(No Model.)

J. HARVEY.

ADJUSTABLE SCRAPER FOR ROLLER MILLS.

No. 481,866. Patented Aug. 30, 1892.

Fig. 1.

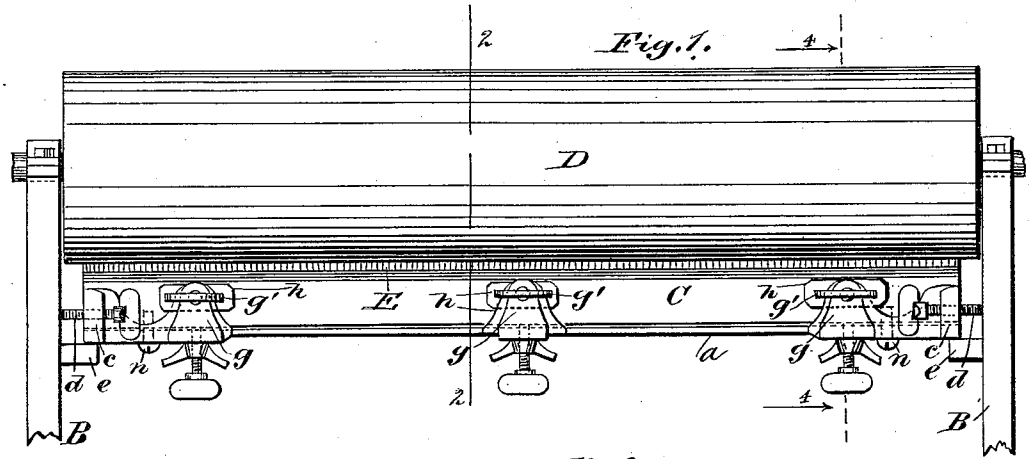


Fig. 2.

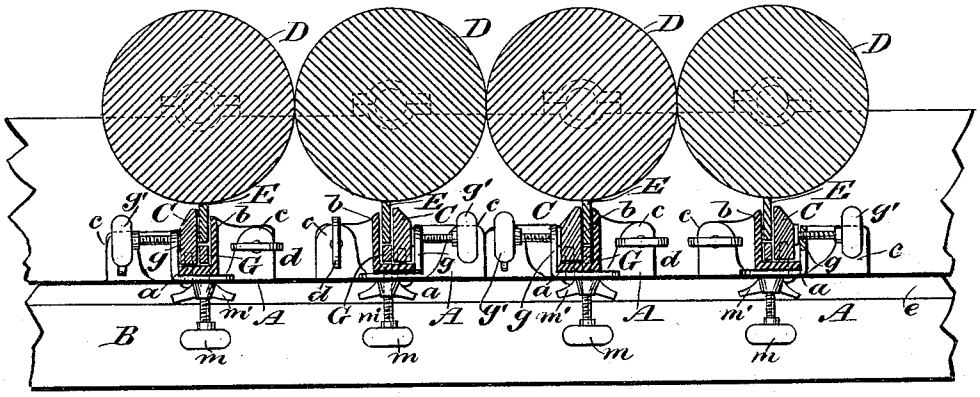


Fig. 3.

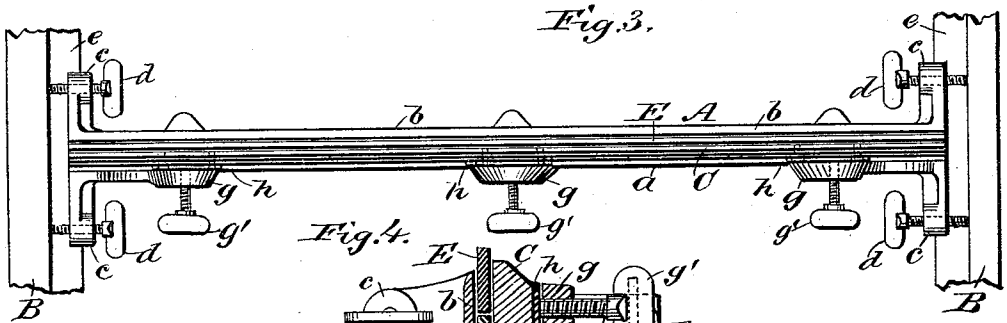
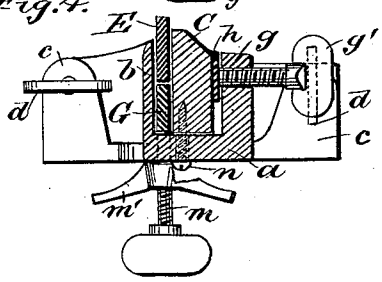


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN HARVEY, OF BROOKLYN, NEW YORK.

ADJUSTABLE SCRAPER FOR ROLLER-MILLS.

SPECIFICATION forming part of Letters Patent No. 481,866, dated August 30, 1892.

Application filed May 21, 1891. Serial No. 393,532. (No model.)

To all whom it may concern:

Be it known that I, JOHN HARVEY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Adjustable Scrapers for Roller-Mills, of which the following is a full, clear, and exact description.

The object of this invention is to further improve the construction of the adjustable scraper patented by me June 3, 1890, No. 429,381.

