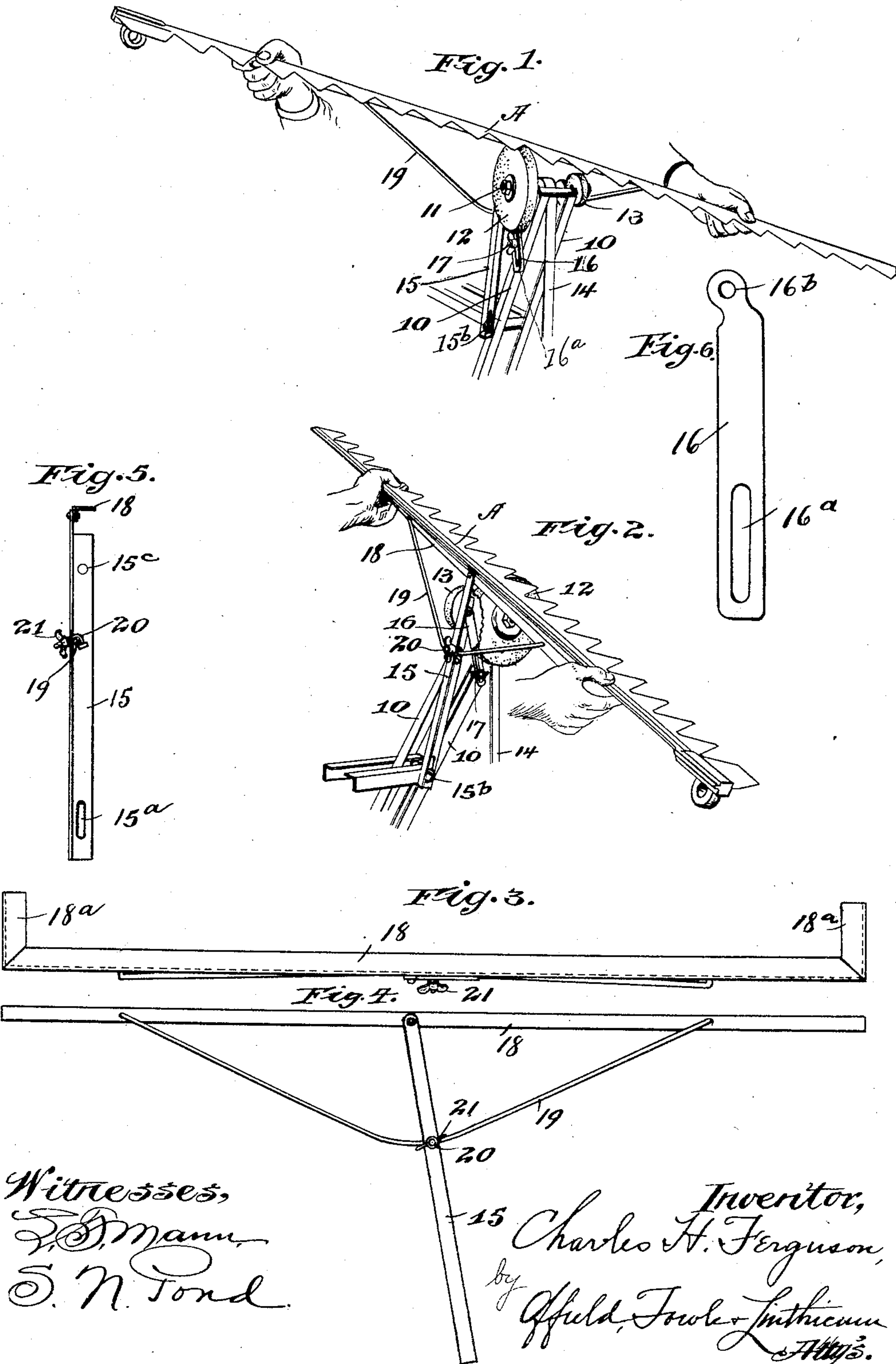


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C. H. FERGUSON.
SICKLE SUPPORT FOR GRINDSTONES.

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UNITED STATES PATENT OFFICE.

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SICKLE-SUPPORT FOR GRINDSTONES.

