

G. MOTLEY.  
MIDDLINGS SEPARATOR.

No. 176,879.

Patented May 2, 1876.

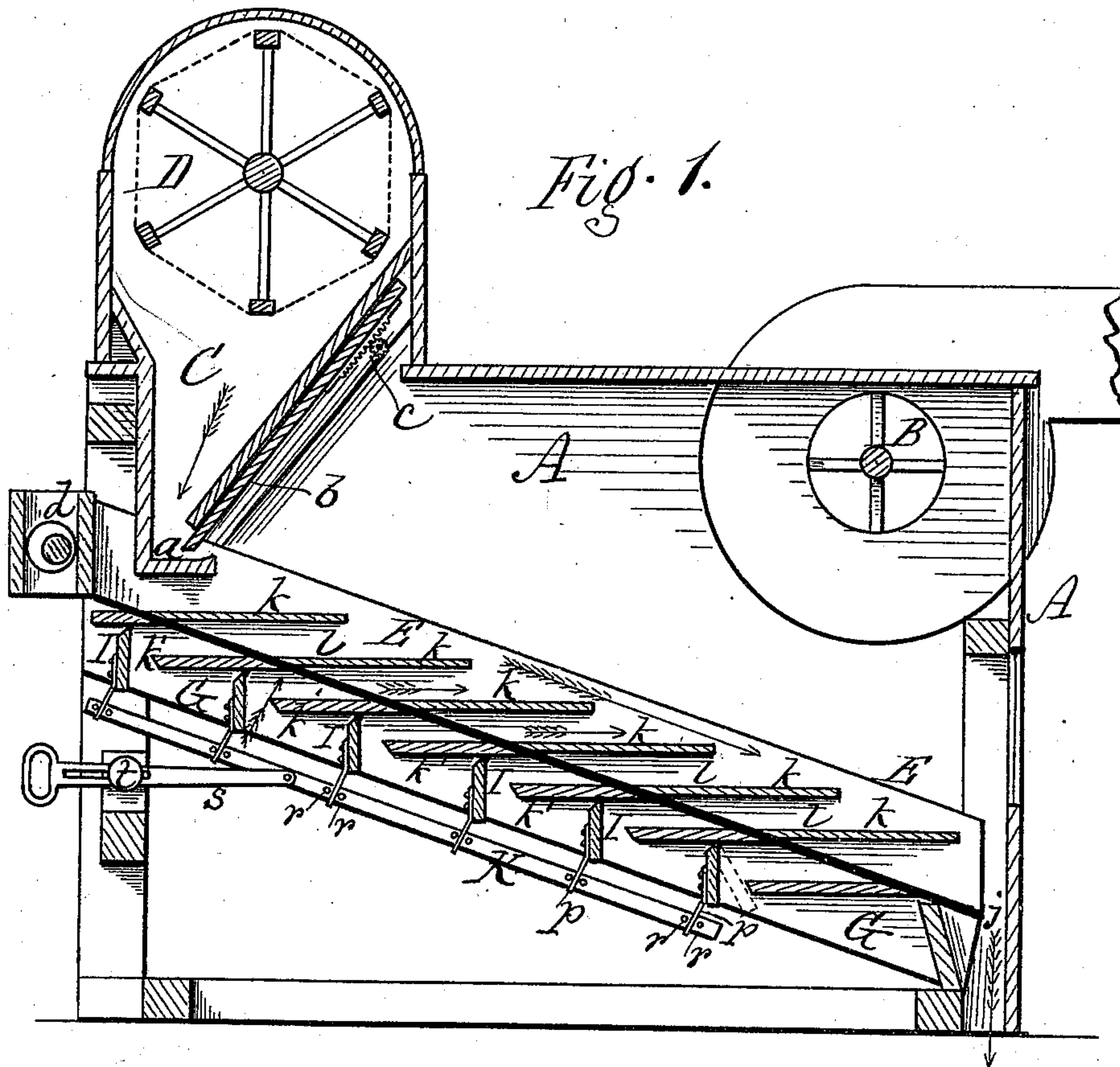


Fig. 1.

