

Aug. 7, 1951

F. TANNER

2,563,081

SIEVE CARRIER ADJUSTABLY SUSPENDED FROM MACHINE FRAME
AND ACTUATED BY A FREE-SWING DRIVE
Filed Aug. 20, 1948

FIG. 1.

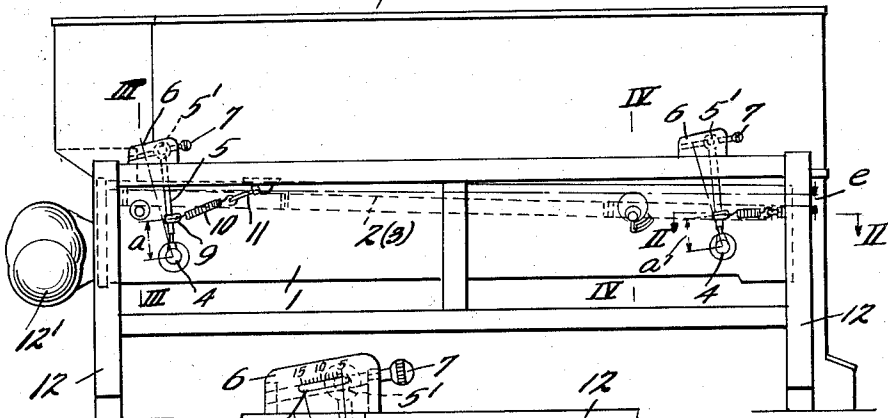


FIG. 3.

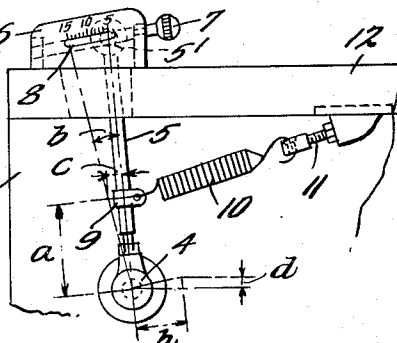
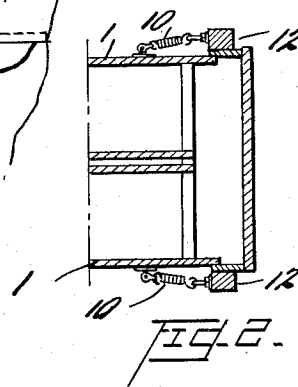


FIG. 4.

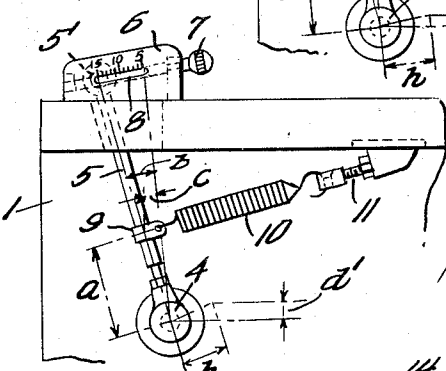


FIG. 5.

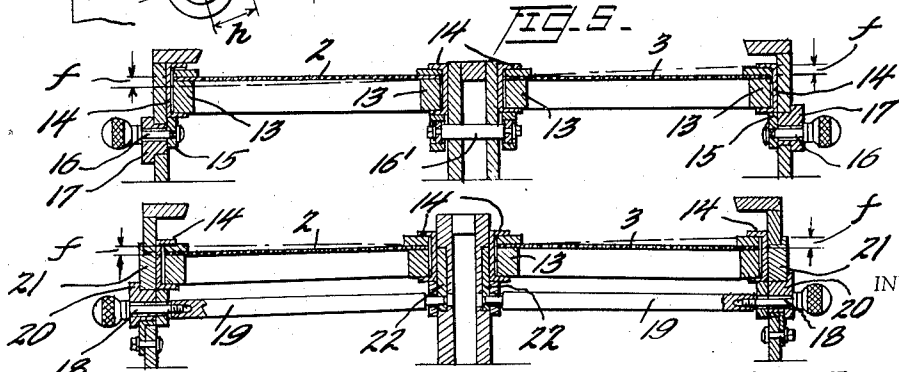


FIG. 6.

