

(No Model.)

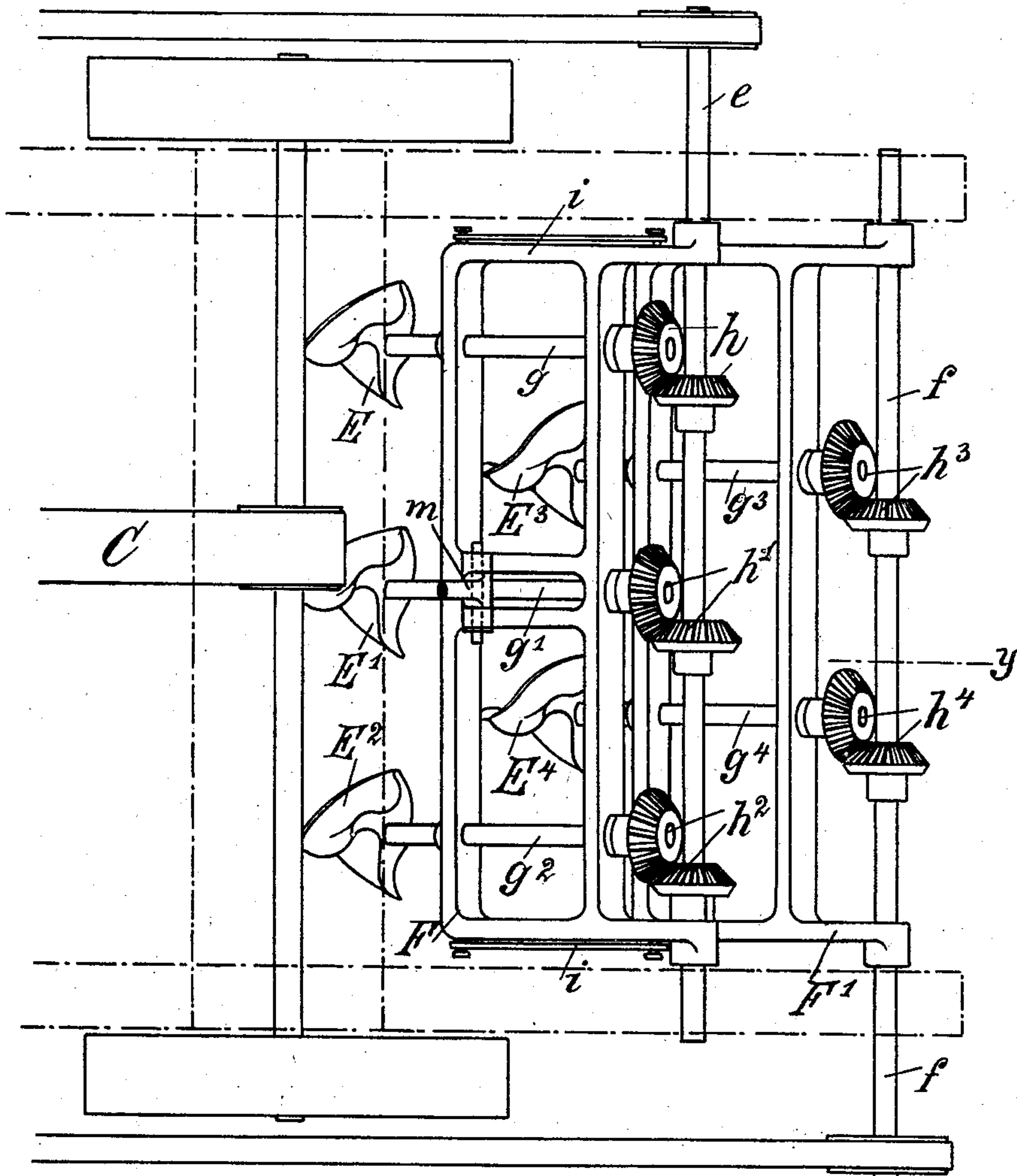
4 Sheets—Sheet 1.

E. DALLMANN.  
ELECTRICALLY DRIVEN AND MOVED PLOW.

No. 605,631.

Patented June 14, 1898.

