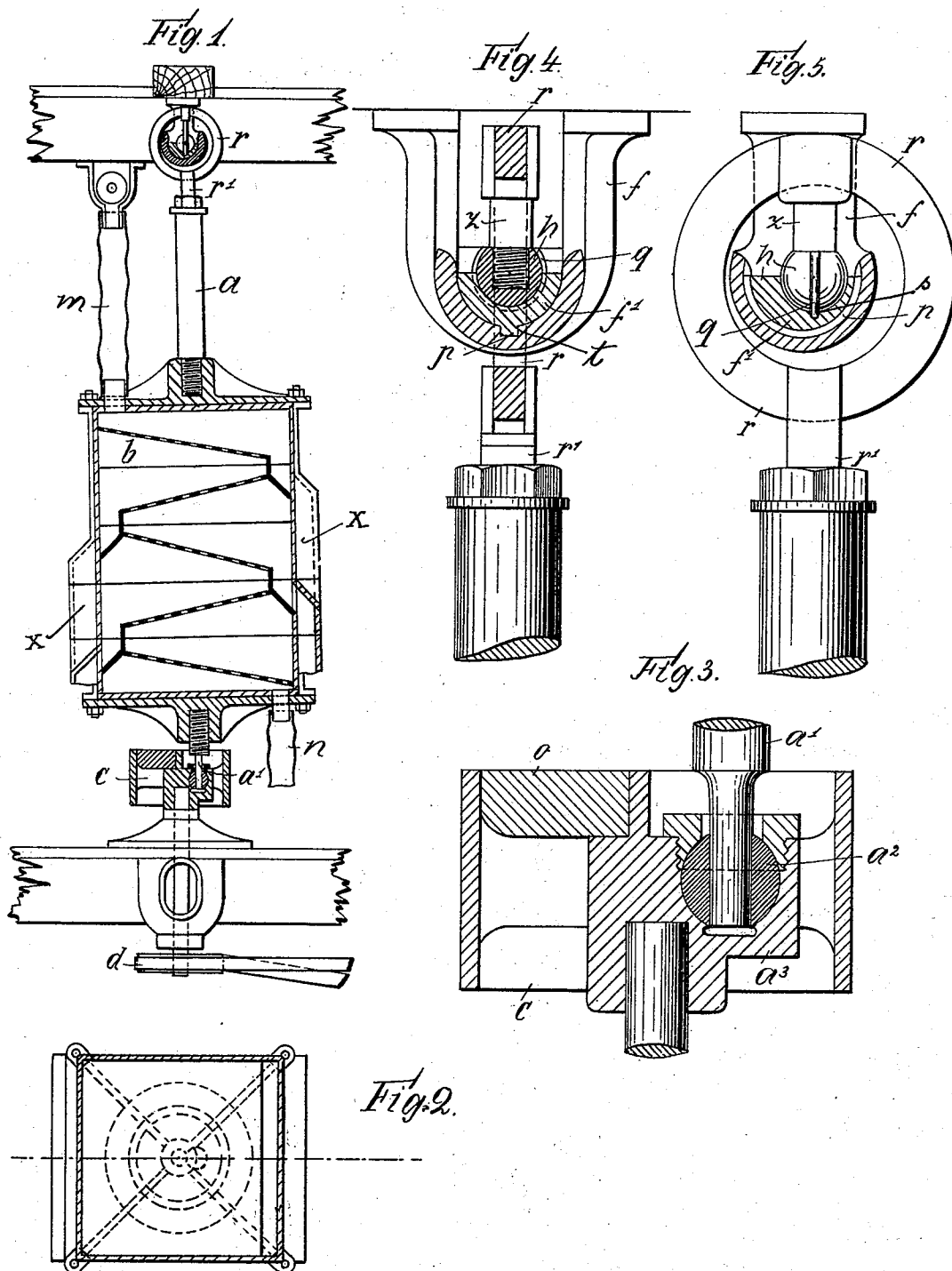


(No Model.)

O. SCHNELLE.
SHAKING, BOLTING, OR SIFTING MACHINE.

No. 507,756.

Patented Oct. 31, 1893.



Witnesses.

R. Herpich
& Schulte.

Inventor
Otto Schnelle
by
A. M. M. M.
Attorneys

UNITED STATES PATENT OFFICE.

OTTO SCHNELLE, OF BERLIN, GERMANY.

SHAKING, BOLTING, OR SIFTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,753, dated October 31, 1893.

Application filed March 6, 1893. Serial No. 464,810. (No model.)

To all whom it may concern:

Be it known that I, OTTO SCHNELLE, a subject of the King of Prussia, German Emperor, and a resident of Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Shaking, Bolting, or Sifting Machines, of which the following is an exact specification.

