *g* at right angles thereto, as shown in Figs. 3 and 4. The function of these drags is to sweep over and scrape the bottom of the still and cause 80 the undissolved oxides to be thoroughly stirred up and mixed with the oil and also to prevent the deposit of precipitated metallic sulphur compounds from accumulating as a sediment and burning the bottom of the still. 85

If sediment be allowed to remain on any spot on the still-bottom, it acts as a non-conductor of the heat and soon becomes baked thereon, with the result that the metal is rapidly destroyed by the fire and a hole is made 90 in the still-bottom. Such a hole not only injures the still and involves the expense of repairs, but is liable to cause greater loss through the escape and inflammation of the oil. It is very important, therefore, to keep 95 all parts of the still-bottom clean. This, moreover, must be done, notwithstanding the distortion which the still-bottom undergoes in use by warping. Chains drawn over the still-bottom accommodate themselves to the warped 100

surface to a certain extent, but they are not efficient in removing the sediment and keeping the still-bottom clean in all parts. For this purpose it is necessary to employ scraping-edges, and these must be so disposed as to conform to and cover all parts of the still-bottom even in its warped condition. The drags shown have such scraping-edges, which rest on the still-bottom and prevent the drags from turning over and are adapted to remain in contact with the still-bottom in riding over the elevations produced therein by warping. Each of the drags, moreover, is made narrow, as compared with the radius of the still and also as compared with the radii of the elevations produced by warping, so that the edges being short conform to even wavy surfaces, and each drag is left free to turn and adjust itself in any direction in order to keep itself bearing flatwise on all the parts of the bottom in whatever direction they may slope. A number of the narrow drags are arranged side by side.

Wings or deflectors *h h* may be attached to the inside of the still at convenient distances apart around its periphery. These wings or deflectors (made of metal) are bolted at one side to the still and at the other side project toward the center of the still, but in an inclined position, as shown. These deflectors, as well as the rotary stirrers or stirring-arms *d*, are placed in the oil-space of the still—that is to say, in the space occupied by the customary charge of oil. The effect of these wings or deflectors is to give an upward tendency to the particles of undissolved oxides when agitated by the stirrer and to effect their more thorough dispersion and suspension in the oil.

I claim herein as my invention or discovery—

1. The combination with an oil still, of a

number of narrow drags arranged side by side on the still bottom and provided with supporting and scraping edges which rest upon the still bottom in advance of one another and which keep said drags from turning over and conform to the still bottom even when it becomes warped, and means for drawing said drags flatwise over said still bottom while leaving them free to adjust themselves in all directions; substantially as described.

2. The combination with an oil still, of a number of narrow drags arranged side by side on the still bottom and provided each with a pair of supporting and scraping edges which rest upon the still bottom one in advance of the other, and means for drawing said drags flatwise over the still bottom transversely to the said edges while leaving said drags free to adjust themselves in all directions; substantially as described.

3. The combination with an oil still, of the vertical shaft in said still, the horizontal arms connected with said shaft and arranged in the oil space near the still bottom, a number of narrow drags arranged side by side on the still bottom and composed of flat frames of connected bars whose edges resting upon the still bottom in advance of one another and keeping said drags from turning over scrape said bottom and conform thereto even when it becomes warped, and the flexible connections between said arms and said drags, the latter being left free to adjust themselves in all directions; substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of August, A. D. 1888.

HERMAN FRASCH.

Witnesses:

W. A. GALPIN,
H. E. HIGGINS.