*Fig. 1.*



Witnesses:

*E. B. Bolton*

*W. Munk*

Inventor:

*Erich Dallmann*

By *Richard R.*

*his Attorneys.*

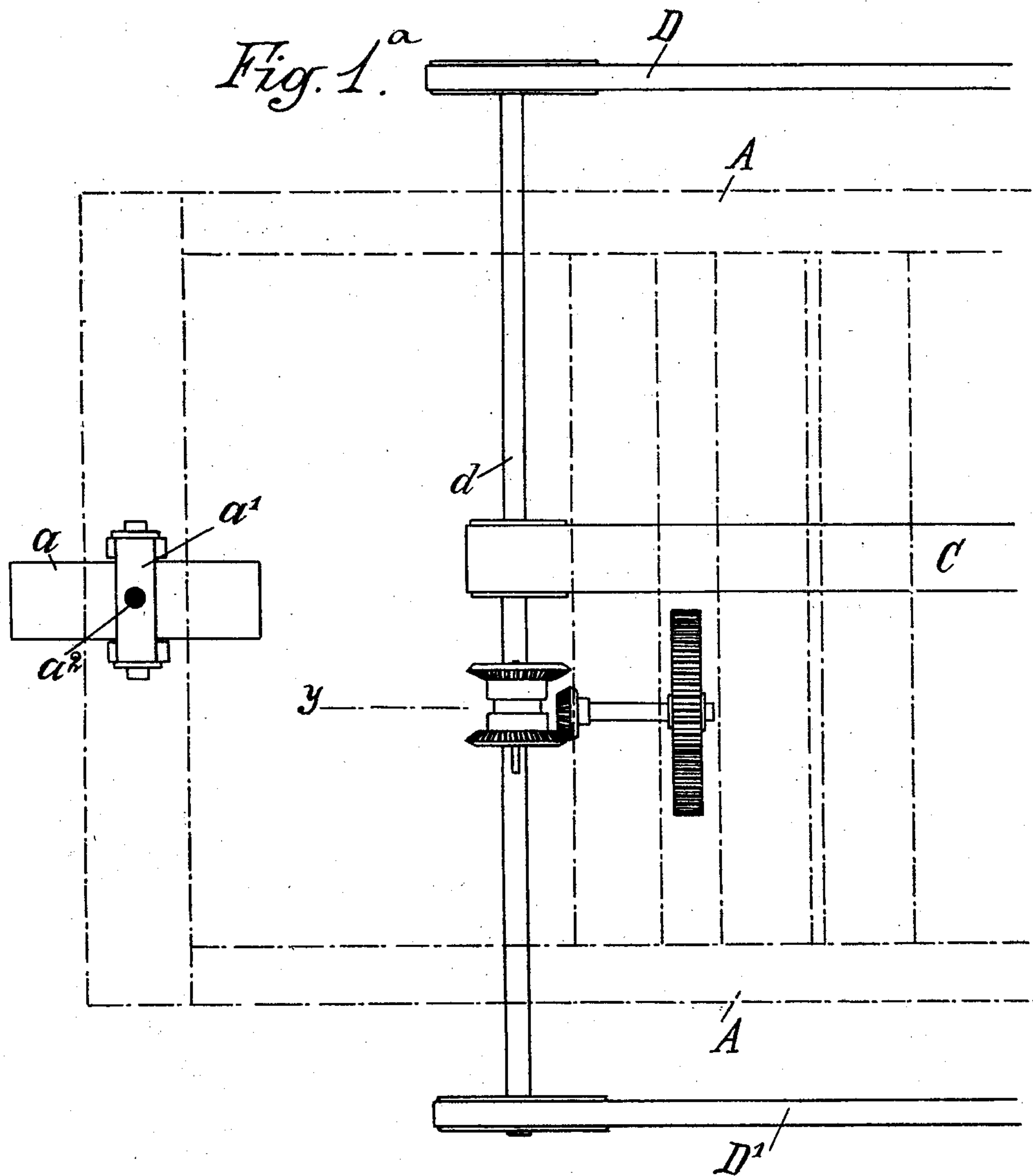
(No Model.)

4 Sheets—Sheet 2.

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Patented June 14, 1898.



Witnesses:

*E. B. Bolton*

*Oldmunk*

Inventor:

*Erich Dallmann*

By *Richard R.*

*his Attorneys*

(No Model.)

