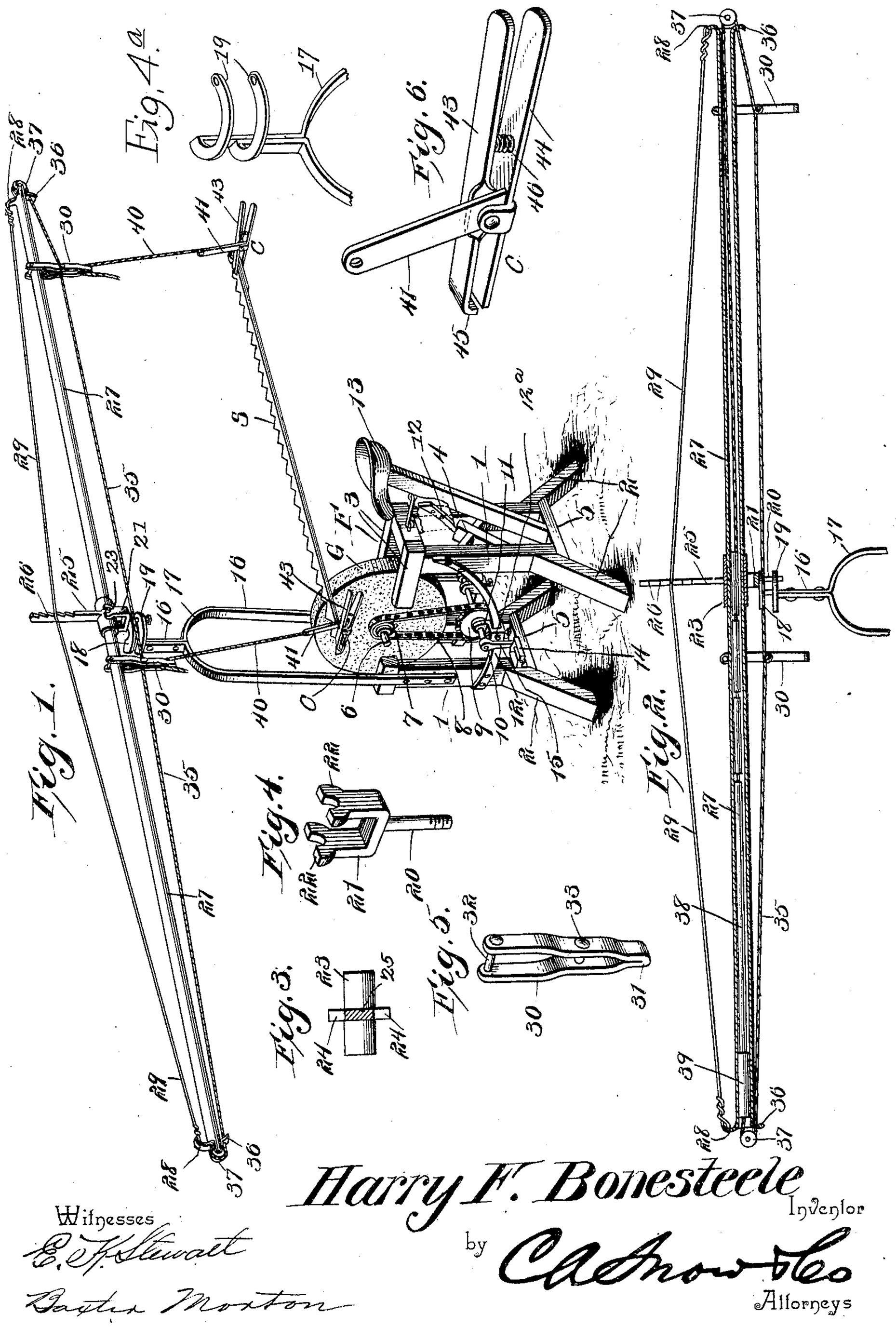
No. 789,138. PATENTED MAY 9, 1905.

