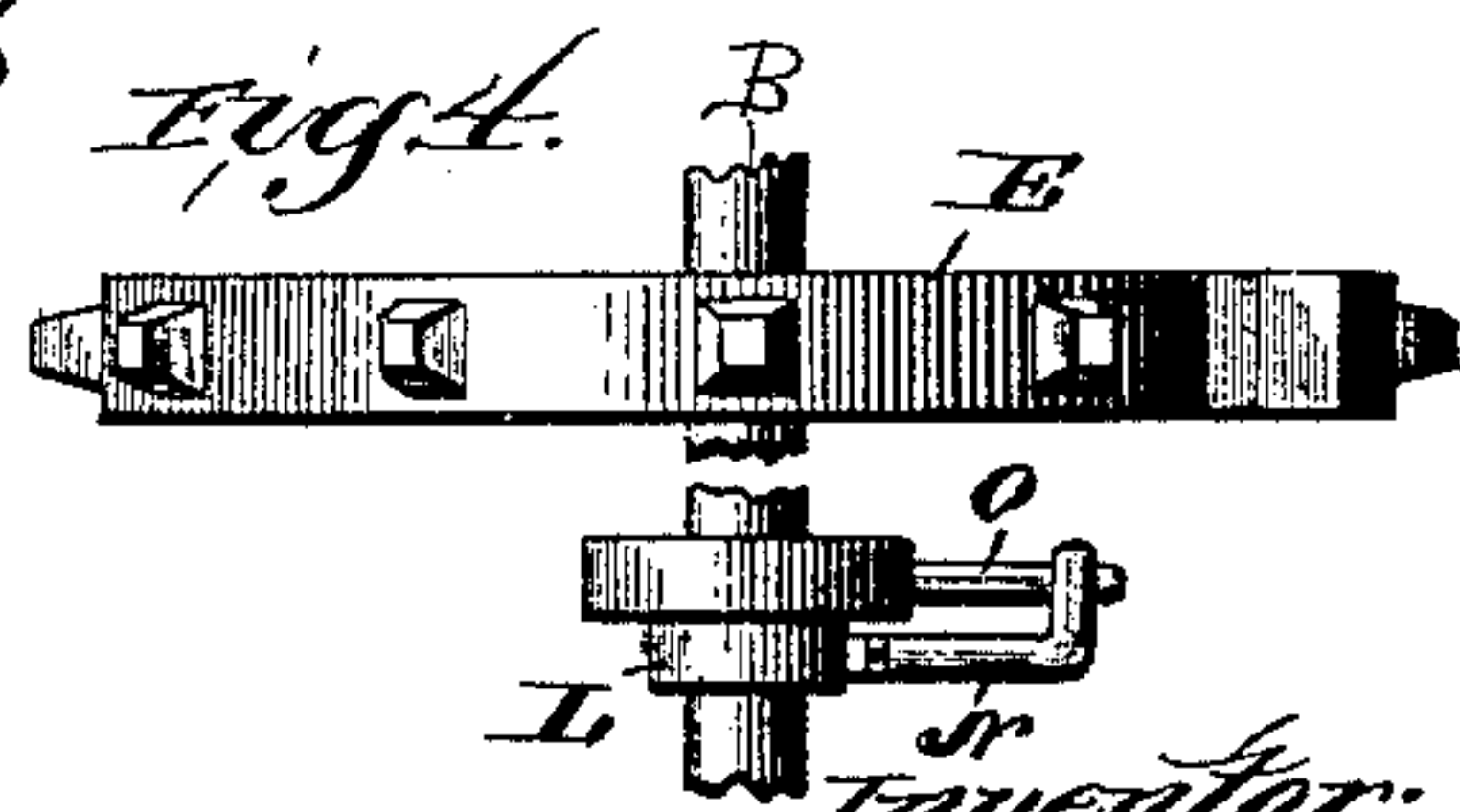
