Dec. 8, 1942. O. P. HURST 2,304,174

ROLLER CHAIN SICKLE

Filed April 8, 1941

Fig. 1.

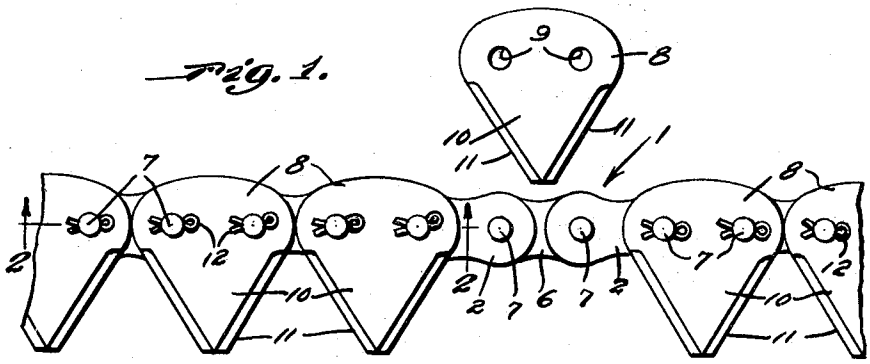


Fig. 3.

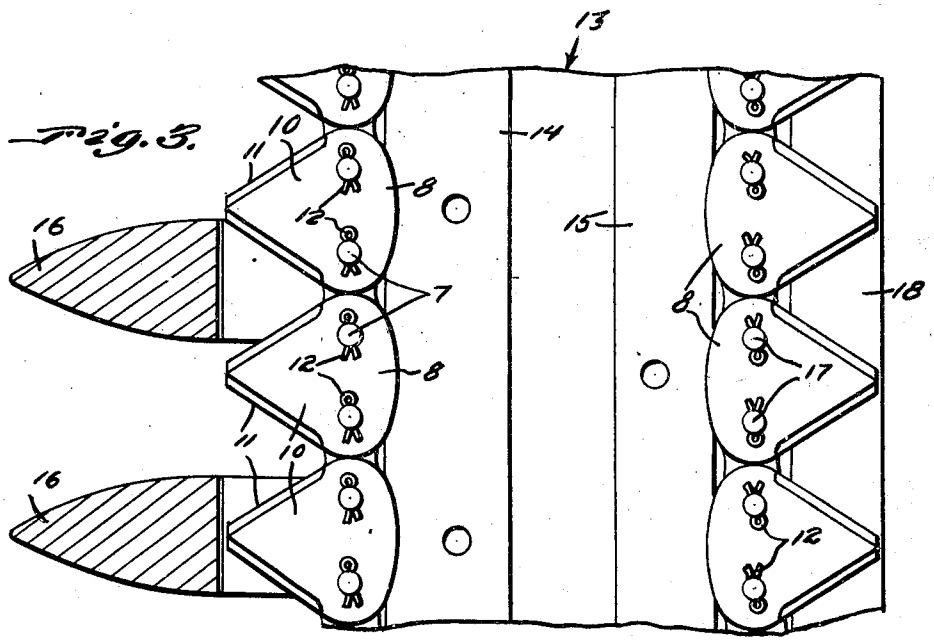


Fig. 4.

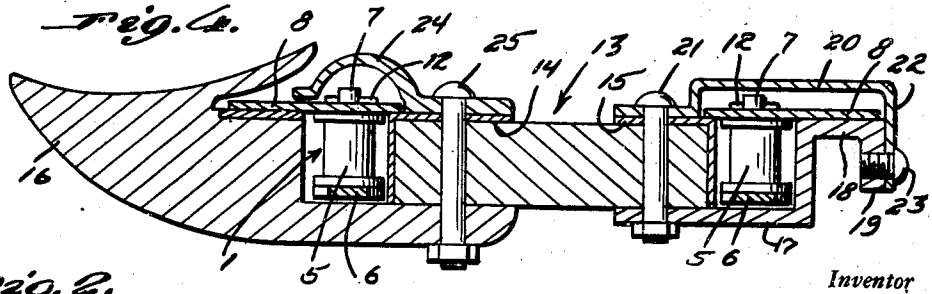
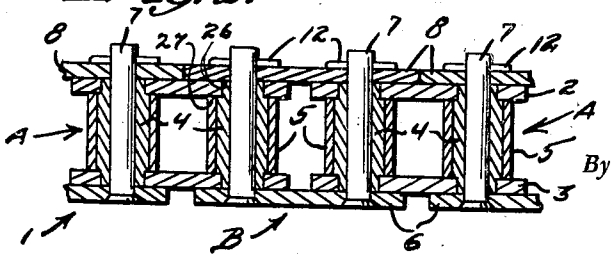


Fig. 2.



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ROLLER CHAIN SICKLE

Oliver P. Hurst, Mooreland, Okla.

Application April 8, 1941, Serial No. 387,513

1 Claim. (Cl. 56—291)

The present invention relates generally to new and useful improvements in endless sickles for mowing machines, reapers, harvesters, etc., and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction and arrangement whereby maximum strength and durability will be attained and wear reduced to a minimum.

