

(No Model.)

2 Sheets—Sheet 1.

G. H. ROBB.  
SULKY HARROW.

No. 345,603.

Patented July 13, 1886.

Fig. 1.

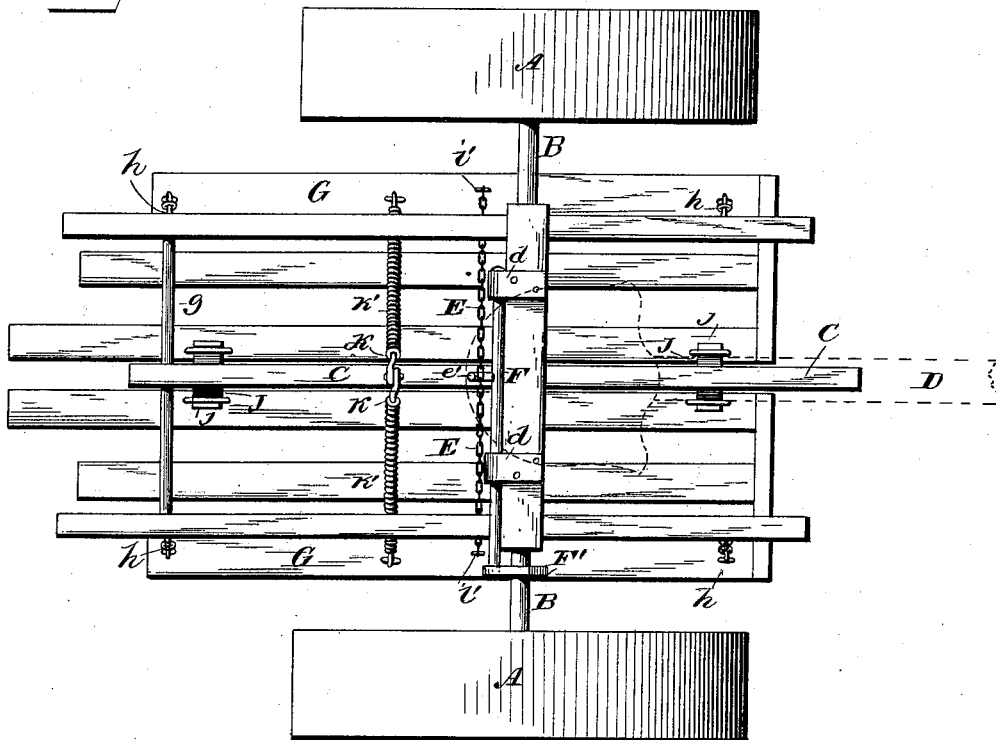
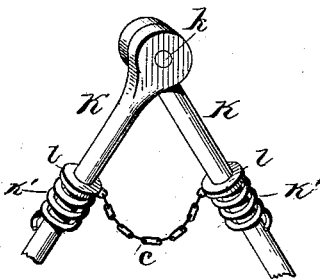


Fig. 4.



WITNESSES  
*G. S. Elliott*  
*E. M. Johnson*

*George H. Robb.*

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ATTORNEY

(No Model.)