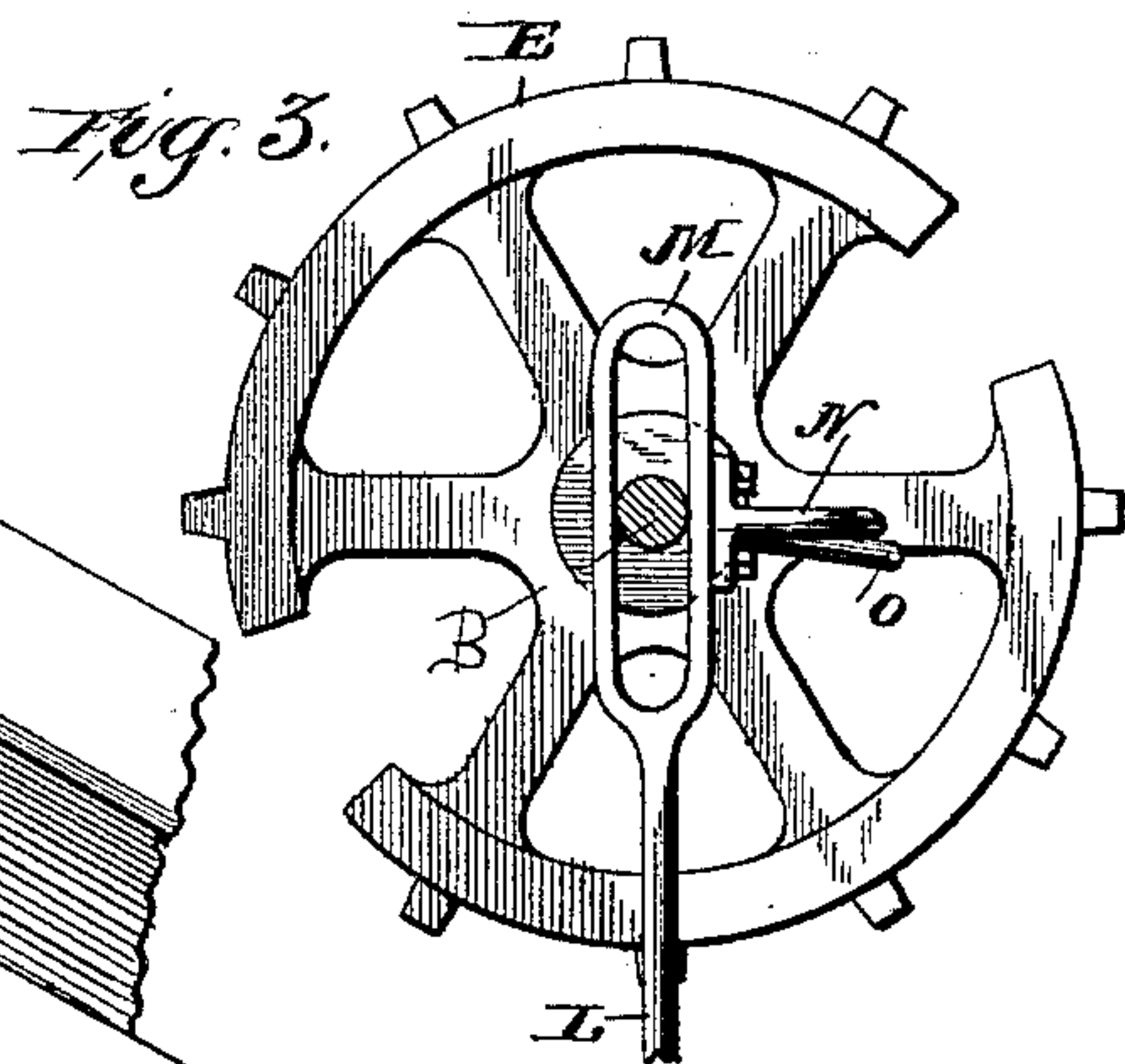
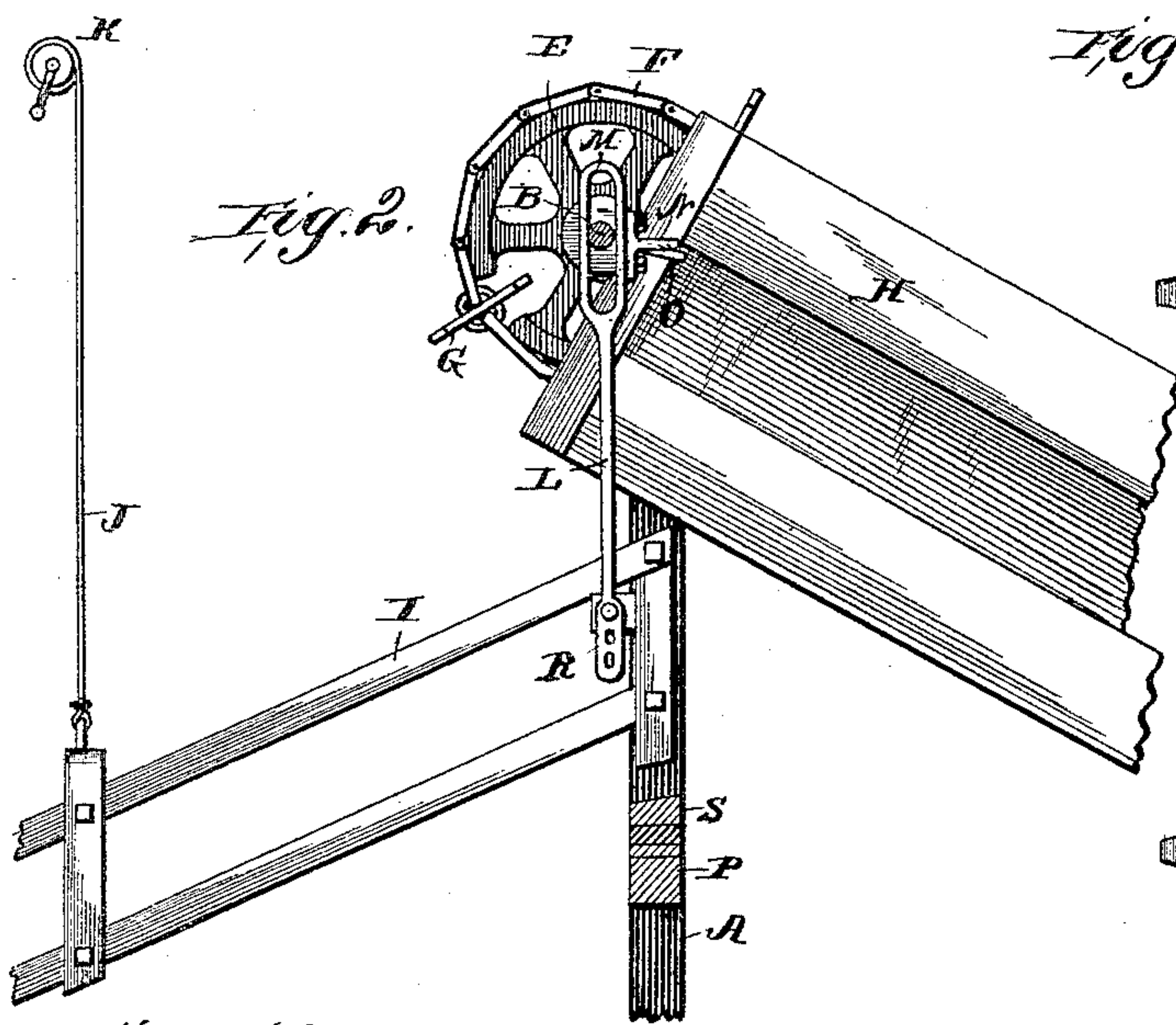
