M. A. EVERT.

SIEVE SHAKER.

APPLICATION FILED MAY 17, 1917.

**1,290,531.**

Patented Jan. 7, 1919.

Fig. 2.

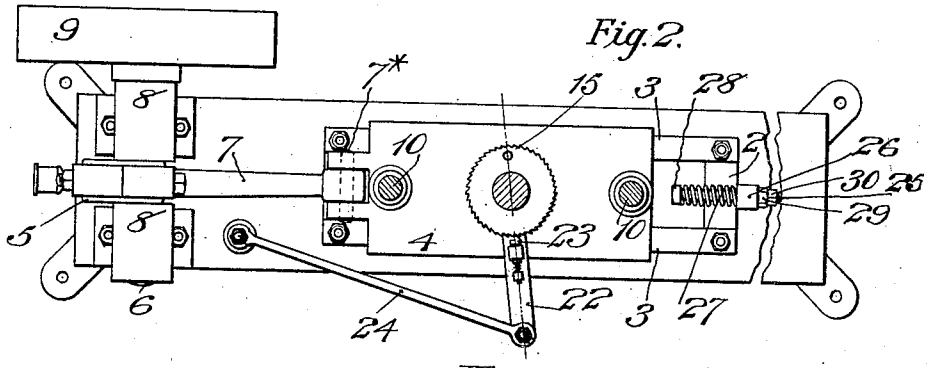



Fig. 1.

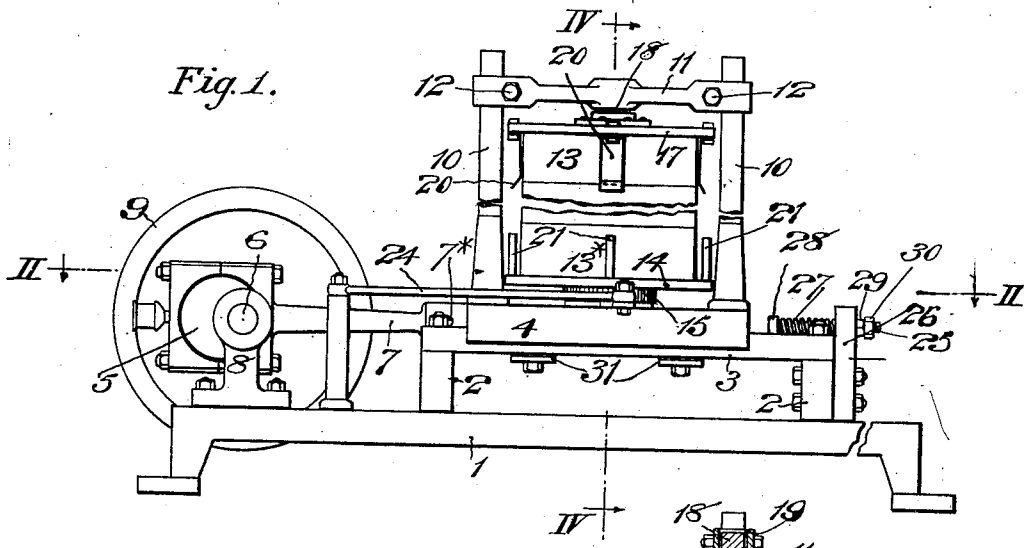



Fig. 3

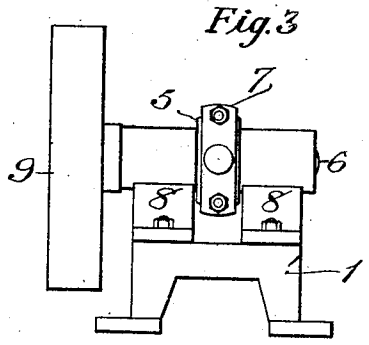
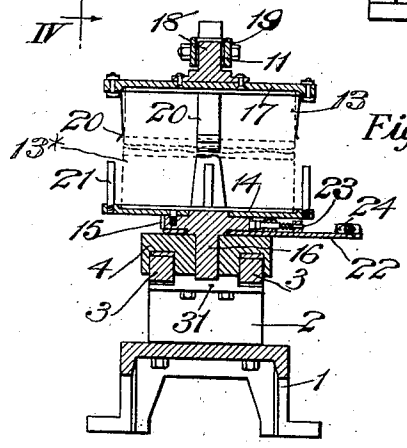



Fig. 4.