BY

Fritz Tanner,
Sommer & Young
ATTORNEYS

UNITED STATES PATENT OFFICE

2,563,081

SIEVE CARRIER ADJUSTABLY SUSPENDED
FROM MACHINE FRAME AND ACTUATED
BY A FREE-SWING DRIVEFritz Tanner, St. Gallen, Switzerland, assignor to
Gebrüder Buhler, Uzwil, SwitzerlandApplication August 20, 1948, Serial No. 45,245
In Switzerland August 28, 1947

5 Claims. (Cl. 209—329)

1

My present invention relates, generally, to sifting or screening apparatus as used in separators, sifters and hominy-cleaning machines, and, particularly, to a sieve-carrier suspended from the machine frame by means of adjustable pendulum-rods and actuated by a free-swing drive gear.

It is known in the art that the cleaning effect of reciprocable sifting or screening apparatus, in particular of grits- or hominy-cleaning machines as well as of sifters and separators, may be materially influenced through the throw of the sieves. In this connection, the position of the sifting surface, with respect to the horizontal plane also is of prime importance.

As long as the sieve-carriers are freely suspended individually on pendulum-rods and driven through connecting rod and eccentric shaft, the throw may be easily regulated by adjusting the pendulum-rods to different inclinations. The position of the sifting surface and thus, the run of the products across the sieves then may be directed at will by adjusting the length of the pendulum-rods.

In the case of sieves having free-swing drive, however, also the tension springs would have to be stretched or slacked respectively, simultaneously with the adjustment of the pendulum-rods, as otherwise the sieves became displaced and would not vary the throw.

In the sieve-carrier having free-swing drive, according to my present invention, the said latter disadvantage is eliminated by disposing tension springs intermediate of machine frame and sieve carrier, which springs so engage the pendulum-rods that—on adjusting the inclination of the latter—the said springs are automatically stretched or slacked, respectively, and the sieve-carrier always remains in its initial position relative to the frame.

The mounting of the sieves in the sieve-carrier suitably is made adjustable, in order to permit to adjust the sieves longitudinally and/or transversely.

One form of my present invention is shown, by way of example, in the accompanying drawing, in which

Fig. 1 shows a free-swing sieve of a grit- or hominy-cleaning machine in front elevation,

Fig. 2 a horizontal section on line II—II of Fig. 1,

Figs. 3 and 4 show, in a larger scale, the sieve-suspension on a pendulum-rod at minimum and maximum angular setting of 5° and 15°, respectively, of the pendulum,

2

Fig. 5 is a vertical section on the line III—III of Fig. 1, and

Fig. 6 a vertical section on the line IV—IV of Fig. 1.

The numeral 1 designates the sieve-carrier of two juxtaposed sieves 2 and 3; 12 the machine frame and 12' the free-swing drive supported by the sieve-carrier 1.

The sieve-carrier 1 is suspended in the bearings 4 on four pendulum-rods 5. The points of suspension 5' of the latter are displaceable in bearings 6 and by means of the screws 7, on the inclined supporting-faces 8 mounted on the frame 12. Clips 9 each are securely clamped to the rods 5 at quite definite distances a and a' from the bearings 4. One end of a tension spring 10 each is hooked into the said clips and the other end of each said spring is engaged by a turnbuckle 11 which is mounted on the frame 12.

The sieve-carrier 1 is drawn up against the frame 12 under a certain force by means of the turnbuckles 11 and springs 10. The latter are disposed, at least on the delivery side of the sieve (Fig. 2) at an acute angle with respect to the side-walls of the sieve-carrier 1, in order to prevent the latter from becoming laterally displaced relative to the machine frame 12.

In Figs. 3 and 4, a pendulum-rod 5 is shown at its minimum and maximum inclination respectively. Such variation of the inclination of the rods 5 serves for the purpose of varying the throw d of the goods to d' , while the jolting stroke h remains constant. When so varying the inclination of the pendulum-rods 5, the springs 10 are automatically stretched or slacked, respectively, and the sieve-carrier 1 always remains in its initial position relative to the frame 12, being held therein by means of the springs 10 in accord with the jolting weight, the inclination b and the spring tension c .

In accord with the output and the nature of the product, however, not only the throw but also the inclination of the sieves in the direction of run of the goods shall be regulable. Besides such regulation, a further regulation of the sifting surface transversely of the direction of run of the goods shall be set up, namely with the aid of mounting the sieves in their carrier 1 as described below.

