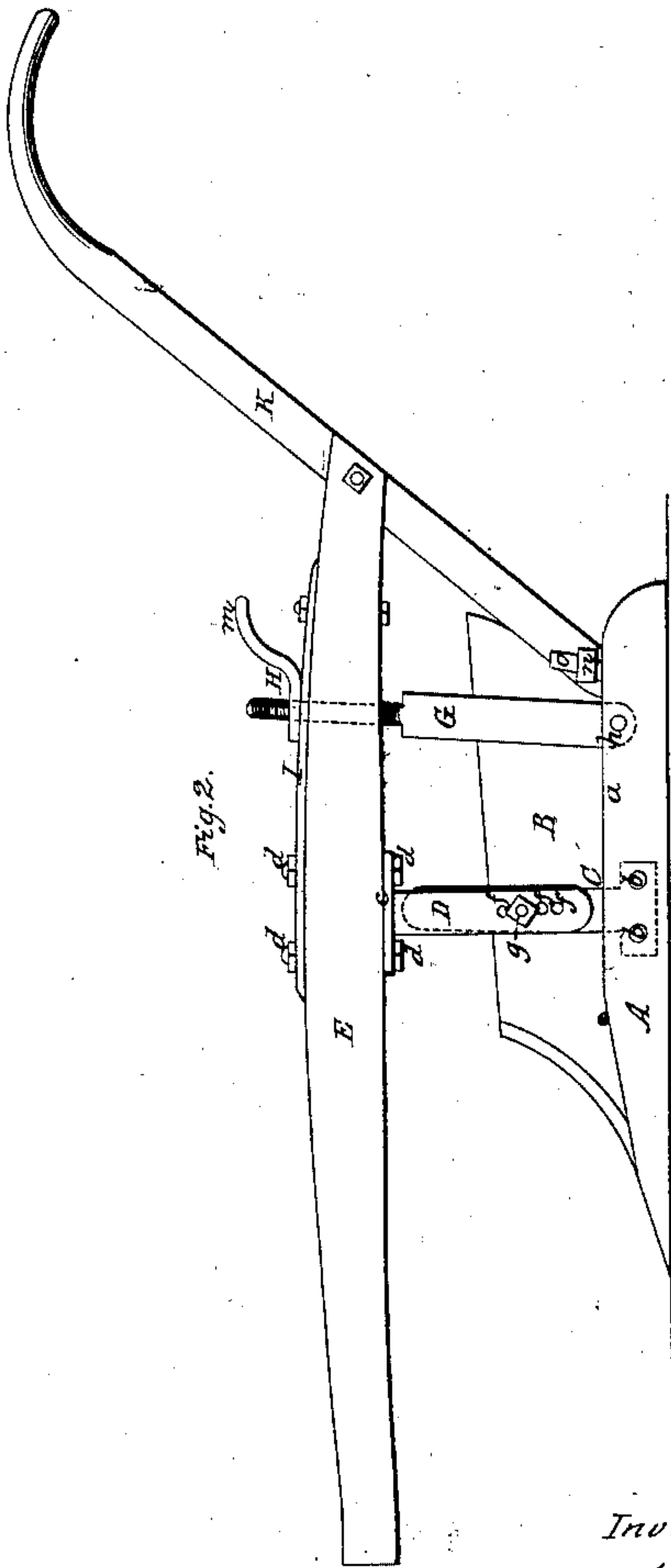
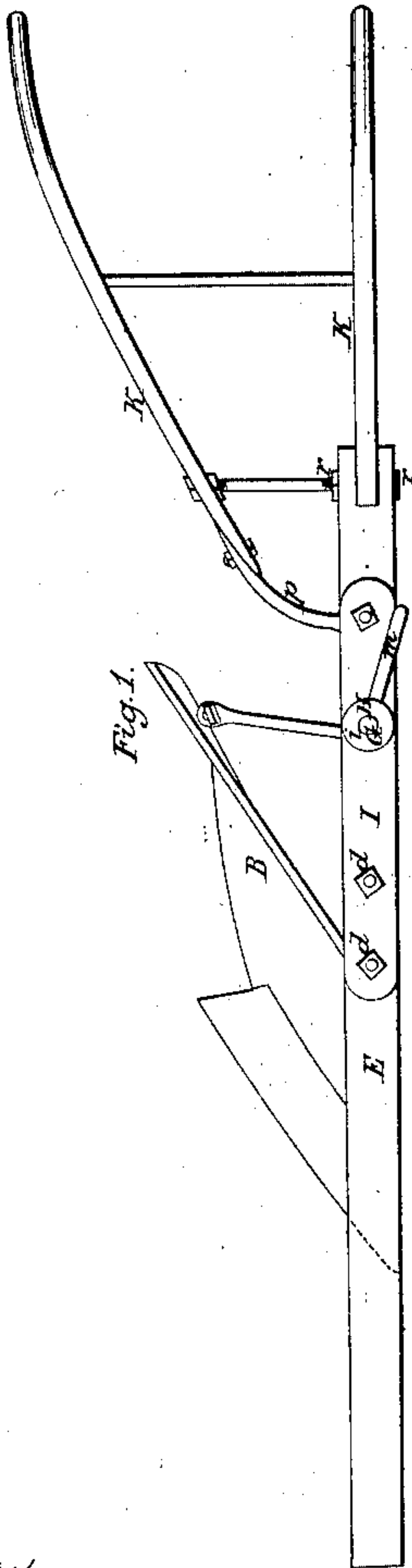
