

(No Model.)

G. J. CLINE.
WHEEL HARROW.

No. 322,258.

Patented July 14, 1885.

Fig. 1.

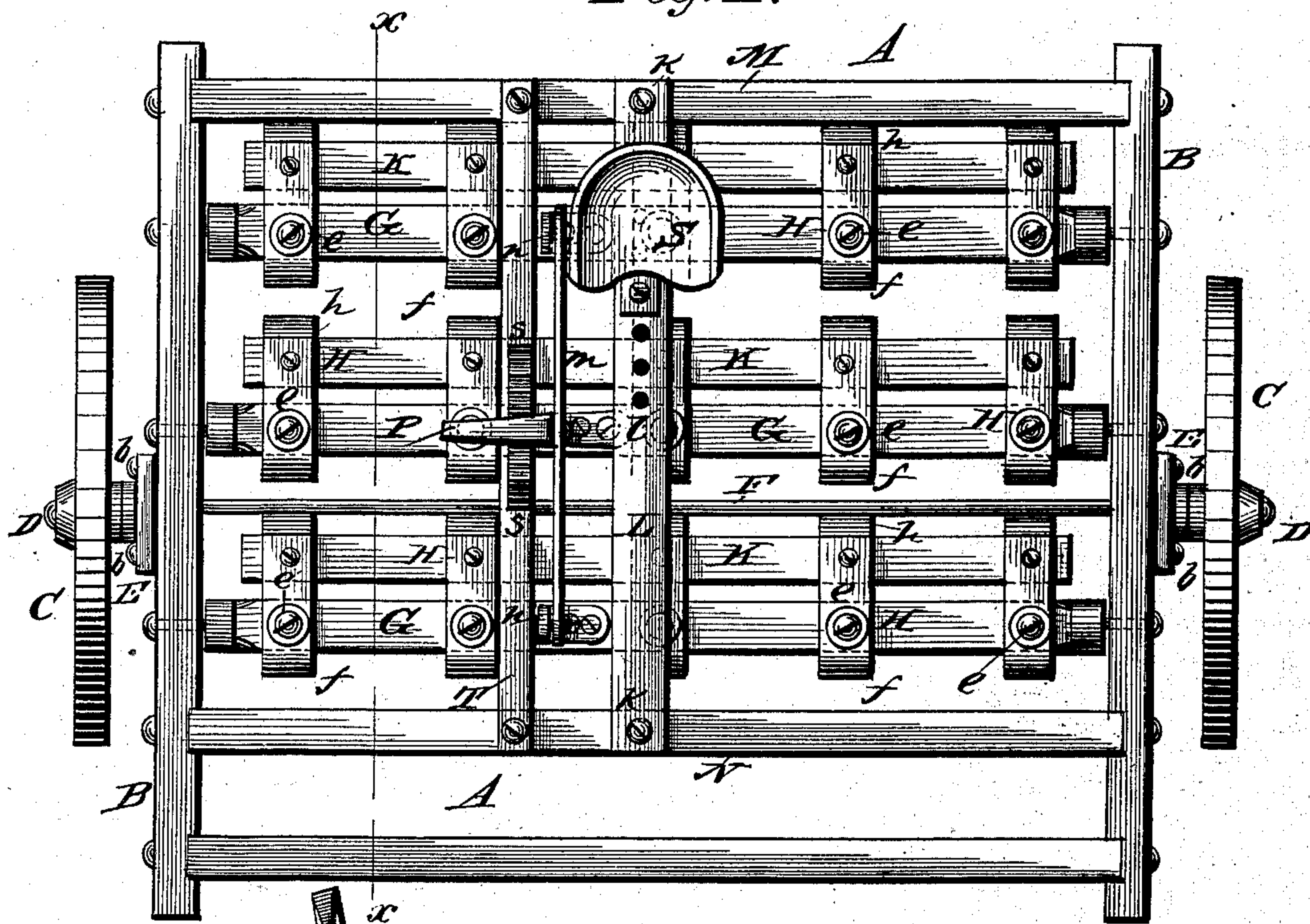


Fig. 2.