H. F. BONESTEELE.

SICKLE HOLDING ATTACHMENT FOR GRINDSTONES.

APPLICATION FILED NOV. 2, 1903. RENEWED APR. 7, 1905.



No. 789,138. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

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SICKLE-HOLDING ATTACHMENT FOR GRINDSTONES.

SPECIFICATION forming part of Letters Patent No. 789,138, dated May 9, 1905.

Application filed November 2, 1903. Renewed April 7, 1905. Serial No. 254,410.

To all whom it may concern:

Be it known that I, HARRY F. BONESTEELE, a citizen of the United States, residing at Shannon, in the county of Meagher and State of Montana, have invented a new and useful Sickle-Holding Attachment for Grindstones, of which the following is a specification.

This invention relates to sickle-holding attachments for grindstones; and the object of the invention is to provide an attachment for grindstones whereby the sickle of a mower or reaper may be so supported that it may be instantly adjustable to any desired position for grinding and the weight of the sickle counterbalanced by a suitable weight in whatever position the sickle may be supported, so that the grinder will not have to use any muscular effort to support the sickle, but may concentrate his attention upon the grinding operation.

A further object of the invention is to improve the construction of the supporting-frame and driving mechanism of a grindstone so that it may be adapted for use in grinding the sickles of mowers and reapers and so that the driving mechanism may be readily adjusted for operation by persons of different sizes.

With the objects above mentioned and others in view, as will appear when the invention is more fully disclosed, the same consists in the novel construction and combination of parts of a grindstone supporting-frame, driving mechanism, and sickle-holding attachment hereinafter fully described, illustrated in the accompanying drawings, forming parts of this specification, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in perspective of the complete apparatus with the sickle of a mower or reaper supported thereby in position for grinding with part of the frame broken away. Fig. 2 is a view in side elevation and partly in section of the upper portion of the standard of the sickle-holder and the parts supported thereby. Fig. 3 is a detail view of the sleeve in which the tubular track is supported. Fig. 4 is a detail view of the swivel-clevis. Fig. 4ª is a detail view of the upper end of the member having the supporting-arms for the swivel-clevis. Fig. 5 is a detail view of one of the sliding hangers detached from the tubular track upon which it is designed to slide. Fig. 6 is a detail view of one of the sickle-holding clamps and the support therefor.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference throughout, F designates generally the grindstone-frame. In the frame F there are the usual uprights 1, in this instance mounted upon diverging foot-pieces 2, longitudinal horizontal members 3 at the tops of the uprights, crossed brace members 4, forming strengthening means for the uprights, and transverse brace members 5, connecting the foot-pieces 2. The grindstone G is supported upon a shaft 6, arranged transversely between the longitudinal members 3 of the frame, and there is also rigidly mounted upon the shaft 6 a sprocket-wheel 7, over which runs a chain 8, which also encircles a sprocket-wheel 9, mounted on a shaft 10, supported in bearing-blocks 11, adjustably mounted upon curved supporting members 12 and which may be secured by any suitable means, such as set-screws 12ª. The supporting members 12 are curved on circular arcs whose centers coincide with the axis of the grindstone supporting-shaft 6, and the supporting members are rigidly attached at their ends to the frame members 1. At the end of the frame most remote from the grindstone there is mounted a seat 13, upon which the operator of the grindstone may sit and drive the grindstone by means of pedals 14, carried by cranks 15, attached to the shaft 10, upon which the sprocket 9 is mounted.

The grindstone supporting-shaft 6 will preferably be supported upon ball or roller bearings (not shown) in order to lessen the friction; but as no novelty is claimed for the bearings illustration and description thereof are regarded as unnecessary.

