

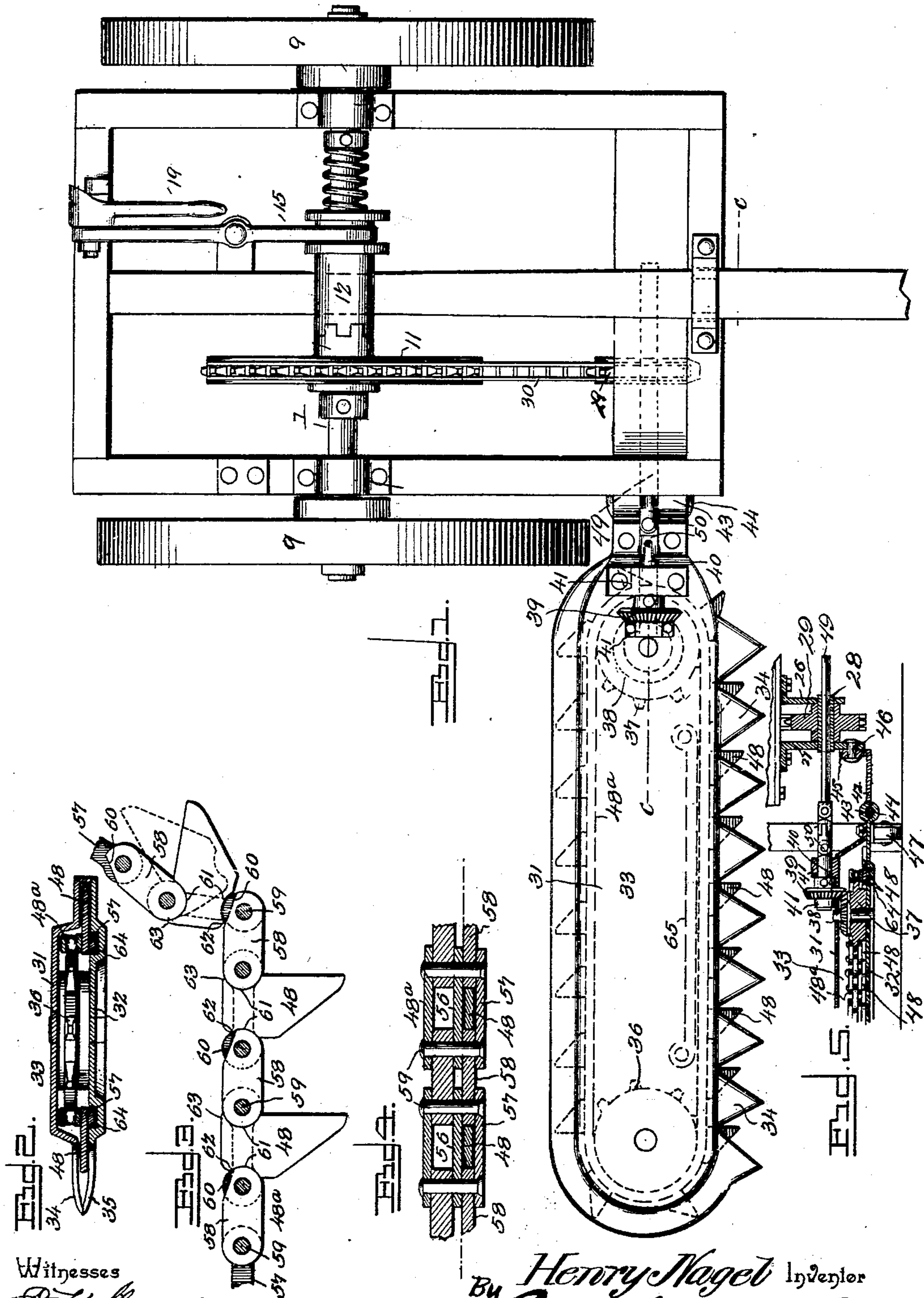
No. 677,095.

Patented June 25, 1901.

H. NAGEL.  
MOWING MACHINE.

(Application filed July 2, 1900.)

(No Model.)



Witnesses  
*E. F. Stewart*  
*J. W. Garner*

By *Henry Nagel* Inventor  
*C. A. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

HENRY NAGEL, OF IDAHO FALLS, IDAHO.

## MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 677,095, dated June 25, 1901.

Application filed July 2, 1900. Serial No. 22,351. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY NAGEL, a citizen of the United States, residing at Idaho Falls, in the county of Bingham and State of Idaho, have invented a new and useful Mowing-Machine, of which the following is a specification.

My invention relates to the cutting apparatus of mowing-machines.

One object of my invention is to provide an improved endless traveling cutting apparatus in which the cutter-plates may be readily attached to and detached from the endless chain without employing bolts, screws, rivets, or other extraneous devices for fastening said cutter-plates to the links of the chain.

A further object of my invention is to effect improvements in the construction of the casing in which the endless traveling cutting apparatus is inclosed.

My invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a top plan view of a mowing-machine provided with cutting apparatus constructed in accordance with my invention. Figs. 2, 3, and 4 are detail views of the endless traveling cutting apparatus. Fig. 5 is a sectional view taken on a plane indicated by the line *c c* of Fig. 1.

