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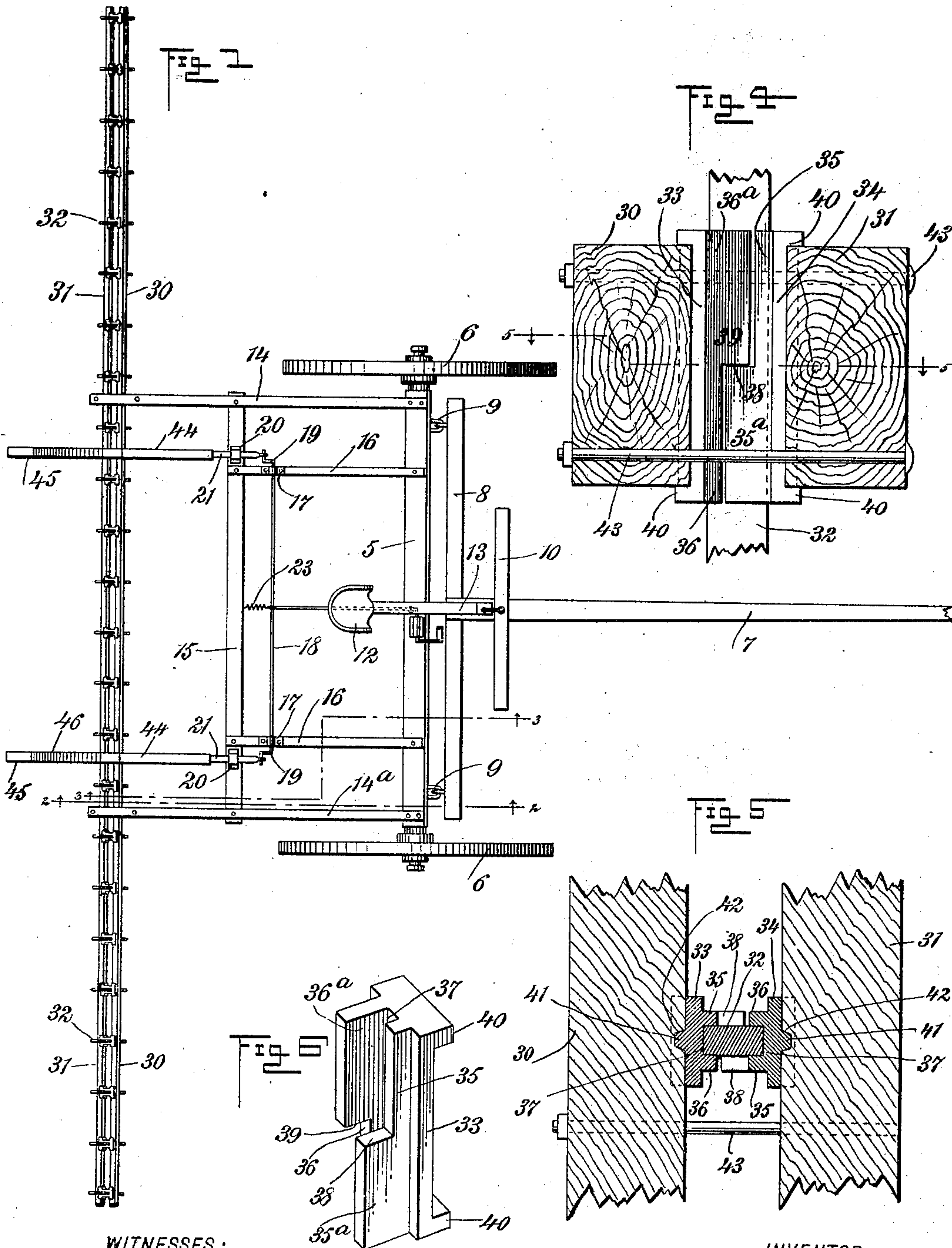
Patented Aug. 5, 1902.