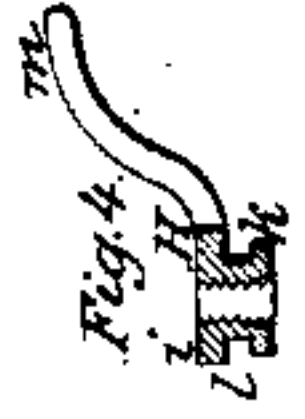
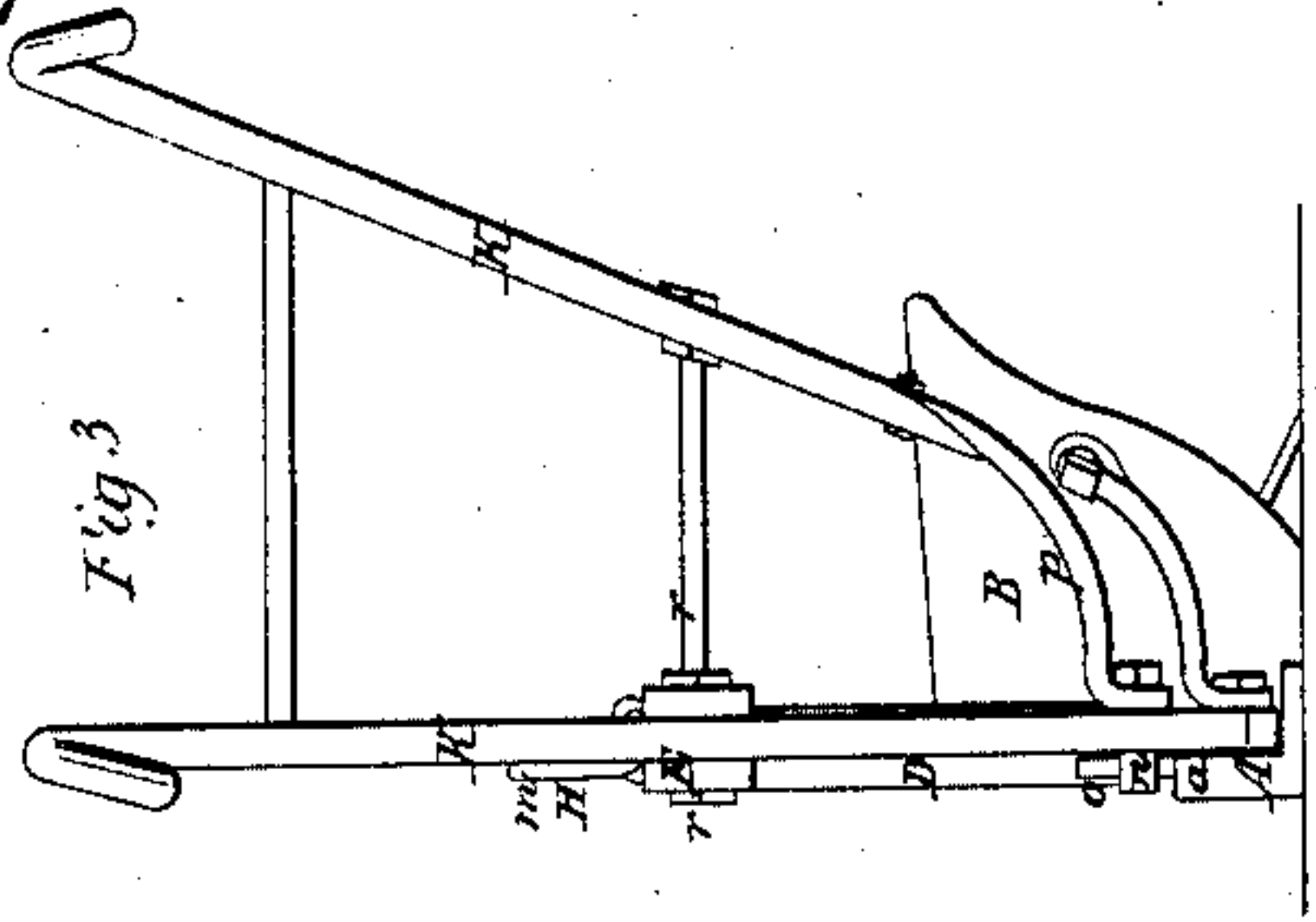


