(No Model.)

J. HANAPEL.

REVERSIBLE PLOW.

No. 309,945. Patented Dec. 30, 1884.

Fig. 1.

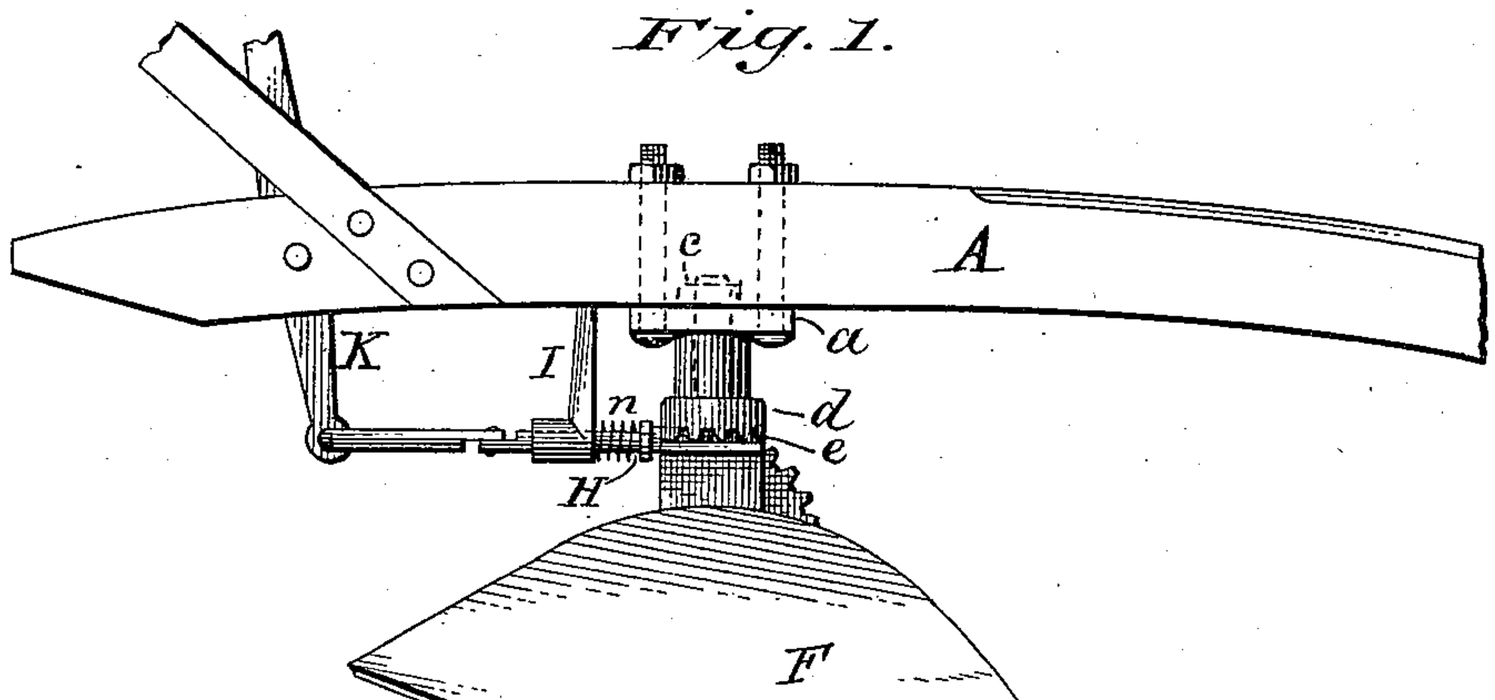


Fig. 2.