A. S. ELLIOTT.
RAKE.

(Application filed Mar. 4, 1902.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES:

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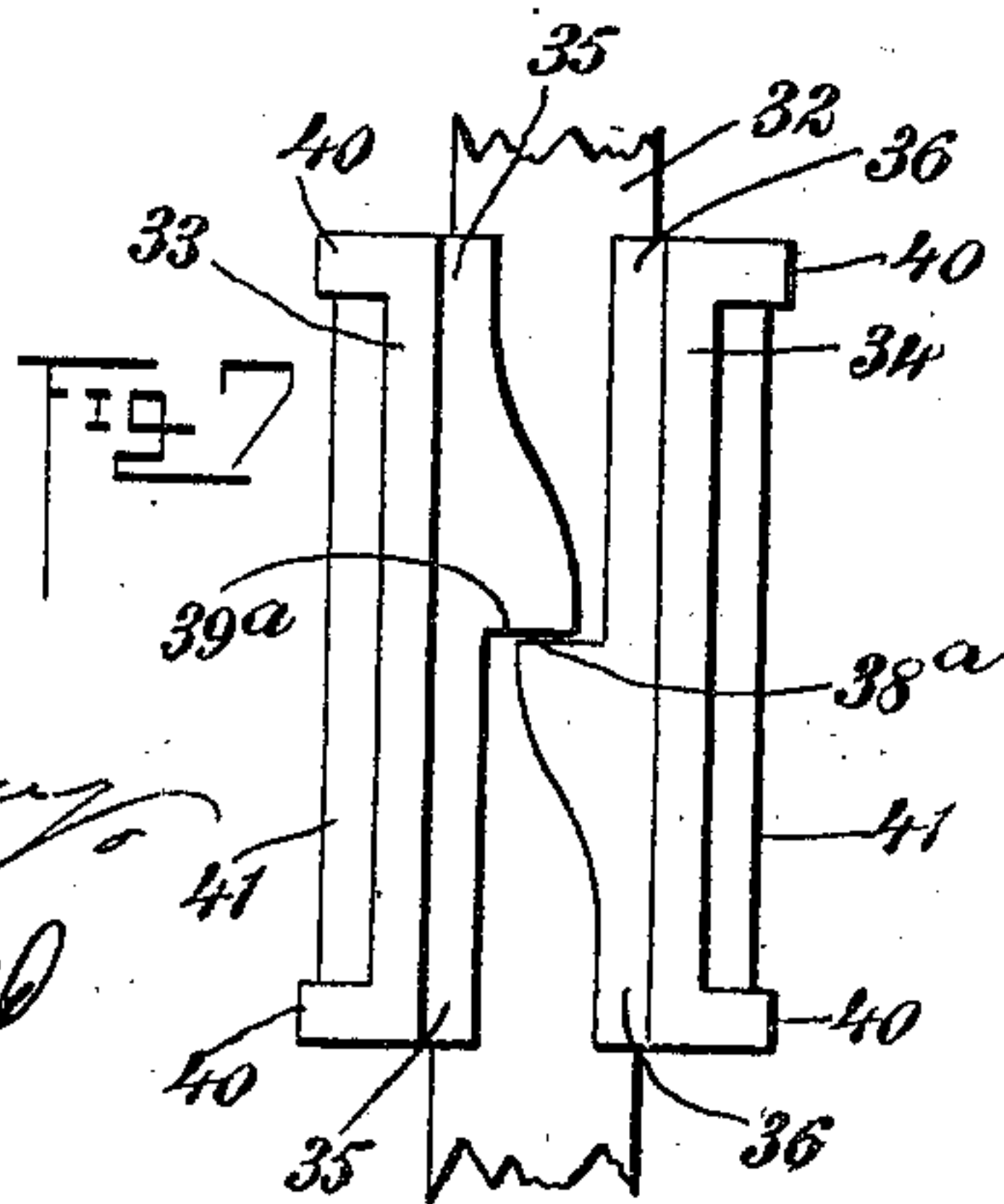
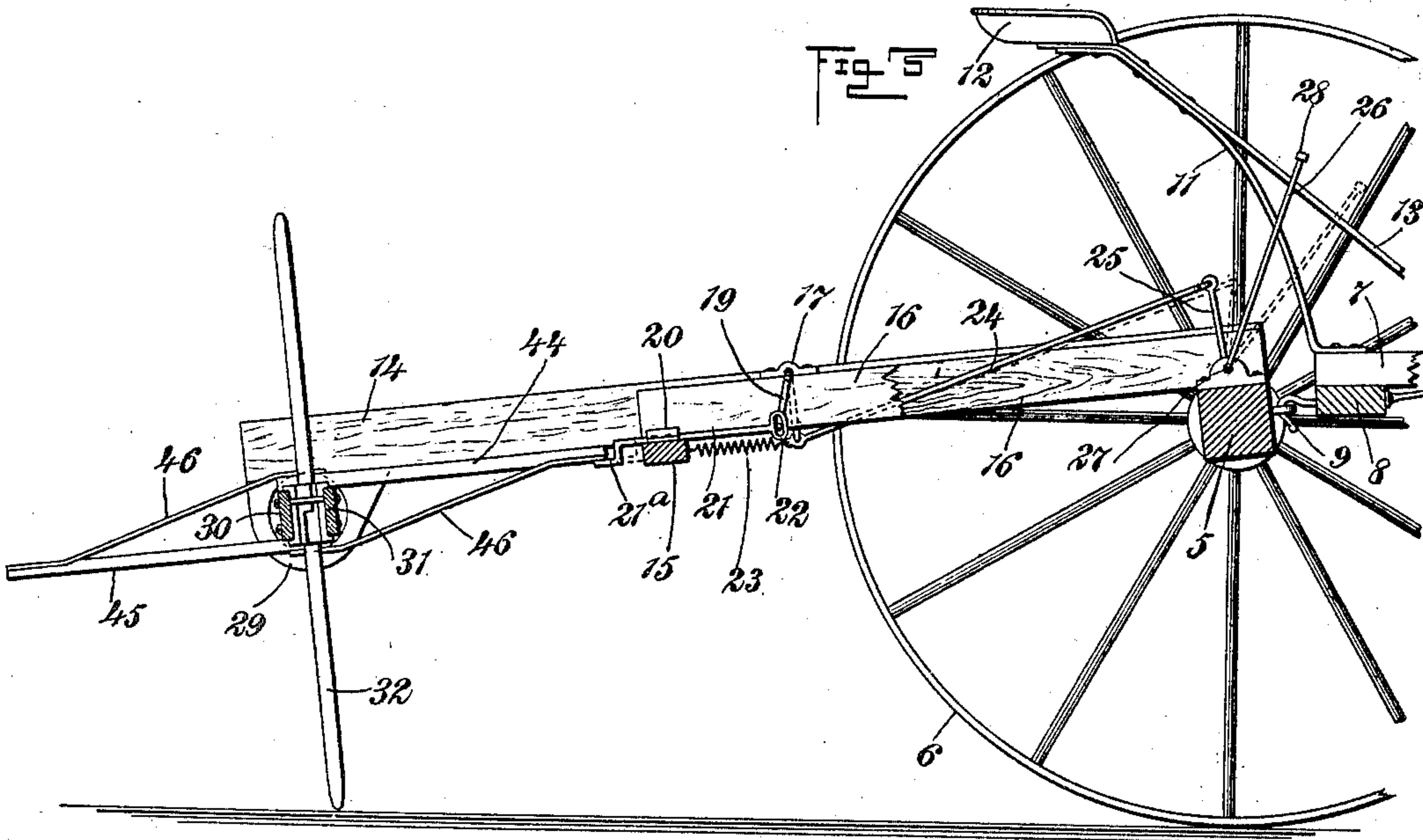
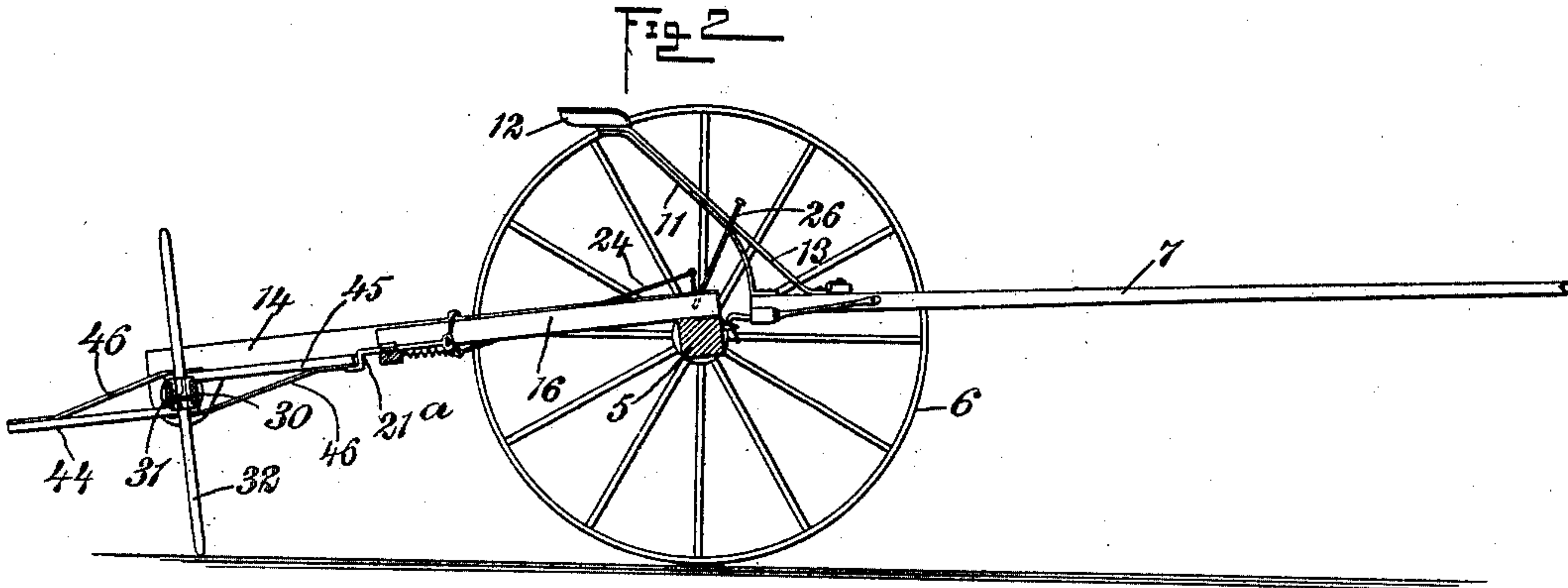
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WITNESSES:

