W. H. FRUEN

Middlings Separators.

No. 206,869. **Patented Aug. 13, 1878.**

Fig. I.

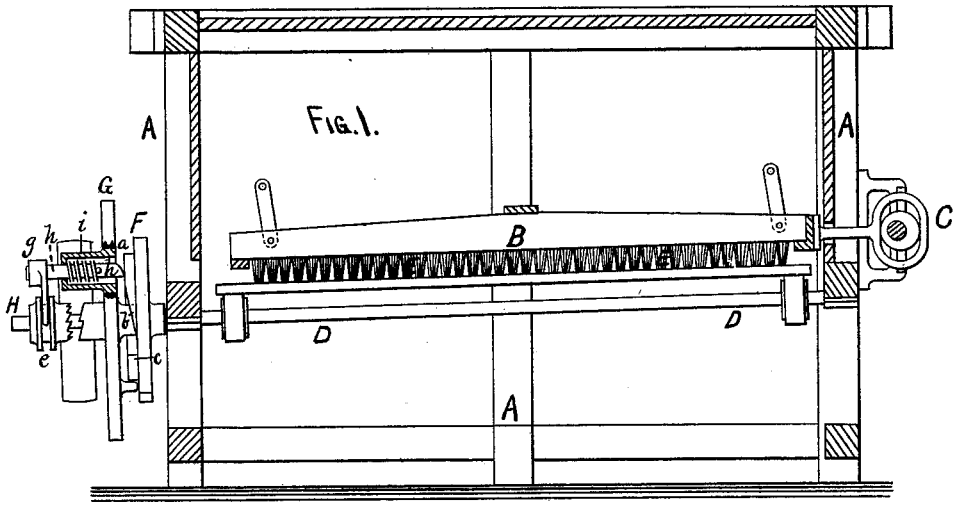


Fig. II.

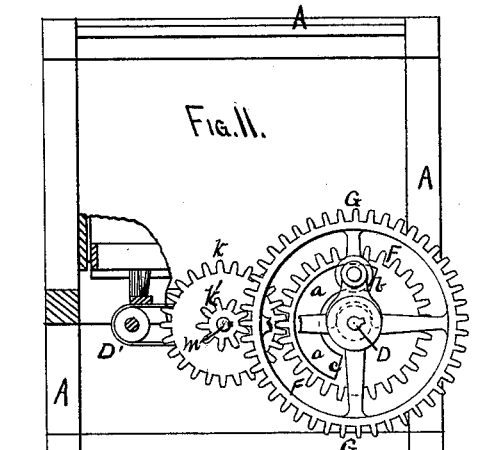


Fig. III.

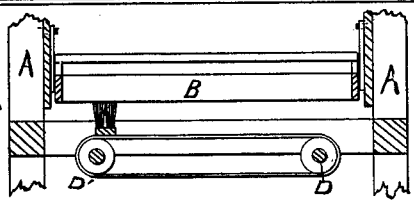
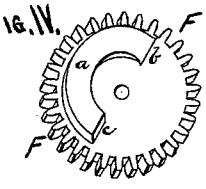


Fig. IV.



William Henry Fruen,

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Louis Fesser & Co.

Atty's.

WITNESSES.

C. N. Woodward.

Edward Rotert.

UNITED STATES PATENT OFFICE.

WILLIAM H. FRUEN, OF MINNEAPOLIS TOWNSHIP, HENNEPIN COUNTY, MINN.

IMPROVEMENT IN MIDDLINGS-SEPARATORS.

Specification forming part of Letters Patent No. **206,869**, dated August 13, 1878; application filed April 3, 1878.

To all whom it may concern:

Be it known that I, WILLIAM HENRY FRUEN, of the township of Minneapolis, in the county of Hennepin and State of Minnesota, have made certain new and useful Improvements in Brush-Motors for Middlings-Purifiers, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a sectional side elevation. Fig. 2 is an end elevation, partially in section. Fig. 3 is a cross-section of the screen and traveling brush. Fig. 4 is a perspective view of the cam-wheel detached.

This invention relates to the traveling brushes of middlings-purifiers; and consists in an arrangement of gears, cams, clutches, &c., whereby the brush is made to act upon the screen only a portion of the time and at regular intervals, as hereinafter set forth.

A is the frame of the purifier; B, the screen, actuated by the eccentric C; and D D′, the two shafts, carrying the brush E across beneath the screen, all arranged in the usual manner.

Running loosely upon one end of the shaft D, outside the casing A, is a gear-wheel, F, having upon its outer face a cam, *a*, which consists of a semi-annular rib conforming to the periphery of the gear-wheel, and having one end, *b*, chamfered off to form an inclined plane from the natural face of the wheel to the face of the cam, as shown in Figs. 1 and 4. The other end, *c*, of the cam is cut square across, without any incline. G is another gear-wheel, somewhat larger than F, and running loosely upon the same shaft D, outside the wheel F, and provided with one half of a clutch, with two teeth, as shown in Fig. 1. H is a collar sliding upon a feather upon the same shaft D, so that it may slide along the shaft and still revolve with it. This sleeve is provided with the other side of the clutch to match the half upon the wheel G, and is provided with a groove, *e*, in which a yoke, *g*, fits. This yoke is attached to a bolt or rod, *h*, sliding in a casing, *i*, attached to the wheel G, and in which a spring is placed to actuate the bolt, the latter being so placed as to be pressed by the spring against the face of the cam *a* and wheel F.

k k′ are two pinions upon a shaft, *m*, which are made of a proper size to mesh into and operate the wheels F G, the shaft *m* being the one to which the power is applied to run the brush and operating mechanism.

By this arrangement it will be seen that the pinion *k*, being more nearly equal in size to the wheel F than the pinion *k′* is to wheel G, will cause wheel F to travel faster than wheel G. This causes the cam *a* to overtake the bolt *h* and throw it out by means of the incline *b*, which carries the yoke *e* and sleeve H with it, and thus throw the clutch out of gear, and the two wheels F G being loose upon the shaft D, the latter will, of course, remain stationary until the cam *a* has revolved sufficiently to pass the bolt *h* and allow it to jump forward over the end *c*, against the face of the wheel F, and again throw the clutch into gear. This will again start the brush, which will be so geared as to make one full revolution beneath the cloth and back again.

The sizes of the wheels and cam may be so varied as to give the brush any desired speed, movement, or time.

In the ordinary middlings-purifiers the brushes are made to travel constantly back and forth beneath the screens; but this is not necessary, and soon wears out the cloth, as well as deteriorates the middlings; but by my arrangement the gears may be so constructed as to brush the cloth only when necessary, which is usually about five to ten times per hour, varying, of course, for different grades of middlings.

I am aware that the traveling brush is not new; but such I do not claim, broadly.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the main power-shaft of a middlings-purifier and the brush for cleansing the meshes of the screen, intermediate means, substantially as described, for automatically and intermittently moving the brush.

2. The combination and arrangement of the gear F, cam *a*, gear G, yoke and bolt *g h*, clutch H, and shaft D, substantially as hereinbefore set forth.

3. The combination, with the shaft D D, provided with means for carrying the brush E, clutch H, gears F G, of different sizes, cam *a*, and yoke and bolt *g h*, the pinions *k k'* on the same shaft, the whole arranged to operate in the manner and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM HENRY FRUEN.

Witnesses:
C. N. WOODWARD,
LOUIS FEESER.