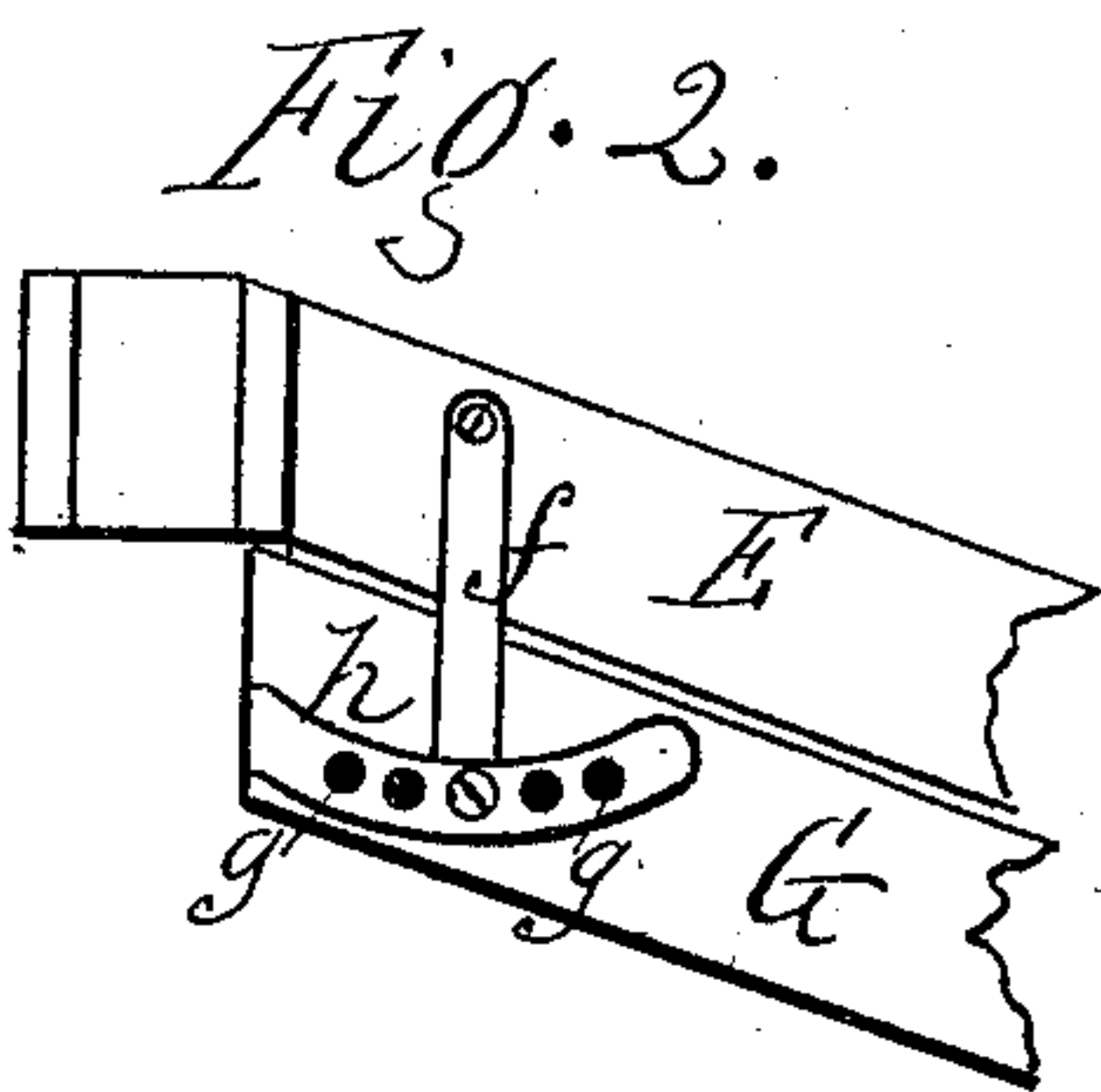


Fig. 2.

