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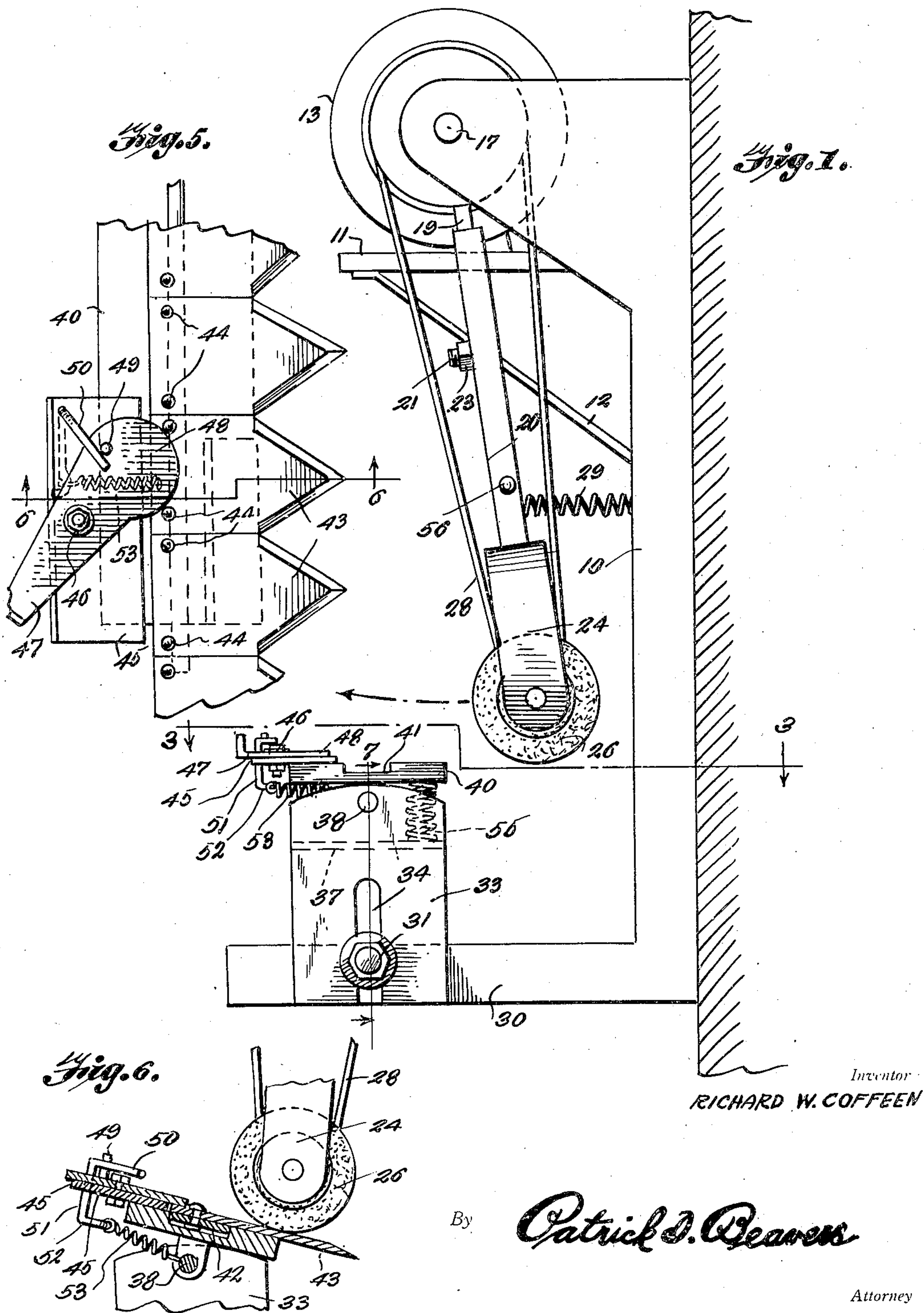
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SEMI-AUTOMATIC SICKLE GRINDER

