(No Model.)

R. & S. T. BRUCE.

PLOW.

No. 389,498. Patented Sept. 11, 1888.

Fig. 1.

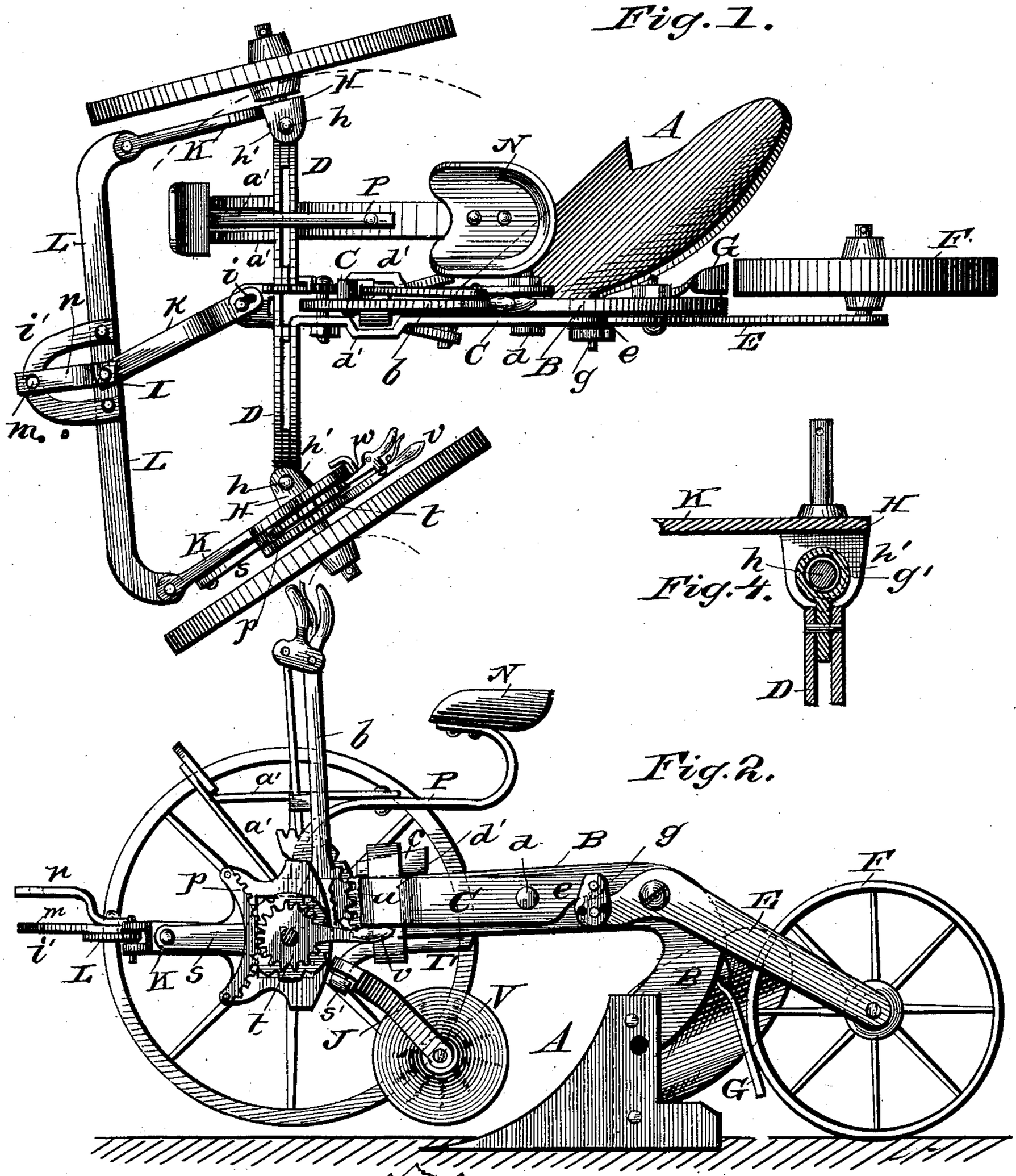
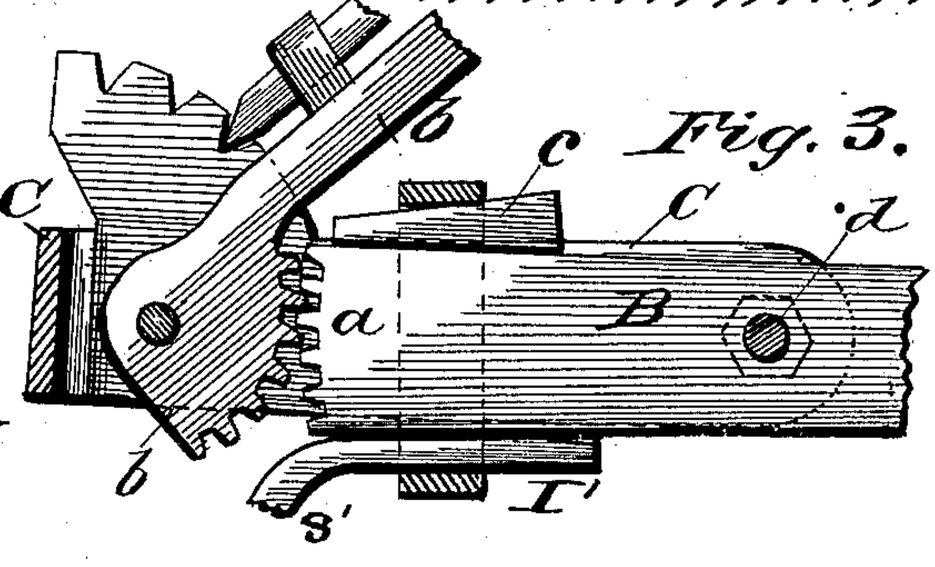