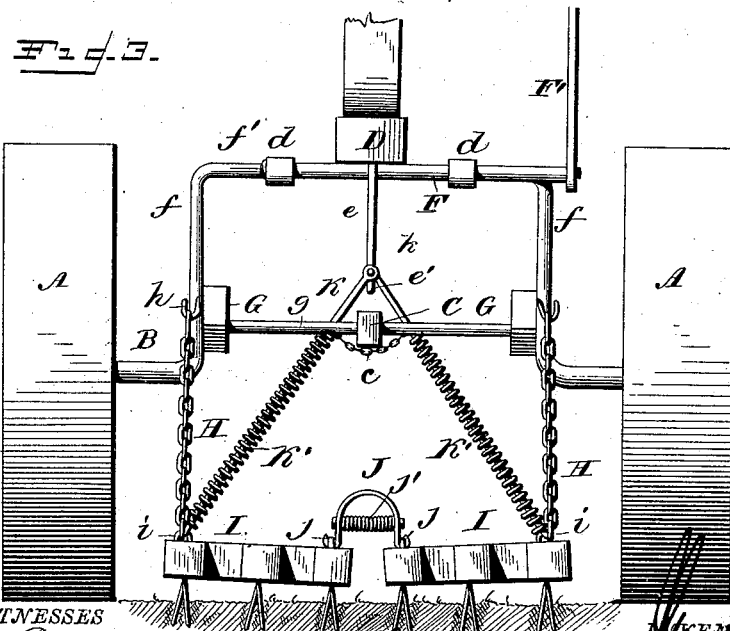
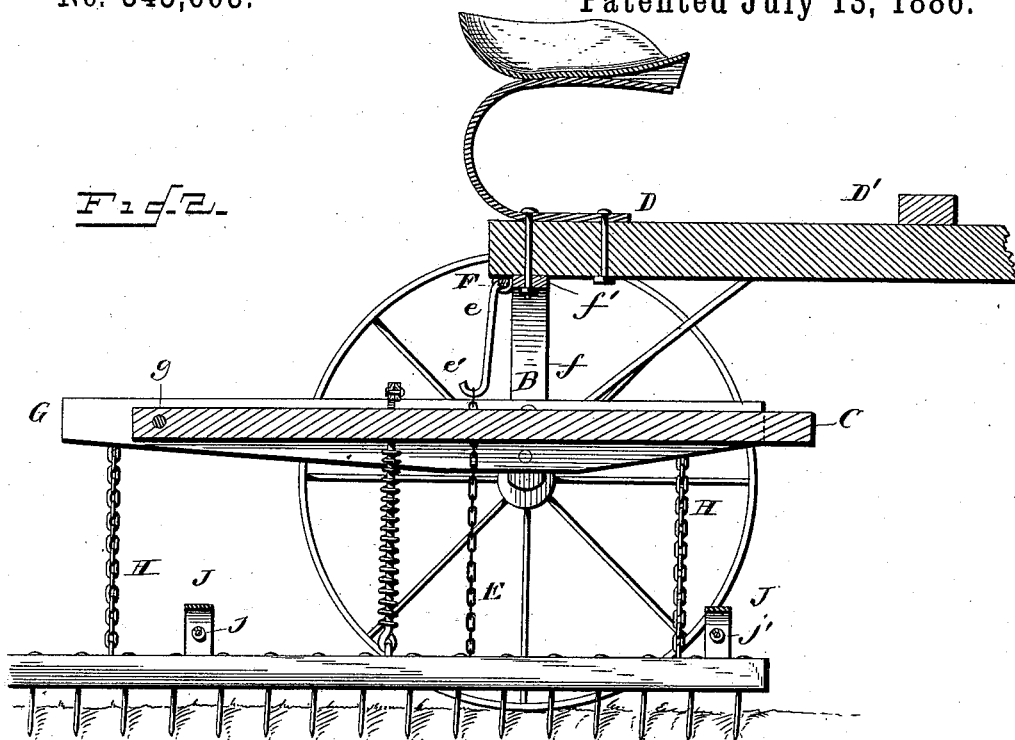
2 Sheets—Sheet 2.

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WITNESSES  
*G. S. Elliott*  
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# UNITED STATES PATENT OFFICE.

GEORGE H. ROBB, OF SEVERANCE, KANSAS.

## SULKY-HARROW.

SPECIFICATION forming part of Letters Patent No. 345,603, dated July 13, 1886.

Application filed March 4, 1886. Serial No. 194,054. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. ROBB, a citizen of the United States of America, residing at Severance, in the county of Doniphan and State of Kansas, have invented certain new and useful Improvements in Sulky-Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in wheeled harrows, the object of the same being to provide a means whereby the harrow-frames can be forced into the ground and elevated when desired for transportation; and to this end my invention consists in the special construction and combination of the parts, as will be hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, which illustrate my invention, Figure 1 is a plan view of a sulky-harrow constructed in accordance with my improvement. Fig. 2 is a longitudinal section; Fig. 3, a rear view, and Fig. 4 a detail perspective view.

A A refer to the supporting-wheels, which are provided with a broad tread or tire. The axle B is bent upward centrally, the upwardly-extending portions being indicated by the letters *f, f*, which are connected to each other by a transverse horizontal portion, *f'*, to which the draft-tongue D is bolted.