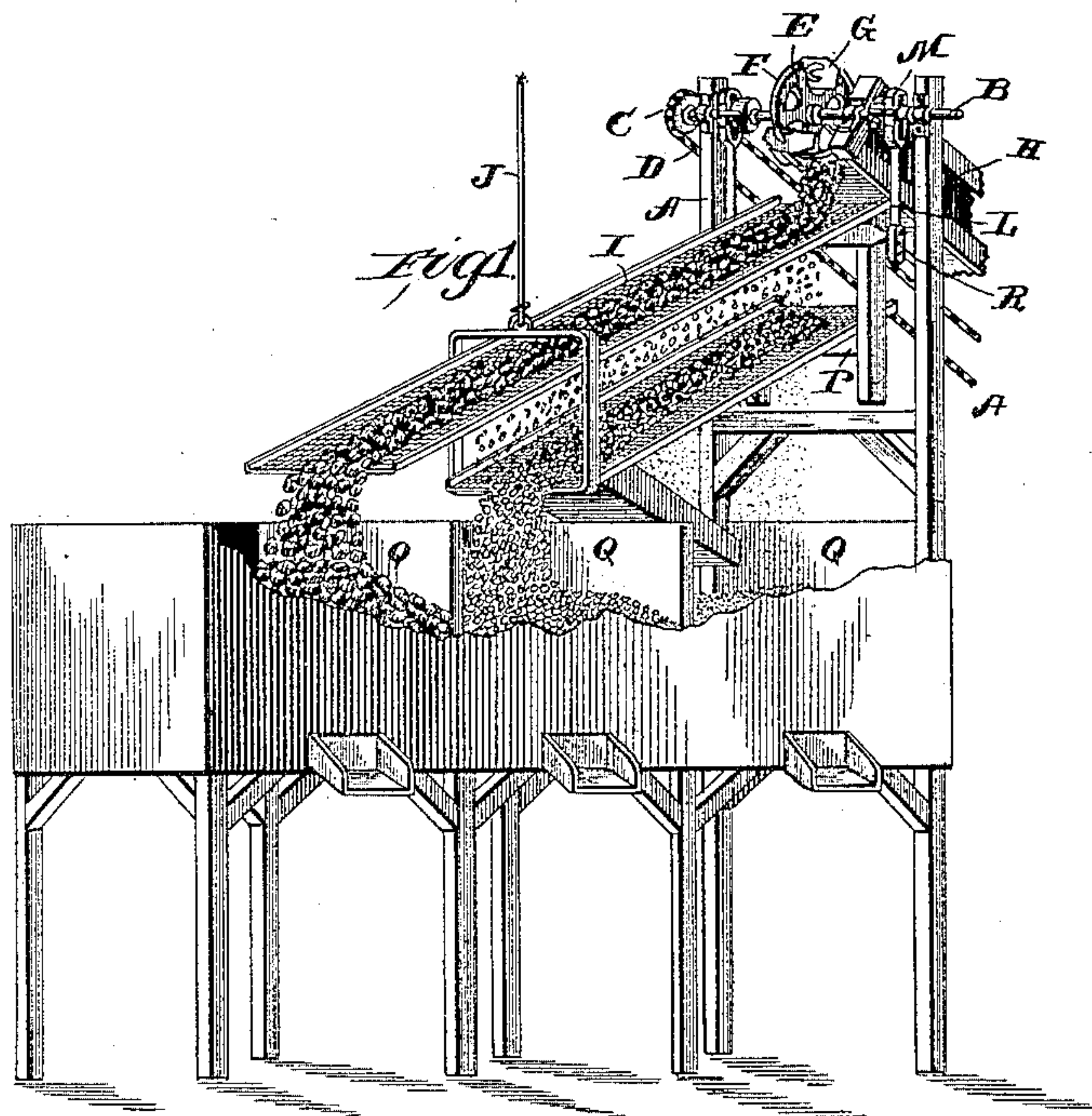