Fig. 4.

Fig. 2.

Fig. 3.



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PLOW.

SPECIFICATION forming part of Letters Patent No. 389,498, dated September 11, 1888.

Application filed October 27, 1884. Renewed August 10, 1886. Serial No. 210,556. (No model.)

To all whom it may concern:

Be it known that we, ROBERT BRUCE and SIDNEY THOMAS BRUCE, citizens of the United States, and residing at Marshall, in the county of Saline and State of Missouri, have invented certain new and useful Improvements in Plows; and we do 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.

Figure 1 of the drawings is a plan view of our device. Fig. 2 is a side view of the same, and Figs. 3 and 4 are detail views.

This invention has relation to adjustable wheel-plows; and it consists in the construction and novel arrangement of devices whereby the adjustments are facilitated, both with reference to the relative position of the plow and wheels and with reference to the draft, and in the coulter attachment, all as hereinafter set forth, and pointed out in the appended claims.

In the accompanying drawings, the letter A designates plow-plates, which are attached to the beam B, the front end of which is provided with a segment-gear, *a*, adapted to engage the toothed end of a lever, *b*, which is pivoted to bearings of the transverse axle-beam D, said bearings being formed usually in the arm or arms C of said axle-beam, which extends to the rear thereof. The plow-beam is also pivoted to rearwardly-extending arms of the axle-beam, and one of said arms is provided with an extension, *e*, in rear of pivotal point *d*, to the end of which is pivoted a link or connection, *g*, to which the forward end of the lever-arm E is pivoted. Said lever-arm E is also pivoted to the plow-beam and carries the rear wheel, F, which rises behind the plow. By movements of the lever *b* the axle-beam D and the rear wheel-arm, E, are raised or depressed with reference to the plow, according to requirement.

G represents a brake, spring, or bearing, which is secured to the plow or beam and extends downward in front of the rear wheel in such position that when said wheel is depressed in raising the plow for transportation the brake will engage the wheel and will provide a detent, whereby the plow will be prevented from moving forward upon the horses. This is designed to avoid the use of a pole. Brakes may be used on the side wheels for the same purpose.

The axle-beam is provided at each end with a bearing, *g'*, for the reception of a pivot, *h*, which connects the spindle-plates H to said beam, these plates having eyes *h'*, through which the pivots *h* pass. Each spindle has a forwardly-extending arm, K, and a transverse draw-bar or connection, L, is pivoted to the front end of these arms, connecting the same. The draw-bar L is of greater length than the axle-beam, so that when the draw-bar is moved to the right or left in turning the plow the outer wheel will describe a large curved track, while the track of the inner wheel will be a smaller curve, and the plow will turn about its point portion as a center.

