(No Model.) 2 Sheets—Sheet 1.

F. BARTELS.

PLOW.

No. 508,908. Patented Nov. 21, 1893.

Fig. 1.

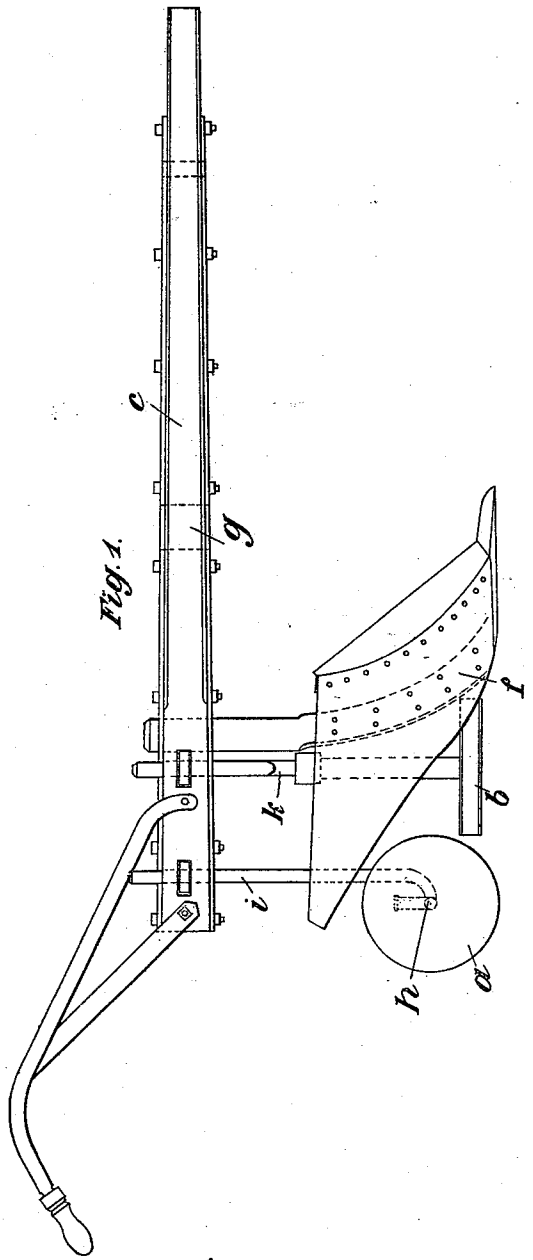
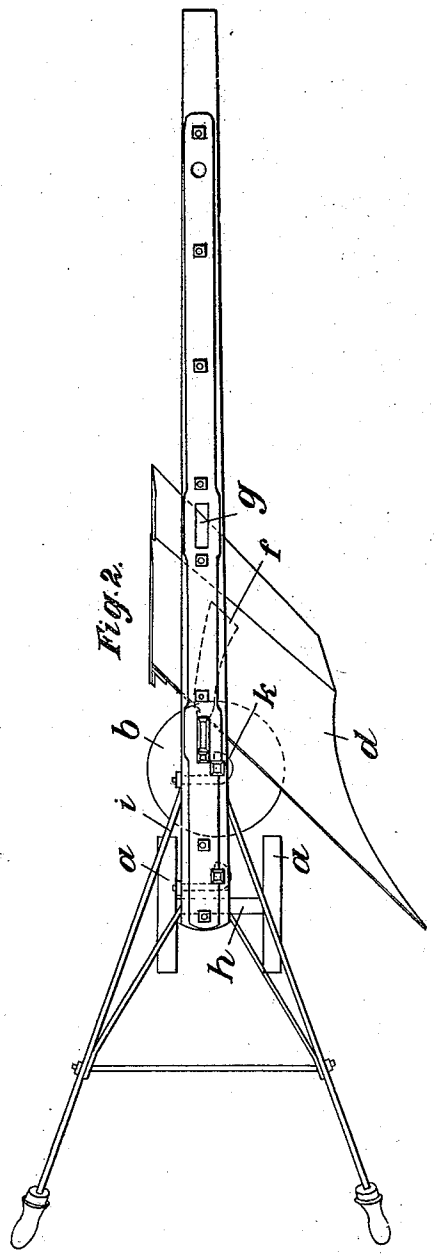


Fig. 2.