A. Benkelmann.

Flour,

Patented Nov. 27. 1860.

N^o 30,712.



Witnesses.

Paesbury West.
Lawrence J. Callan.

Inventor.

Andrew Bankelmann
By his Attorney
R. F. Osgood.

UNITED STATES PATENT OFFICE.

ANDREW BENKELMANN, OF LANGFORD, NEW YORK.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. 30,712, dated November 27, 1860.

To all whom it may concern:

Be it known that I, ANDREW BENKELMANN, of Langford, in the county of Erie and State of New York, have invented a new and Improved Plow; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a plan of the plow; Fig. 2, a side elevation thereof, looking on the land side; Fig. 3, a rear elevation; Fig. 4, a vertical section of the hand-screw.

Like letters designate corresponding parts in all the figures.

The design of my improvement is to render the bottom and mold-board of the plow adjustable to different angles and to different depths in plowing without weakening the beam or altering the relative position of the beam and handles to each other, and at the same time to make said bottom and mold-board readily detachable from the beam and handles whenever it is desirable, for repairs or for other purposes.

The bottom A and mold-board B of the plow are usually made of cast-iron and the parts connected together in any desirable manner. The bottom A is provided with a flange, *a*, on the land side, for attaching the parts that connect it with the beam and handles.

A vertical coupling-arm, C, made of wrought-iron, and of suitable length and size for the purpose designed, is secured at a proper position to the flange *a* by means of bolts *b b*, or in any other convenient manner; and a similar coupling-arm, D, is secured, face to face with said arm C, to the under side of the beam E by means of a face or flange, *c*, on its upper end of sufficient size to form a suitable bearing against the beam and to furnish holes respectively at each end for the reception of bolts *d d*, which pass through it and the beam, and have nuts screwing on the upper ends thereof, substantially as represented. A set of adjusting-holes, *f f f*, is made through the arm D and a similar single hole through the arm C, to admit a bolt, *g*, which couples the said arms together. The arrangement may be reversed with the same result, making the holes *f f f* in the arm C and the single hole in the arm D.

