

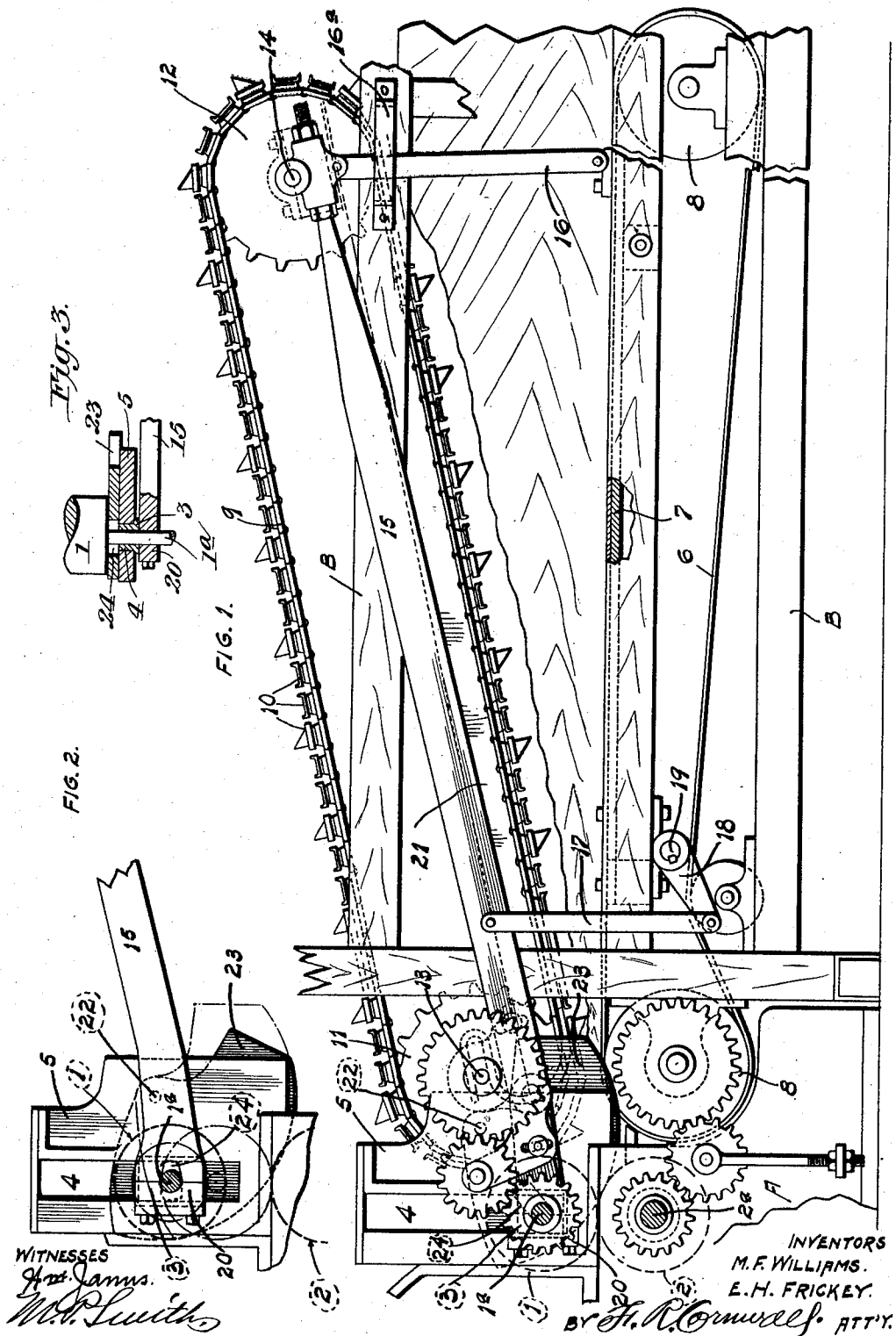
M. F. WILLIAMS & E. H. FRICKEY.

SLOT GUARD.

APPLICATION FILED OCT. 1, 1910.

1,025,177.

Patented May 7, 1912.



UNITED STATES PATENT OFFICE.

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TO WILLIAMS PATENT CRUSHER AND PULVERIZER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

SLOT-GUARD.

1,025,177.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed October 1, 1910. Serial No. 584,928.

To all whom it may concern:

Be it known that we, MILTON F. WILLIAMS and EDWARD H. FRICKEY, both citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Slot-Guards, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a general view of our device as applied to feeding mechanism of a disintegrating machine. Fig. 2 is a detail view showing our device detached from other elements and in a second position. Fig. 3 is a section through the bearings of the feed roll 1.

The invention relates to an improvement in a guard to be used in connection with feeding mechanism. This device is especially adapted for use in connection with feeding rollers which are mounted in a slotted guide way, wherein the material fed would be liable to clog the slots unless some means were used to prevent access thereto, as the feeding roller changes its position in the slot.

Our present invention is designed particularly for use in connection with feeding mechanisms for disintegrating machines of the type disclosed in Patent No. 1,004,126 issued to us Sept. 26, 1911.

