E. S. PECK.

SEPARATOR.

APPLICATION FILED JAN. 26, 1909.

925,834. Patented June 22, 1909.

Fig. 1

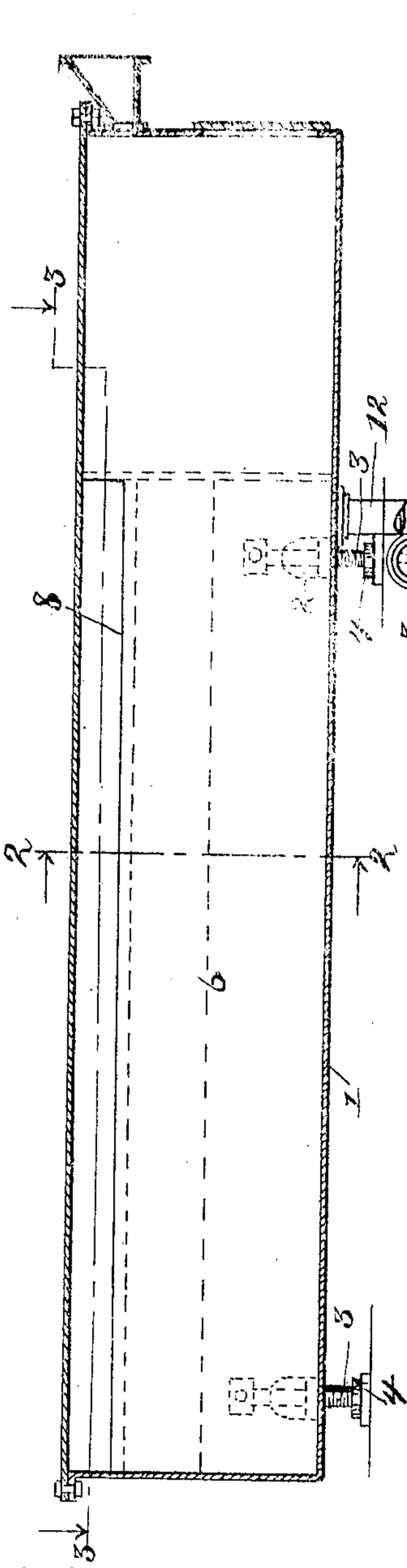

Fig. 3

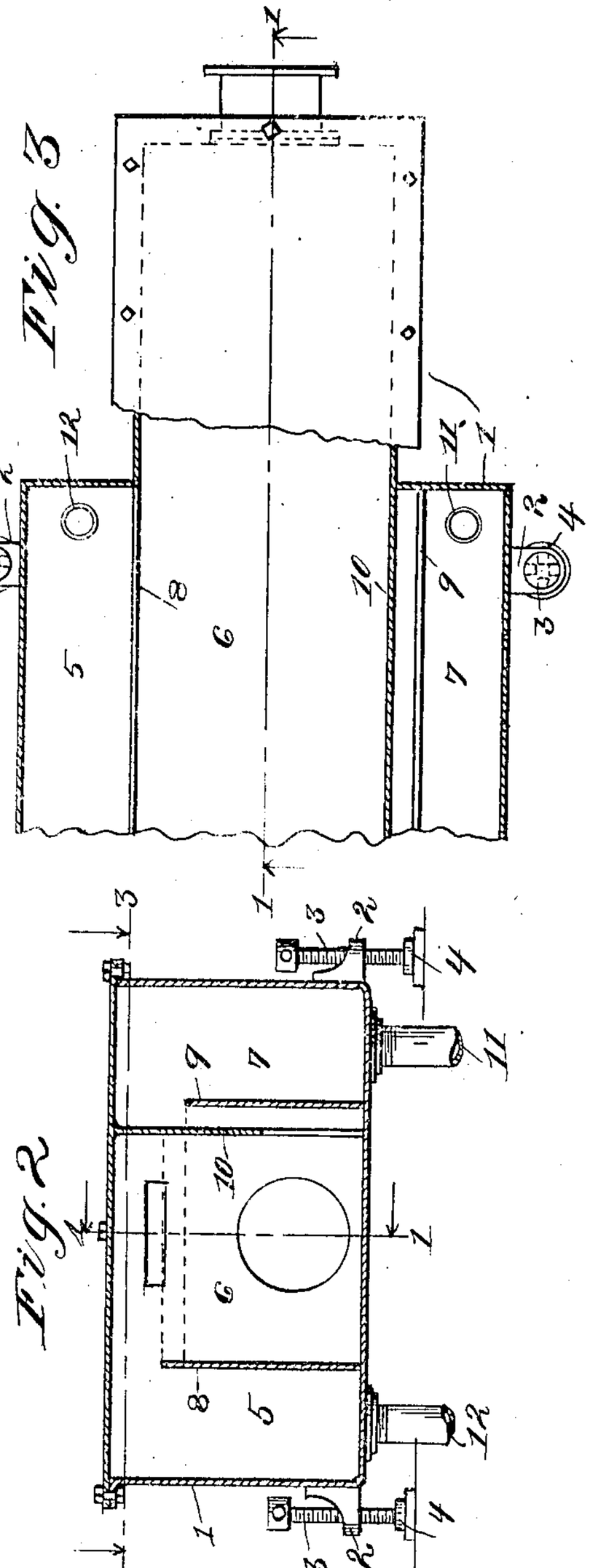

Fig. 2

Witnesses:
J. C. Turner
Jno. F. Oberlin

Inventor:
Ernest S. Peck
by J. B. Fay
Attorney.