Inventor

Marcus A. Evert

per

Brown & Durand

Attorneys

# UNITED STATES PATENT OFFICE.

MOSES A. EVERT, OF EASTON, PENNSYLVANIA.

## SIEVE-SHAKER.

1,290,531. Specification of Letters Patent. Patented Jan. 7, 1919.

Application filed May 17, 1917. Serial No. 169,324.

*To all whom it may concern:*

Be it known that I, MOSES A. EVERT, a citizen of the United States, and resident of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Sieve-Shakers, of which the following is a specification.

This invention relates to sieves for separating, gaging and testing substances such as cement, coal, ores, drugs or other dry comminuted materials.

The object of this invention is to provide a machine for agitating or shaking standard testing sieves by a jarring action as well as rotating the sieves step by step, which machine will accomplish the desired result in a uniform and satisfactory manner, so as to secure uniform standards of comparison of the sifted material in a minimum amount of time.

A further object is to provide certain improvements in the form, construction and arrangement of the several parts whereby the above named and other objects may be effectively carried out.

A practical embodiment of the invention is represented in the accompanying drawings in which,

Figure 1 represents a side elevation of the machine.

Fig. 2 represents a horizontal section taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 represents an end view of the machine, showing the means for driving, and

Fig. 4 represents a vertical central section taken in the plane of the line IV—IV of Fig. 1, looking in the direction of the arrows, and showing the sieves and pan in dotted lines.

The support of the machine, denoted by 1, has fixed thereon blocks 2 having parallel guides 3 upon which a carrier 4 is arranged to slide. This carrier is reciprocated in a right line by means of an eccentric 5 on a shaft 6 and a strap 7 which is pivoted to the carrier at 7*.

The shaft 6 is mounted in bearings 8 carried by the support 1 and is driven by a pulley 9 from a suitable source of power, not shown.

Vertical posts 10 are arranged on the carrier 4, in position to receive a cross-head 11 which is adjustably secured to the posts by bolts 12. A series of sieves 13 nest into each other and in a pan 13* which rests upon a bottom plate 14 fixed on a ratchet wheel 15 which has a stud 16 journaled in the carrier 4. The bottoms of the sieves are formed of graduated mesh from the top sieve, which is of coarse mesh, downward. The uppermost of the superposed sieves is provided with a cover 17 having a stud 18 which fits loosely in a socket 19 in the cross-head 11, to permit a slight lateral movement therein. The cover 17 is provided with a plurality of depending fingers 20 which yieldingly engage the uppermost sieves to prevent lateral displacement. The bottom plate 14 is provided with pins 21 which hold the pan 13* in position thereon. The engagement of the cover 17 with the cross-head 11 and the cross-head with the vertical posts 10, tend to keep the superposed sieves in position on the bottom plate and guard against any but a slight upward movement of the sieve and pan.

The bottom plate 14 with the pan, sieves and cover, is rotated step by step as the carrier 4 is reciprocated by means of a lever 22 having a spring-actuated pawl 23 arranged in position to engage the ratchet wheel 15. One end of this lever 22 is adapted to embrace the hub of the ratchet wheel 15, while the other end extends outwardly therefrom and is connected to the support 1 by a link 24.

A plunger 25 has an adjustable sliding movement in an abutment 26 secured to the block 2, and is yieldingly held at the limit of its outward movement by a spring 27 interposed between the head 28 of the plunger and the abutment 26. The tension of the spring and the length of the plunger are adjusted by means of nuts 29, 30, which have a threaded engagement with the free end of the plunger.

The carrier 4 is held against unintentional displacement on the guides 3, by means of straps 31 secured to the under side of the carrier by bolts 32.

