(No Model.)

D. D. DORNEY.

CUTTER BAR.

No. 536,924. Patented Apr. 2, 1895.

Fig. 1.

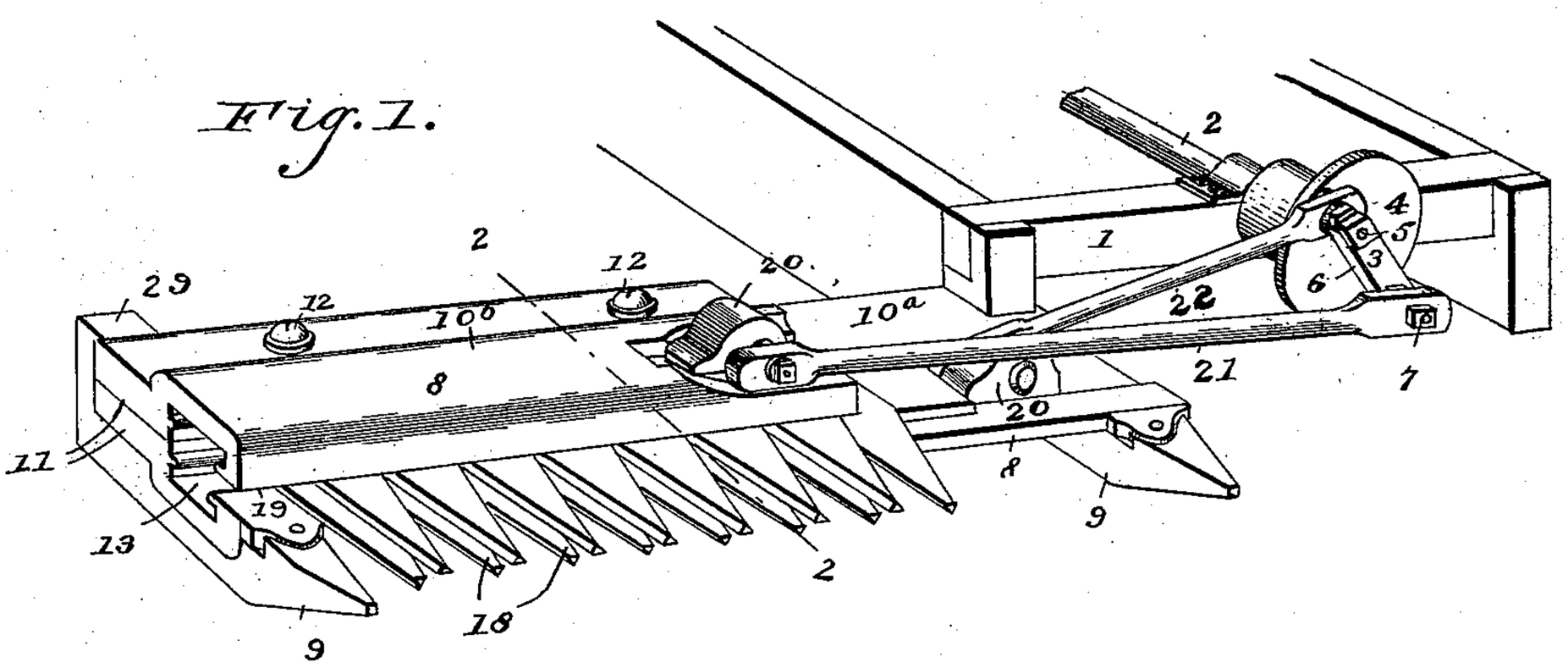

Fig. 2.

