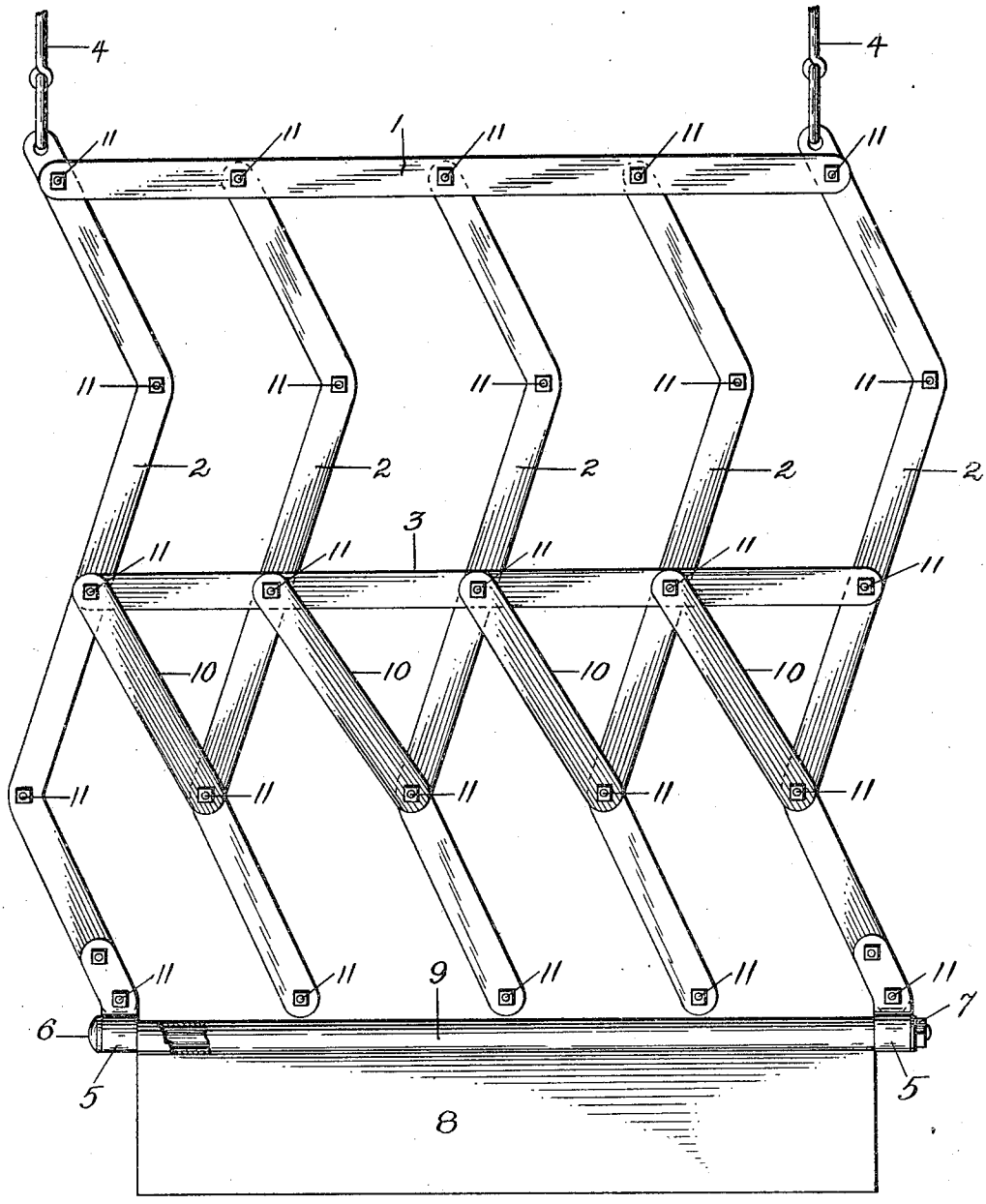
L. MARSILII.

HARROW.

APPLICATION FILED OCT. 27, 1909.

953,278. Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 2.