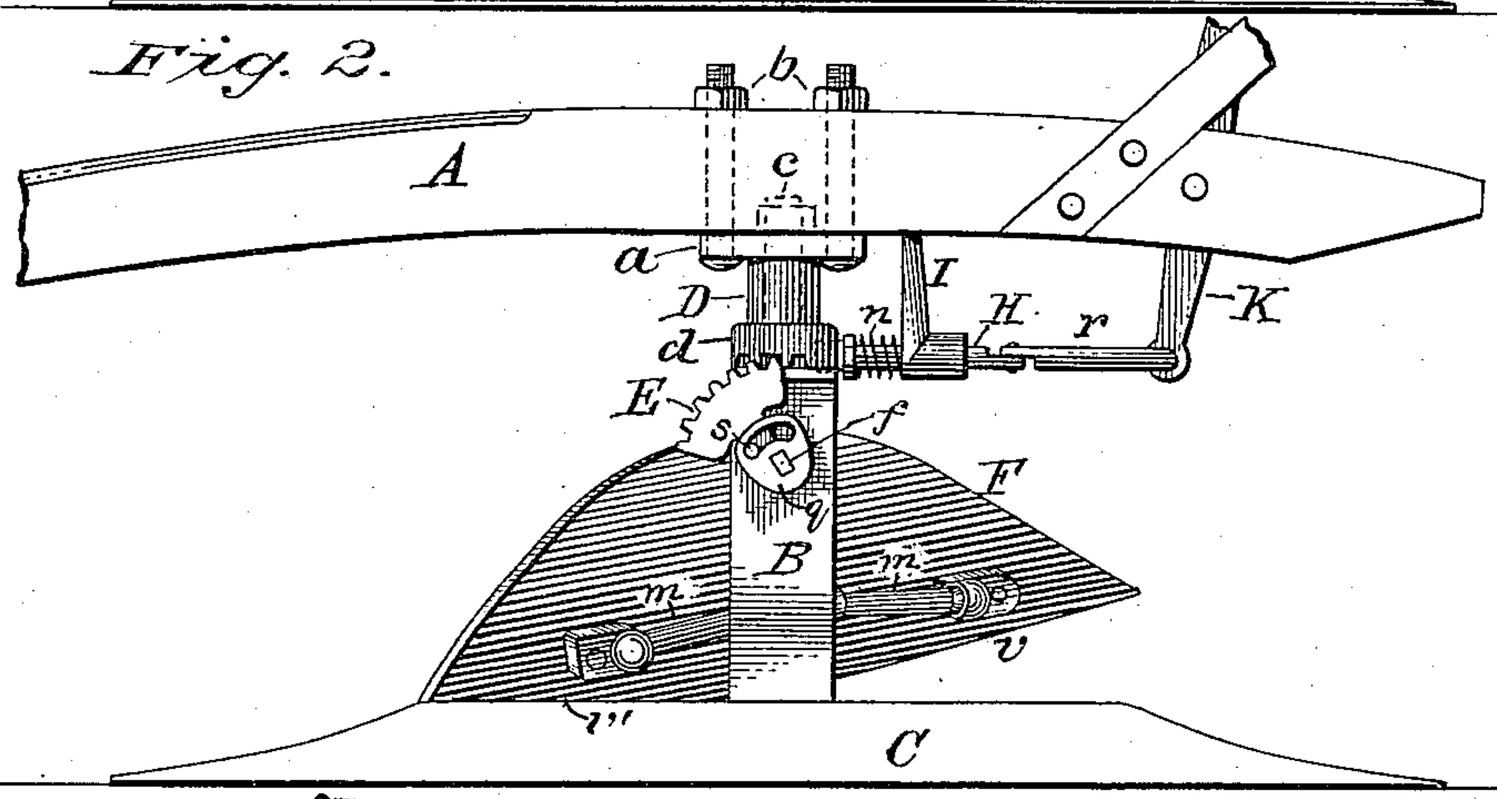