Attest
Walter Dallas
F. L. Middleton

Inventor
Friedrich Bartels
by Ellis Spear
Atty.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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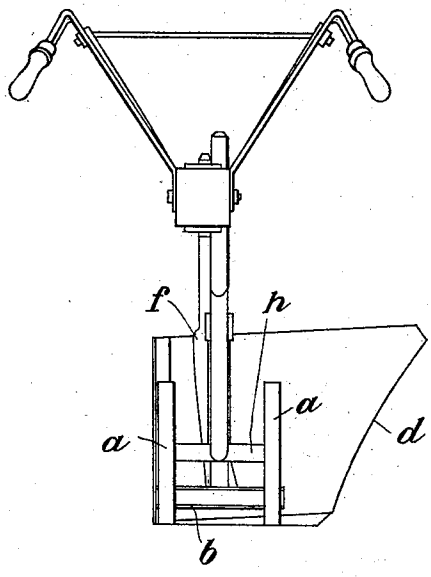
Fig. 3.



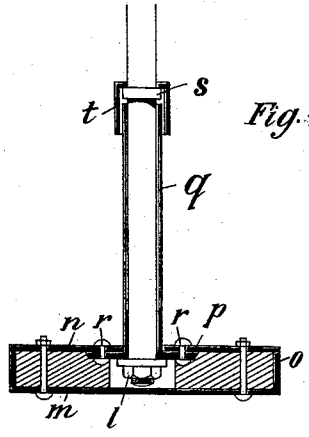


Fig. 4.

Attest
Walter Smallwood
F. L. Middleton.

Inventor
Friedrich Bartels
by Ellis & Spear —
Atty.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRIEDRICH BARTELS, OF HOHENEGGELSEN, GERMANY.

PLOW.

SPECIFICATION forming part of Letters Patent No. 508,908, dated November 21, 1893.

Application filed April 13, 1893. Serial No. 470,144. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH BARTELS, of Hoheneggelsen, in the German Empire, have invented new and useful Improvements in and Relating to Plows, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to plows and more especially to those for deep plowing, though it is also applicable to those employed for shallow plowing. Its object is to construct the plow in such a form that it can be drawn with a much more reduced expenditure of power. A plow so constructed is formed without the usual sole which is substituted by a pair of vertical wheels and a horizontal disk or wheel as shown in the accompanying drawings reference to which is hereinafter made.

Figure 1 illustrates the improved plow in elevation. Fig. 2 shows it in plan. Fig. 3 represents a back view of the plow, and Fig. 4 is an elevation of a vertical section through the center of the horizontal disk so as to show its inner construction.

As shown in the drawings *c* is the plow-beam, *d* the plow-share, and *f* the fore-cutter or colter. A second fore-cutter or colter can be applied, for which purpose the beam of the plow is provided with a suitable opening or hole *g* into which this second fore-cutter or colter may be inserted and fixed for temporary use by means of wedges.

The vertical wheels *a* are mounted upon the common axis *h* carried by the adjustable bracket or pedestal *i* secured to the plow frame or beam. The bearing or supports of the horizontal disk *b* is arranged in such a way that the earth thrown up and turned by the plow-share cannot get between the friction surfaces of the metal. Its construction is as follows (see Fig. 4): The supporting rod or pillar *k* is secured at its upper end to the plow-beam *g* and its lower end carries the fixed collar or disk *l* upon which the whole weight of the cylindrical disk rests. The disk is made of wood and is covered on both sides with iron plates *m n* and on its periphery with an iron ring *o*. By means of the disk *p* which is secured to the sleeve and is connected by screws or to the disk *b*, the bearing between the shaft *k* and the sleeve *v* is secured from immediate contact with the earth or mold turned over by the plow. To insure also that no foreign substances can enter at the upper end of the sleeve *g* this is covered by a cap *t* hung over the ring or collar *s*. It has been proved by tests and experiments that the employment of a plow constructed as hereinbefore described will effect a saving of about two fifths of the draft power which is necessary with plows of ordinary construction under exactly the same conditions.

What I claim, and desire to secure by Letters Patent of the United States, is—

In combination with a plow, a pair of parallel vertically arranged wheels or disks journaled in rear thereof, and a centrally arranged horizontal disk journaled in advance of said vertical wheels and in close proximity to the lower portions thereof, said horizontal disk being supported wholly from the upper side and having a plane continuous lower face adapted to contact directly with the ground.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FRIEDRICH BARTELS.

Witnesses:
WM. G. SPALDING,
ORISTE LEWIS.