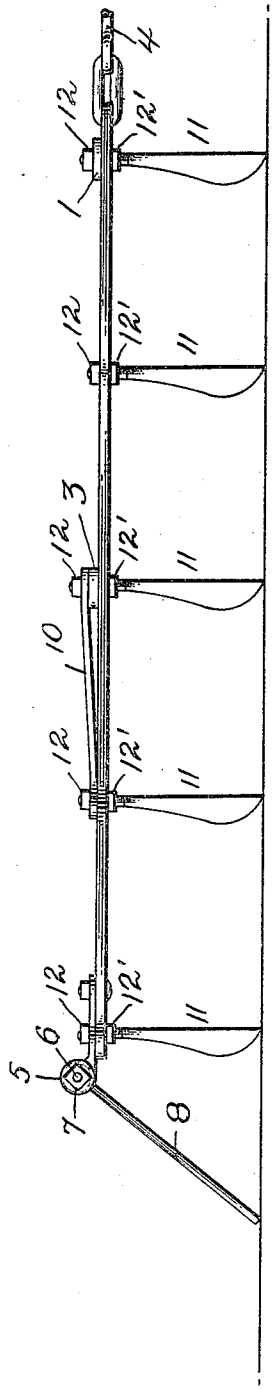
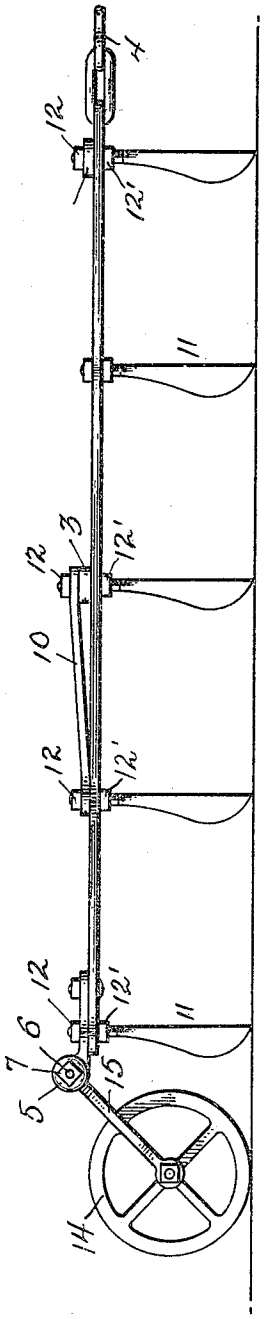


FIG. 3.



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HARROW.

953,278. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed October 27, 1909. Serial No. 524,961.

To all whom it may concern:

Be it known that I, LUIGI MARSILII, subject of the King of Italy, residing at West Chester, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Harrows, of which the following is a specification.

This invention relates to certain new and useful improvements in harrows.

The invention has particular reference to that class of harrows involving a ziz-zag skeleton frame-work with teeth located thereon at intervals to produce separate and distinct cuts in the soil; and also to that class of harrows wherein a scraper or roller is in trail to cover and smooth up the soil.

Reference will be had to the accompanying drawings forming a part of this specification and wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a top plan view, Fig. 2, is a side elevation, and Fig. 3 a similar view of a modification.

Reference numeral 1 designates the front cross bar to which are attached the forward ends of Z-shaped or zig-zag longitudinal bars 2. These bars 2 are spaced equidistant apart and are so held by means of a second cross bar 3 parallel with the front cross bar and attached to said bars 2 substantially midway of their lengths. The two side bars are extended slightly beyond the front cross bar and each of said projecting ends is apertured to receive draft links 4. To each side bar, at the rear end thereof, is attached a strap bearing 5 through which loosely passes a headed rod 6, secured in place by nut 7. Upon this rod 6 is swingably mounted a scraper or covering blade 8, said blade being bent at its upper edge into a barrel 9, through which the rod 6 loosely passes.

The forward portions of the longitudinal bars, it will be noted are suitably braced by means of the front and middle cross bars 1 and 3 respectively, and the rear ends of the side bars are braced by the bar 6, but the rear ends of the intermediate longitudinal bars 2 are left free from cross braces. For the purpose of bracing these free ends, diagonal bars or braces 10 are provided, the same being attached at their forward ends to the longitudinal bars 2 and the cross bar 3 where they intersect, and the rear end of each of said braces 10 being attached to the next adjacent longitudinal bar at the apex of the rear angle. It will be noted that one of the side bars is braced in this manner, but that the other is not, the same being unnecessary.