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UNITED STATES PATENT OFFICE.

ANAH S. ELLIOTT, OF MECHANICSVILLE, IOWA.

RAKE.

SPECIFICATION forming part of Letters Patent No. 706,397, dated August 5, 1902.

Application filed March 4, 1902. Serial No. 96,588. (No model.)

To all whom it may concern:

Be it known that I, ANAH S. ELLIOTT, a citizen of the United States, residing at Mechanicsville, in the county of Cedar and State of Iowa, have invented certain new and useful Improvements in Rakes, of which the following is a full, clear, and exact description.

My invention relates to improvements in rakes especially adapted for use in gathering cut stalks which lay in windrows into shocks preparatory to burning or otherwise disposing of the stalks, although the rake may be used for other purposes.

One object of the invention is to provide an improved construction of the rake-head in which the teeth are clamped against any possible endwise or lateral displacement, and at the same time the clamping devices serve to bridge the space between the longitudinal bars of the rake-head in order to strengthen the latter.

A further object of the invention is to provide a simple and durable construction of the machine in which the parts are arranged to allow easy turning of the machine at the end of the field, and provision is also made for readily discharging the load accumulated by the operation of the rake.

With these ends in view the invention consists in the combination, construction, and arrangement of parts, which will be hereinafter described, and the actual scope of the invention will be defined by the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a rake constructed in accordance with my invention. Fig. 2 is a vertical section on the line 2 2 of Fig. 1 looking in the direction of the arrows. Fig. 3 is another vertical section on an enlarged scale, the plane of the section being indicated by the dotted line 3 3 of Fig. 1, also looking in the direction of the arrows. Fig. 4 is an enlarged vertical cross-section through the rake-head, illustrating one of the clamps for a rake-tooth, said clamp serving as a bridge for the longitudinal bars of the rake-head. Fig. 5 is a section at right angles to Fig. 4 and taken in the plane of the dotted line 5 5

of said Fig. 4. Fig. 6 is a detail perspective view of one member of a clamp adapted to secure a tooth in the rake-head. Fig. 7 is an elevation of a modified construction of the tooth-clamp.

5 designates the axle of the machine, and 6 represents the carrying-wheels, which are properly mounted on suitable spindles at the ends of said axle. The draft-tongue 7 is provided at its rear end with the cross-bar 8, which is nearly equal in length to the axle, and this cross-bar of the tongue is loosely connected to the axle by means of the interlocking eyes 9, said eyes being fastened to the axle and to the tongue-bar 8, as clearly shown by Figs. 1, 2, and 3. A doubletree 10 is connected to the tongue near its rear portion, and the seat-spring 11 is also fastened to the rear extremity of the tongue, said spring serving to carry the driver's seat 12 and being braced in proper position by means of the stay 13.

