

**No. 677,127.**

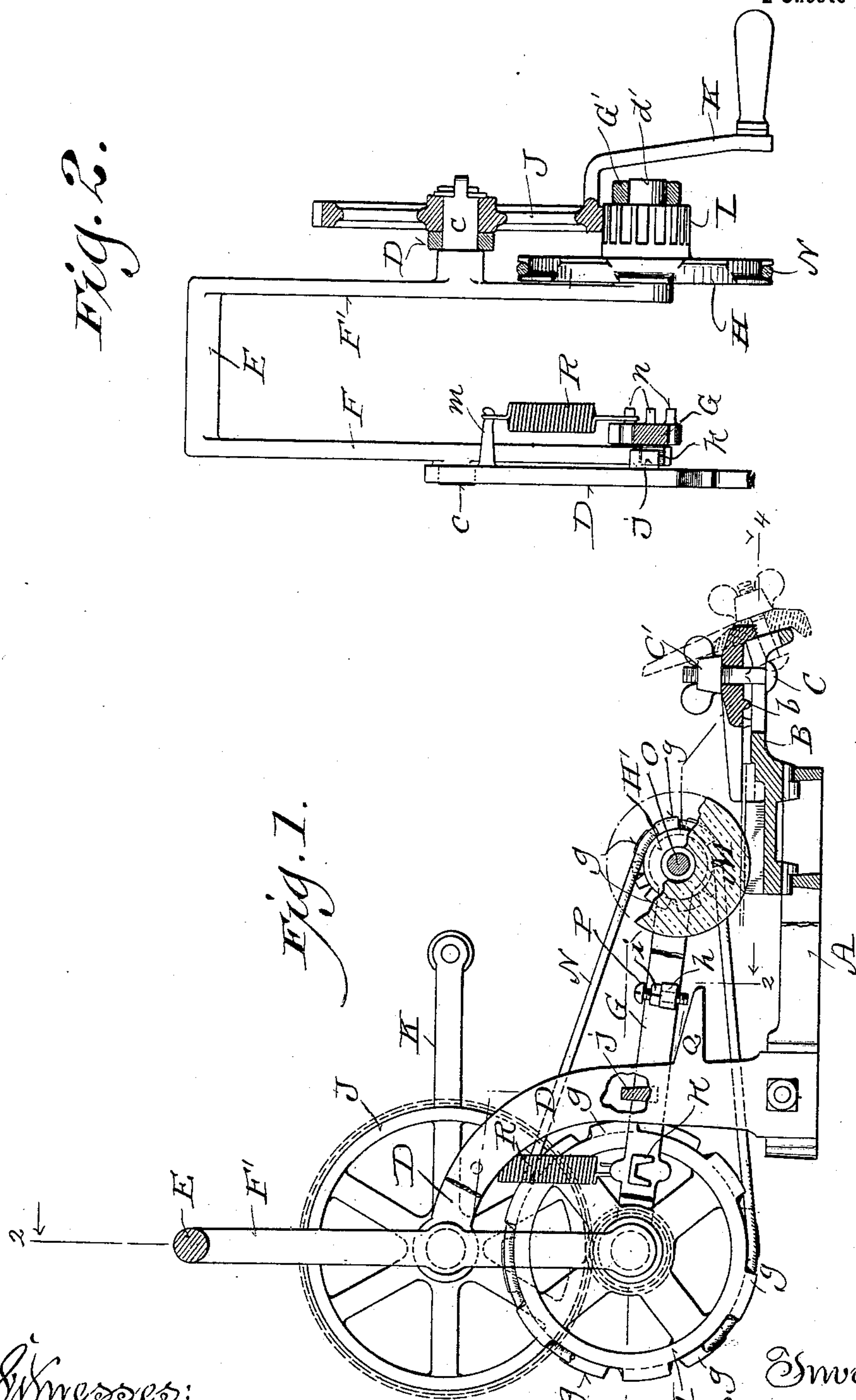
**Patented June 25, 1901.**

**J. GILSON.**  
**GRINDING MACHINE.**

(Application filed Nov. 8, 1899.)


(No Model.)

**2 Sheets—Sheet 1.**



Witnesses:  
Geo. W. Young  
N. E. Oliphant

By


 Inventor  
 John Gibson  
 H. G. Underwood  
 Attorney

No. 677,127.