The longitudinal bars being doubly bent into left and right angles, the apex of one of the angles of each bar will occur between the front and middle cross bars 1 and 2 respectively, and the apex of the other angle of each bar will occur between the middle cross bar 3 and the rod 6. By means of this construction, each tooth will be out of line with the others and will make a separate and distinct cut in the soil. The teeth, indicated by numeral 11, are distributed along the longitudinal bars 2 as follows: one at each of the points where the front bar 1 crosses the front ends of the bar 2, one at the apex of the forward angle of each of the bars 2, one at each of the points where the middle cross bar 3 intersects the bars 2, one at the apex of the rear angle of each of the bars 2, and one at the rear end of each of the bars 2.

The harrow teeth are of simitar shape and the threaded shanks thereof pass through the bars 2 and are secured by upper and lower nuts 12 and 12′ respectively. The framework of the harrow is entirely held together by the harrow teeth fastenings, which is an important item in cheapening the cost of construction of this type of harrow.

The form illustrated in Fig. 3, differs only in that a roller 14 is adopted in place of a scraper, said roller 14 being journaled in links 15 swung from the cross rod 6, which latter in the preferred form passes through the scraper.

In operation, when the harrow is drawn over the ground, the soil will be cut or entered at numerous points, each tooth making an individual cut, and the soil will then be smoothed up by means of the scraper, or if desired, it will be rolled down by means of the roller if the same is preferred.

Having fully described the invention, what is claimed as new and useful and desired to be secured by Letters Patent is:

1. A harrow, comprising longitudinal bars, a cross-bar connecting the forward ends of the longitudinal bars, a middle cross-bar connecting the central portions of the longitudinal bars, said longitudinal bars being bent at points intermediate their rear ends and the middle-cross-bar, teeth on said bars, braces attached to one of the longitu-

dinal bars at said point of bend and to the middle cross-bar and next adjacent longitudinal bar, a rod connecting the rear ends of the outer longitudinal bars only.

2. A harrow, comprising longitudinal bars, a cross-bar connecting the forward ends of the longitudinal bars, a middle cross-bar connecting the central portions of the longitudinal bars, said longitudinal bars being bent at points intermediate their rear ends and the middle cross-bar, teeth on said bars, braces each attached to one of the longitudinal bars at said point of bend and to the middle cross-bar and next adjacent longitudinal bar, a rod connecting the rear ends of the outer longitudinal bars only, and means pivotally connected to said rod for smoothing over the harrowed soil.

3. A harrow, comprising longitudinal bars, a cross-bar connecting the forward ends of the longitudinal bars, a middle cross-bar connecting the central portions of the longitudinal bars, said longitudinal bars being bent at points intermediate the front and middle cross-bars, said longitudinal bars being bent at points intermediate their rear ends and the middle cross-bar at an opposite angle to the first mentioned bend, teeth on said bars, diagonal braces each attached to one of the longitudinal bars at said point of bend and to the middle cross-bar and the next adjacent longitudinal bar, and a rod connecting the rear ends of the outer longitudinal bars, the rear ends of the intermediate longitudinal bars being free.

4. A harrow, comprising longitudinal bars, a cross-bar connecting the forward ends of the longitudinal bars, a middle cross-bar connecting the central portions of the longitudinal bars, said longitudinal bars being bent at points intermediate the front and middle cross-bars, said longitudinal bars being bent at points intermediate their rear ends and the middle cross-bar at an opposite angle to the first mentioned bend, teeth on said bars, diagonal braces each attached to one of the longitudinal bars at said point of bend and to the middle cross-bar and the next adjacent longitudinal bar, and a rod connecting the rear ends of the outer longitudinal bars, the rear ends of the intermediate longitudinal bars being free, and a trailing soil smoothing element pivotally connected to said rod and located between the outer longitudinal bars.

5. A harrow, comprising longitudinal bars, a cross-bar connecting the forward ends of the longitudinal bars, a middle cross-bar connecting the central portions of the longitudinal bars, said longitudinal bars being bent at points intermediate the front and middle cross-bars, said longitudinal bars being bent at points intermediate their rear ends and the middle cross-bar at an opposite angle to the first mentioned bend, teeth on said bars, diagonal braces each attached to one of the longitudinal bars at said point of bend and to the middle-cross and the next adjacent longitudinal bar, and a rod connecting the rear ends of the outer longitudinal bars, the rear ends of the intermediate longitudinal bars being free, said bars and braces being connected at their points of intersection solely by means of said teeth.

In testimony whereof I affix my signature in presence of two witnesses.

LUIGI MARSILII.

Witnesses:
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WALTER W. CALMORE.