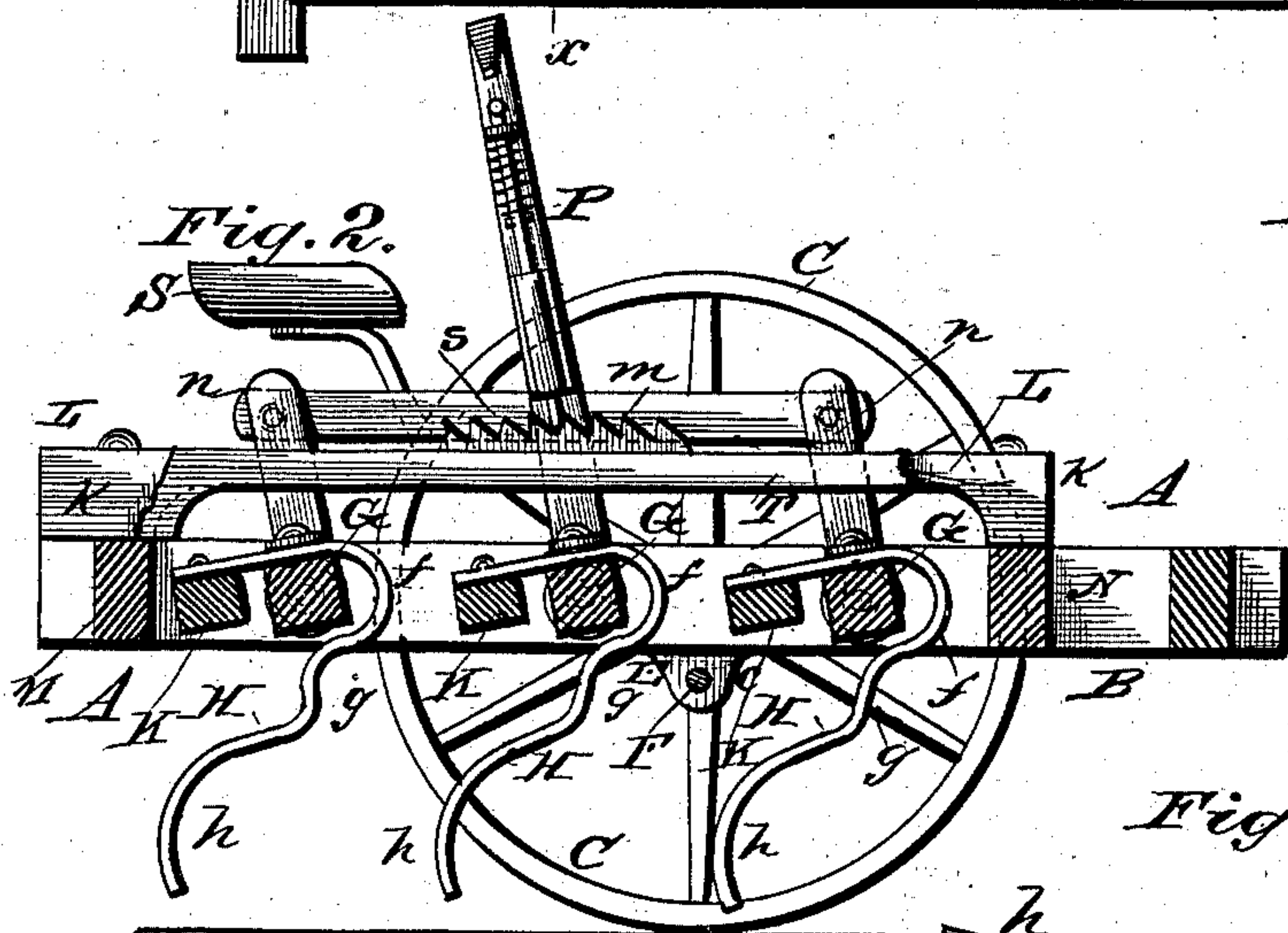


Fig. 3.