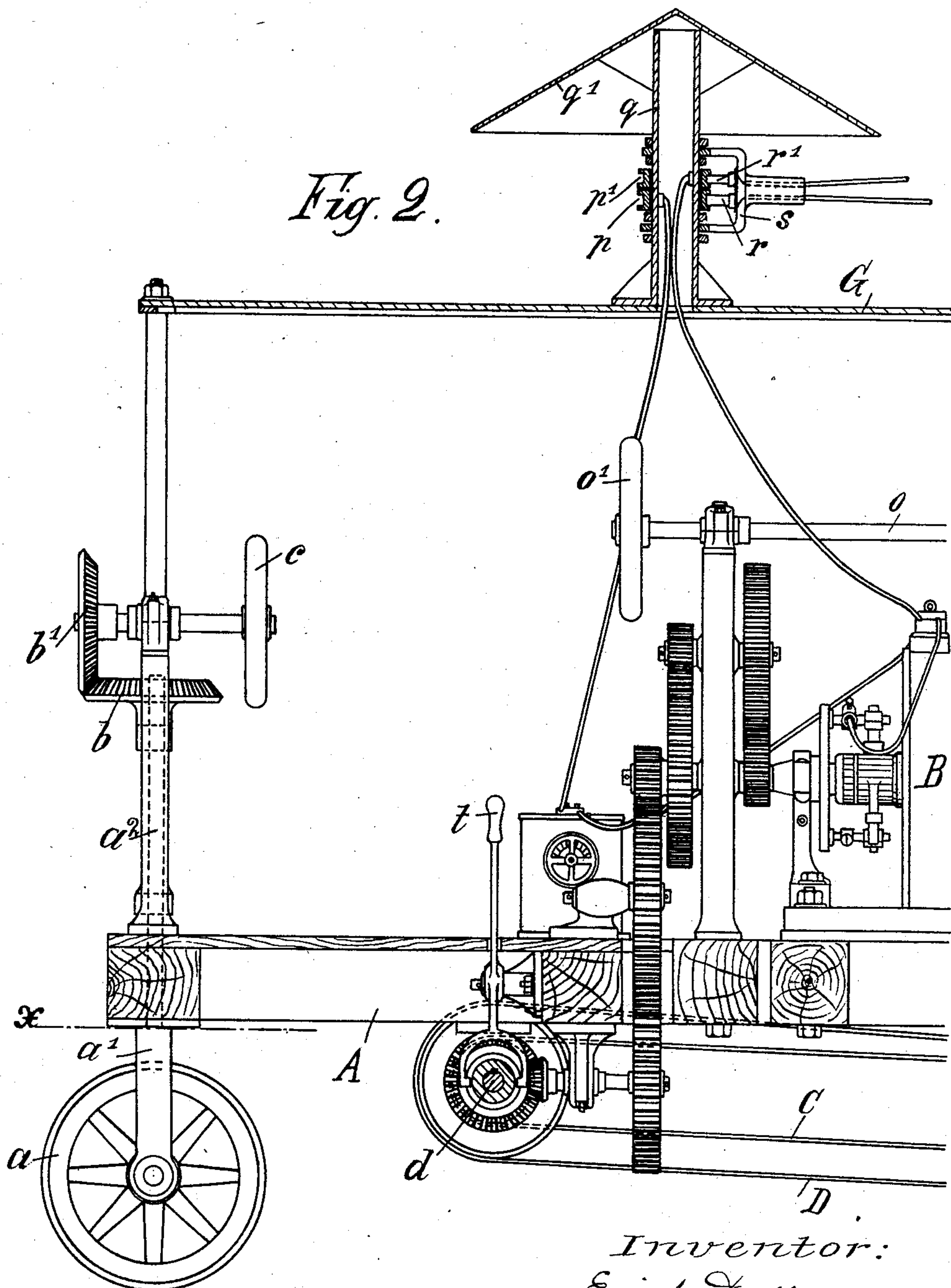
4 Sheets—Sheet 3.

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ELECTRICALLY DRIVEN AND MOVED PLOW.

No. 605,631.

Patented June 14, 1898.




*Witnesses:*

C. R. Bolton

Old man

Inventor:  
Erich Hallmann

By  Richard  
his Attorneys.