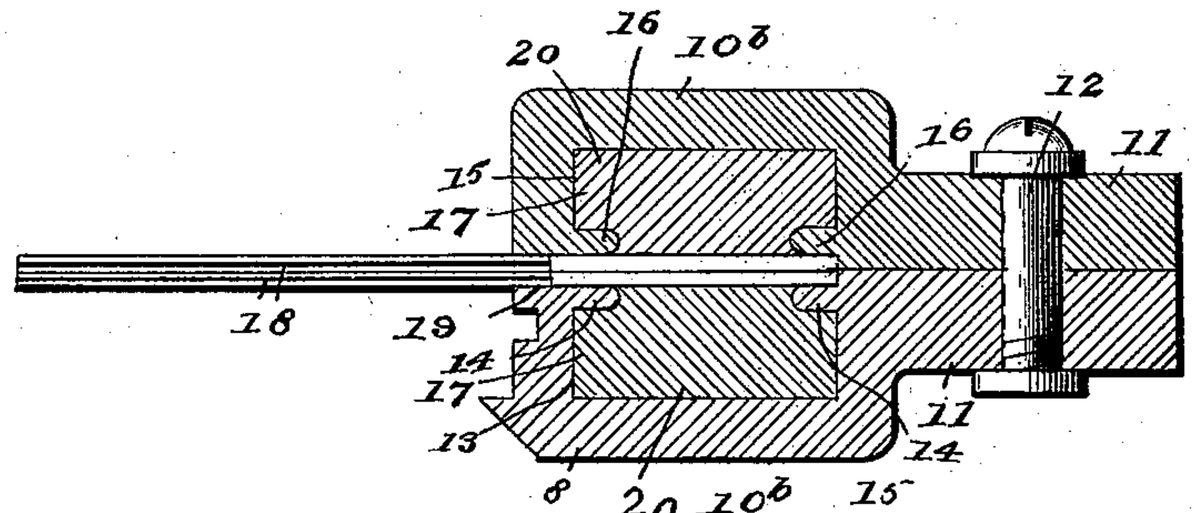

Fig. 3

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL D. DORNEY, OF CETRONIA, PENNSYLVANIA.

CUTTER-BAR.

SPECIFICATION forming part of Letters Patent No. 536,924, dated April 2, 1895.

Application filed March 24, 1893. Renewed September 25, 1894. Serial No. 524,127. (No model.)

To all whom it may concern:

Be it known that I, DANIEL D. DORNEY, a citizen of the United States, residing at Cetronia, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Cutter-Bar, of which the following is a specification.

My invention relates to improvements in cutter-bars for reapers, mowers, binders, &c., and it has for its object to provide a simple device adapted to be attached to machines now in use without particular change of construction of such machines.

A further object of my invention is to provide a cutting-attachment which will require a less throw or less distance of movement in the eccentric or crank.

A further object of my invention is to provide a cutter-bar which will not require the aid of guard-fingers.

A further object of my invention is to provide a finger-bar adapted to support and guide duplicate cutter-bars, or a single cutter-bar as desired, and adapted for the attachment of guard-fingers when a single cutter-bar is employed.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of a portion of a reaper showing a cutting-attachment embodying my invention. Fig. 2 is a transverse section of the cutting-device on the line 2—2 of Fig. 1. Fig. 3 is a similar view showing the attachment adjusted for use with one cutter-bar and provided with guard-fingers. Fig. 4 is a perspective view of one of the guide-sections of which the finger-bar is composed.

1 designates a portion of the frame of a reaping or mowing machine; 2, the driving-shaft, which I have shown broken away at its rear end as the means for operating such shaft form no part of my invention, and 3 designates a double-crank fixed to the front end of the driving-shaft and comprising a disk 4, a wrist-pin 5 forming one spindle of the double-crank, an arm 6 attached to the free end of said wrist-pin, and a spindle 7 carried by the free end of the arm 6.

8 represents a finger-bar provided at opposite ends and at its center with shoes 9. Said finger-bar is composed of the oppositely-disposed grooved guide-bars which are provided with rearward extending flanges 11 bolted together as shown at 12. The lower member 10^a of the finger-bar is secured firmly to the frame 1 of the machine and the upper member 10^b is bolted to and supported by said lower member.

The lower member of the finger-bar is provided in its upper side with the groove 13, whose front and rear walls are provided with the inward-extending webs 14 and the upper member of the finger bar, which is similar in section to the lower member and is inverted in position, is provided in its lower side with a gooove 15 having the inward-extending webs 16.

The cutter-bars 17 fit slidably in the grooves or ways thus formed in the members of the finger-bar and carry the knives or cutters 18. The rear ends of the knives or cutters are flush with the rear edges of their respective cutter-bars whereby they project respectively over and under the webs which are arranged on the rear walls of the grooves or ways and bear against said rear walls. The front walls of the ways are shortened to form an interval 19 in which the cutters or knives operate.