To this end my invention consists in the peculiar construction and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of a roller-mill frame shown broken away below, a side view of a crushing-roller thereon, and a scraper having the improvements secured on the frame below the roller. Fig. 2 is a transverse section of four rollers on a frame, shown broken at the ends, and an improved roller-scraper below each roller, also shown in cross-section, on the line 2 2 in Fig. 1. Fig. 3 is a a plan view, enlarged, of one of the scrapers on a frame, shown broken; and Fig. 4 is an enlarged cross-section of the improved scraper device, taken on the line 4 4 in Fig. 1.

In the patented scraper of my invention previously mentioned an elongated frame is provided, (shown at A in the drawings,) said frame having a base-plate *a* and a vertical flange *b* along one side edge of the base-plate at a right angle thereto. Integral ears *c* are formed in pairs oppositely projected at each end of the base-plate of the frame A to receive set-screw bolts *d*, which serve to secure the scraper-frame in place on ledges *e* of the main-mill-frame sides B. There are vertical lugs *g* formed on the edge of the base-plate *a* opposite to and parallel with the vertical flange *b*, said lugs in proper number having the set-screw bolts *g'* inserted through tapped perforations therein, which bolts project at right angles to the face of the flange *b* and toward the same. The set-screw bolts *g'* have washer-plates *h* oppositely secured on the adjacent face of a clamping-strip C, whereon they bear, as will be explained, or said plates may be dispensed with if the piece they bear upon is made of metal.

Between the inner ends of the set-screw bolts *g'* and the inner face of the flange *b* the clamping-strip C is loosely inserted, said strip being preferably made of wood or other material that is not liable to produce sparks if it is impinged upon by the roller D above it, the strip being designed to clamp a scraper-strip E, of slightly-yielding material—such as leather, vegetable fiber, or like substance—that is designed to have contact with the lower surface of a mill-roller and remove crushed grain therefrom.

The parts thus briefly mentioned are effective in operation; but it has been found in practice that it is desirable to furnish improved means for the vertical adjustment of the scraper-strip E, and to this end means are provided that constitute the essential features of this invention and will be described. There is a follower-bar G inserted below the scraper-strip E, of about an equal thickness therewith, which is made of metal, the length of the strip E and follower-bar being about equal to that of the frame A. Directly below the follower-bar G any suitable number of set-screws *m* are inserted through tapped holes in the base-plate *a* of the frame A, so as to elevate the follower, as may be required, jam-nuts *m'* being placed on said screws to secure them when adjusted. By provision of the follower-bar G a base of rigid material is afforded for the scraper-strip E, which is seated thereon, so that the set-screws *m* below the follower-bar, bearing directly upon it, will elevate the bar and scraper-strip until the latter is almost completely worn away, a scraper-strip of less width being admissible, as well as shorter set-screw bolts, when the follower-bar is employed. The upward movement of the follower-bar and scraper-strip independently of the clamping-strip C distinguishes this device from that shown in Patent No. 429,381.

In order to release the scraper-strip E from the clamping-strip C, and thus facilitate the vertical adjustment of parts, as explained, there are screws *n* provided to retain the clamping-strip from rising, said screws being

inserted through perforations in the base-plate *a* and then into the lower portion of the clamping-strip near its side that adjoins the follower G, as shown in Fig. 4. It will be seen in the figure mentioned that the holes through which the screws *n* are passed in the base-plate *a* afford freedom for a slight lateral movement of the shanks of said screws therein, so that the upper edge portion of the clamping-strip C may be rocked sufficiently toward the scraper-strip E to clamp it firmly against the vertical flange *b* by a movement of the set-screw bolts *g'*, and if the scraper-strip requires to be elevated to compensate for wear on its top edge the slacking of said screw-bolts will allow the clamping-strip to assume an upright position, thus releasing the scraper-strip, which can be vertically adjusted by the set-screw bolts *m*, as before mentioned.

It will be evident from the foregoing description of the additional features of improvement that the vertical adjustment of the scraper-strip E will be facilitated and enable an operator to bring the exact degree of pressure upon the surface of the roller that is needed to cause the engaged edge of the scraper-strip to remove compacted crushed grain from the surface of the roller, and, furthermore, furnish means to use the scraper-strips until they are almost entirely worn away, thereby economizing the material, as well as affording improved means for securing the strips in place below the rollers of roller-mills.

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

1. The combination, with a frame having a base-plate, an integral flange thereon at right angles thereto and aligning with one edge thereof, and set-screw bolts engaging lugs that are opposite the flange of the base-plate, of a clamping-strip between the lugs and flange, a scraper-strip that may be held by the clamping-strip, a follower-bar below the scraper-strip, and screws to vertically adjust the follower-bar, which are inserted through the base-plate of the scraper-frame, substantially as described.

2. The combination, with a scraper-frame that is adapted to be secured upon a roller-mill frame below a roller thereon, having a base-plate and a vertical flange on one edge of the base-plate, lugs on the base-plate opposite the flange, which are perforated and tapped, and set-screw bolts in said lugs, of a clamping-strip loosely secured on the base-plate by screws that pass through enlarged holes in the base-plate of the scraper-frame, a scraper-strip between the flange and clamping-strip, a follower-bar below the scraper-strip, and set-screw bolts which have a threaded engagement with the base-plate of the frame and bear on the lower edge of the follower, substantially as described.

JOHN HARVEY.

Witnesses:
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