Filed Aug. 6, 1948

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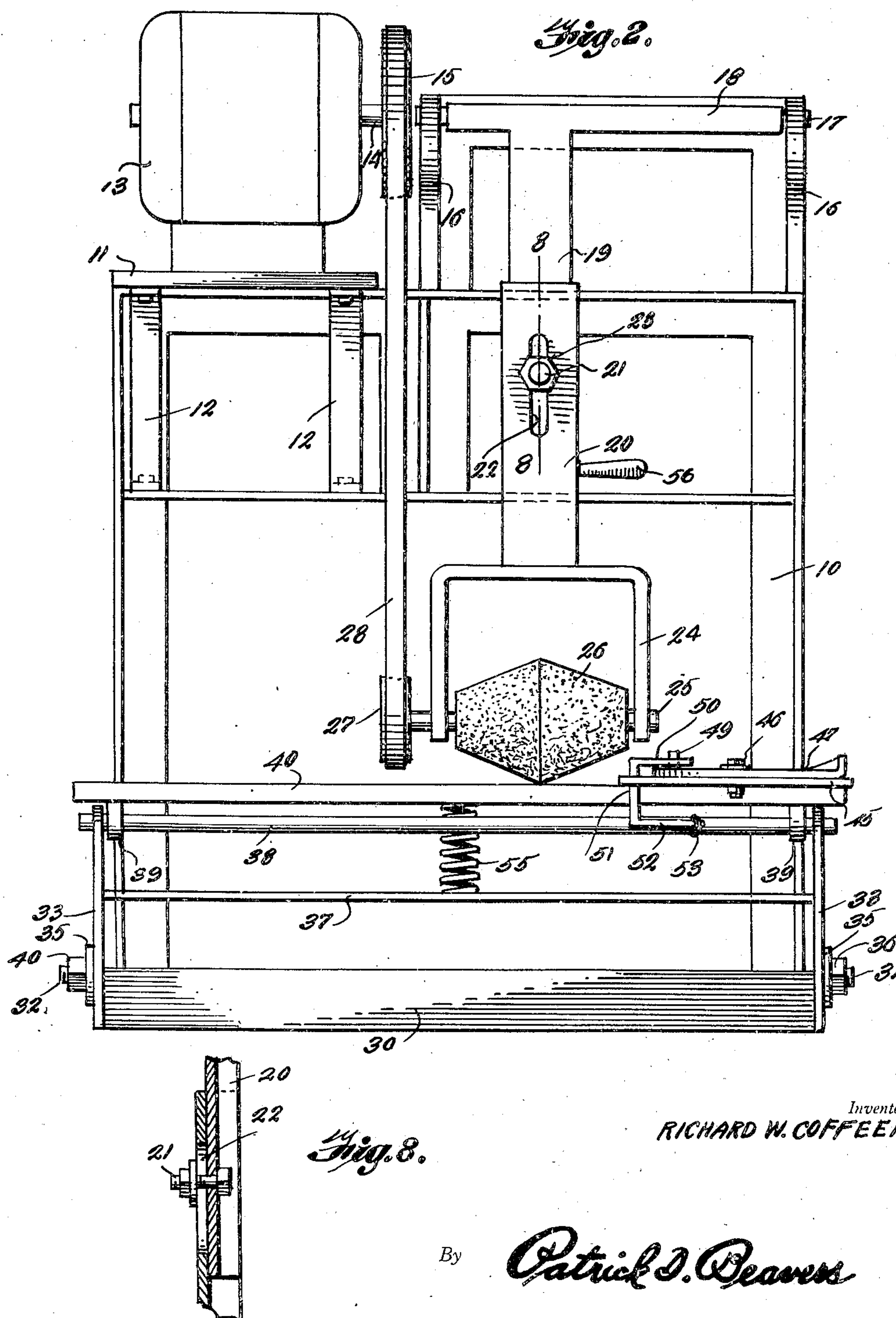
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SEMIAUTOMATIC SICKLE GRINDER