Bolted to the longitudinal members 3 of the grindstone-frame on the side of the grindstone supporting-shaft remote from the seat 13 is mounted a rigid supporting member 16, consisting, preferably, of two iron bars riveted or bolted together at the top and spread apart

below to form an arch 17 over the grindstone. The connected upper ends of the two bars are bent at right angles to the riveted portion and are spaced apart to form horizontal supporting-arms 18 and 19, having alined eyes for the reception of the stem 20 of a swivel-clevis 21, the upper portion of which consists of two notched side pieces 22, spaced apart to receive a sleeve 23, having trunnions 24 projecting from the sides midway between the ends and resting in the notches of the side pieces 22 of the swivel-clevis. The sleeve 23 is provided on the upper side thereof with an upwardly-projecting arm 25, provided with a series of notches 26, whose purpose will be hereinafter explained. The sleeve 23 forms a coupling for two pieces of tubing 27, preferably seven feet in length and about one and one-quarter inches in internal diameter, which are mounted end to end in the sleeve and form when so arranged a combined tubular guideway and track, as will afterward appear. To prevent the sagging of the ends of the tube-sections 27, there is formed on the end of each a lug 28, having an eye in which is secured one end of a supporting-wire 29, which is caught in one of the notches 26 of the arm 25, and so forms a sort of truss structure to keep the ends of the tube-sections 27 at the proper height and preserve the alinement of the bore of the tube-sections.

Mounted upon the track formed by the two tube-sections are a pair of hangers 30, each of which consists, preferably, of a piece of iron rod bent upon itself at 31 and having the ends, which are spaced apart sufficiently to receive one of the tube-sections 27 between them, connected by means of a transverse bolt 32, which when the hangers are in use rests upon the upper surface of a tube-section and supports the weight of the hanger and whatever may be suspended therefrom. Each hanger is also provided with a shorter bolt 33, connecting the sides thereof, and a cord or rope 35 is passed around this shorter bolt in each of the hangers, so as to keep the hangers at a fixed distance apart. The ends of the rope 35 are carried through eyes formed in lugs 36 at the ends of the tube-sections 27 and are then passed around small pulleys 37, rotatably mounted in the ends of the tube-sections. The ends of the cord 35 are finally secured to a counterweight 38, which is formed in sections and which is substantially equal both in length and weight to the sickle S which is to be ground. The counterweight 38 is slidable within the tubular guide formed by the members 27 and at one end is provided with an enlargement 39 to balance the weight of the bracket at the end of the sickle, by which it is attached to the pitman of the mower or reaper.

To suspend the sickle from the hangers, short cords 40 are attached to the lower ends of the hangers, and at the lower end of each of the cords 40 there is secured a short bar 41, having a beveled lower end, to which is pivoted a clamp C, comprising two pivoted members 43 and 44, the former of which has a hook 45 at the operative end thereof and the latter of which is adapted when the sickle is held by the clamp to abut against the beveled end of the bar 41. A spring 46, disposed between the members 43 and 44, holds them normally in operative position.

The operation of the apparatus will be easily understood from the foregoing description and from the accompanying drawings. The sickle 1 will be supported by the clamps C in the position shown in Fig. 1, and the hangers are so positioned on the tube-sections 27 that the left end of the sickle will be suspended in proper grinding relation to the stone. The grinder seated upon the seat 13 will then set the stone in motion by means of the pedals, sprockets, and chain connecting them and will hold the sickle in contact with the stone at whatever angle may be necessary for the best effect in grinding. When one section of the sickle-blade has been ground, the sickle will be moved to the left by pulling the cord connecting the hangers slightly in that direction, and at the same time the counterweight 38 will be moved in the opposite direction within the guide formed by the tube-sections 27. The adjustment of the angle of the sickle to the grindstone to effect the grinding of the two sides of each section of the sickle-blade will be brought about with the utmost ease, as the sleeve 23 is pivotally supported in the swivel-clevis and the swivel-clevis is susceptible of pivotal movement in the horizontal plane.