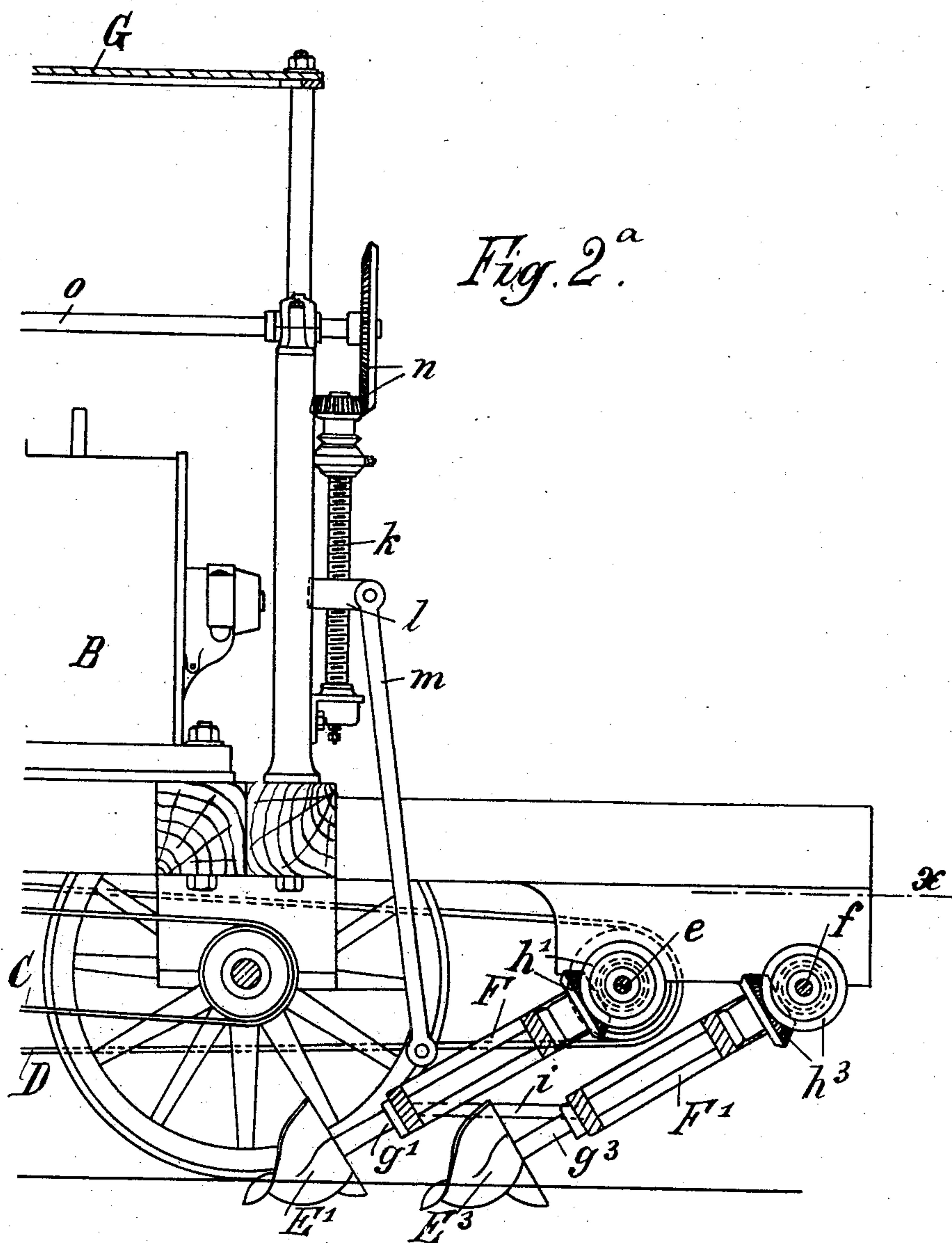
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Patented June 14, 1898.



Witnesses:

C. B. Bolton

O. Munn

Inventor:  
Erich Dallmann

By *Richard R.*  
his Attorneys



# UNITED STATES PATENT OFFICE.

ERICH DALLMANN, OF NEUSALZ, GERMANY, ASSIGNOR TO THE FIRM OF  
T. GANSEL, OF SAME PLACE.