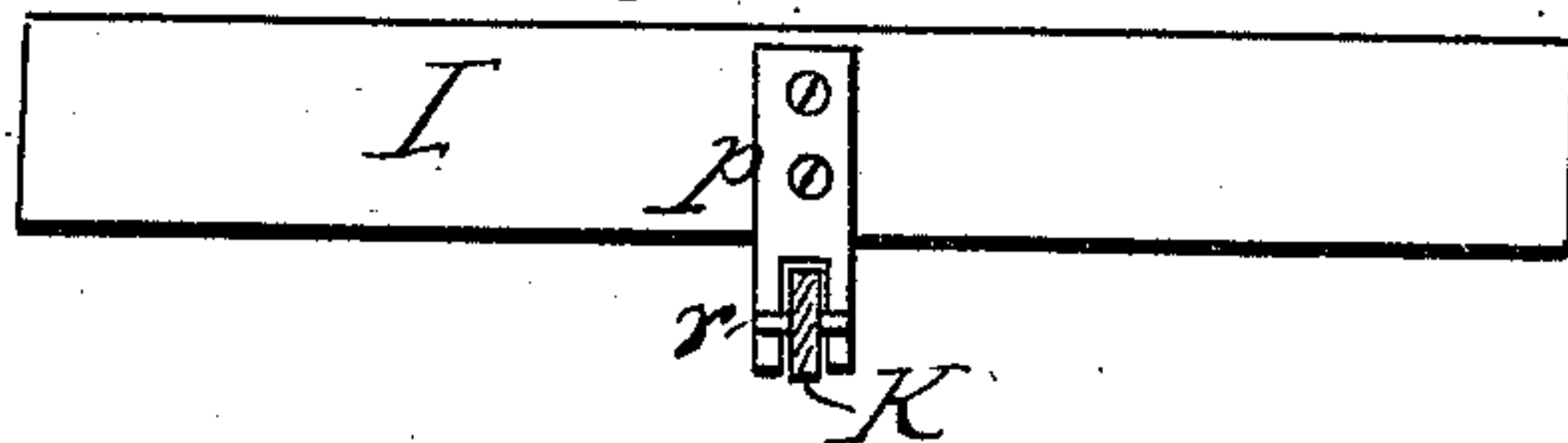


Fig. 3.