In Figs. 1 and 5 of the drawings I show the frame and as much of the gear of a mowing-machine as is necessary to illustrate the connection with my improved apparatus, which is driven by a shaft 40. Said shaft is flexibly connected by a joint 50 to a shaft 49, which slides longitudinally in and rotates with a sleeve 28, that is journaled in bearings in hangers 26 27, that depend from the front side of the frame, near one corner thereof. A sprocket-wheel 29, which is fast on the sleeve 28, is connected by an endless sprocket-chain 30 to a sprocket-wheel 11, which is loose on the axle-shaft 1. Said axle-shaft 1 is rotated by the wheels 9. A clutch 12 locks the sprocket-wheel 11 to the axle-shaft or permits it to remain idle thereon. A lever 19 to operate said clutch is connected thereto, as at 15.

A pair of top and bottom plates 31 32 of the

required size and shape form the inclosing case 33 of the cutting apparatus, and formed with or secured to said plates 31 32, as the case may be, on the front sides thereof are upper and lower coacting ledger-plates 34 35, the outer ends of which are in contact with each other, as shown. A pair of sprocket-wheels 36 37 are disposed between the said plates, at the inner and outer ends thereof, and have their bearings in the said plates. The said sprocket-wheels are connected together by an endless sprocket-chain 48<sup>a</sup>, and fast with the sprocket-wheel 37 at the inner end of casing 33 on the upper side of said wheel is a miter gear-wheel 38. The same is engaged by a similar gear 39 on the shaft 40, which is journaled in bearings 41 on the upper side of the plate 31. An arm 42 is hinged to the inner end of the casing 33, as at 43, the pintle 44 of said hinged joint being parallel with the major axis of the frame 3. The inner end of the arm 42 is upturned at right angles, as at 45, and said upturned inner end of said arm bears against the outer side of the lower portion of the hanger 27 and is pivotally connected thereto by a pin or bolt 46, which is at right angles to the pintle 44. Hence the cutting apparatus may be tilted on the pivot 46, so as to raise and lower the front side thereof, and the same may be turned on the pivot 44 to adapt the machine to inequalities of the ground and enable the cutting apparatus to be extended laterally from one side of the frame, as here shown in Figs. 1 and 5, or folded upwardly thereon out of the way when the machine is not in operation or is being driven from field to field. Supporting-rollers 47 are mounted under the casing of the cutting apparatus, at the inner and outer ends thereof. Cutter-plates 48 are detachably secured to the endless traveling chain 48<sup>a</sup> by the means hereinafter described and are operated by said endless traveling chain, the said cutter-plates 48 coacting with the ledger-plates 34 35 in the cutting of the grass or grain, as will be understood.

The link-plates 56 57 on the under side of chain 48<sup>a</sup> are doubled, as shown, and the intermediate link-plates 58, which connect the said link-plates 56 57 and space them apart on the link-bolts 59, are each provided at one end on the inner side with an angular face



60, the ends of the said link-plates 58 being  
semicircular in form, with their curved edges  
concentric with the bolts 59. The cutter-  
plates 48 are provided on their opposite edges  
5 at their inner ends with reëntrant semicircu-  
lar notches 61, adapted to fit the semicircu-  
lar ends of the link-plates 58, shoulders 62 63  
being formed at the inner corners of the cut-  
ter-plates. It will be observed by reference  
10 to Fig. 3 of the drawings that the inner ends  
of the cutter-plates are somewhat narrowed,  
the shoulders 62 thereof being within the  
planes of the rear sides of said cutter-plates,  
and that when the links of the chain are dis-  
15 posed at substantially right angles to each  
other, which cannot be done without first de-  
taching the chain from its sprocket-wheels  
or opening the chain, the cutter-plates may  
be detached from the chains by disposing  
20 the faces 61 on the rear sides of the cutter-  
plates opposite the angular faces 60 of the  
link-plates 58, thereby enabling the link-  
plates to be first partly turned on the link-  
bolts 59 at their front inner corners, so as to  
25 clear their shoulders 62 of the link-plates 58,  
as shown in dotted lines in Fig. 3, whereupon  
the cutter-plates may be readily disengaged  
from the endless chain. Hence no rivets,  
bolts, or screws are employed to connect my  
30 improved cutter-plates to the endless travel-  
ing-carrying-chain, and the cutter-plates may  
with great facility be detached from the said  
chain in order to sharpen them and readily  
be reattached thereto. A suitable race 64 is  
35 formed in the upper side of the lower plate  
35, in which race travel the lower plates 37  
of the chain. A straight flange-bar 65 is se-  
cured on the upper side of the lower plate 32  
and bears against the rear side of the front

cutting-lead of the endless chain 48<sup>a</sup> to pre- 40  
vent the said front lead of said chain from  
being bowed when in operation.

The rear sides of the upper and lower plates  
31 32, which incase the rear lead of the end-  
less traveling chain and the cutter-plates 45  
thereon, contact with each other throughout  
the length of said case, as shown in Figs. 1  
and 2, the upper plate having its rear edge  
downturned to form a flange for this purpose.  
Thereby each of said plates braces the other 50  
on the rear side of the casing throughout the  
length thereof, and owing to the fact that the  
ledger-plates 34 35 contact with each other at  
their outer ends said plates 31 32 brace each  
other on the front sides also, as will be under- 55  
stood. Hence the casing is greatly strength-  
ened by this construction.

Having thus described my invention, I  
claim—

In cutting apparatus for harvesting-ma- 60  
chines and the like, an endless traveling chain-  
having links provided with semicircular ends,  
the inner edge of each link being cut away to  
form an angular face, as at 60, in combina-  
tion with cutter-plates having curved reën- 65  
trant notches on their opposite sides adapted  
to receive the ends of said link-plates, where-  
by said cutter-plates may be attached to and  
detached from said chain, substantially as de-  
scribed. 70

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

HENRY NAGEL.

Witnesses:

WILLIAM H. HOLDEN,  
JOSEPH A. CLARK.