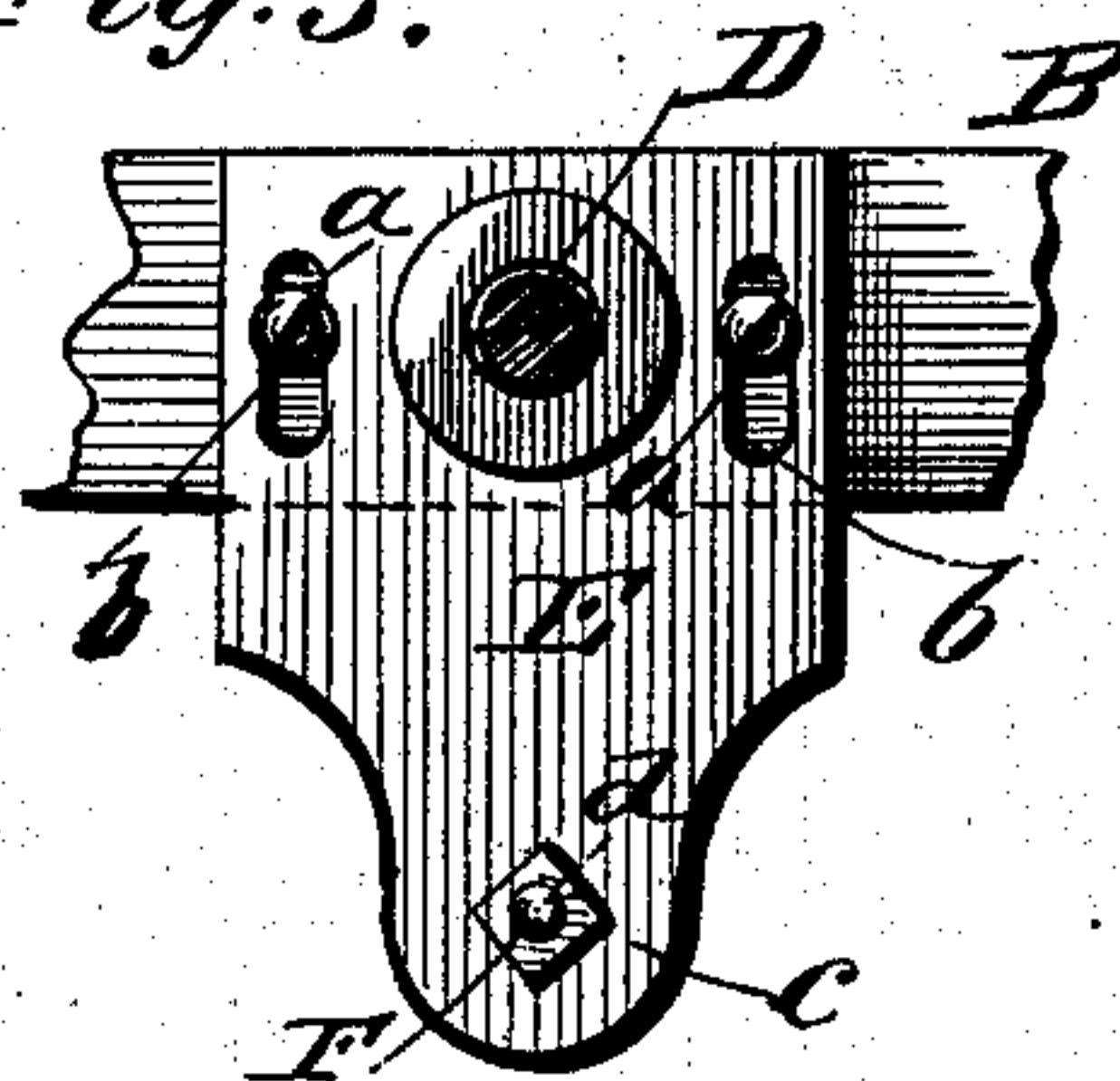
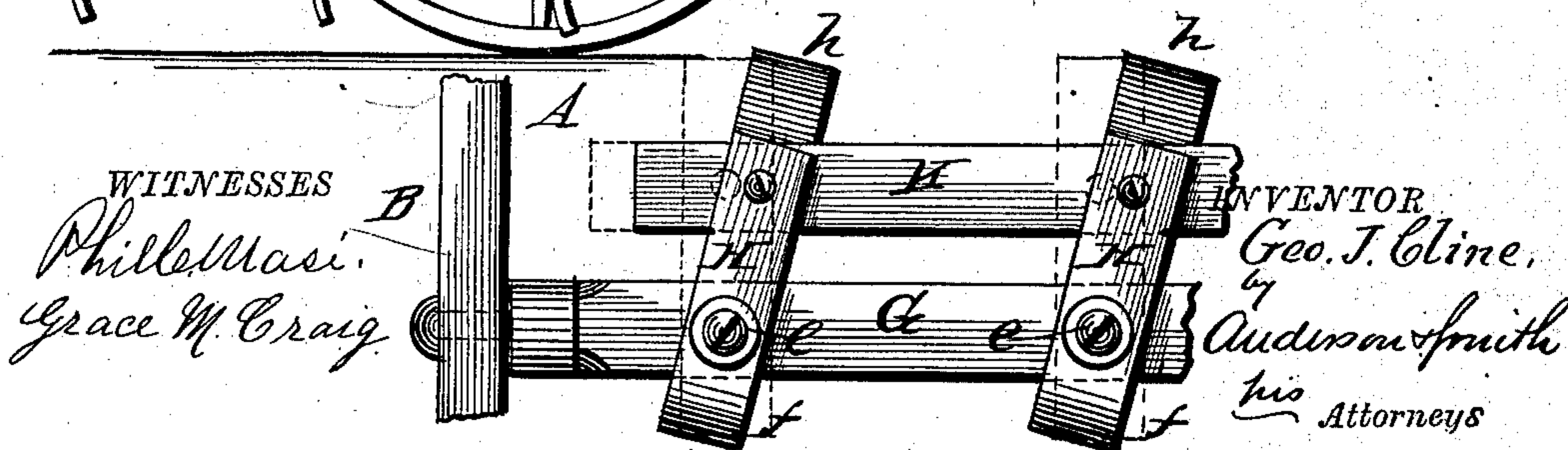