From the foregoing it will be understood that the series of connected testing sieves and pan sustained on the bottom plate and carrier, will be given a rapid reciprocatory movement in a right line by the rotation of the shaft through the eccentric and strap, and at the end of each movement the carrier will be caused to strike the plunger 25, thereby jarring the sieves and pan. Furthermore, at each outward movement of the carrier the bottom plate will be rotated a

slight distance by means of the ratchet and pawl connection. Thus, by the combined reciprocatory movement in a right line, together with the step by step rotary movement and the jarring action, which movements are imparted to the testing sieves in quick succession, maximum and uniform results will be obtained in a minimum amount of time.

When the sieves and pan are to be removed from or inserted into the carrier, the cross-head 11 may be lifted from the posts by loosening the bolts 12, thereby leaving the carrier free and unobstructed.

The fine material having passed through the several sieves, will be collected in the pan which may be removed from time to time without disturbing the relative positions of the sieves.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the details herein shown and described, except as they may be specifically included in the claims.

What I claim is:

1. A sieve shaker comprising a suitable support, a sieve carrier mounted to slide in said support, a ratchet wheel having a hub and stud, said stud being rotatably mounted in said carrier, a sieve carried by said ratchet wheel, a lever journaled on said hub, a link connecting the free end of said lever with the support, a ratchet carried by said lever in position to engage the ratchet wheel and means for reciprocating the carrier and actuating the lever to rotate the ratchet wheel and sieve step by step.

2. A sieve shaker comprising a suitable support, a sieve carrier mounted to slide in said support, a ratchet wheel having a hub and stud, said stud being rotatably mounted in said carrier, sieves carried by said ratchet wheel, a lever journaled on said hub, a link connecting the free end of said lever with the support, a ratchet carried by said lever in position to engage the ratchet wheel, means for reciprocating the carrier and actuating the lever to rotate the ratchet wheel and sieves step by step and a spring actuated means adapted to be engaged by the carrier in its movement in one direction for jarring the carrier.

3. A sieve shaker comprising a suitable support, a sieve carrier mounted to slide in said support, a ratchet wheel having a hub and stud, said stud being rotatably mounted in said carrier, a series of sieves carried by said ratchet wheel, a lever journaled on said hub, a link connecting the free end of said lever with the support, a ratchet carried by said lever in position to engage the ratchet wheel, means for reciprocating the carrier and actuating the lever to rotate the ratchet wheel and sieves step by step and an adjustable spring actuated means adapted to be engaged by the carrier in its movement in one direction for jarring the carrier.

4. A sieve shaker comprising a suitable support, a carrier mounted to slide in said support, a ratchet wheel having a hub and stud, said stud being rotatably mounted in said carrier, a lever journaled on said hub, a link connecting the free end of said lever with the support, a ratchet carried by said lever in position to engage the ratchet wheel, a bottom plate fixed on the ratchet wheel, a series of sieves carried by said plate, a cover for the upper sieve, means for retaining said cover on the sieve and means for reciprocating the carrier and actuating the lever to rotate the ratchet wheel, bottom plate and sieves step by step.

5. A sieve shaker comprising a suitable support, a carrier mounted to slide in said support, a ratchet wheel having a hub and stud, said stud being rotatably mounted in said carrier, a lever journaled on said hub, a link connecting the free end of said lever with the support, a ratchet carried by said lever in position to engage the ratchet wheel, a bottom plate fixed on said ratchet wheel, a series of sieves carried by said plate, a cover for the upper sieve, means for retaining said cover on the sieve and means for reciprocating the carrier and actuating the lever to rotate the carrier step by step, and a spring actuated means adapted to be engaged by the carrier in its movement in one direction for jarring the carrier.

6. A carrier for sieves comprising a base, vertical posts having one end rigidly secured therein, a cross-head adjustably secured to the free end of said posts, a bottom plate rotatably mounted in said base and provided with upwardly extending pins for engaging the bottommost sieves, a cover having depending fingers adapted to yieldingly engage the upper sieves and a pin and socket forming a loose connection between the cover and cross-head for holding the cover in position on the sieves.

In testimony that I claim the foregoing as my invention, I have signed my name this 12th day of May, 1917.

MOSES A. EVERT.