As the counterweight 38 is made in sections and the sections correspond to the difference in length between sickle-blades of the standard sizes, it will always be easy to adjust the counterweight to substantially balance any ordinary sickle, and by means of the cord connecting the hangers and attached at its ends to the counterweight it is easy to arrange the counterweight and hangers in such relative position that no matter what the position of the hangers upon the track formed by the two tube-sections 27 the sickle will always be substantially balanced by the counterweight.

As the curved members 12, upon which the shaft 10, supporting the sprocket 9, is carried, are formed in circular arcs of which the grindstone supporting the shaft forms the center, the position of the sprocket 9 upon the supporting members 12 may be adjusted to suit persons of different sizes without altering the relation of the two sprockets or requiring any variation in the length of the driving-chain.

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

1. The combination in a sickle-holding at-

tachment for grindstones, of a pivoted supporting member, sickle-hangers slidable thereon, and a counterweight slidably supported by said member and connected with said hangers so as to counterbalance the weight of a sickle in any position.

2. The combination in a sickle-holding attachment for grindstones, of a universally-jointed supporting member, sickle-suspension devices movable thereon, a counterweight movably supported by said member, and connections between said counterweight and said suspension devices to cause every movement of the sickle-suspension devices in one direction on the support to be accompanied by an opposite movement of the counterweight.

3. The combination in a sickle-holding attachment for grindstones, of a tubular supporting member, hangers slidably mounted on said member, a counterweight disposed within said member and connected with said hangers so that the counterweight will always counterbalance the weight of the sickle in any position.

4. The combination in a sickle-holding attachment for grindstones, of a track pivoted at its middle point, hangers mounted on said track upon opposite sides of the pivotal point, and a counterweight supported by the track and so connected with the hangers that it will counterbalance a sickle carried thereby.

5. The combination in a sickle-holding attachment for grindstones, of a track supported at its middle point, an upright rising from said track at its middle point, a truss extending from said upright to the ends of said track, and means for suspending a sickle from said track.

6. The combination in a sickle-holding attachment for grindstones, of a track supported at its middle point, a notched upright at the middle of said track, a truss-wire fastened at its ends to the ends of said track and passing through one of the notches in said upright, and sickle-hangers carried by said track.

7. The combination in a sickle-holding attachment for grindstones, of a standard, a swivel-clevis at the top of said standard, a track pivotally mounted in said swivel-clevis, and sickle-hangers slidably mounted on said track.

8. The combination in a sickle-holding attachment for grindstones, of a track, sickle-suspension devices slidably mounted on said track and a counterweight connected therewith which is equal in length and weight to the sickle.

9. In a sickle-holding attachment for grindstones, a track, sickle-suspension devices movably mounted on said track and a counterweight for the sickle, said counterweight being formed in sections and equal in length and weight to the sickle and connected with said suspension devices.

10. The combination in a sickle-holding attachment for grindstones, of a track, sickle-suspension devices slidably mounted on said track and a counterweight connected therewith equal in length and weight to the sickle and having an enlargement at one end.

11. The combination in a sickle-holding attachment for grindstones, of a track, sickle-hangers slidable on said track, a counterweight slidably supported by said track, pulleys at the ends of said track, and a cord attached at its ends to said counterweight, connecting said hangers and passing around said pulleys.

12. The combination in a sickle-holding attachment for grindstones, of a tubular track, hangers slidably mounted on said track, a counterweight disposed within said track, pulleys at the ends of said track, and a cord attached at its ends to said counterweight, passing over said pulleys, and connecting said hangers.

13. The combination with a grindstone, of a supporting-frame, a pair of arms curved in arcs whose centers coincide with the axis of the grindstone, a sprocket associated with said grindstone, a sprocket mounted on said curved members, a chain connecting said sprockets, pedals for driving the sprockets on the curved members, means for adjusting the position of said sprockets on the curved members, and a seat for an operator on the grindstone-frame.

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

HARRY F. BONESTEELE.

Witnesses:

FRED. SEIPPEL,

EFFIE S. BONESTEELE.