To the rear upper portion of the draft-tongue D, immediately above the horizontal portion of the axle, the driver's seat is secured, and in front of said seat the tongue is provided with a cross-bar, *D'*, to which the whiffletrees are attached. The horizontal portion *f'* of the axle adjacent to each side of the tongue has secured thereto bearings *d d*, within which is journaled a bar, *F*, which is centrally provided with a downwardly-projecting arm, *e*, having a hooked end, *e'*, with which engage chains *E E*, which diverge from this hook, and are secured to the outer bars of the har-

row-section. The end of the pivoted bar *F* has secured thereto an operating-lever, *F'*, which extends upward, so as to be within convenient reach of the driver.

G G refer to longitudinal beams, which are rigidly bolted to the vertical members *f* of the axle B, these bars being connected to each other adjacent to their rear ends by means of a transverse bar, *g*, which transverse bar passes through and forms a pivotal support for the rear end of a lever, *C*, said lever being centrally supported and prevented from falling by a chain, *c*, as will be hereinafter set forth. The bars G G, near their forward and rear ends, are provided with hooks *h h*, from which depend chains or flexible connections *H H*, which are secured to the outer bars of the harrow-sections, said chains being of such a length that they will permit the harrow-sections to rest normally near the surface of the ground.

I I refer to the harrow-sections, which consist of longitudinal beams which are suitably connected to each other, said beams being provided on their under sides with projecting teeth, which converge alternately, as shown in Fig. 3. These harrow-sections are provided with staples *i i*, with which the chains *H* engage, and centrally with staples *i'*, to which the ends of the chains *E E* are secured.

The harrow-sections I I, hereinbefore referred to, are connected to each other on their inner sides by bent spring-bars *J*, the ends of which are upturned, so as to engage with staples *j*, which enter the upper edges of the inner beams of the harrow-sections. This bent spring-bar *J* normally exerts an outward spring-pressure, while its movement inward is limited by a spiral spring, *j'*, which is located on a bar and bears against the inner sides of the springs *J*.

K K refer to two bars, which are pivotally secured to the outer sides of the harrow-sections, said bars being pivoted to each other at their upper ends, as shown at *k*. The lower portions of these converging spring-bars *K* are encircled by spiral springs *K'*, above which are located sliding collars *l*, to which the short chain, which extends under the lever *C*, is secured.

The operation of my invention is as follows: When the parts are organized as shown in the accompanying drawings, the implement is ready for use, and the harrow-teeth will enter the ground for a sufficient distance to pulverize the soil. Should the soil in certain places be more compact than the average surface of the field, the harrow-sections may be depressed by bearing down upon the end of the lever or bar C, so as to cause said lever to depress the short chain *c* and press the spiral springs *K'* upon the harrow-sections, thus causing said harrow-sections to enter the ground to a greater depth than would be caused by their weight alone, it being understood that the chains *II* are sufficiently slack for this purpose. The spring-bar *J*, in connection with the spiral spring *K'*, will have a tendency to keep the harrow-sections *I* on the same plane with each other, and at the same time will allow said harrow-sections to assume different angles in accordance with the inequalities of the ground.

When it is desired to elevate the harrow-sections, the lever *F'* can be depressed, so as to elevate the bar *c*, which will carry with it the chains *E*, which movement will cause the harrow-sections to be elevated and will tilt the outer ends upwardly.

I claim—

1. In a wheeled harrow, the combination,

with a bent axle, of a draft-tongue, an open-ended frame, *G*, secured thereto, harrow-sections *I I*, connected centrally to each other and to the open-ended frame by chains *II*, and a lever, *C*, pivoted to the open-ended frame and adapted to contact with a chain for pressing springs which encircle the converging bars *K K*, the parts being organized substantially as shown, and for the purpose set forth.

2. The harrow-sections *I I*, connected to a wheeled frame, substantially as described, and provided at their inner sides with bent spring-bars *J* and spiral springs *J'*, substantially as shown, and for the purpose set forth.

3. In combination with a wheeled harrow constructed substantially as described, the independent harrow-sections *I I*, connected to each other by spring-bars, the converging bars *K K*, pivoted to each other and to the harrow-sections, and provided with springs *K'*, sliding collars *l*, flexibly connected to each other, and a lever, *C*, for compressing said spiral springs, the parts being organized substantially as shown, and for the purpose set forth.

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

GEORGE H. ROBB.

Witnesses:

J. R. LOVELACE,  
J. F. HARPSTER.