

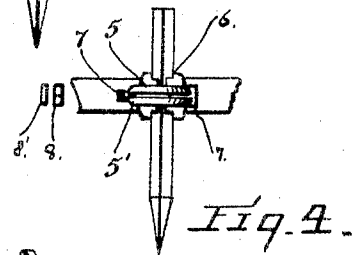
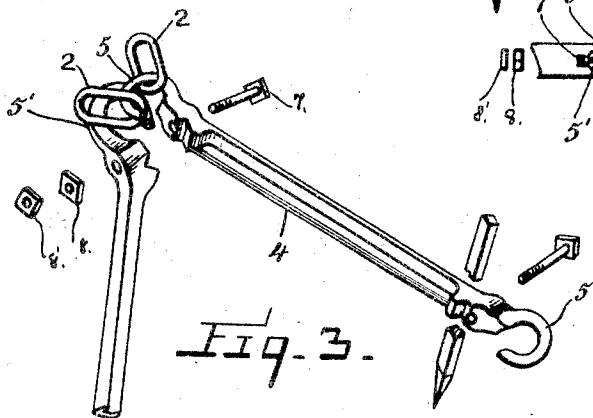
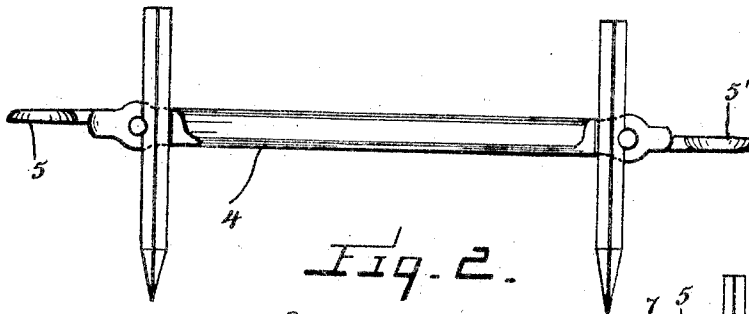
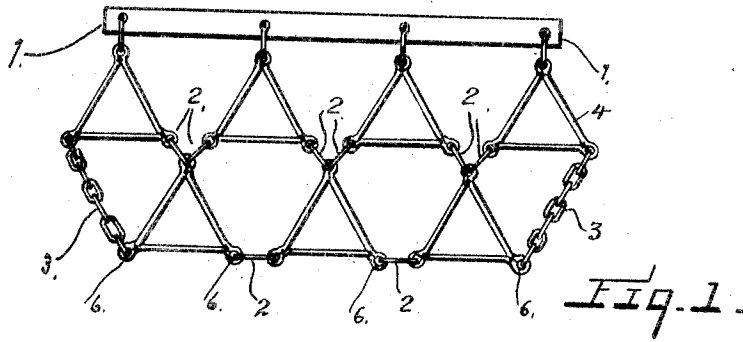
G. HUMBERGER.

HARROW.

APPLICATION FILED JUNE 15, 1911.

1,009,667.

Patented Nov. 21, 1911.



WITNESSES:

Geo. W. Howe.
Alma Johnson

INVENTOR

Gill Humberger
BY
W. Grant Hayden
ATTORNEY

UNITED STATES PATENT OFFICE.

GILL HUMBERGER, OF LEMOORE, CALIFORNIA.

HARROW.

1,009,667.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed June 15, 1911. Serial No. 633,383

To all whom it may concern:

Be it known that I, GILL HUMBERGER, a citizen of the United States of America, residing at Lemoore, in the county of Kings and State of California, have invented new and useful Improvements in Harrows, of which the following is a specification.

In the variety of farm harrows which are made up of numerous small sections linked together, so that they follow the uneven surface of the ground like a chain, my invention relates to the construction of the small sections.

The purpose of my invention is to furnish a harrow which can be packed in the smallest possible space for shipment, which is easily put together and taken apart; enlarged or made smaller, which is light and strong and most simple to repair.