(No Model.)

W. E. SELLECK.  
SCREEN.

No. 445,089.

Patented Jan. 20, 1891.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM E. SELLECK, OF CHICAGO, ILLINOIS.

## SCREEN.

SPECIFICATION forming part of Letters Patent No. 445,089, dated January 20, 1891.

Application filed August 11, 1890. Serial No. 361,633. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. SELLECK, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Screens, of which the following is a specification.

This invention relates to improvements in that class of screens especially designed for screening coal, grain, crushed stone, and similar commodities, in which heretofore the screens have had imparted thereto a lateral or longitudinal shaking or rocking motion designed to facilitate the action of the screen. These prior forms of screens, however, have proven more or less objectionable by reason of the lodgment in the meshes of the screen of small pieces of the commodity being operated upon, which, together with wet or damp dust, soon clogs the action of the screen and materially interferes with the successful working thereof, involving loss of time and producing unsatisfactory results.

The prime object of this invention is to have the screen agitated in such manner as to avoid the possibility of the lodgment or adherence thereto of any of the commodity being operated upon, or of any wet or damp dust or other foreign substance which may be separated by the screening action from the commodity.

Another object is to so combine the screen with a conveyer that the delivery of the commodity to the screen and the agitation of the screen may be simultaneously and continuously effected, whereby the simplicity, effectiveness, and economy of the apparatus are promoted to the maximum degree.

A further object is to impart to the screen an intermittent jarring or concussion to effect the screening operation as distinguished from the reciprocating and comparatively smooth shifting action of screens as heretofore operated and to have the screen adjustable to any desired angle for a greater or less thoroughness in the screening operation.

