Dec. 3, 1929. C. A. HOLM ET AL 1,738,005

SHARPENER FOR FEED CUTTERS

Filed Sept. 2, 1926 2 Sheets-Sheet 1

Fig. 1.

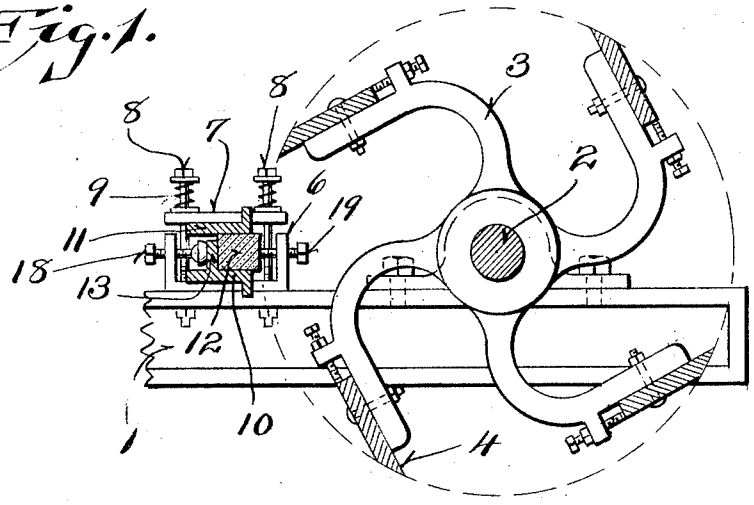



Fig. 2.

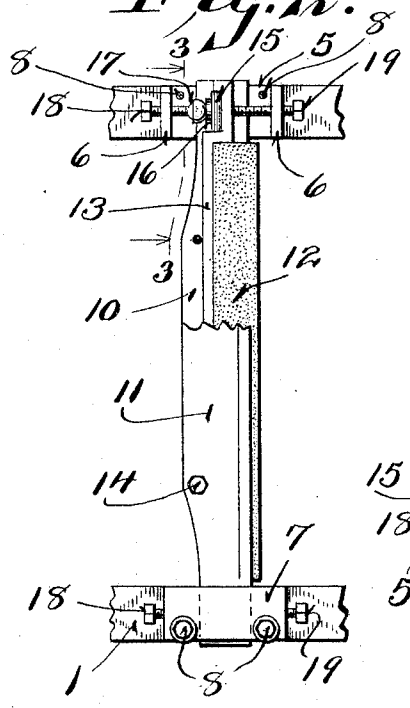
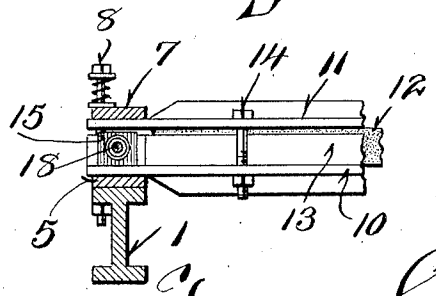



Fig. 3.




Inventors
Martin Holm
Charles A. Holm

Witness
T. T. Britt

By
Attorneys.

Dec. 3, 1929. C. A. HOLM ET AL 1,738,005

SHARPENER FOR FEED CUTTERS

Filed Sept. 2, 1926 2 Sheets-Sheet 2

Fig. 4.

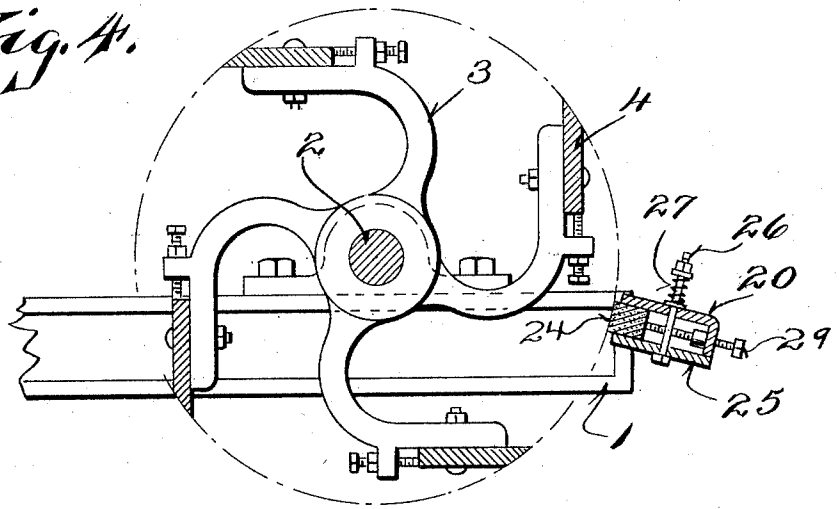



Fig. 5.