As shown in Figs. 5 and 6, the frames 13 of the sieves 2 and 3 are inserted in U-shaped guides 14. On the supply-side (Fig. 5), the said guides 14 are adjustable through elements 15, screws 16 and 16' and eccentrics 17. Further, screws 18, follower-rods 19 and eccentric bushes 20—22 are

3

provided on the delivery side (Fig. 6) for the purpose of adjusting the guides 14 and, thus, the sieves. When, e. g., the bushes 21 and 22 on the delivery side are turned, the guides 14 together with the inserted sieve-frames 2 and 3 may be raised or lowered by the amount e in Fig. 1 whereby the sifting surfaces are tilted or biased in the direction of run of the goods. When the eccentric bushes 17 and 20 are turned differently, the position of the sifting surfaces on the frame outsides is changed by the amount f in their transverse direction, and the inclination of the sieves may be changed both longitudinally and transversely. Such variation of the transverse slope is necessary, e. g., in order to permit to so guide the goods—even though the machine is mounted inaccurately or the goods are supplied non-uniformly onto the sieves or in the case of lateral thrusts of the free-swing mechanism—as to load the sieves uniformly over their entire width.

What I claim as new and desire to secure by Letters Patent is:

1. A sifting or screening apparatus of the type described, comprising a machine frame, a sieve frame suspended in said machine frame, pendulum rods fulcrumed on the machine frame and carrying the sieve frame, a free-swing drive mounted on said sieve frame, means for adjusting the position of the fulcrum of said pendulum rods along said machine frame, a spring acting on each pendulum rod to urge the rod into a predetermined inclined position, said spring having one end connected to the rod intermediate the two points of connection of the rod to said machine frame and said sieve frame, respectively, and the other end connected to the machine frame, whereby upon a displacement of said fulcrums of the pendulum rods the tension of said spring and the inclination of the pendulum rod are modified without varying the position of the sieve frame relatively to the machine frame.

2. A sifting or screening apparatus of the type described comprising a machine frame, a rectangular sieve frame suspended in said machine frame and having two end walls and side walls, pendulum rods fulcrumed on said machine frame and oscillatably carrying said sieve frame, a free-swing drive mounted on one end wall of the sieve frame, two of said pendulum rods being connected between either end of the sieve frame and the machine frame, means for adjusting the fulcrum of said pendulum rods along said machine frame, a spring acting on each pendulum rod to urge the rod into a predetermined inclined posi-

4

tion, said springs having one end connected to the rod intermediate the two points of connection of the rod to said machine frame and said sieve frame, respectively, and the other end connected to the machine frame, whereby upon a displacement of said fulcrums of the pendulum rods the tension of said springs and the inclination of the rods are modified without varying the position of the sieve frame relatively to the machine frame, the springs of said two pendulum rods carrying the sieve frame at the end thereof remote of said free-swing drive extending at an oppositely inclined acute angle relatively to the side walls of the sieve frame.

3. A sifting or screening apparatus as claimed in claim 2, wherein said sieve frame comprises two lateral longitudinal guide rails carrying the sieve, and eccentric bushings mounted in the sieve frame and carrying one end of each guide rail for varying the longitudinal inclination of the sieve without varying the inclination of the sieve frame.

4. A shifting or screening apparatus as claimed in claim 2, wherein said sieve frame comprises two lateral longitudinal guide rails carrying the sieve, and eccentric bushings mounted on the sieve frame and supporting one of said guide rails at each end thereof for varying the transverse inclination of the sieve without varying the position of the sieve frame.

5. A sifting and screening apparatus as claimed in claim 2, wherein said sieve frame comprises longitudinal guide rails carrying the sieve, and means mounted in the sieve frame for adjusting the position of said guide rails to vary the transverse and longitudinal inclination of the sieve without varying the position of the sieve frame relatively to the machine frame.

FRITZ TANNER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
555,262	Phillips	Feb. 25, 1896
1,070,552	Steffy	Aug. 19, 1913
1,858,917	Davis	May 17, 1932
2,157,562	Overstrom	May 9, 1939
2,208,127	Hallenbeck	July 16, 1940

FOREIGN PATENTS

Number	Country	Date
16,968	Great Britain	May 11, 1911
549,018	France	Jan. 3, 1923