## ELECTRICALLY DRIVEN AND MOVED PLOW.

SPECIFICATION forming part of Letters Patent No. 605,631, dated June 14, 1898.

Application filed October 9, 1897. Serial No. 654,673. (No model.)

*To all whom it may concern:*

Be it known that I, ERICH DALLMANN, electrical engineer, a subject of the King of Prussia, Emperor of Germany, and a resident of Neusalz-on-the-Oder, in the Kingdom of Prussia, Germany, have invented a certain new and useful Electrically Driven and Moved Plow, of which the following is a full and clear specification.

My invention relates to an electrically driven and moved plow which differs from the devices hitherto employed by it in that the plowshares are supplied by a plurality of rotating conical screws which may be raised or lowered according to the wished for depth of furrows. The rotating movement of those screws, as well as the forward and backward moving of the new governable plow-carriage, are effected by means of a solè motor. As the boring movement of the screws is beneficial to the forward moving of the carriage and to the removing of the plowed ground, a considerable amount of power is spared by employing those screws in the place of the hitherto-used plowshares.

In the accompanying drawings, Figure 1 is a horizontal section of one half of the machine on line  $x x$  of Fig. 2, and Fig. 1<sup>a</sup> is a similar view of the other half; Fig. 2, a vertical section of one half of the machine on line  $y y$  of Fig. 1, and Fig. 2<sup>a</sup> is a similar view of the remaining portion.

The framing A, which bears the motor, with its reversing contrivance, the (properly speaking) plow, and the guiding contrivance of the guidable plow-carriage, rests upon three wheels, the foremost  $a$  of which serves as a guide-wheel and is lodged in a fork  $a'$  at the lower end of the vertical guide-shaft  $a^2$ . On this guide-shaft there is secured at the upper end a conical tooth-wheel  $b$ , which engages another tooth-wheel  $b'$ , moved by a hand-wheel  $c$ , so that by turning the latter in one or the other direction the plow-carriage may be guided.

Motor B drives by means of a suitable spur-gear a shaft  $d$ , which effects the back and forward moving of the carriage and actuates in the meantime the rotating screws. The former motion is transmitted by means of a belt-gearing C and the latter by means of belt-

gearings D D'. The forward and backward moving of the carriage is effected by inserting a simple reversible wheel-gear—such as, for instance, a double conical wheel-gearing, which may be reversed by means of a reversing-lever  $t$ , as illustrated by the accompanying drawings.

The changing of the forward and backward moving of the carriage may as well be obtained by reversing the electromotor itself. The screws E E' E<sup>2</sup> E<sup>3</sup> are lodged with their shafts  $g g' g^2 g^3$  alternately and in such a manner as to be prevented from conaxial shifting in frames F F', which are suspended pendulous behind each other on the shafts  $e f$ , the latter being driven by the belt-gearings D D'. The screw-shafts  $g g' g^2 g^3$  are driven by pairs of conical wheels  $h$ , secured, respectively, upon the upper ends of the screw-shafts and upon the transverse shafts  $e$  and  $f$ . That mode of gearing has for its especial purpose that the axis of the shafts  $g$  may be more or less inclined as it may be needed for obtaining a given depth of furrows without detriment to the steady driving of the mechanism. The maneuver of all screws is effected simultaneously and in a uniform manner by displacing the frames F F', which are dependent from each other in their motions, being coupled by rigid guides  $i$ .

In order to secure the frames in the desired position at the same time as they are displaced, there is arranged an adjusting device consisting of a vertical screw  $k$ , lodged at the framing of the plow-carriage, so as to be prevented from conaxial shifting, upon which travels a nut  $l$ , secured against turning and coupled to the foremost frame F by a guide  $m$ . Screw  $k$  takes its rotary movement from a pair of conical wheels  $n$ , the one of which is fastened at the top of the screw, while the other is secured upon the hindmost end of a horizontal shaft  $o$ , reaching unto the engine-platform and which may be actuated by means of a hand-wheel  $o'$ .

The plow-carriage is entirely protected by a roof G.