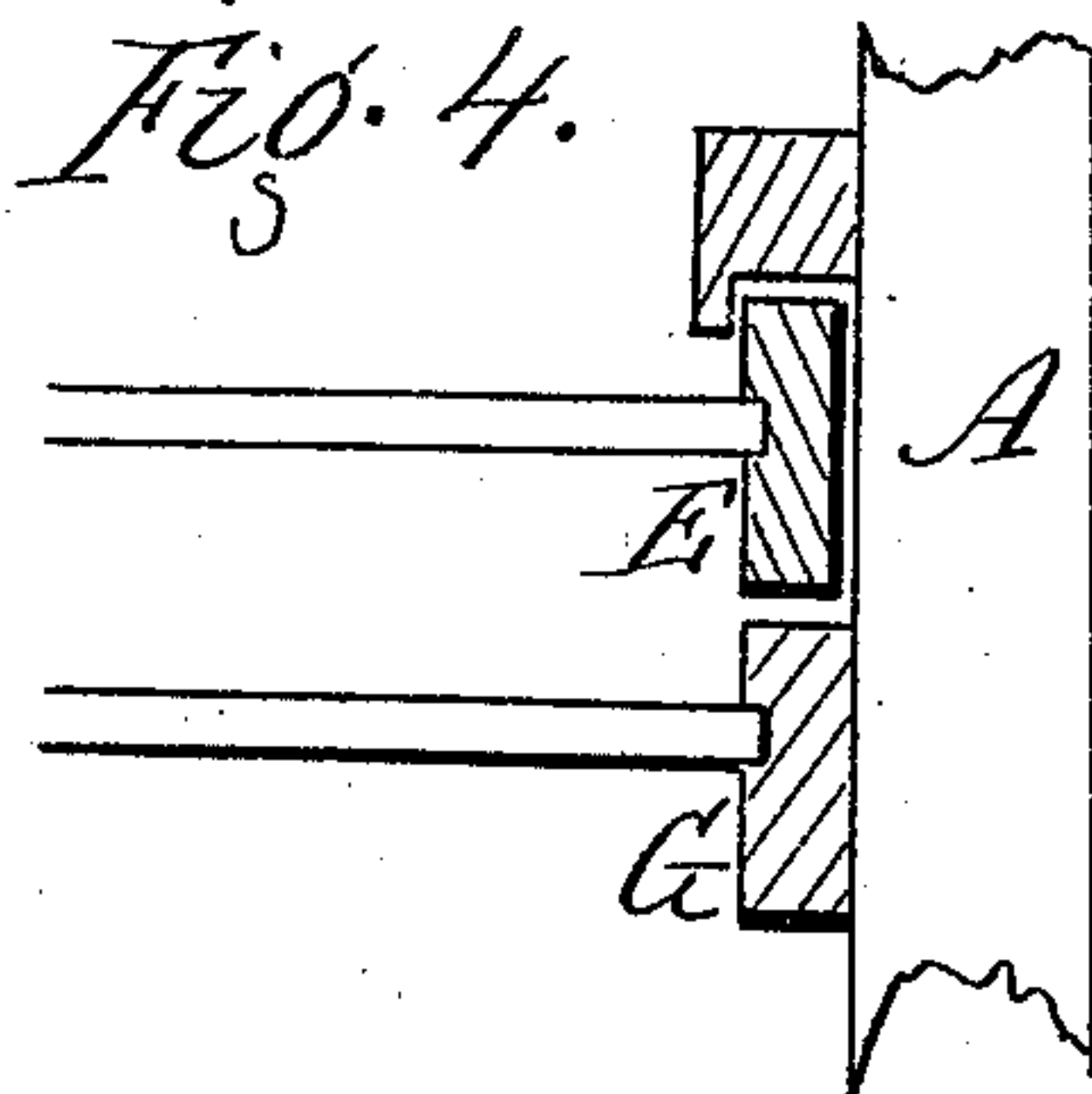


Fig. 4.

Witnesses.  
W. Campbell  
E. B. Scott.

Inventor.  
George Motley,  
per R. F. Osgood,  
Atty.



# UNITED STATES PATENT OFFICE.

GEORGE MOTLEY, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF  
HIS RIGHT TO JIRAH B. MOSELEY, OF SAME PLACE.

## IMPROVEMENT IN MIDLINGS-SEPARATORS.

Specification forming part of Letters Patent No. 176,879, dated May 2, 1876; application filed  
January 17, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE MOTLEY, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Midlings-Purifiers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of my improved machine. Fig. 2 is an elevation of one end of the shaker and inclined bed, showing more particularly the manner of hanging the shaker. Fig. 3 is a rear elevation of one of the valves. Fig. 4 is a cross-section of one side of the shaker and inclined bed.

My improvement relates to that class of midlings-purifiers in which the material passes down over a series of chutes or shelves, and is separated without the use of a screen or brushes.

The invention consists in the combination, with a series of shaking and stationary chutes, of a set of valves, which close the air-passages at the rear of the stationary chutes; also, in the combination of an inclined shaker and bed having a coincident set of vibrating and stationary chutes.

A represents the frame or casing of the machine, which may be of ordinary construction. B is an exhaust fan and case, set into the frame in such a manner as to draw from the interior. C is the hopper, mounted over the head of the machine, and D is a reel or screen, set into the hopper and revolved by any suitable means. The midlings are fed into the reel through a spout at one end, and the coarse screenings or refuse, separated from the midlings, are discharged through a spout passing to the outside of the machine at the other end. The midlings pass through the screen and drop down the hopper C onto a scattering-board, *a*, Fig. 1, and thence are fed to the shelves or chutes of the shaker. *b* is a slide, operated by a rack and pinion, *c*, by which means the discharge of the midlings from the scattering-board onto the shaker may be regulated. The pinion is operated by a hand wheel or crank on its shaft, situated out-