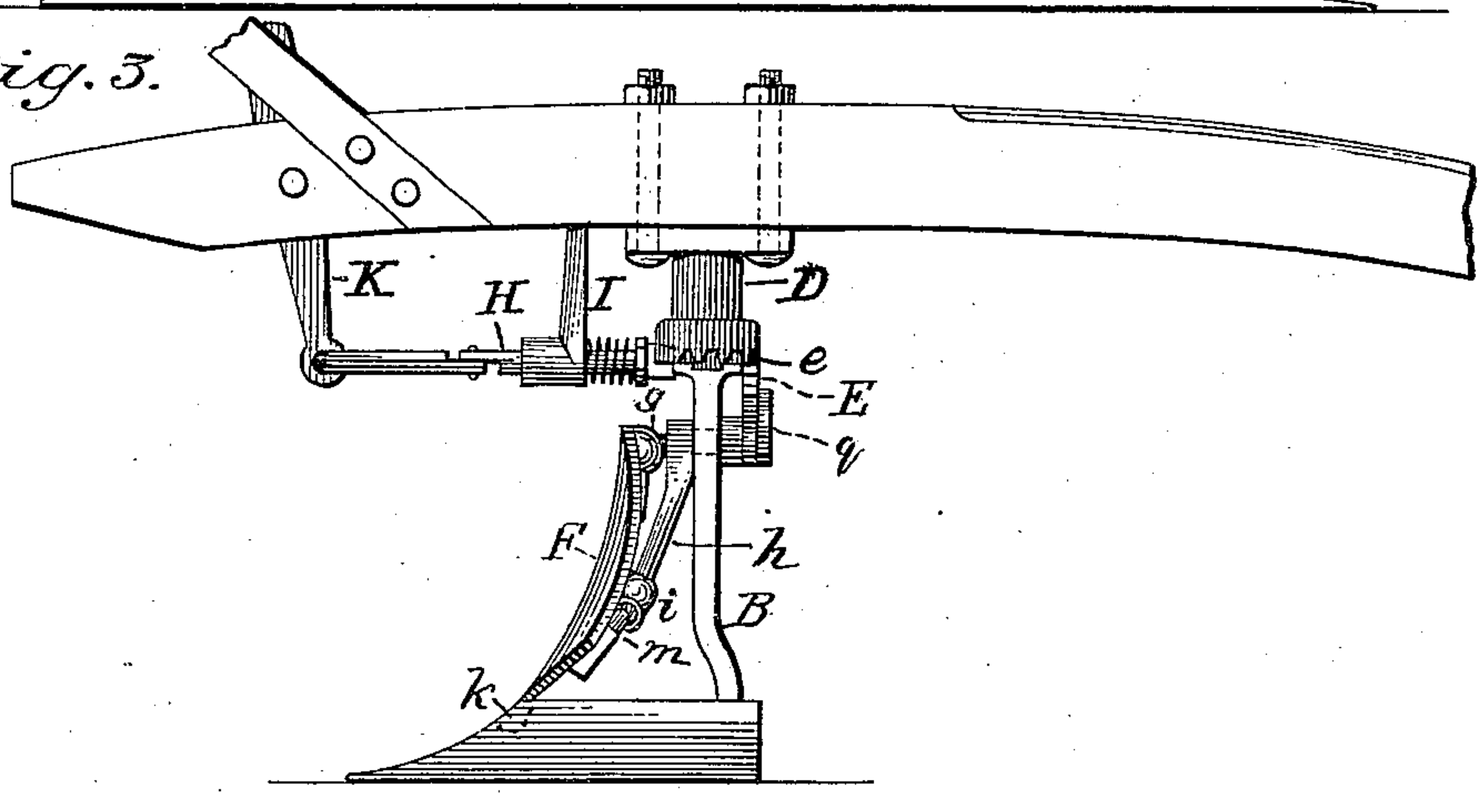