It will be noted that each cutter-bar as described is provided with an independent guide or way, said guides or ways being relatively inverted, and therefore the faces or adjacent surfaces of the knives or cutters while in proximity are out of contact, the interval between the same being in practice about one thirty-second of an inch. The knives or cutters are oppositely beveled or sharpened, those which are carried by the upper cutter-bar being sharpened flush with their lower surfaces and those carried by the lower cutter-bar being sharpened flush with their upper surfaces.

The cutter-bars are provided with the heads or blocks 20, and pitmen 21 and 22 connect said blocks or heads respectively to the spindles of the double-crank.

It will be obvious that inasmuch as both cutter-bars are in operation simultaneously in opposite directions the throw of each cutter-bar need be only one half the length of that of the cutter-bar which operates in rela-

tion to fixed guard-fingers in order to produce the same relative movement. Thus the projection or eccentricity of the crank-arms is only one half as much as that which is employed in single cutter-bar machines. I also prefer to make the cutters or knives of greater length in proportion to their width than in machines employing only a single cutter-bar for the reason that the edges of the knives are thus brought more nearly perpendicular to the direction of the stroke; and furthermore for the reason that a less quantity of grain or other material is thus brought between two opposing knives and therefore the machine is enabled to operate more evenly and with less jar.

The lower member of the finger-bar is provided at its front edge with a groove 21^a and a subjacent edge or rib 22^a for the engagement of the shoulders 23 and 24 upon the rear ends of the guard-fingers 25, as shown in Fig. 3. The guard-fingers are provided with rearward-extending stirrups 26, which pass under the lower member of the finger-bar and are clamped at their rear ends by means of bolts 27 to the rearward-extending flanges of the finger-bar. Attached to the upper sides of the guard-fingers are the fixed knives 28 which occupy the spaces usually filled by the knives or cutters of the lower cutter-bar, and act in conjunction with the knives or cutters of the upper finger-bar.

The guard-fingers, as shown in said Fig. 3, are not provided with the usual rearward-extending upper side or portion, as such feature is unnecessary owing to the manner of mounting and supporting the cutter-bar.

When the duplicate cutter-bars are employed, as shown in Figs. 1 and 2, the guard-fingers are unnecessary and are omitted, the reasons for this being that such features are unnecessary as a protection to the knives or cutters, and the manner which I have described of guiding the cutter-bars insures the accurate operation of the knives without the use of the guard-fingers to hold their free ends in operative position.

When I desire to employ a single cutter-bar, the guard-fingers are necessary to provide edges against which the cutters may operate.

It will be seen that either or both of the cutter-bars may be dismounted or removed from the guides or ways in the finger-bar by sliding the same longitudinally toward and beneath the double-crank, such detachment being accomplished without disconnecting any of the supporting parts of the machine and only involving a loosening of the bolts by which the ends of the pitmen are pivotally connected to the blocks or heads carried by the cutter-bars.

It will be seen that by the above described arrangement of double crank, it is possible, when only a single cutter-bar is employed, to remove the arm 6 and spindle 7 and employ only the wrist-pin 5.

The shoes 9 are shaped at their upper sides to conform to the under surface of the lower member of the finger-bar and extend vertically at their rear ends, as shown at 29, to bear against the rear edges of the flanges by which the upper and lower members of the finger-bar are connected. In this way the members or parts comprising the finger-bar are united to prevent straining or displacement.

The webs 14 and 16 may be made of any shape desired, and indeed the same result may be accomplished by making the finger-bars dovetailed in cross-section. Similar changes in form, size, and proportion of parts may be made without departing from the spirit of this invention.

Having described my invention, what I claim is—

1. In a device of the class described, the combination with a finger-bar provided in its front side with a groove 21^a and a subjacent edge or rib 22^a, of guard-fingers provided at their rear ends with shoulders 23 and 24 to engage said groove and rib, respectively, stirrups attached to the rear ends of said guard-fingers, and means to secure the free ends of the said stirrups to the finger-bar, substantially as specified.

2. In a device of the class described, the combination with a finger-bar comprising separable upper and lower members 10^a and 10^b provided at their rear sides with contacting flanges secured together, the front side of the lower member having an irregular surface, of guard-fingers provided at their rear ends with shoulders to engage the corresponding irregularities of the finger-bar, and having rearwardly-extending stirrups which conform to the under side of the finger-bar and lie at their rear ends against the under surface of said contacting flanges, and means to secure said rear ends to the flanges, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DANIEL D. DORNEY.

Witnesses:
CHARLES H. A. MUSE,
D. D. HALLMAN.