side the machine. E is the shaker, and G is the bed. They consist of rectangular frames set inclined from the head to the foot of the machine, as shown. The bed G is fixed or stationary, but the shaker E is movable, and is vibrated back and forth by the ordinary eccentric *d*. A space (indicated by the black line, Fig. 1) is left between the shaker and the bed, sufficient to allow the necessary motion of the shaker. The shaker is hung to the bed by rocker-arms *f f*, Fig. 2, one at the head and one at the foot on each side. The upper end of the rocker is simply pivoted to the side of the shaker, while the lower end is pivoted in any one of a series of holes, *g*, in a concentric clevis or stirrup, *h*, fastened to the bed. The adjustment thus provided enables the shaker to be changed in position, or to be adjusted nearer to or farther from the bed itself. *k k k* are a series of shelves or chutes, arranged in the shaker E in successive order, like stairs in a stairway, and extending from beneath the scattering-board *a* to the discharge-spout *j* at the tail of the machine. The midlings, passing over these shelves in a thin sheet, are finally discharged through spout *j*. *k' k' k'* are a corresponding series of fixed shelves, secured in the inclined bed G, and are coincident or in line with the vibrating shelves of the shaker. The two sets of shelves *k* and *k'* thus form passages *l l* between them, open at both ends, through which air can enter from the outside and pass through the thin sheets of midlings, falling from one shelf to another of the shaker. These currents of air, acting successively upon the midlings, remove all the fibrous matters and carry them up into the exhaust-fan, while the pure midlings fall from step to step, being also subject to the general draft produced through the whole machine by the suction. The result is a thorough purification of the midlings without the use of a brush or screen, which is objectionable, as they soon wear out. *I I I* are a series of vertical valves, hung at their tops on hinges, and situated just in the rear of the air-passages *l l*. They are connected at their bottoms with a slide-rod, *K*, by means of elbows *p p*, which embrace the rod and rest between pins *r r*, or by any equiva-



lent means. To the rod *K* is jointed an arm, *s*, which is slotted to embrace a screw, *t*. By pushing this arm in or drawing it out the rod *K* and valves *I I* are correspondingly moved, and the rod *K* may be secured in any desired position by setting the screw *t* against the arm *s*. The valves *I I* can, therefore, be turned forward, so as to entirely cut off the air-passages *l l*, or opened to any desired extent to regulate the admission of air. This is necessary to adjust the force of the currents to the amount or condition of the middlings passing over the shaker.

I am aware that, in itself, a series of steps or shelves over which the middlings pass, and beneath which currents of air enter, is not new. My invention differs from others in constructing said shelves in double series, one being stationary and the other movable, and also in combining with the same set of valves, so that a valve covers each passage, and all may be adjusted by a common movement. This secures simplicity and cheapness, and a greater efficiency in action, since the ingress of air can be gaged just as desired. Another feature in my case is the use of the two inclined frames constituting the shaker and bed. These parts are simply attached in the bottom of the machine, and can be readily removed by removing a few screws, whereas, in other machines of the kind, the shelves or steps are built in, or so attached on the inside as not to be readily removable.

It will be noticed in this invention that the shaking of the shelves settles the middlings to the bottom, and the fine light fibrous matters rest on top, where the suction and blast

act more readily and directly upon them, thereby carrying such fibrous matters off into the suction-case, where they are discharged.

Having thus described my invention, I do not claim, broadly, a series of inclined shelves; but

I claim—

1. In a middlings-purifier, the combination, with the series of graduated shelves *k k*, of the series of valves *I I*, hung at the rear of the air-passages formed by said shelves, and serving to gage the passage of air through the same, substantially as described.

2. In a middlings-purifier, the combination of the two series of shelves *k* and *k'*, one fixed and the other movable, situated in the same coincident line to form the air-passages *l l*, as shown and described, and for the purpose specified.

3. In a middlings-purifier, the shaker *E* and bed *G*, consisting of two independent rectangular frames, fitting one over the other in the bottom of the machine, one being stationary and the other movable, and each constructed with a series of horizontal shelves, those in one frame coming in coincidence or in the same horizontal line with those of the other, thereby forming straight air-passages between the shelves, as shown and described, and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE MOTLEY.

Witnesses:

WM. S. MOORE,  
R. F. OSGOOD.