The electric current is conveyed to the motor by means of two rings  $p p'$ , acting as sliding contacts and secured at the top of a hollow post  $q$ , fastened upon roof G and covered by



another little roof  $q'$ . Said rings are isolated as well from each other as from post  $q$  and take the current at their outer side from sliding brushes  $r r'$ , which are fastened to a bow  $s$ , that may turn around post  $q$ . That arrangement has for its purpose that the current may be conveyed to the motor while the plow is traveling around the field without being obliged to displace the source of power placed in the center of the field.

When the plow-carriage is to be moved backward or when it is to be driven over roads, the screws are raised by means of the contrivance heretofore described, so that they do not labor the ground. As it has already been stated at the beginning of the present statement the boring movement of the screws is beneficial to the forward moving of the carriage and facilitates considerably the work of plowing as compared to the hitherto-employed plowshares.

With the new plow plowing is begun at a corner of the field and goes on by following spirally the borders of the same in parallel furrows until the center is reached, so that the plow-carriage needs only to be guided at the corners, while for the rest it may continuously move on.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In an electrically driven and moved plow a guidable plow-carriage A, a plurality of shafts  $e f$  arranged behind each other in the rear part of said carriage, frames  $F F'$  pendulously suspended and devices for adjusting and securing them, shafts  $g$  lodged in said frames so as to be prevented from conaxial shifting and bearing firmly attached to their lower end conical plow-screws E, a contrivance for moving forwardly and backwardly plow-carriage A, which bears all parts of the plow, an electromotor B driving said carriage and actuating the plow-screws and means for conveying the electric current from a stationary source to the motor, substantially as and for the purpose set forth.

2. In an electrically driven and moved plow shafts  $e f$  driving conical plow-screws in the rear part, and principal driving-shafts  $d$ , actuated by an electric motor B by means of

a communicator in the fore part of the plow-carriage A, belt-gearings  $D D'$  transmitting the movement from said driving-shafts  $d$  unto shafts  $e f$  and another belt-gearing  $b$  transmitting the movement from  $d$  to the carriage's rear axis and finally means for reversing principal driving-shaft  $d$ , substantially as and for the purpose described.

3. In an electrically driven and moved plow shafts  $e f$ , arranged behind each other and driving a plurality of conical plow-screws E, frames  $F$ , pendulously suspended at those shafts and coupled by guide-bars  $i$ , plow-screws E at the lower end of driving-shafts  $g$ , the latter being lodged at said frames  $F$  in such a manner as to be prevented from conaxial shifting and means for adjusting and securing said frames, substantially as and for the purpose described.

4. In an electrically driven and moved plow frames  $F$  in which are lodged a plurality of plow screw-shafts  $g$ , guide-bars  $i$  for connecting said frames with each other and means for adjusting and securing them, consisting in a vertical screw-spindle  $k$ , lodged at the framing of the plow-carriage so as to be prevented from conaxial shifting, a screw-nut  $l$  traveling upon the same and being secured against turning round a guide  $m$  connecting said nut with the foremost frame  $F$ , a shaft  $o$  having a hand-wheel  $o'$  at its upper end and a pair of conical wheels  $n$  for transmitting the movement from said shaft  $o$  to screw-spindle  $k$ , substantially as and for the purpose set forth.

5. In an electrically driven and moved plow a roof G protecting plow-carriage A, a hollow post  $q$  secured upon G and covered by another smaller roof  $q'$ , two rings  $p p'$  serving as sliding contacts and being disposed on pole  $q$ , springs  $r r'$  sliding upon said rings and acting as sliding brushes and finally a bow S, turning loosely around pole  $q$  and bearing those sliding brushes  $r r'$  to which the conducting-wires are fastened, substantially as and for the purpose set forth.

Signed at Bucharest, Roumania, this 20th day of September, 1897.

ERICH DALLMANN.

Witnesses:

P. JAMES,  
F. WEISS.

Correction in Letters Patent No. 605

It is hereby certified that the name of the assignee in Letters Patent No. 605,631, granted June 14, 1898, upon the application of Erich Dallmann, of Neusalz, Germany, for an improvement in "Electrically Driven and Moved Plows," was erroneously written and printed "the firm of T. Gansel," whereas said name should have been written and printed *the firm of I. Gansel*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 2d day of August, A. D., 1898.

[SEAL.]

WEBSTER DAVIS,  
*Assistant Secretary of the Interior.*

Countersigned:

A. P. GREELEY,  
*Acting Commissioner of Patents.*