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To all whom it may concern.

Be it known that I, CHARLES H. FERGUSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sickle-Supports for Grindstones, of which the following is a specification.

My invention relates to that class of devices which are used in connection with grindstones for the purpose of supporting and guiding in true and accurate relation to the grindstone the tool or blade to be sharpened thereby; and my present invention has reference more particularly to a novel device for supporting and guiding sickles or mower-blades.

The object of the invention is to provide a simple and easily-manipulated attachment of the character mentioned which shall be capable of practically universal adjustment relatively to the stone in order to accommodate sickles of varying sizes, as well as grindstones of varying diameters, and also to enable the cutting edges to be presented to the surface of the stone at any desired or suitable angle of inclination to produce a uniform edge thereon.

To this end my invention consists in a sickle-support possessing the novel characteristics of structure and manipulation, substantially as hereinafter described, and more particularly pointed out in the claims.

Referring to the accompanying drawings, wherein I have illustrated my invention in a preferred form and from several different points of view, Figure 1 is a perspective view, approximately in front elevation, of the upper end or head of a grindstone-frame and a grindstone thereon with my improved attachment applied thereto and showing a sickle supported in grinding position thereon. Fig. 2 is a similar view from a point in rear of the grindstone. Fig. 3 is a top plan view of the tool-support detached. Fig. 4 is a rear elevational view of the device shown in Fig. 3. Fig. 5 is a vertical sectional view through the tool-holder, showing its main supporting arm or bracket in edge elevation; and Fig. 6 is a detail side elevational view of a brace or strut which coöperates with the parts shown in Fig. 5 and the frame of the machine in effecting an

adjustment of the tool-holder toward and from the periphery of the stone.

Referring to the drawings, 10 designates the upper ends of the main side frame members of a collapsible grindstone-frame, the details of which constitute no part of the present invention, but which are shown, described, and claimed in a companion application filed concurrently herewith, Serial No. 187,368, which frame is conveniently, although not exclusively, adapted for coöperation and combination with my improved sickle-support. Suitably journaled and supported upon and across the upper ends of the frame members 10 is a shaft 11, having mounted on one overhanging end thereof a circular emery-wheel or other grindstone 12 and on the opposite overhanging end a polishing-disk 13, the shaft 11 being adapted to be rotated at a high speed by a driving-belt 14, driven from a pedal-actuated pulley (not shown) in the lower portion of the frame.

Referring now to those features which constitute the principal elements of my invention, 15 designates a bracket member, herein shown as made from a strip of angle-iron one web of which is longitudinally slotted near its lower end, as shown at 15^a, Fig. 5, through which it is adapted to be secured to the frame, as by means of a threaded bolt 15^b, and 16 designates a coöperating bracket member, herein shown as in the form of a short bar longitudinally slotted at its lower end, as at 16^a, and having an eye 16^b at its upper end, whereby it is adapted to serve as a brace or strut between one of the frame members 10 and the upper portion of the bracket member 15 in the manner plainly shown in Figs. 1 and 2, this strut being pivoted at its upper end to the bracket member 15, near the upper end of the latter, through an aperture 15^c, Fig. 5, therein and adjustably clamped to the frame member 10 through its slotted lower end, as by a wing-nut 17.

18 designates a sickle-supporting bar or rest which is pivotally mounted centrally thereof on the upper end of the bracket member 15 so as to be capable of being tilted to occupy various angular relations to the latter. This tool-rest 18 is herein shown as formed from a

strip of angle-iron of a suitable or convenient length, which may have its end portions bent at right angles to the main length thereof, as shown at 18^a, Fig. 3, the horizontal web of the iron at the bends being cut out and suitably mitered to permit the described formation of these angularly-disposed ends. As a means for retaining the tool-rest fixed at any adjusted inclination to its bracket-support 15 16 I have herein shown a brace in the form of a bent rod 19, passed through an aperture in the slotted web of the bracket member 15 somewhat below the aperture 15^c therein, Fig. 5, and at its ends secured in the depending flange of the tool-rest 18 on opposite sides of the central pivot-support of the latter. The central or intermediate portion of the rod 19 is formed substantially on the arc of a circle whose center is the pivotal connection between the tool-rest 18 and the supporting bracket member 15, and to unite the brace 19 to the bracket member 15 at any adjusted position I may employ a threaded bolt 20, having an inwardly-bent end passed through an aperture in the bracket-bar 15 and engaging by its hooked end the brace 19 and rigidly clamping the parts 15 and 19 together by means of a wing-nut 21, Fig. 5.