A supporting-frame for the rake-head is provided on the wheeled axle, said frame extending rearwardly from the axle and adapted to support the means for adjusting and locking the rake-head. This frame consists of the parallel bars 14 14^a, the cross-bar 15, and the brace-bars 16, all of these parts being firmly secured together by any approved means. The parallel bars 14 are fastened to the axle, and they are extended a suitable distance beyond the cross-bar 15. The brace-bars 16 are fastened to the axle and to the cross-bar 15, and these brace-bars are equipped with suitable bearings 17, which accommodate the trip-shaft 18. Said trip-shaft is disposed across the carrying-frame in rear of the seat, and said shaft is provided at its end portions with the cranks 19. On the cross-bar 15 of the frame are provided suitable keepers 20, which receive the slidable latch-bolts 21, the latter being provided at their front ends with the slotted heads 22, adapted to receive the crank-arms 19 of the trip-shaft 18. The trip-shaft is held normally in an active position by means of a coiled spring 23, which is attached to a portion of the trip-shaft and to the cross-bar 15, and to said trip-shaft is operatively connected a link 24, the front end of which is attached to a crank 25 on a treadle-lever 26, the latter being pivot-

ally mounted, as at 27, on the axle and having a foot-piece 28, which is disposed within convenient reach of the driver's foot, all as shown more clearly by Fig. 3.

5 The side bars 14 14^a of the supporting-frame are provided at their extreme rear ends with suitable open bearings 29, which are disposed in transverse alinement and serve to loosely support the rake-head, so as to permit the
10 latter to turn on its axis. The rake-head is disposed in rear of the axle 5, parallel to the latter, and this rake-head is much longer than the axle in order that the end portions of the rake-head may extend for considerable
15 distances beyond the opposite sides of the carrying-wheels 6, as shown more clearly by Fig. 1. The rake-head consists of longitudinal bars 30 31, a plurality of double-ended teeth 32, and a plurality of clamps, which are
20 individually engaged with the teeth and have interlocking engagement with the parallel bars 30 31, so as to firmly hold the said teeth 32 against endwise or lateral displacement within said parallel bars, each clamp serving
25 to bridge the space between the bars and the series of clamps affording spaced bridges to thoroughly brace the bars forming the rake-head. The parallel bars 30 31 are designed to extend the full length of the rake-head,
30 and these bars may be of any appropriate size and material. Each tooth 32 consists of a metallic bar having the substantially rectangular form in cross-section shown by Fig. 5, and the end portions of each tooth are
35 beveled or tapered, so as to produce the two points indicated in Figs. 2 and 3. Each tooth 32 is engaged at or about its middle by one of the sectional clamps, and as said clamps have interlocking engagement with the parallel
40 bars it is evident that the series of teeth will be secured at their middles.

Each clamp consists of the members 33 34, one form of the clamp being shown more particularly by Figs. 4, 5, and 6. Each member
45 of the clamp is cast in a single piece of metal substantially in the form shown by the detail view in Fig. 6 of the drawings, and said clamp member is provided on its inner face with the longitudinal flanges 35 36. The
50 flanges 35 36 of each clamp are disposed parallel, so as to form an intermediate groove or space 37, and said flange 35 is widened at one end, as at 35^a, so as to form an abutment 38, while the companion flange 36 of the member
55 is widened at the other end, as at 36^a, thereby forming another abutment or shoulder 39. Each member of the clamp is provided on its outer face with the transverse ribs 40 and with the longitudinal rib 41.

60 In applying the two-part clamp to the parallel bars 30 31 of the rake-head suitable grooves 42 are cut in the opposing faces of the bars and the members 33 34 of the clamp are adjusted across the inner faces of the bars
65 and in positions for the ribs 41 to enter the grooves 42, while the transverse ribs 40 of said clamp members will embrace the top and