Another very important object of the invention is to provide a sickle of the aforementioned character which is operable with equal efficiency and general satisfaction in either direction.

Another important object of the invention is to provide a roller chain sickle of the character described of such construction as to offer substantially no obstruction to the passage of the cut material thereover.

Another object of the invention is to provide a cutter bar of unique construction on which the endless roller chain sickle is operable.

Other objects of the invention are to provide a roller chain sickle of the aforementioned character which will be comparatively simple in construction, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a top plan view of a portion of a roller chain sickle constructed in accordance with the present invention, showing one of the blades separated from the chain.

Figure 2 is a view in vertical longitudinal section, taken substantially on the line 2—2 of Figure 1.

Figure 3 is a top plan view of an intermediate portion of a cutter bar on which the sickle is operable, portions of said bar being omitted, the guards being shown in horizontal section.

Figure 4 is a cross sectional view through the cutter bar with the sickle mounted thereon.

Referring now to the drawing in detail, it will be seen that reference numeral 1 designates generally a roller chain, which chain is to be endless. The chain 1 comprises what may be referred to as alternating, pivotally connected units or sections A and B. The sections A includes vertically spaced, horizontally extending upper and lower links 2 and 3, respectively, having apertured end portions 26 in which reduced end portions of tubular bearings 4 are fixed. Journaled on the bearings 4 for rotation between the links 2 and 3 are tubular rollers 5. The reduced end portions 26 of the bearings 4 provide shoulders 27 which the links 2 and 3 abut.

The sections B connect the sections A and comprise links 6 which extend beneath the end portions of the adjacent links 3. Fixed in the end portions of the links 6 and rising therefrom are pins 7 which are journaled in the bearings 4.

Mounted on and connecting the upper end portions of the pins 7 are blades 8 of substantially the shape shown to advantage in Figure 1 of the drawing. The blades 8 are of suitable metal and have formed therein spaced openings 9 which accommodate the pins 7. The blades 8 further include substantially V-shaped, forwardly projecting front portions 10 provided with cutting edges 11. As best seen in Figure 2 of the drawing, the blades 8 rest on the upper ends of the bearings 4 and on the links 2. Cotter pins 12 are provided in the upper end portions of the pins 7 for retaining the blades 8.

The endless sickle thus far described is operable on a cutter bar 13. The cutter bar 13 is to be provided, on its end portions, with suitable horizontally mounted sprockets around which the endless chain 1 is trained. One of the aforementioned sprockets may be connected in any desired manner to a source of power.

Mounted on the front and back portions of the bar 13 are ledger plates 14 and 15, respectively, of angular cross section. Mounted beneath the forward portion of the bar 14 and projecting forwardly therefrom are guards 16.

Mounted beneath the rear portion of the bar 13 and projecting rearwardly therefrom is a return housing 17 of angular cross section which, in conjunction with the vertical portion of the ledger plate 15, defines a channel for the return flight of the chain 1. The housing 17 includes a rearward extension 18 which terminates in a depending, apertured flange 19. A cover 20 is provided for the housing 17. Bolts 21 secure the front portion of the cover 20, the ledger plate 15 and the housing 17 to the bar 13. The cover 20 includes a depending rear portion 22 which is secured at 23 to the flange 19.

Clips 24 are provided at spaced points on the cutter bar for the cutting or operating front portion of the sickle. Bolts 25 secure the clips 24, the ledger plate 14 and the guards 16 in position on the bar 13.

In operation, the sections A and B of the chain

1 swing as units relative to each other, the pins 7 turning in the tubular bearings 4. Thus, there is no relative movement between the pins 7 and the blades 8 and consequently no wear occurs at their points of contact. As the chain 1 travels around the aforementioned sprockets on the end portions of the cutter bar, the rollers 5 turn on the bearings 4. The shoulders 27 positively prevent binding of the tubular rollers 5 between the links 2 and 3, thus permitting said rollers to turn freely on the bearings 4. The construction and arrangement is such that the sickle will function with equal efficiency when driven in either direction. By removing the cotter pins 12 from the pins 7 of the chain 1, the blades 8 may be expeditiously removed for sharpening or replacement. The blades of the return flight of the chain 1 travel on the upper portion of the ledger plate 15 and the portion 18 of the housing 17.

It is believed that the many advantages of a roller chain sickle constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

An endless sickle comprising a plurality of pivotally connected units, alternate units being respectively composed of upper and lower plates having apertured end portions, bearings having reduced end portions engaging in the apertured end portions of said plates, and tubular rollers journaled for rotation on said bearings between said plates; said bearings further including shoulders abutting the plates for preventing said plates from binding the tubular rollers, and intermediate sections pivotally connecting said alternate sections together and respectively embodying a lower link, pins rising from the respective opposite ends of such link and journaled in the aforementioned bearings of said alternate sections for pivotally connecting said alternate and intermediate sections together, and an upper member in the form of a blade having apertures receiving the upper ends of said pins, and retaining elements on the upper ends of said pins to retain said blades in a position of rest on the upper ends of the bearings and on the upper plates of said alternate units.

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