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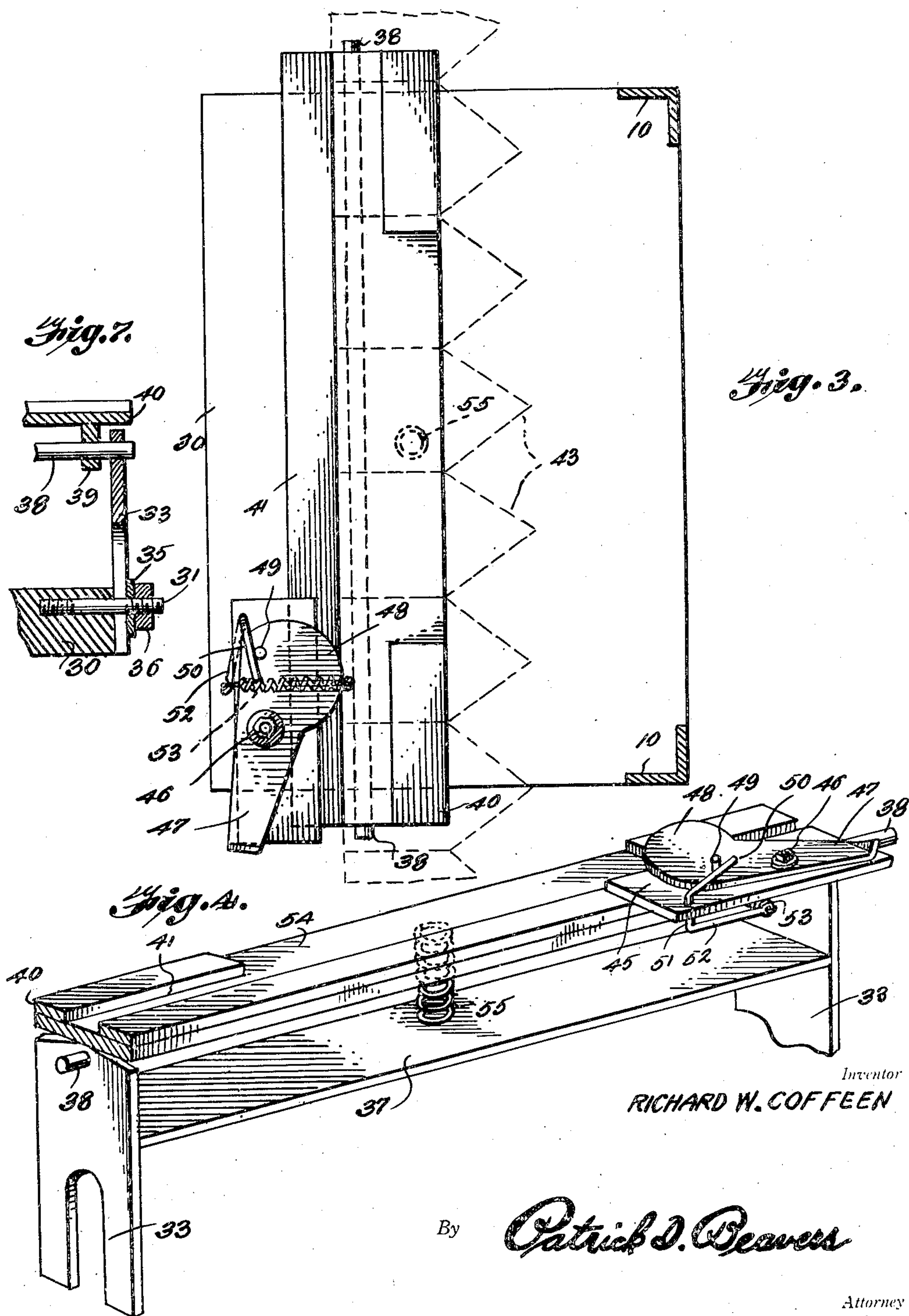
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SEMI-AUTOMATIC SICKLE GRINDER

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UNITED STATES PATENT OFFICE

2,486,119

SEMI-AUTOMATIC SICKLE GRINDER

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Application August 6, 1948, Serial No. 42,864

2 Claims. (Cl. 51—33)

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The present invention relates to semi-automatic sickle grinder and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

It is an object of the present invention to provide a semi-automatic sickle grinder having novel means for centering a grinding tool forming a part of the invention between successive blades of a sickle.