These objects are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of a screen embodying my invention, combined

and co-operating with an elevator-conveyer; Fig. 2, an enlarged detail side elevation thereof, showing a portion of the supporting-frame removed; and Figs. 3 and 4, a detail side elevation and plan view, respectively, of the screen-agitating devices.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates a suitable supporting-frame, upon which is journaled a driving-shaft B, to which power may be communicated in any suitable manner, but preferably through the medium of a sprocket-wheel C, mounted upon one end thereof, over which works drive-chain D, operated from any suitable source of power. Upon this shaft is also mounted about the center of length thereof a sprocket-wheel E for an elevating-conveyer F, the flights G of which travel in the casing H and elevate the commodity being operated upon from the source of supply, discharging the same at the upper end of the casing onto the screen I.

In practice I prefer to have several screens secured to a frame one above the other and the whole adjustably supported in any suitable manner—such, for instance, as by the cord or cable J, attached to and working over a windlass K, this being the simplest form of adjustable support known to me; but obviously numerous other forms may be employed without departing from the spirit of my invention.

The screen I or the frame supporting the same, where a number of screens are employed, is supported at its upper end from the shaft B by hangers L, pivotally connected at their lower ends with the screen-frame, and at their upper ends are provided with an elongated slot M, through which works the shaft B, serving as a guide for the hangers in their vertical movement. This movement is accomplished by providing the hangers with lateral projections N, lying in the path of travel of radial pins O upon the shaft B, and therefore adapted and arranged to be engaged and carried by the pins during a portion of their revolution, lifting the hangers, and consequently the screens, until the divergent



travel of the pins and projections, due to their respective circular and tangential lines of movement, causes the projections to be released by the pins, thereby permitting the screen to fall until the frame thereof strikes forcibly against a bumper P upon the supporting-frame. This bumping of the screen produces a violent jarring of the entire screen, which will effectually shake off any wet or damp dust that may adhere to the meshes of the screen and at the same time dislodge any small pieces which may become wedged in the meshes, thereby producing a most efficient screening operation, in which the commodity being operated upon is tossed and agitated in such a manner as to produce the maximum degree of thoroughness in the screening operation. The adjustability of the screens without interfering with the agitation thereof is also a feature of importance, because by changing the angle of the screens the effectiveness or rather thoroughness of the screening operation may be regulated and controlled at will.

In the drawings are illustrated two screens employed for separating the commodity, such as coal or crushed stone, into three different grades, which is discharged into the bins Q directly from the screens without handling.

Another feature of importance is combining the screen-agitating devices with the elevating-carrier in such manner that the delivery of the commodity to the screens is not only continuous, but made simultaneous with the agitation thereof, thus reducing the cost of the apparatus and promoting its efficiency and capacity, although it may be observed that where the commodity is stored in a sufficiently-elevated compartment to dispense with the employment of the elevating-conveyor the commodity may be directed to the screen by a chute or in any other convenient manner. The number of lifts or agitations within a given time or at each revolution may be regulated at pleasure by the speed of the shaft B and the number of lifting-pins thereof, and the distance of the fall of the screen can be easily regulated to produce the best results by adjusting the pivotal connection R of the screen with the hangers, as provided for in Fig. 2, or, if preferred, by adjusting the bumper, which is desirably composed of sections, or, more properly speaking, filling-blocks S, laid and suitably secured upon the fixed cross-beam or bumper P, before described, thereby giving greater or less fall to the screen. By the use of these filling-blocks the bumper is rendered adjustable, although a bodily adjustment of the bumper may be made in numerous well-known ways, unnecessary to describe, without departing from the spirit of my invention.

While I have shown the adjustable support for the screens near the center of length thereof, I do not desire to limit myself to any particular point of attachment, for it may be at any point that will best subserve the in-

tended purpose so long as the support is of such general character that the screen may have substantially a vibrating or rocking motion to the extent induced by the agitating devices.

A screen constructed in accordance with my invention is both durable and economical, possesses the maximum capacity by reason of the continuous operation thereof and the effectiveness of the agitation, besides being readily adjustable to meet the requirements of the commodity being operated upon, so as to produce the best results.

In conclusion it may be observed that my invention is distinguished from the prior art in that my screen is intermittently agitated, or, in other words, between each agitation is at a standstill, and that this agitation is caused by separate and distinct knocks or thumps directly against the screen and very sudden in their character, whereas in the prior art screens agitated by means of crank-arms, cams, &c., are operated with a continuous movement, and are therefore not intermittently agitated, and, besides, the force of such agitations is in no wise increased or diminished by any variations of the weight of the material on the screen. By my invention, however, the force of the agitations differs with the weight of the material upon the screen—that is to say, the heavier the load upon the screen the stronger the agitation—for the force of the agitation in any and every instance is made up of the weight of the screen plus the weight of its load, and the importance of this in the screening of various materials is obvious when it is remembered that a greater agitation is required to screen a large amount of material in a given time than it would require to screen a less amount. Furthermore, when the material upon the screen is in a wet or damp condition more agitating force is necessary to successfully screen it than when dry, and this by my invention is provided for, because the heavier the materials, which they are when wet or damp, the greater the agitating force. It is, however, proper to observe that this force in any instance may be diminished for the safety of the screen by adjusting the fall of the screen, as before described; but, however adjusted, the agitation is not only intermittent but caused by successive sharp blows.