Fig. 4.



WITNESSES
Philleas
Grace M. Craig

INVENTOR
Geo. J. Cline,
by
Anderson & Smith
his Attorneys

UNITED STATES PATENT OFFICE.

GEORGE J. CLINE, OF GOSHEN, INDIANA.

WHEEL-HARROW.

SPECIFICATION forming part of Letters Patent No. 322,258, dated July 14, 1885.

Application filed March 14, 1885. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. CLINE, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Harrows; and I 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 top view. Fig. 2 is a vertical longitudinal section. Figs. 3 and 4 are details.

This invention has relation to harrows; and it consists in the construction and novel arrangement of devices, all as hereinafter set forth, and pointed out in the appended claims.

In the accompanying drawings, the letter A designates the rectangular frame of the harrow, having the side bars, B B. The wheels C C are placed upon the spindles D of the side plates, E, which are slotted in their upper portions, as indicated at *a*, for the reception of the fastening-bolts *b*, by means of which these spindle-plates are secured to the side bars of the frame. Each spindle-plate has a downward extension, *c*, which is provided with an aperture or bearing, *d*, to receive the end of the tie-rod F, whereby the spindle-plates are kept in position and the wheels prevented from spreading. The spindle-plates are adjustable vertically to the limit of the slots in the spindle-plates.

G G represent the pivoted tooth-bars, the journals of which are seated in bearings in the side bars of the frame. To these tooth-bars are pivoted the spring-teeth H, the upper portions of which extend back from the pivoted points *e* to a rear bar, K, to which they are pivoted at their ends. Each tooth H has an upper bend, *f*, downward over the front of the tooth-bar G and under the same, and is then provided with a short reverse bend, *g*, which connects said upper bend to the main

curve *h* of the operating end of the tooth. By forming the tooth with the reverse bend *g* it is made to adjust itself automatically to light or heavy work without being obstructed by the rear bars, K. In light work that portion of the tooth which is immediately below the pivot-bar G does not touch said bar, but when the work is very heavy this portion rises on account of the strain upon the tooth, and the latter becomes more rigid, its elasticity thus commencing at the reverse bend.

L represents a bracket-bar, extending longitudinally from the rear transverse bar, M, to a transverse bar, N, in front, and firmly secured to said bars by bolts through its feet *k*. This bar is provided with a series of perforations, *l*, for the bolts, which secure the stem of the seat S in position. The seat is in this manner rendered adjustable forward or back, in accordance with the weight of the person operating the harrow to balance the latter.

P is a lever secured to a middle tooth-bar and pivoted to a connection, *m*, which is also pivoted to arms *n* of the tooth-bars in rear and in front of said middle tooth-bar. By means of this lever the tooth-bars are turned to depress the teeth to working position, or to raise them from the ground. A rack-arch at *s* supported in a bracket-bar, T, parallel to the bracket-bar L, serves to secure the adjustment of the lever, which is provided with a spring-pawl.

The form of the teeth and the arrangement of the parallel bars K in rear of the tooth-bars render the construction very compact, and the frame can therefore be made smaller for the same number of tooth-bars than when the spread of the tooth from front to rear is greater.

Having described this invention, what I claim and desire to secure by Letters Patent, is—

1. The combination, with the side bars, B, of the slotted spindle-plates E, and their downward extensions, the bolts which secure

said plates in the side bars, and the transverse tie-rod connecting the downward extensions, substantially as specified.

2. The combination, with the pivoted tooth-
5 bar G, and the parallel rear bar, K, of the spring-tooth pivoted to said tooth-bar, having its upper portion extending rearward and pivoted to the rear bar, and having its upper bend in front and under the bar followed by

a reverse bend connecting the said upper to bend to the main curve of the lower portion of the tooth, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE J. CLINE.

Witnesses:

LOUIS G. DEAN,
FRANK E. BAKER.