A longitudinal draft-link, *k*, connects the middle portion of the draw-bar to a projecting bearing, I, of the axle-beam, a slot, *i*, or elongated bearing being made in the rear end of the draft-link to allow a little play. The hitch *i'* may be made in loop form or otherwise. As shown in the drawings, it is perforated at *m* to receive the lower end of the hitching-bolt, the upper end being received in a perforation of a short link, *n*. The object of this construction is to provide for shifting the draft. When the plow is moving forward, the draft is upon the plow-beam through the link *k;* but in turning this the link is relieved from the draft, which then comes directly upon the spindle-plates.

The spindle-plate of the last wheel is adjustable. This plate is usually constructed with a rack, *p*, and a lateral pivoted arm, *s*, to which the spindle is secured, said arm having a pinion, *t*, adapted to engage the rack *p*. This pinion-wheel is provided with an arm, *v*, and a spring-pawl, which, with a keeper, *w*, enables the operator to adjust the spindle of this land and gage wheel to the height required.

N represents the driver's seat, which is attached to the supporting-arm P, which is connected to the axle-beam and duly braced, usually by arms *a'* of the foot-board, said foot-board being also usually secured to the axle-beam. In this manner it is designed to put the weight of the driver over the point portion of the plow and on the furrow side, or nearly in that position, in order to balance the weight of the wheel attachments on the plow-base and to facilitate his control of the wheel attachments from the plow as a base.

V indicates the colter-wheel, which is pivoted to a stirrup-arm, J, extending somewhat forward and pivoted to the downwardly-turned end *s'* of the bar I', which is secured to the under side of the plow-beam, usually by means of a clip. In order to accommodate the arms of the clip, the rear extensions of the axle-beam may be formed with ways *d'* on each side of the beam. The clip is usually fastened by means of a wedge, *c*, which engages the edge of the plow-beam.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with the plow-beam, of the axle-beam having rearwardly-extending arms pivoted to said plow-beam, the rear wheel-arm also pivoted to the plow-beam, and the link connecting said rear wheel-arm to an extension of the arm of the axle-beam, substantially as specified.

2. A plow-beam having adjustable attachments pivoted to said beam and carrying the side and rear wheels, in combination with a brake, whereby when the plow is raised for transportation the brake automatically engages the wheel, and the plow is prevented from running forward on the horses, substantially as specified.

3. The combination, with the axle-beam and the spindle-plates pivoted thereto and having divergent arms extending forward, of the transverse connection longer than the axle-beam and pivoted to said divergent arms and the draft-link having a slotted or elongated connection—such as *i*—whereby the draft strain is shifted, substantially as specified.

4. The combination, with the plow-beam, of the angularly and vertically adjustable axle pivoted thereto, the vertically-adjustable rear wheel-arm, also pivoted to the plow-beam, and mechanism for operating the same, substantially as specified.

5. The combination, with the plow-beam, of the vertically-adjustable axle and the vertically-adjustable rear wheel-arm, both pivoted to the plow-beam and connected to lever mechanism for operating the same, substantially as specified.

6. The combination, with a plow-beam, of the vertically-adjustable axle and the vertically-adjustable rear wheel-arm, both pivoted to said plow-beam and pivotally connected to each other, and lever mechanism for operating the same, substantially as specified.

7. The plow-beam carrying a brake in rear of the plow, in combination with an adjustable rear arm carrying a wheel running behind said plow, substantially as specified.

8. The spindle-plate vertically pivoted to the axle-beam and having its spindle on a lateral pivoted arm adjustable by rack and pinion to give said spindle the required height, substantially as specified.

9. The rearwardly-extending arms of the axle-beam, having ways *d'*, in combination with an adjustable plow-beam pivoted to said arms and a colter clipped to said plow-beam, substantially as specified.

10. The combination, with a tongueless wheel-plow, of an automatic holdback or brake arranged upon a rear wheel to prevent the plow from running forward on the horses when the said wheel is depressed, substantially as specified.

11. In a wheel-plow, the two side wheels independently pivoted to the axle-beam and connected by devices adapted to guide them in turning about the point portion of the plow as a center, substantially as specified.

12. The combination, with the plow-point as a turning center, of the flexible draft-frame carrying the wheels and pivoted to the axle-beam, which is in turn pivoted to the plow-beam, substantially as specified.

13. The combination, with the plow as a base, of the front and rear adjustable wheel attachments directly but independently pivoted to the plow-beam, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT BRUCE.
SIDNEY THOMAS BRUCE.

Witnesses:
WILL H. BRUCE,
EUGENE GRAHAM.