In the accompanying drawings, Figure 1. is a plan view of my harrow, which does not differ materially from the plan view of some other harrows. Fig. 2. is a perspective view of one of the sides of the small triangular sections with two harrow teeth in position, and shows the chief feature of my invention. Fig. 3. shows the manner of connecting two sides together with the links which connect two sections together. Fig. 4. is a perspective view of the corner of a section, showing the method of clamping the harrow teeth and of joining the sides of the triangular sections.

In Fig. 1., 1. is intended to represent one of the customary draft beams, attached to the front sections of the harrow by clevises. 2. represents the links which join the sections together. These links may be split links, or owing to the peculiarity of my invention, solid links may be used. The outside sections are joined on their outer edge with chains 3. of appropriate length. Only seven sections are shown in the accompanying drawing, but any number may be used, joined together in the manner shown.

Number 4. is one of the sides of the triangular sections and is the chief element of my invention. It is made of cast or malleable iron and in its main length is constructed in a V-shaped pattern for the purpose of combining strength and lightness. At each end it is formed into a hook 5. and 5'. One of these hooks is flat on its lower surface and the other is flat on its upper surface, making a half round at each end so

that if the side is reversed or changed to any other side of the triangle, the hooks of adjoining sides will fit upon each other, forming a closed circle of round iron, (6. Figs. 4 and 1) at each angle of the section.

At each angle of the sections a machine bolt 7. passes through each of the adjoining sides 4., drawing and binding them together, by tightening the nut 8. and lock nut 8'. On the inner side of each end of the sides 4., and adjoining the hole through which the machine bolt 7. passes is an angular notch of proper size to receive one of the angles of an ordinary harrow tooth. In the accompanying drawing a tooth is shown which is notched at the point where the bolt passes through the sides of the frame and the bolt passes through in the notch, thereby preventing the accidental raising or lowering of the harrow tooth, but applicant does not consider that a notch in the harrow tooth is essential to the practical use of his invention because the tension of the bolt 7., drawing the adjoining sides together will clamp the harrow tooth between the sides so firmly that the tooth cannot work loose. The sides 4. are identical on all sides of every section. Each end of every side is exactly like the opposite end of the side except that the hook is flattened to a half round on the side opposite to that at the other end thereof.

The harrow complete consists of the sides 4., the teeth, the links, the bolts, nuts, clevises and draft beam. All excepting the beam can be closely packed for shipment in a box 15 inches long. The only parts ever apt to need replacing are a tooth or a side 4. If one of the sides be broken a new one kept for the purpose of repair can quickly be bolted into the position of the broken piece. Since they are so easily repaired the sections may be made lighter, thereby making the harrow more easily handled.

What I claim as new and desire to secure by Letters Patent, is:

1. A harrow composed of triangular sections, each section having three separate sides, each side terminating in a half-round iron curved into a hook, the hook at one end being flat on its upper surface and the hook at the other end being flat on its lower surface, having a harrow-tooth clamped between the adjoining sides near each angle

and the adjoining sides themselves held together by a bolt passing through them at the angle of the section, substantially as shown.

5 2. A harrow composed of triangular sections, joined together by links, each section having three separate identical sides, each side terminating in a half-round iron curved into a hook, the hook at one end being flat
10 on its upper surface and the hook at the other end being flat on its under surface, the hooks of adjoining sides resting upon each other on their flat surfaces forming a closed circle at each angle, in which the said links
15 are inclosed, having the adjoining sides drawn together by a bolt or similar device, having a harrow tooth clamped between the

adjoining sides at each angle, substantially as shown.

3. A harrow composed of triangular sections, each section having separate identical sides terminating in hooks which fit upon the hooks of the adjoining sides forming a closed circle at each angle, having a harrow tooth clamped between the adjoining sides, 20 substantially as shown. 25

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

GILL HUMBERGER.

Witnesses:

WILLIAM A. CONN,
ALMA JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."