bottom edges of the bars, as clearly shown by Fig. 4. The members 33 34 are applied
70 in reversed positions to the bars 30 31 in order that the active inner edges of the flanges on said members will bear against one another and the abutments or shoulders 38 39 will have the interlocking engagement represented more clearly by Fig. 4. The bars 30
75 31 are drawn firmly upon the members of the clamp by means of the screw-bolts 43, two of which are passed through said bars on opposite sides of each clamp, as clearly shown by Figs. 4 and 5. These bolts serve to draw the
80 bars toward each other and to press the members of the clamp firmly upon the edge portions of the double-ended tooth 32. The members of the clamps are interlocked together and to the bars 30 31 by the engagement of the flanges and the ribs, and by interposing the tooth 32 within and between
85 the members of the clamp the parts are prevented from lateral as well as endwise separation. The tooth is so firmly gripped in the clamp that it cannot become displaced in any
90 direction; but in the event of breakage of any tooth the bolts can be loosened and the members of the clamp separated, so as to permit the withdrawal of a broken tooth and
95 its replacement by a new tooth.

The rake-head thus far described is loosely mounted in the bearings 29 of the rake-frame, and said rake-head is equipped with two pairs of arms 44 45, said arms being braced by the
100 stays 46. In the position of the rake shown by Figs. 1, 2, and 3 the forwardly-extending arms 44 are engaged at their front ends with the bent ends 21^a of the latch-bolts, whereby the rake-head is held firmly in a position
105 wherein its teeth 32 are inclined slightly in an upward and rearward direction.

In the operation of the machine it is drawn across the fields, and the lower portions of the
110 double-ended teeth serve to drag or rake the cut stalks until a certain quantity of stalks shall have accumulated. At this time the operator presses on the lever 26, so as to pull the rod 24 in a forward direction and against
115 the energy of the spring 23, thereby turning the trip-shaft 18 and making its crank-arms 19 pull the latches 21 forwardly. This operation of the latches disengages the hook-shaped ends 21^a thereof from the arms 44, thus
120 releasing the rake-head and permitting it to turn or rotate for a half-revolution within the bearings 29, whereupon the rake is reversed, so that the other pair of arms 45 will engage with the bent ends of the latches 21, and the rake will then become locked in another ac-
125 tive position.

In Fig. 7 of the drawings I have illustrated a slightly-modified form of one tooth-clamp. This clamp consists of the matching members having the mechanical features of construction
130 heretofore described; but instead of widening the flanges 35 36 for one-half the length thereof I prefer to only widen the flanges enough to secure the abutments or

shoulders 38^a 39^a, as will be clearly understood by reference to said Fig. 7.

The employment of the bar 8 at the rear end of the tongue and the loose connection of said bar to the axle near its end portions enables the machine to be turned easily at the end of the row. The seat-spring 11 extends rearwardly from the tongue, so as to overhang the axle, and this arrangement of the seat serves to dispose a part of the weight of the operator in such a manner as to somewhat counterbalance the tongue.

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

1. In an apparatus of the class described, a rake-head consisting of longitudinal bars, a series of teeth, and a corresponding series of clamps, each clamp consisting of complementary members having interlocking connection one with the other and adapted to be secured firmly to the bars of the rake-head.

2. In an apparatus of the class described, a tooth-clamp comprising complementary channel members provided in their opposing faces with projecting shoulders, said shoulders of the members being assembled into interlocking engagement, whereby the shoulders limit endwise displacement of the members relative to each other.

3. In an apparatus of the class described, a rake-head, consisting of longitudinal bars, a series of clamps interposed between said bars and each consisting of members which have interlocking engagement with each other and with the individual bars of said rake-head, and a series of teeth having indi-

vidual engagement with the members of the clamps.

4. In an apparatus of the class described, a tooth-clamp, consisting of complementary members provided with channels, and with recesses and shoulders on their opposing faces, said shoulders of one member arranged to enter the recesses of the other member, and the shoulders of the two members having engagement one with the other.

5. In an apparatus of the class described, a tooth-clamp, consisting of members each cast in a single piece of metal and having their active faces provided with longitudinal ribs and with tooth-receiving channels, the respective ribs being provided on their edges with the recesses and the shoulders on each member, said members being assembled in reversed positions, and the shoulders of one member interlocking with the shoulders of the other member.

6. In an apparatus of the class described, a tooth-clamp consisting of members each cast in a single piece of metal and provided on its outer side with a transverse rib and with a longitudinal rib, each member being also provided on its inner face with longitudinal flanges which are enlarged and formed with the facing abutments or shoulders.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANAH S. ELLIOTT.

Witnesses:

SAML. T. BUELL,
C. E. GOULD.