My invention relates to improvements in connection with sieves and has for its purpose, to provide means, by which the agitating mechanism thereof may be constructed compendiously, without diminishing their efficiency or requiring much power for operating the same as compared with such machines as hitherto constructed also to prevent wasting of the wire-gauze or other grading surface employed, and without unduly taxing the timber of the building, in which such machine may be placed, through excessive vibration. All these inconveniences are avoided in my machine, which exactly imitates the movement of a hand-sieve and produces an effect materially different from that of any of the machines hitherto made and used for this purpose.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 shows a sectional elevation of the entire machine. Fig. 2 shows a transverse section of the sifting-apparatus in connection with the same. Fig. 3 illustrates the lower bearing of the sifting-apparatus of Fig. 2. Fig. 4 represents a sectional view of the upper suspension of the said sifting-apparatus. Fig. 5 shows a view at right angles to Fig. 4.

Similar letters indicate similar parts throughout the different views.

The sieves in the ordinary machines are usually suspended at four points but in my invention I attain the suspension of the sieves by the employment of one point only and that in the middle of the sieve or of the machine.

The agitating mechanism when suspended in this manner, is caused to move in a circular direction by the means of a crank, without being rotated, while the sieves are caused to incline in every direction alternately. By the crank-leading device employed and the mode of suspension, the movement of the

hand-sieve is exactly imitated, by which the sifting is effected by shortening the arms and by the movement of the arms in two circles.

In Fig. 1 *a* is the axle of suspension of the agitating mechanism, *b* the sifting-apparatus, *c* the bearing-disk for the crank, and *d* the driving pulley for turning the said crank.

The upper suspension of the machine hereinafter further explained consists of a ball-joint, which allows the movement of the machine at its lower end to coincide with the circular motion of the crank.

In the sifting-apparatus *b* (Fig. 1) the single sieves are arranged one above another, each of these sieves having an especial funnel or lateral channel *x* receiving those parts of the sifting-goods which do not pass through the meshes. Of course, the single sieves may be arranged in any manner and number.

In the annexed drawings there are four sieves, arranged one above the other and inclined to opposite sides like stairs.

m is the supply-bag for the goods to be sifted, which is capable of following the circular movement of the agitating mechanism.

n is a bag for leading off the goods when sorted.

The lower end of the axle *a'* is surrounded by a ball-piece *a²*, arranged in a corresponding ball-bearing *a³*. The block of lead *o* in the disk *d* serves as a counterweight, in order to avoid shocks and prevent vibration, (see Fig. 3.)

Referring to the upper suspension (Fig. 4) a suspended bearing *f* is provided, containing the socket of a ball-bearing *f'*. The socket *f'* receives the ball-piece *h* with the pivot *z*, screwed therein, and firmly connected with the ring *r*, the lower pivot *r'* of which is secured to the axle *a* by the means of a nut.

In order to prevent the turning of the sifting-apparatus, a rib *q* is loosely inserted in a groove *s* between the ball-piece *h* and the socket *f'*, and, vertically to said rib *q*, a second rib *p* is arranged on the outside of the socket *f'* and lies in a groove *t* of the bearing *f*. By this arrangement the sifting apparatus may move in a circle, without being capable of turning around its axle. The ball-piece *h* may be arranged eccentrically in the shell *f'*, by which a rising and lowering

movement of the sifting-apparatus is effected (Fig. 5).

In consequence of the oscillating motion of my machine being effected without any rotation around its axle, the sorting is performed in the best possible manner.

The sieves *b* may be arranged in any number one above another, so that the sifting-goods may be conducted from sieve to sieve, and be sorted in any desired manner according to the size of mesh employed. Moreover, in my machine no artificial means, such as brushes, balls of rubber, &c., are necessary for keeping the sieve surfaces clean, this being effected by the regular movement of the sieves themselves. In the machines hitherto adapted this circumstance naturally caused much wasting of the wire-gauze or other grading surface, which in my machine is materially reduced if not entirely prevented.

I estimate that about one-fourth horsepower is sufficient to operate an ordinary size machine constructed according to my inven-

tion, while a centrifugal bolting-mill of equal efficiency requires more than two horse power. Hence a saving of fifty per cent. in motive power alone.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

In a sifting or bolting-machine: the combination, with a shifting-apparatus *b* provided with lateral chambers *x*, and bags *m* and *n* axle *a*, crank-disk *c*, bearings *a*³, and ball *a*² of a bearing *f*, socket *f*¹, ball-piece *h*, ribs *p* and *q* engaging in grooves *t* and *s* respectively, pivot *z*, ring *r* and pivot *r*¹, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OTTO SCHNELLE.

Witnesses:

R. HERPICH,
E. SCHULTZE.