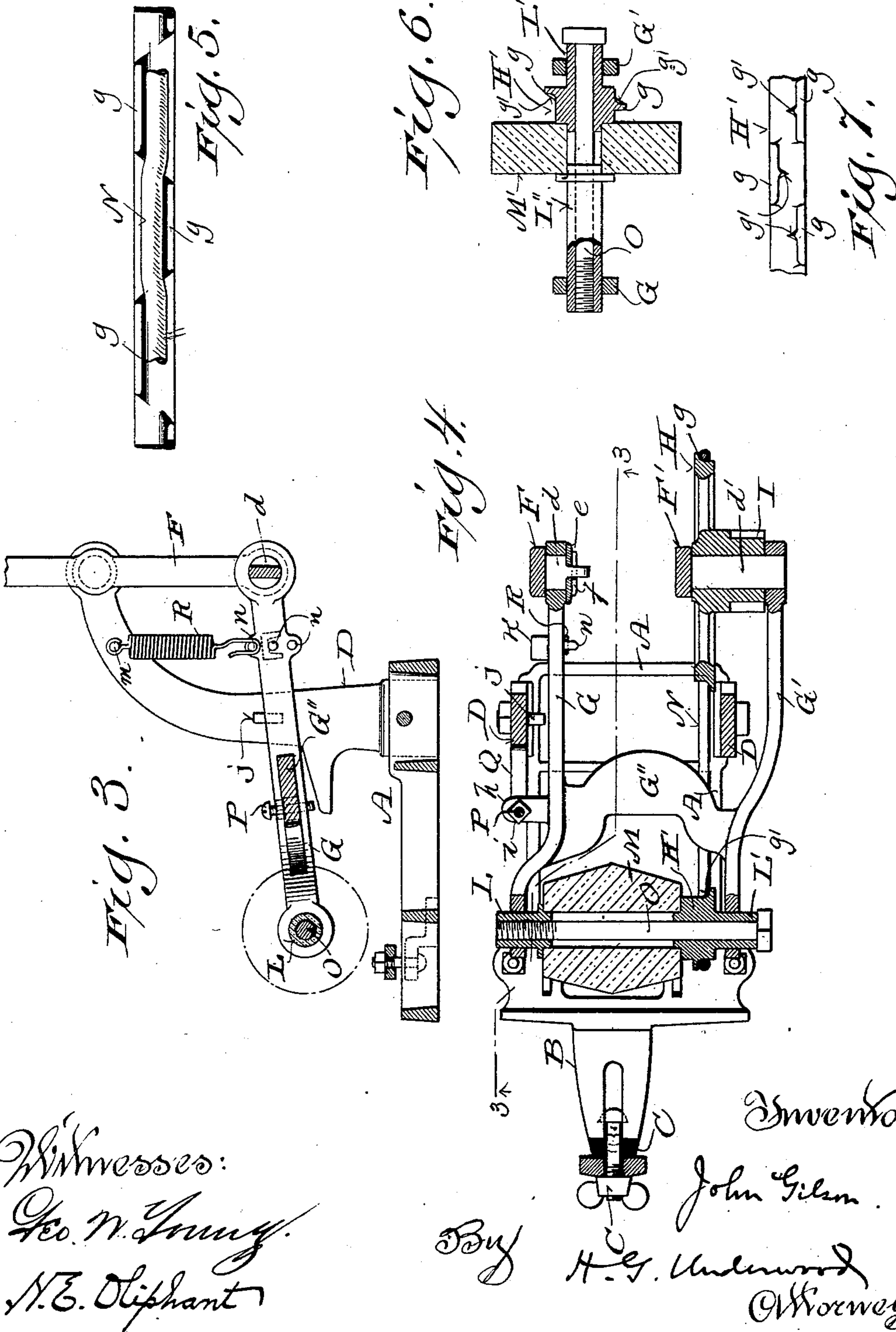
Patented June 25, 1901.

J. GILSON.  
GRINDING MACHINE.

(Application filed Nov. 6, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:  
Geo. W. Young.  
N. E. Oliphant

Inventor:  
John Gilson.  
By H. G. Underwood  
Attorney



# UNITED STATES PATENT OFFICE.

JOHN GILSON, OF PORT WASHINGTON, WISCONSIN, ASSIGNOR TO THE  
GILSON MANUFACTURING COMPANY, OF SAME PLACE.

## GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 677,127, dated June 25, 1901.

Application filed November 6, 1899. Serial No. 736,035. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN GILSON, a citizen of the United States, and a resident of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented certain new and useful Improvements in Grinding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide simple economical high-speed grinding-machines of that class especially designed for sharpening knife-sections of mower and reaper sickle-bars, but which may be readily utilized for other grinding operations, said invention consisting in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a side elevation of my improved grinding-machine partly broken and in section; Fig. 2, a partly-sectional front elevation of a portion of the machine, the view being indicated by lines 2 2 in the preceding figure; Fig. 3, a longitudinal vertical section of said machine, indicated by lines 3 3 in the succeeding figure; Fig. 4, a horizontal section of the aforesaid machine, indicated by lines 4 4 in the first figure; Fig. 5, a detail face view of portions of a sheave and belt constituting parts of the machine; Fig. 6, a detail sectional view illustrating a form of grinding-wheel employed for grinding operations other than sharpening of sickle-bar knife-sections, and Fig. 7 a detail face view of another of the belt-sheaves.

Referring by letter to the drawings, A indicates a rectangular cast-metal skeleton base, and shown in rocker-bearing connection with the same is a sickle-bar clamp, together with means by which it may be held in tilted position at various angles, this variety of clamp being old in the art. It is also old in the art to have the knife-rests and sickle-bar abutments of the clamp integral parts of the base, whereby the latter is made to constitute the lower jaw of the clamp. Now as a feature of

my present improvements the lower jaw of the clamp in any form is provided with a forward longitudinal slotted shank B, having a depressed free end into which the slot extends, and thereby forms a vertically-disposed notch, as clearly illustrated in Figs. 1 and 4. Another feature of my improvements consists in providing the upper jaw of the clamp with an under side rib *b*, that extends in a direction crosswise of the lower jaw-shank. The upper clamp-jaw is also provided with the usual stilt-lugs and has an aperture in its forward handle portion engaged by a bolt C, that also engages the slotted and notched shank B of the lower clamp-jaw, a thumb-nut C' being run on the bolt to complete the clamp. From the foregoing and the showing in Figs. 1 and 4 it will be readily understood that I provide for a forward run and clearance tilt of the upper clamp-jaw when a sickle-bar with its attachments is to be positioned on the lower jaw of the clamp or removed from the same.

In rigid connection with the side members of the base A, at the rear thereof, are parallel standards D, the upper ends of which curve backward and terminate in bearings for journal-bosses *c* of a swing-yoke, comprising an upper cross-piece E and branches F F' depending from the same, said cross-piece being above the journal-bosses and serving as a handle by which to manipulate the yoke. Bosses *d d'* extend in the same direction from the lower ends of the branches F F' of the swing-yoke. The boss *d* is loose in an eye at the rear end of a side bar G, constituting part of the skeleton-frame carrier that ordinarily has reciprocative movement longitudinally of the machine under control of the operator manipulating the aforesaid swing-yoke, such movement being necessary when said machine is utilized for grinding knife-sections of a sickle-bar, and fitting an angular reduction of said boss is a stay-washer *e* for said frame-bar, a key *f* being extended through an aperture in the stud reduction to oppose the washer. The boss *d'* is loose in the elongated hub of a sheave H and an eye in another side bar G' of the aforesaid carrier.

The elongation of the sheave-hub is in the



form of a pinion I, in mesh with a spur-wheel J, held to rotate on a journal-boss of the swing-yoke above specified, said spur-wheel being operated by a crank K in one piece or otherwise rigid therewith.

The forward ends of the carrier-frame side bars are in the form of eyes, constituting bearings for flanged journals L L', that have tight fit in the bore of a grinding device M, such as is commonly employed in a variety of machines organized for sharpening knife-sections of a sickle-bar, the journal L' being made to form a sheave H' of considerably less diameter than the one H aforesaid, these sheaves being in line and having a round belt N run thereon. The journal L has a screw-threaded bore engaged by the screw-threaded end of an arbor in the form of a bolt O, extending through journal L' and the grinding device M, the head of the bolt being in opposition to the latter journal, whereby both journals are made to clamp said grinding device. The distance between the front ends of side bars of the carrier-frame and the length of the journals L L' are such that provision is had for enough side thrust on the part of said journals and interposed grinding device as will permit automatic adjustment of said grinding device on knife-sections of a sickle-bar held by the clamp aforesaid.