Referring to the drawings A designates a portion of the casing of a shredding or disintegrating machine, and 1 and 2 respectively designate upper and lower feed rolls that are arranged adjacent the mouth of said machine for feeding material into the same. The lower feed roll 2 is connected to a shaft 2^a that is mounted in stationary bearings, but the shaft 1^a to which the upper feed roll is connected is mounted in box-ings or bearings 3 that are vertically movable in slots 4 formed in the side walls of a casing or stationary housing 5 so that the upper roll can move away from the lower roll to accommodate batches or pieces of material of different size, and thus prevent the machine from becoming choked.

A stationary frame work B is located adjacent a disintegrating machine for carrying a pair of superimposed endless convey-

ers that feed the material to the feed rolls 1 and 2. The lower conveyer consists of a belt 6 that passes over a track 7 and pulleys 8 carried by said frame work, and the upper conveyer consists of sprocket chains 9 provided with transversely extending slats or bars 10.

The chains 9 of the upper conveyer pass over the sprocket wheels 11 and 12 on the shafts 13 and 14, respectively, carried by a movable support comprising inclined bars 15 arranged outside of the stationary frame work B, and connected to pairs of rock-arms 16 and 17. The rock arms 16 which support the upper ends of the inclined bars 15 are pivotally connected at their lower ends to the stationary frame B, and the rock-arms that are pivoted to the lower ends of said inclined bars 15 are pivotally connected to arms 18 on the rock shaft 19, which is journaled in bearings in the stationary frame B, the parts 17, 18 and 19 constituting an equalizing mechanism which insures parallelism between the vertically movable and immovable parts of the device.

The frame B is provided with guides 16^a through which the arms 16 pass. These guides permit inward movement of the bars 15 and their carried parts to accommodate the vertical movement of the lower end of said bars, which are connected to the shaft 1^a and are guided in the slots or ways 4. The inclined bars 15 are provided at their lower ends with split bearings 20 through which the shaft 1^a of the upper feed roll 1 passes, so that said roll is carried by the movable support for the upper conveyer, and consequently will move vertically with said support when a large piece or batch of material forces the upper conveyer away from the lower conveyer.

The lower feed roll 2 is connected to the shaft operating the pulley 8 through means of an intermediate gear. Similarly the upper feed roll 1 is connected through an intermediate gear with a gear on the shaft 13. A track member or support 21 is suitably supported on the shafts 13 and 14 and acts as a back support for the upper continuous conveyer.

Arranged within the housing 5 immediately adjacent each side wall thereof and pivotally supported upon pins 22 that are located immediately in front of the central

portions of the slots 4 are two oppositely arranged guard plates 23 which are slotted at 24 for the reception of the shaft 1^a. This plate 23 is curved with a radius greater than the distance from the farther corner of the slot 4 to the pivot point 22. It is also formed with sufficient distance between the upper edge of the plate and the slot 24 so that the feed roll 1 as it moves upon the guide-ways 4 will always be covered or inclosed by the plate. This plate is also shaped so that the lower end of the plate will cover the lower ends of the ways 4, when the plate is moved to its upper position.

When the bars 15 supporting the upper feed rolls are moved upwardly the upper portions of the plates 23 swing upwardly to cover and close the upper portions of the guide ways 14, and said plates swing upon their pivots 22 and the lower forward ends of said plates automatically swing in a position to close and cover the lower portions of the guide ways. During this vertical movement the horizontally disposed slots 24 permit the plates 23 to swing freely relative to the vertically moving shaft 1^a.

In Fig. 2 the feed roll and guard plate are illustrated in dotted lines in lower position and in an upper position in full lines. By the use of these plates the material passing between the feeding rollers 1 and 2 cannot choke the slots or guide-ways 4 and prevent the downward movement of the feed roll 1.

We do not wish to be limited to the use of our improved guard plate in connection with the specific machine illustrated, as we apprehend that it would be equally useful in other connections.

We are aware that minor changes in the construction, arrangement and combination of the various parts may be made without

departing from the spirit of our invention, the scope of which is indicated by the accompanying claims.

We claim:

1. In a device of the character described, parallel slotted guide-ways, a roll having bearings movable in said guide-ways, curved guard plates pivoted to the guide-ways in front of the slots therein which plates extend between the slots in the guide-way and the roll; said guard plates being shaped to cover the slots in the guide-ways as the roll rises therein and provided with horizontally disposed slots through which passes a member connected with the roll.

2. In a device of the class described parallel slotted guide ways, a spindle, the ends of which project through the slots in the guide ways, a roll carried by said spindle between the guide ways, and guard plates pivotally mounted on the guide ways in front of the slots therein, the lower portions of which guard plates curve downwardly and outwardly away from the lower portions of the slots, and which guard plates are provided with horizontally disposed slots through which passes the ends of the spindle.

3. In a device of the class described, a slotted guide-way, a segmental plate pivoted on said guide-way and adapted to cover said slot, said plate being provided with an opening, and a spindle carried in said guide-way and extending through said opening and adapted to travel in said guide-way and oscillate said plate.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses, this 16th day of Sept. 1910.

MILTON F. WILLIAMS.
EDWARD H. FRICKEY.

Witnesses:

F. R. CORNWALL,
M. P. SMITH.