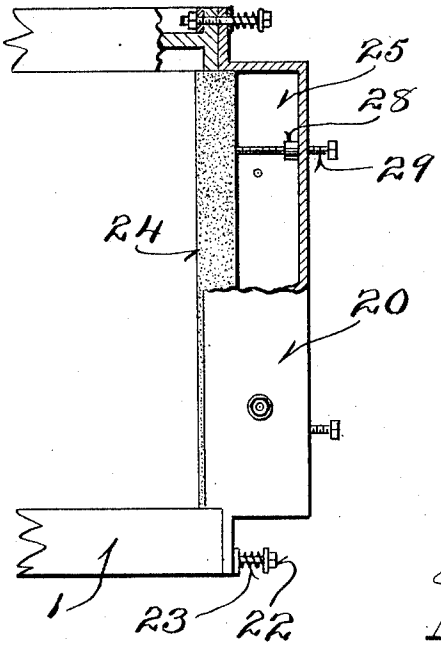
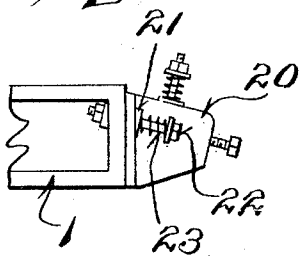



Fig. 6.




Inventors.
Martin Holm
Charles A. Holm
By: Young & Young
Attorneys.

Patented Dec. 3, 1929 1,738,005

# UNITED STATES PATENT OFFICE

CHARLES A. HOLM AND MARTIN HOLM, OF TIGERTON, WISCONSIN

## SHARPENER FOR FEED CUTTERS

Application filed September 2, 1926. Serial No. 133,230.

This invention relates to sharpener for feed cutters.

In general, this invention is an improvement over that disclosed in Patent #1,339,511, of May 11, 1920, for sharpener for feed cutters.

Objects of this invention are to provide a novel form of sharpener for feed cutters, which is so constructed that the sharpener carries an abrading block in a manner to permit accurate adjustment to the exact requirements of the machine, and which so holds the block that there is the minimum chance of breaking or straining the block.

Further objects are to provide a sharpener which may be permanently left upon the machine, and which will operate automatically to maintain the exact degree of sharpness required for the cutter blades.

Further objects are to provide a novel form of holder for the sharpener stone in which means are provided for positively limiting the forward motion of the stone, and in which yielding means are provided whose pressure may be adjusted for controlling the outward motion of the stone.

Further objects are to provide a sharpener which is so constructed that the sharpener can not tilt or otherwise change its angular setting with relation to the cutter knives, but instead in which the stone is permitted to move in a horizontal plane towards or from the knives, thus maintaining with accuracy the desired angle.

Embodiments of the invention are shown in the accompanying drawings in which:

Figure 1 is a sectional view through a feed cutter and through the sharpener;

Figure 2 is a plan view partly broken away of the sharpener.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a view corresponding to Figure 1 showing a modified form of the invention.

Figure 5 is a fragmentary plan view of the structure shown in Figure 4, with parts broken away.

Figure 6 is an edge view of the structure shown in Figure 5.

Referring to the drawings, it will be seen that the side frames 1 carry bearings for the driving shaft 2 of the cutter 3. This cutter is provided in the customary manner with cutting blades 4.

The sharpener comprises a pair of brackets 5 mounted directly upon the side bars 1 and provided with upstanding front and rear lugs 6. These brackets cooperate with upper plates 7. Bolts 8 extend through the upper plates and through the brackets and into the flanges of the side frames 1. These bolts are provided with compression springs 9 which urge the top plates downwardly.

The holder for the sharpening stone consists of a bottom member 10 and a top member 11 between which the stone 12 is held. This holder has its upper and lower members flanged to increase their strength. The bottom member 10 is provided with an upstanding shoulder or web 13 against which the rear face of the sharpening stone 12 abuts. The ends of the holders 10 and 11 are mounted between the brackets 5 and the plates 7, and are thus clamped by means of the compression springs 9. If desired, the holders may be extended rearwardly a slight distance, as shown in Figure 2, and additional bolts 14 may be passed through such extended portions.