As shown in Fig. 6, another grinding device M' in the form of a wheel may be substituted for the one M, and to compensate for the difference in face of these two grinding devices a journal L'', longer than the one L, is utilized in screw-thread connection with the bolt O aforesaid, the cross-piece G'' of the carrier-frame being notched to afford clearance for said substitute grinding device, the latter being for work on parts of agricultural implements and edge-tools of various kinds for which the grinding device M is not suitable. Instead of grooving the faces of the sheaves H H' they are provided with staggered lugs g of such contour as to cause tortuous travel of the belt N and prevent the same from slipping. As best shown in Fig. 7, each of the staggered sheave-lugs g may be provided with an inner central rib g' to facilitate strain of said lugs on the belt.

The side bar G of the carrier-frame is provided with an outer lateral lug h, having a tapped aperture engaged by a screw P, held in adjusted position by a jam-nut i thereon, and projecting forward from the adjacent standard of the machine is a finger Q, having an inclined upper edge to which the lower end of said screw is normally opposed. The adjustment of the screw P against the finger Q determines the initial elevation of the grinding device M with respect to the sickle-bar knife-sections to be ground, and thus the points of said knife-sections are saved from harm, while at the same time unnecessary pull on the tension-spring, hereinafter set forth, is avoided.

The standard having the finger Q is provided with an inner lug j in the forward path of another outer lateral lug k on the side bar G' of the carrier-frame when the machine is utilized for grinding sickle-bar knife-sections, whereby the forward travel of said carrier-frame and the grinding device M is limited, the rearward travel being limited by the carrier-frame lug h abutting said standard. The lug k of the carrier-frame is recessed from its under side to fit the standard-lug j, and an engagement of these lugs is had to hold said carrier-frame stationary in elevated position at times when the grinding device M' is utilized. It is obvious that the same results could be obtained were the finger standard-lug j made with a recess to be engaged by the carrier-frame lug.

A pin m projects inward from the machine-standard that is provided with the lug j, and suspended from the pin is the tension-spring R, common in the art to which my improvements relate. The lower end of the spring is hooked to any one of a series of lugs n, extending inward from the side bar G' of the carrier-frame, according to the tension desired. In Figs. 1 and 3 the carrier-frame is shown on half-stroke, the tension-spring being vertical and exercising its least resistance to load; but as the resistance of said spring increases as said carrier-frame proceeds on its stroke in either direction it will be understood that the power of the aforesaid spring is better equalized at all times with respect to load.

The relative sizes of the belt-sheaves are such that the speed of the grinding device is very high in proportion to the power necessary to drive the same, and the machine may be readily taken apart for knockdown shipment or storage and as readily assembled.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A grinding-machine of the species described having the lower jaw of its clamp provided with a forward shank depressed at its free end and longitudinally slotted through the depression, the upper jaw of the clamp provided with an under side rib in a direction crosswise of said shank, a bolt engaging the shank-slot and an aperture in the handle portion of said upper jaw, and a nut run on the bolt.

2. A grinding-machine of the species described having the lower jaw of its clamp provided with a forward shank depressed at the free end and longitudinally slotted through the depression, a bolt engaging the shank-slot and an aperture in the upper jaw of the clamp, and a nut run on the bolt.

3. A grinding-machine of the species described having a standard thereof provided intermediate of its extremities with a forwardly-projecting finger the upper edge of which is inclined, a lateral lug on the recip-



rocative element of the machine, and a screw in adjustable connection with said lug to normally oppose the inclined edge of said finger.

5 4. A grinding-machine of the species described having the reciprocative carrier element and a standard thereof provided with lugs, the standard-lug being arranged to come in the path of the lug on the carrier to limit forward travel of said carrier.

10 5. A grinding-machine of the species described having the spring in connection with its reciprocative element suspended from a

stationary support to be vertical when said reciprocative element is on half-stroke in either direction.

15 In testimony that I claim the foregoing I have hereunto set my hand, at Port Washington, in the county of Ozaukee and State of Wisconsin, in the presence of two witnesses.

JOHN GILSON.

Witnesses:

EDW. BARELMAN,  
C. A. SEIFERT.