Another object of the invention is the provision of automatic tensioning means for holding a sickle blade against a grinder.

Another object of the invention is the provision of novel means for adjusting a grinding tool with relation to its work.

A further object of the invention is the provision of automatic means for removing a grinding tool from the work when a grinding operation has been performed.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawings, in which:

Figure 1 is a side elevational view of an embodiment of the invention,

Figure 2 is a front elevational view thereof,

Figure 3 is a sectional view taken along line 3—3 of Figure 1,

Figure 4 is a fragmentary perspective view of a sickle holder forming a part of the present invention,

Figure 5 is an enlarged fragmentary plan view of a portion of the apparatus,

Figure 6 is a sectional view taken along line 6—6 of Figure 5,

Figure 7 is a fragmentary sectional view taken along line 7—7 of Figure 1, and

Figure 8 is a sectional view taken along line 8—8 of Figure 2.

Generally there is provided a machine for sharpening the blades of a sickle of the conventional toothed type. There is provided a frame to the upper end of which is pivoted an adjustable arm having a fork at its lower end between the outer ends of the arms of which extends a shaft upon which is fixed a grinding implement. To the shaft is also affixed a pulley which is connected with a motor mounted upon the upper end of the frame by means of a belt. A tension spring interconnects the adjustable arm and the rear of the frame to normally hold the grinding tool out of engagement with the work. Upon a horizontally forwardly extending portion of the frame there is mounted for vertical adjustment a sickle holder to the upper end of

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which is pivotally connected a sickle bar in which may be clamped a sickle in such manner that the teeth thereof extend toward the grinding implement. A compression spring normally urges the sickle bar in an upward direction but may be compressed when the grinding implement is brought into engagement with the sickle. Novel means is provided for centering adjacent teeth consecutively in position for grinding.

Referring more particularly to the drawings, there is shown therein a semi-automatic sickle grinder comprising a frame 10 having a shelf or platform 11 at the upper end thereof which platform is provided with angular brace members 12. Upon the platform is mounted an electric motor 13 having a shaft 14 to which is affixed a pulley 15.

The frame is provided with a pair of outwardly extending brackets 16 supporting a shaft 17 therebetween. Upon the shaft is provided an elongated bearing 18 to which is affixed a downwardly extending fixed arm portion 19 which extends into a movable arm portion 20 and which is provided with a bolt 21 which protrudes through a slot 22 formed longitudinally in the movable arm portion 20. A nut 23 is provided for locking the movable portion 20 to the fixed portion 19.

To the free end of the portion 20 is affixed a yoke 24 in the outer ends of which is journaled a shaft 25 and a grinding implement 26 is affixed thereto to the shaft between the arms of the yoke. The shaft extends outwardly of one side of the yoke and has affixed thereto a pulley 27 which is interconnected with the pulley 15 by means of a V-belt 28. The rear of the arm portion 20 is interconnected with the frame 10 by means of a tension spring 29.

The lower end of the frame 10 is provided with a horizontal base portion 30 having a belt 31 extending from either side thereof. A sickle holder is formed of a pair of vertical plates 33 each having centrally disposed slot 34 in the lower end thereof which slots are adapted to engage over the bolts 31 and washers 35 and nuts 36 are provided for locking the plates 33 in adjusted positions upon the base 30. A horizontal brace member 37 interconnects the plates 33.

The upper ends of the plates 33 are rounded and a shaft 38 is journaled adjacent the upper ends thereof and has affixed thereto a pair of supporting arms 39 having use for a platform 40. The platform or sickle holder 40 is provided with longitudinally extending recesses 41 which is adapted to receive the body portion 42 of a sickle

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having blades 43 attached to such body portion by means of rivets 44. It is to be understood that the rivets 44 are conventionally positioned in spaced relation to one another and it is upon this fact to a large extent that the present invention depends for its novelty and utility.