At a suitable point in the rear of the coup-

ling-arms C D a stiff connecting-bar, G, is situated, pivoted at its lower end to the flange *a*, as represented at *h*, the upper end thereof extending upward through a hole in the beam, and having a screw-thread of suitable length cut on it, as shown. On the upper end of this connecting-bar screws a hand-screw, H, Fig. 4, having two rims, *i* and *k*, respectively at the top and bottom thereof, the intermediate portion, *l*, being of less diameter than the rims. The hand-screw is also provided with a handle, *m*, for turning. This hand-screw is secured to the beam in such a manner that it can turn only horizontally, and not be forced from its place; and a convenient manner of securing it is represented in the drawings, in which a strip or bar, I, of iron is firmly bolted to the top of the beam, the rims *i* and *k* resting respectively on the opposite surfaces of the strip and preventing the said hand-screw from being forced from its place. Any other arrangement whereby the same result is produced may be employed.

Instead of securing the handles K K rigidly to the mold-board and bottom of the plow, I arrange them as follows: The left handle is secured to the end of the beam, as represented at *r*, the lower end extending downward, and having an eye or socket, *n*, of suitable size at its bottom, bolted thereto on the outside, through which passes a projection or horn, *o*, of the flange *a*, of sufficient length to allow any necessary amount of adjustment of the bottom of the plow. The right handle is usually connected with the left one at the lower end by means of a bent brace, *p*, commonly made of iron, the upper end thereof being bolted to the right handle, while the lower end is secured to the bolt of the eye or socket *n* passing through the left handle, or in any other desirable manner. Thus there is no connection between the lower ends of the handles and the bottom of the plow, except by means of the eye or socket *n* and projection *o*, above described. By this arrangement of parts of the plow two separate and different adjustments of the bottom of the plow are produced. By simply turning the hand-screw H so as to lower or raise the connecting-bar G, the bottom of the plow changes its angle relatively to the beam, and by lowering or raising the coupling-arm C by

means of the bolt *g* and its adjusting holes in the same proportion as the connecting-bar *G* is lowered or raised the bottom of the plow is adjusted to a greater or less depth, while its relative angle to the beam is unchanged. These two different adjustments are often desirable, the former to adjust the angle of the point or forward end of the plow-bottom as it wears away, and also to suit different conditions of ground, and the latter for plowing deeper or shallower, as is necessary.

By my improved method of connecting the bottom of the plow with the beam by means of the coupling-arms *C* and *D*, not only do I produce the desired adjustability, but I strengthen the beam at the point where the greatest strain comes by means of the face *c* and the separated bolts *d d*, which connect said face with the beam, so that there is no slot or passage in the beam at this point, as usual.

So far as I am aware, in all adjustable plows of this kind a slot or passage is made through the beam for the reception of the end of the stock, and this passage must necessarily be much larger than where the plow is not adjustable, and consequently the beam must be greatly weakened at that point. By this arrangement, also, in all adjustments of the plow the beam and handles retain the same relative position to each other, while the parts that compose the bottom of the plow act independently of them, and consequently there is a greater steadiness and firmness to the whole arrangement. The bottom of the plow is also

readily detached from the beam and handles. By removing the bolt *g* from the coupling-arms *C* and *D* and turning the hand-screw *H* so as to unscrew the connecting-bar *G* therefrom, the projection *o* slips out of the eye or socket *n* and the whole is removed. The whole arrangement is simple, effective, and not liable to get out of order.

I do not claim adjusting the bottoms of plows irrespective of my improved arrangement herein described, as I am aware that various plans for effecting that purpose have been before employed; but

What I claim as my invention, and desire to secure by Letters Patent, is—

Connecting the forward portion of the bottom *A* of the plow with the beam by means of the adjustable coupling-arms *C D*, the arm *D* being secured to the beam by the face *c* and bolts *d d*, as herein specified, and connecting the rear portion of said bottom *A* with the beam by means of the pivoted connecting-bar *G* and hand-screw *H*, the connection of the said bottom with the handles being effected by the eye *n* and projection *o*, or their equivalents, the whole arranged, combined, and operating substantially as herein set forth.

In testimony whereof I hereunto set my hand this 24th day of September, 1860.

ANDREW BENKELMANN.

Witnesses:

G. O. SIPPEL,
T. BENTLE.