Fig. 3.



Witnesses
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JOHN HANAPEL, OF SPRINGBROOK, IOWA.

REVERSIBLE PLOW.

SPECIFICATION forming part of Letters Patent No. 309,945, dated December 30, 1884.

Application filed June 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN HANAPEL, a citizen of the United States, residing at Springbrook, in the county of Jackson and State of Iowa, have invented new and useful Improvements in Combined Right and Left Hand Plows, of which the following is a specification.

My invention relates to right and left hand plows in which the plow-beam and mold-board are reversible; and it consists in certain improvements in the construction of the same, as hereinafter shown and described.

In the accompanying drawings, Figure 1 represents a side view of a right and left hand plow having my improvements. Fig. 2 is a side view of the side opposite to that shown in Fig. 1. Fig. 3 is an end view of the plow with the beam turned partly around.

A designates the plow-beam, and B the standard, to the lower end of which is fastened the landside C at its longitudinal center. The lower part of the standard is made flat, the upper end being made cylindrical and reduced to form a neck or spindle which passes upward through a sleeve, D, into a recess in the plow-beam. The sleeve is formed with a T head or plate, *a*, at the top, on which the plow-beam rests, and the parts are secured together by a nut, *c*, on the upper extremity of the standard, which is threaded, and the bolts *b* which pass through plate *a* and the plow-beam, as shown. The lower end of sleeve D is either enlarged or provided with a band, *d*, rigidly attached thereto, on the lower edge of which and partly around the circumference are formed cogs *e*, which engage with teeth on the segment E. The plate forming segment E is carried by an arbor, *f*, which passes through an arm of the plate, and also through standard B, and is coupled by a ball-and-socket joint, *g*, with the mold-board F at a central point near its upper edge.

Fixed rigidly on arbor *f* between the standard and the mold-board is an arm, *h*, which extends downward, and has at its lower end a triple ball-and-socket-joint coupling, *i*, from which two arms, *m m*, extend in opposite directions, and have their outward ends severally connected by ball-and-socket joints with the mold-board at points equidistant from its longitudinal center and near its lower edge, as shown. The mold-board has also a connection by ball and socket at its lower center with the double share, as indicated by *k*. The share forms substantially two shares, G G′, pointing in opposite directions and joining at *p*, and are constructed to turn the sod in the same manner in both directions: The mold-board F is made substantially in the form shown, with the lower edges, *v v′*, forming an obtuse angle, so that it may be closed against the upper edge of either share, and when closed against one share it is raised from the opposite share, as seen in Fig. 1. The mold-board is automatically brought in position to operate in connection with either share by devices described as follows: On arbor *f*, outside of plate E, is rigidly attached a plate, *q*, which has a curved slot, into which projects a stud or pin, *s*, fixed to plate E, and when this plate, by the rotary movement of sleeve D engaging with it, is caused to incline in one direction the arbor *f*, through slotted plate *q* and stud *s*, is slightly rotated, imparting a lateral movement in the opposite direction to arm *h*, connected as aforesaid by arms *m* with the mold-board, and the latter is turned to a position (shown in Fig. 1) with one lower edge closed against the upper edge of a share, the opposite end of the mold-board being raised.

H indicates a bolt passing into apertures in sleeve D and standard B, said bolt moving in a guide, I, depending from the plow-beam, and being pressed forward by a spring, *n*, to lock the beam to the standard. The bolt is withdrawn by means of a lever, K, pivoted in a slot to beam A and connected by rod *r* with the bolt.

When it is desired to reverse the movement of the plow, it is moved out of the furrow and the bolt H withdrawn. The team is turned toward the unplowed ground, the plow-beam with sleeve D attached turning on the standard. The sleeve engaging with segment E brings it edgewise to an inclined position. The stud *s*, meantime moving along the slot in plate *q*, catches against the plate at the end of the slot, and thus slightly rotates the arbor *f*, causing a lateral movement of fixed arm *h*, which moves the mold-board, raising it from one share and closing it against the upper edge of the opposite share, when the mold-board and share

are in position to operate in the opposite direction, and the plow-beam meantime having been reversed in position the bolt H is pressed by the spring into the aperture in the standard, locking the beam.

I claim—

1. In a plow, in combination with the plow-beam and standard, the sleeve D, provided with cogs *e*, segmental gear E, with stud *s*, slotted plate *q*, and arbor *f*, provided with arm *h*, loosely connected with the mold-board, substantially as and for the purposes set forth.

2. In combination with a mold-board having the edges *v v'* and loosely connected with the plowshare, arbor *f*, provided with fixed arm *h*, arms *m*, having loose connections with the mold-board, and suitable means for rotating arbor *f*, substantially as set forth and described.

3. In combination with the plow-beam, standard B, sleeve D, having plate *a*, with bolts *b*, spring-bolt *n*, with guide I, and pivoted lever K, substantially as set forth.

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