UNITED STATES PATENT OFFICE.

ERNEST S. PECK, OF CLEVELAND, OHIO.

SEPARATOR.

No. 925,834. Specification of Letters Patent. Patented June 22, 1909.

Application filed January 26, 1909. Serial No. 474,241.

To all whom it may concern:

Be it known that I, ERNEST S. PECK, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Separators, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention is designed for the separation of immiscible liquids, such, for example, as water and naphtha, the object of the invention being the provision of apparatus of this sort that while simple and not easily deranged, will at the same time be of large capacity and thorough in its operation.

To the accomplishment of these and related ends, said invention, then consists of the means hereinafter fully described and particularly pointed out in claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a longitudinal vertical section of an apparatus embodying my several improvements; Fig. 2 is a transverse section of the same; and Fig. 3 is a broken plan view of one end thereof.

The apparatus comprises, as illustrated, an elongated receptacle in the form of a rectangular tank 1, that for a reason that will presently appear, is preferably supported so as to be oscillatory about a longitudinal axis. To this end, it is provided laterally with ears 2 in which are fitted adjusting screws 3 stepped into suitable bearing blocks 4. By means of such screws, the tank can obviously be either leveled or tilted a trifle to one side or the other as occasion may demand. Such tank is separated into three compartments or chambers 5, 6 and 7, by partitions 8 and 9, rising from its bottom to unequal heights so as to provide overflows for the middle of said chambers of correspondingly different levels. Parallel, and relatively closely adjacent to the partition 9 forming the overflow of lower level, is a third partition 10 depending from the cover of the tank to a point safely below such level, (see Fig. 2). Preferably the middle chamber 6 is prolonged at the receiving end of the tank beyond the overflows, and the transverse width of the tank may be correspondingly contracted through such portion, so as to present the appearance shown in Fig. 3. The intermingled liquids, constituting the body to be separated, are thus given an opportunity to assume a quiescent state before they reach that portion of the tank wherein their separation takes place; in other words, the oil, or lighter body, will have been given time to rise to the top of the water or heavier liquid.

Having thus described the construction of my improved separator, the mode of its operation should be readily apparent. Assuming the middle chamber 6 to be filled with water to the height of the overflow 9 of lower level, any further addition of water will cause the escape of the excess over such overflow. The addition of a quantity of the lighter liquid will similarly cause an escape of water over such overflow, but to a smaller degree, proportionately to volume of added liquid, so that a head will be built up in the chamber 6 that will ultimately lead to the escape of the upper stratum of lighter liquid over the overflow 8 of higher level. Such escape will take place before the surface of the heavier liquid in such chamber, will be depressed below the depending partition 10 that guards the overflow 9 of lower level. It will thus be seen that intermingled water and oil will be automatically separated and caused to escape into the respective lateral chambers 5 and 7 of the receptacle. From these they are discharged by suitable openings 11, 12 thence to be conducted as desired. Not only is the separation automatic but it takes place continuously, the rate being limited only by the length of the overflows. Neither do differences in the relative quantities of the two liquids being separated affect either rate or thoroughness of the separation, but in the case of the water and naphtha selected for the purpose of illustration, the body supplied to the separator may be either all water, all naphtha, or any intermediate mixture.

I therefore particularly point out and distinctly claim as my invention:—

1. Apparatus of the character described, comprising a chamber having overflows at different levels, means for oscillating said chamber about a longitudinal axis to vary the relative elevation of said overflows, and a

partition longitudinally co-extensive with the overflow of lower level and extending vertically from a point below such level to a point above the level of the other overflow.

2. Apparatus of the character described, comprising an elongated receptacle, partitions rising from the bottom of said receptacle and dividing the same into three chambers, said partitions being of unlike heights whereby overflows at different levels are provided for the middle chamber, and a partition depending into such middle chamber to a point below the level of the lower overflow, such middle chamber being provided with an inlet for oil and water.

3. Apparatus of the character described, comprising an elongated receptacle, partitions rising from the bottom of said receptacle and dividing the same into three chambers, said partitions being of unlike heights whereby overflows at different levels are provided for the middle chamber, and a partition depending into such middle chamber to a point below the level of the lower overflow, such middle chamber being provided with an inlet for oil and water, and being prolonged at the receiving end beyond such overflows.

4. Apparatus of the character described, comprising an elongated receptacle, partitions rising from the bottom of said receptacle and dividing the same into three chambers, said partitions being of unlike heights whereby overflows at different levels are provided for the middle chamber, means for oscillating said chamber about a longitudinal axis to vary the relative elevation of said overflows, and a partition depending into such middle chamber to a point below the level of the lower overflow, said middle chamber being provided with an inlet for oil and water.

5. Apparatus of the character described, comprising an elongated receptacle, partitions rising from the bottom of said receptacle and dividing the same into three chambers, said partitions being of unlike heights whereby overflows at different levels are provided for the middle chamber, means for oscillating said chamber about a longitudinal axis to vary the relative elevation of said overflows, and a partition depending into such middle chamber to a point below the level of the lower overflow, such middle chamber being provided with an inlet for oil and water and being prolonged at the receiving end beyond such overflow.

Signed by me this 9th day of January, 1909.

ERNEST S. PECK.

Attested by—
T. H. FOY.
JNO. F. OBERLIN.