The flange or shoulder 13 of the member 10 is provided with a socket at each end within which rubber blocks 15 are positioned, as most clearly shown in Figure 2. These rubber blocks are compressed by means of the feet 16 of socket members, such socket members being carried by means of the balls 17 formed on the ends of the adjusting screws or bolts 18. The forward motion of the holder is limited by means of the front screws 19 which pass through the forward flanges of the brackets 5 and align with the rear screws 18.

Thus the forward motion of the sharpener is positively limited by means of the screws 19, and these screws may, therefore, be adjusted to secure the exact amount of motion forwardly which is desired. The rear screws 18 are adjusted to produce the requisite

yielding pressure between the stone and the passing blades.

It is to be noted particularly that the stone securely seats upon the bottom member 10 of the holder and backs against the flange 13, so that there is no possibility of turning or twisting of the stone. Further, it is reenforced by this rigid bottom member throughout its length. The top member of the holder is yieldingly pressed into clamping engagement with the stone.

Referring to the form of the invention illustrated in Figures 4 to 6, it will be seen that the same type of rotary knives are employed as that previously described, and these knives are carried by a spider mounted on a driving shaft 2 journaled in bearings carried by said frame members 1. The side frame members 1 carry at their ends a two-part casing. This casing consists of a main member 20 which is provided with apertured lugs 21 through which elongated bolts 22 pass and secure the device to the side frame members 1. However, it is to be noted that the bolts carry compression springs 23 which yieldingly urge and hold the casing in its normal position. Within the casing 20, as shown in Figures 4 and 5, a sharpening stone 24 is positioned. This sharpening stone is held in place by means of a bottom plate 25 which fits within the main portion 20 of the casing, as shown in Figures 4 and 5, and rests at its rear end upon the downwardly turned flange of the main portion 20. This is yieldingly clamped against the bottom of the stone 24 by means of the bolts 26. It is to be noted that the bolts do not rigidly hold members in clamping position, but such bolts carry compression springs 27 which yieldingly clamp the stone in position.

In order to provide for the requisite adjustment of the stone, the main portion 20 of the casing is provided with threaded bosses 28 through which adjusting screws 29 pass. These adjusting screws bear at their forward ends against the stone 24 and due to their spacing, hold the stone against rocking motion or other displacement.

It will be seen that there is no chance of cracking the stone when it is clamped in position as the stone is yieldingly clamped. In addition to this the exact adjustment may be secured by manipulating the screws 29. In addition to this, the entire casing is permitted to yield through the medium of the springs 23, and although the forward motion of the stone is limited, nevertheless it may move rearwardly as required when contacting with the knives. Thus a predetermined pressure may be exerted by adjusting the tension of the springs 23 and in addition to this the exact adjustment of the stone may be easily secured, as described above.

Thus it will be seen that the stone cannot shift its relative angle with relation to the blades, but may merely move backwardly a slight distance to provide the requisite yield as the blades pass the stone.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting, as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

We claim:

1. In a device of the class described, spaced frame members, a bracket upon each frame member, spaced lugs carried by each bracket and including a front and rear lug, a holder supported upon said brackets, means yieldably retaining the ends of the holder in position on the brackets, adjustable means for limiting lateral movement of the holder in one direction, said holder comprising upper and lower plates and a sharpener stone arranged between said plates, with one of its longitudinal edges extending beyond one of the edges of said plates, an upstanding flange on the bottom plate forming a stop for the stone, said flange having a socket at each end thereof, rubber blocks arranged within the sockets and adjusting screws carried by the rear lugs of the brackets and having ball end portions for engaging the rubber blocks to provide for yielding movement of the stone.

2. A sharpener for cutters provided with side frame bars and rotary cutter knives, said sharpener comprising a pair of U-shaped brackets mounted upon said side frame bars, clamping plates yieldingly pressed towards said brackets, a pair of holder members mounted between said brackets and said plates, a stone carried between said holder members, one of said holder members having an upstanding rear shoulder portion forming a stop for said stone, adjusting screws passing through the front arms of said brackets and limiting the forward motion of the holder, adjusting screws passing through the rear arm of said brackets and having adjustable bearing feet at their front ends, and yielding pads interposed between such feet and said holder.

In testimony that we claim the foregoing we have hereunto set our hands at Tigerton, in the county of Shawano and State of Wisconsin.

CHARLES A. HOLM.
MARTIN HOLM.