Upon the platform 40 is affixed a lever supporting plate 45 to which is pivotally connected, as indicated at 46, a spacing lever 47 whose inner end is provided with an integrally formed rounded rivet engaging portion 48. A pin 49 extends upwardly from the inner portion of the lever 47 and bears against an arm 50 which is integrally formed with a shaft 51 which extends through the plate 45 and is provided with an arm 52 formed integrally with the shaft 51 and connected with one end of a tension spring 53, the other end of which is connected with the shaft 38.

The inner end of the platform 40 is cut away, as indicated at 54, to the level of the bottom recess 41. A compression spring 55 is mounted upon the brace member 37 and bears against the bottom of the inner side of the platform 40.

In operation, it will be apparent that a sickle may be placed upon the platform 40 in such manner that the portion 42 thereof lies in the recess 41 and the blades 43 will extend across the cutaway portion 54 of the platform 40. During this operation the lever 47 is pressed inwardly against the action of the spring 53 to hold the portion 48 away from the sickle. After the sickle is positioned, the lever 47 is released whereupon the spring 53 will cause the portion 48 to bear against a pair of adjacent rivets 44. The motor 13 is then started and a handle 56 affixed to the arm 20 is drawn outwardly against the action of the spring 29 to thereby bring the grinding implement 26 into contact with the sides of the adjacent blades 43. Such action causes a depressing of the forward end of the platform 40 against the action of the compression spring 55 to thereby provide proper pressure of the blades against the grinding implement. As the implement 26 is worn away, the platform 40 may be raised by means of the adjusting nuts 36. The nut 23 facilitates the changing and adjustment of the belt 28 and also allows for the changing of the implement 26. When the grinding operation has been completed upon a pair of adjacent blades, the handle 56 is released and the spring 29 will cause the grinding implement 26 and its attendant mechanisms to be drawn inwardly toward the frame 10. The lever 47 is then moved inwardly thereby to disengage the portion 48 from the rivets 44 whereupon the sickle is moved longitudinally upon the platform 40 until the next pair of rivets 44 may be engaged by the portion 48 whereupon the handle 47 is again released and the portion 48 will cause a proper centering and positioning of the sickle so that the grinding implement 26 may properly engage the successive adjacent blades of the sickle.

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While but one form of the invention has been shown and described herein, it will be readily apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. An apparatus of the character described comprising a frame, an arm pivoted to the frame at its upper end, a motor carried by the frame, a rotary grinding tool carried at the lower end of the arm, a belt interconnecting the grinding tool and the motor, a horizontal base for the frame, a work holder support vertically adjustable on said base, a toothed tool holding platform pivotally mounted on the support, means for latching the toothed tool in selected positions for contact of successive blades of adjacent teeth with the grinding tool and yieldable means for holding the toothed tool in frictional contact with said grinding tool, said means for latching the toothed tool in selected positions including a pivoted lever having a rounded portion adapted to engage successive pairs of conventional rivets in said toothed tool and a spring for normally urging said rounded portion against said rivets.

2. An apparatus of the character described comprising a frame, an arm pivoted to the frame at its upper end, a motor carried by the frame, a rotary grinding tool carried at the lower end of the arm, a belt interconnecting the grinding tool and the motor, a horizontal base for the frame, a work holder support vertically adjustable on said base, a toothed tool holding platform pivotally mounted on the support, means for latching the toothed tool in selected positions for contact of successive blades of adjacent teeth with the grinding tool, yieldable means for holding the toothed tool in frictional contact with said grinding tool, a handle for moving the grinding tool into contact with the toothed tool and means for automatically returning the same to a position out of engagement therewith, said means for latching the toothed tool in selected positions including a pivoted lever having a rounded portion adapted to engage successive pairs of conventional rivets in said toothed tool and a spring for normally urging said rounded portion against said rivets.

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