The manner in which the device is operated is doubtless apparent from the foregoing description, in connection with the drawings, but may be briefly described as follows: The attachment is applied to the grindstone-frame by means of the securing devices shown as engaging the slotted lower ends of the bracket elements 15 and 16, whereby it is rigidly held, it being so adjusted in its application to the frame as to bring the transverse tool-support 18 at a proper position relatively to the periphery of the grinding-disk to enable a sickle or mower-blade, such as is shown at A, to be laid thereon with its teeth in a position to be successively engaged by the periphery of the stone. The bar 18 is then by means of the clamp 20 21 adjusted to and rigidly fixed at such an inclination to the horizontal as will produce, in the grinding operation, the desired bevel on corresponding parallel edges of the several teeth, whereupon the said edges of the teeth are successively applied to the peripheral surface of the stone as the latter is rotated by holding the sickle-blade rigidly upon the support 18 and its bent ends 18^a in the manner clearly indicated in Figs. 1 and 2 and moving it longitudinally thereon as the successive teeth are presented to the grinding action of the stone. The corresponding edges of all the teeth having thus been uniformly sharpened, the rest 18 is adjusted to an opposite inclination of equal degree, and the opposite edges of the teeth are sharpened in a similar manner.

It will be observed that the hereinabove-described construction of sickle-support provides for a practically universal adjustment of

the sickle relatively to the stone, at least within all necessary and practicable limits. The described means for securing the supporting-bracket on the frame enables the sickle-supporting bar 18 to be correctly positioned relatively to the periphery of various-sized stones, while the pivotal connection of the sickle-rest 18 upon the bracket, in connection with the brace 19 and its clamp, enables the bar 18 to be adjusted to produce any desired angle of bevel on the edges of the teeth. The angular extensions 18^a on the tool-supporting bar serve a useful function as affording combined supports and guides for the sickle during its backward and forward movement relatively to the stone in grinding the full extent of the inclined edges of the teeth, maintaining the sickle in a constant plane throughout this movement, and thereby producing a uniform bevel from the point to the base of each tooth. The extensions 18^a further constitute a convenient hand-grasp in holding the sickle rigidly upon its support during the grinding operation.

I am aware that various modifications and changes might be made in respect to details of form and construction from the device as herein shown without departing from the principle or sacrificing any advantages of the invention. Hence I do not limit the invention to the particular form and structure herein shown and described except to the extent indicated in specific claims.

I claim—

1. A sickle supporting and guiding attachment for grindstones comprising a bracket removably mounted on the grindstone-frame and a bar pivotally mounted on said bracket transversely of the plane of the grindstone and adjustable to varying angles of inclination on both sides of a horizontal position, said bar being stationary as regards endwise movement transversely of the stone and constituting an immediate free support and guide for the sickle on which the latter is adapted to be loosely held, substantially as described.

2. A sickle supporting and guiding attachment for grindstones comprising an upright member removably attached at its lower end to the frame of the grindstone, a strut connecting the upper portion of said upright member to said frame, a transversely-extending bar pivotally mounted centrally of its length on the upper end of said upright member, said bar constituting an immediate free support and guide for the sickle on which the latter is adapted to be loosely held, a bent brace-rod slidably engaging an aperture in said upright member and connected at its ends to said sickle supporting and guiding bar on opposite sides, respectively, of the latter's point of support, and a clamp rigidly uniting said brace-rod and upright member at varying angular adjustments of said bar, substantially as described.

3. The combination with a grindstone-frame
and a grindstone rotatably mounted in the up-
per end or head thereof, of the slotted bracket
members 15 and 16 removably and adjustably
5 connected to the frame, the sickle-rest 18 piv-
otally connected to the upper end of the mem-
ber 15, and the brace-rod 19 and means for

clamping same to the member 15, substantially
as described.

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