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

1. The combination, with a screen, vertically-movable hangers supporting one end thereof, and projections on said hangers, of a revolving shaft and radial pins thereon adapted and arranged to engage the projections on the hangers, substantially as described.

2. The combination, with a screen and a rotatable shaft, of hangers pivotally connected with and supporting the screens at one end thereof, and having a slotted connection with said shaft at the opposite ends thereof, pro-



jections on said hangers, and radial pins on said shaft adapted and arranged to engage said projections, substantially as described.

3. The combination, with a screen, an adjustable support therefor, vertically-movable hangers supporting one end of said screen, and projections on said hangers, of a revolving shaft and radial pins thereon adapted and arranged to engage the projections on the hangers, substantially as described.

4. The combination, with a screen, an adjustable support therefor, and a rotatable shaft, of hangers pivotally connected with and supporting the screens at one end thereof and having a slotted connection with said shaft at the opposite ends thereof, projections on said hangers, and radial pins on said shaft adapted and arranged to engage said projections, substantially as described.

5. The combination, with a screen, a rotatable drive-shaft, a sprocket-wheel mounted on said shaft, and an elevating-conveyer working over said wheel, provided with flights or buckets, of hangers suspending said screen from the shaft and means for intermittently lifting said hangers, substantially as described.

6. The combination, with a screen, a rotatable drive-shaft, a sprocket-wheel mounted on said shaft, and an elevating-conveyer working over said wheel, provided with flights or buckets, of hangers suspending said screen from the shaft, means for intermittently lifting said hangers, and a bumper located beneath and arranged to be struck by the screen when dropped, substantially as described.

7. The combination, with a screen, an adjustable support therefor, a rotatable drive-shaft, a sprocket-wheel mounted on said shaft, and an elevating-conveyer working over said wheel, provided with flights or buckets, of hangers suspending said screen from the shaft, means for intermittently lifting said hangers, and a bumper located beneath and arranged to be struck by the screen when dropped, substantially as described.

8. The combination, with the screen, the drive-shaft, a sprocket-wheel mounted thereon, and an elevating-conveyer working over said wheel and provided with flights or buckets, of the hangers pivotally connected with and supporting the screen at their lower ends

and having a slotted connection with the shaft at their upper ends, projections on said hangers, and radial pins on said shaft adapted and arranged to engage said projections, substantially as described.

9. The combination, with the screen, the drive-shaft, a sprocket-wheel mounted thereon, and an elevating-conveyer working over said wheel and provided with flights or buckets, of hangers pivotally connected with and supporting the screen at their lower ends and having a slotted connection with the shaft at their upper ends, projections on said hangers, radial pins on said shaft adapted and arranged to engage said projections, and a bumper located beneath and arranged to be struck by the screen when dropped, substantially as described.

10. The combination, with the screen, an adjustable support therefor, the drive-shaft, a sprocket-wheel mounted thereon, and an elevating-conveyer working over said wheel and provided with flights or buckets, of hangers pivotally connected with and supporting the screen at their lower ends and having a slotted connection with the shaft at their upper ends, projections on said hangers, radial pins on said shaft adapted and arranged to engage said projections, and a bumper located beneath and arranged to be struck by the screen when dropped, substantially as described.

11. The combination, with a screen, an adjustable support therefor, vertically-movable hangers supporting one end of said screen, an adjustable connection between said screen and hangers, and projections on said hangers, of a revolving shaft and radial pins thereon adapted and arranged to engage the projections on the hangers, substantially as described.

12. The combination, with a screen, an adjustable support therefor, vertically-movable hangers supporting one end of said screen, and projections on said hangers, of a revolving shaft, radial pins thereon adapted and arranged to engage the projections on the hangers, and an adjustable bumper located beneath and arranged to be struck by the screen when dropped, substantially as described.

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