

C. D. VAN RAALTEN.
SHAKING SIEVE APPARATUS.
APPLICATION FILED JAN. 12, 1914.

1,093,579.

Patented Apr. 14, 1914.

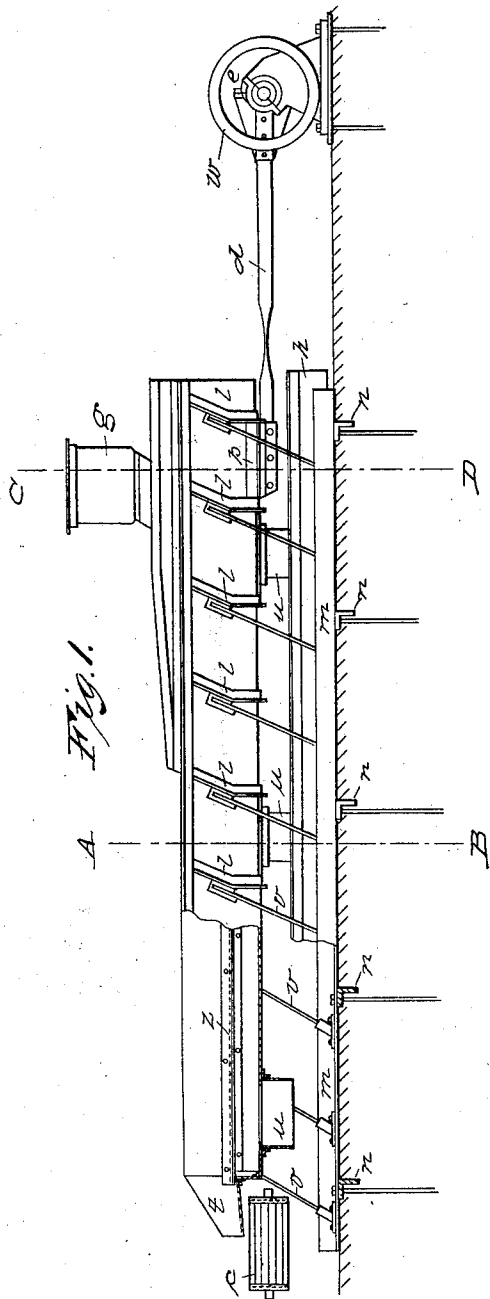
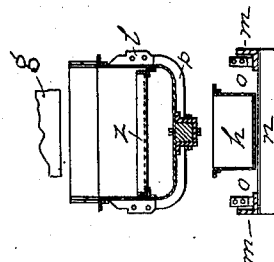
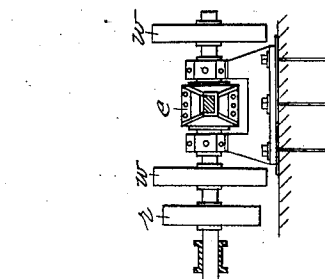


Fig. 1.

Fig. 4.

Fig. 3.

Fig. 2.



UNITED STATES PATENT OFFICE.

CORNELIS DAVID VAN RAALTEN, OF GEMPOLKREP, NEAR MODJOKERTO, DUTCH EAST INDIA.

SHAKING-SIEVE APPARATUS.

1,093,579.

Specification of Letters Patent.

Patented Apr. 14, 1914.

Application filed January 12, 1914. Serial No. 811,721.

To all whom it may concern:

Be it known that I, CORNELIS DAVID VAN RAALTEN, a subject of the Queen of the Netherlands, residing at Gempolkrep, near Modjokerto, Dutch East India, have invented certain new and useful Improvements in Shaking-Sieve Apparatus for Purifying Sugar-Juice; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The present invention relates to straining sieves for purifying raw sugar juices and the like, and particularly to vibrating sieves, the object of my invention being to provide an improved apparatus of this type which will not only effect a more complete extraction of the fluid from the solid matter but which will also effect an automatic discharge of the latter from the sieve.

Oscillating or vibrating sieves are in general well known both for grading solids and for straining liquids from solids. As heretofore used however, such sieves have been placed either horizontally or on an incline, in which position a merely reciprocating motion has been imparted thereto. Such arrangements however are defective for straining solids from a liquid. In the case of a horizontal sieve the solid matter which is strained out of the liquid remains on the face of the sieve, in spite of the reciprocating motion thereof, and soon obstructs the sieve apertures so that the liquid does not flow readily therethrough. This necessitates frequent removal of these solids by hand or otherwise. In the case of inclined sieves, the solid matter collecting on the face of the screen, forms a bed over which the fluid flows and is thus lost, being discharged with the solids at the lower end of the apparatus.

The present invention overcomes these defects by arranging the sieve substantially horizontally and imparting to it a combined vertical and horizontal vibrating movement which not only feeds the solid matter automatically toward the discharge end of the sieve, but accelerates the flow of the liquid through the sieve screen.

In the accompanying drawing, Figure 1 is a longitudinal elevation partially in section of a shaking sieve in which my invention is embodied in one form; Fig. 2 is a transverse section on the line C—D, Fig. 1; Fig. 3 is a transverse section on the line A—B, Fig. 1; and Fig. 4 is a section showing the driving motor.

As here shown, the oscillatory portion of the apparatus comprises a trough-like structure with spout *t* to discharge solid material from the screen *s* to the conveyer *c*. Side braces *l* on the trough afford means for securing thereto the upper ends of the inclined spring rods *v* by which the trough is carried on the angle bars *m*, *n* which constitute the frame of the apparatus. The raw juice is led to the sieve *s* through the channel *g*, while the purified juice passing through the screen *s* discharges through spouts *u* in the bottom of the trough to a receiving channel *h* resting on the cross bars *n* beneath the trough. A spring bar *d* secured at *p* beneath one end of the trough is connected to an eccentric *e* on the shaft of the driving pulley *r* and fly wheels *w*.

The operation of the sieve is readily understood. As the eccentric moves the connecting rod *d* toward the trough, the latter is not only driven forward, but it also rises on the inclined spring rods *v*. As the eccentric pulls the bar *d* in the opposite direction, the trough moves not only backward but also downward. This combined up and down, forward and backward movement has the effect of not only feeding the solids on the sieve toward the discharge *t*, but also presses, as it were, the juices through the sieve during the upward movement of the latter. This accelerates the drainage of the fluid from the solid matter as well as permitting a sieve of finer mesh to be employed than can be used where it is maintained stationary. A very pure juice is thus obtained, which, in the case of sugar juices, gives but a slight coloration during the following, partially chemical, purification.

I claim as my invention:—

A liquid straining apparatus, comprising a substantially horizontal filtering screen having a discharge at one end; means for feeding to said screen the liquid to be filtered; a receiving channel below said screen to receive the filtered liquid; and means for imparting to said filtering screen a com-

bined up and down, forward and backward motion, whereby the solid matter collecting on the screen is automatically fed to the discharge end thereof and the filtration of the liquid through the screen accelerated, substantially as described.

5 In testimony whereof I have signed my

name to this specification, in the presence of two witnesses.

CORNELIS DAVID VAN RAAIJEN.

Witnesses:

ED PEERT,
J. N. VAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."