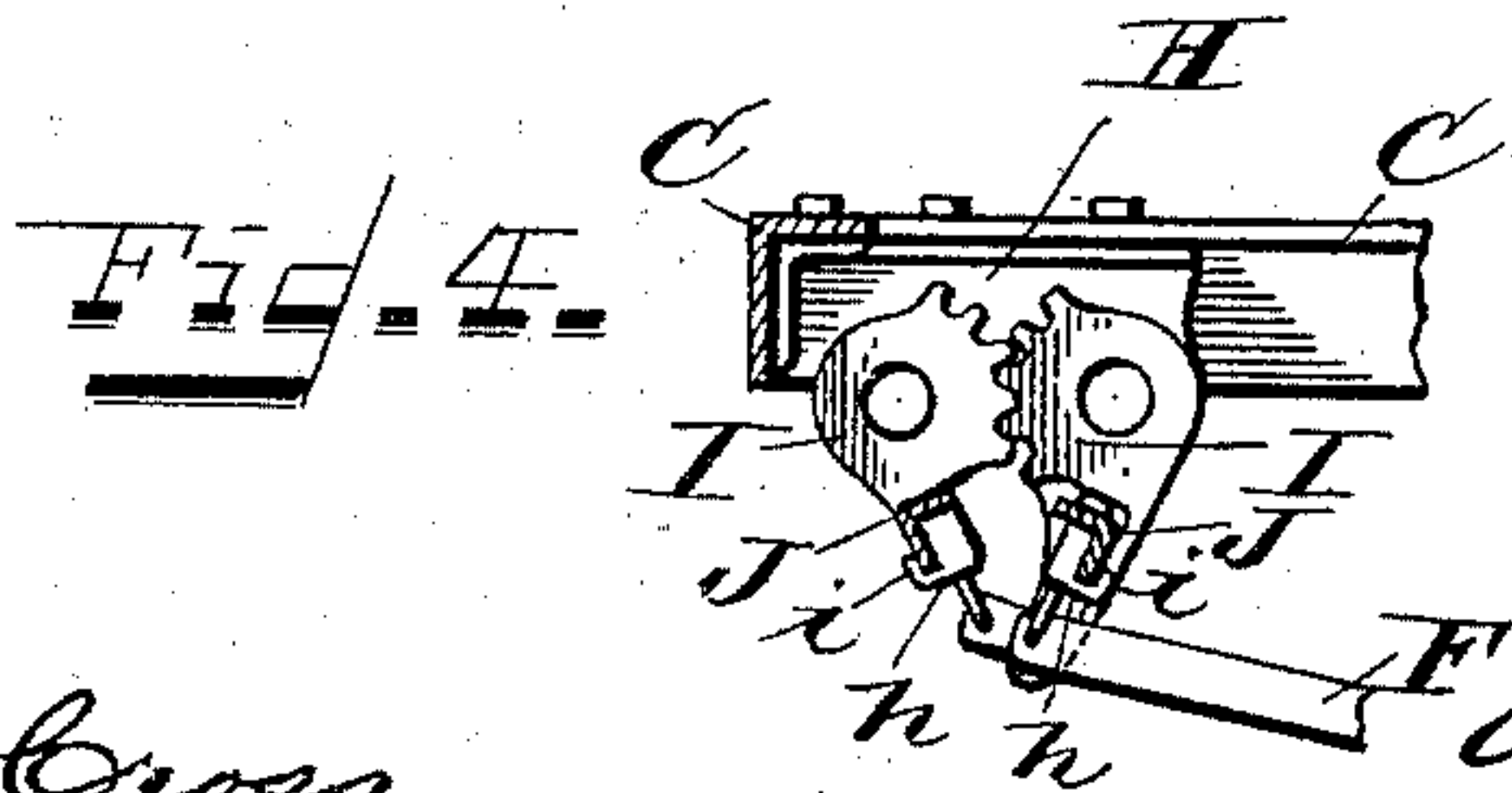
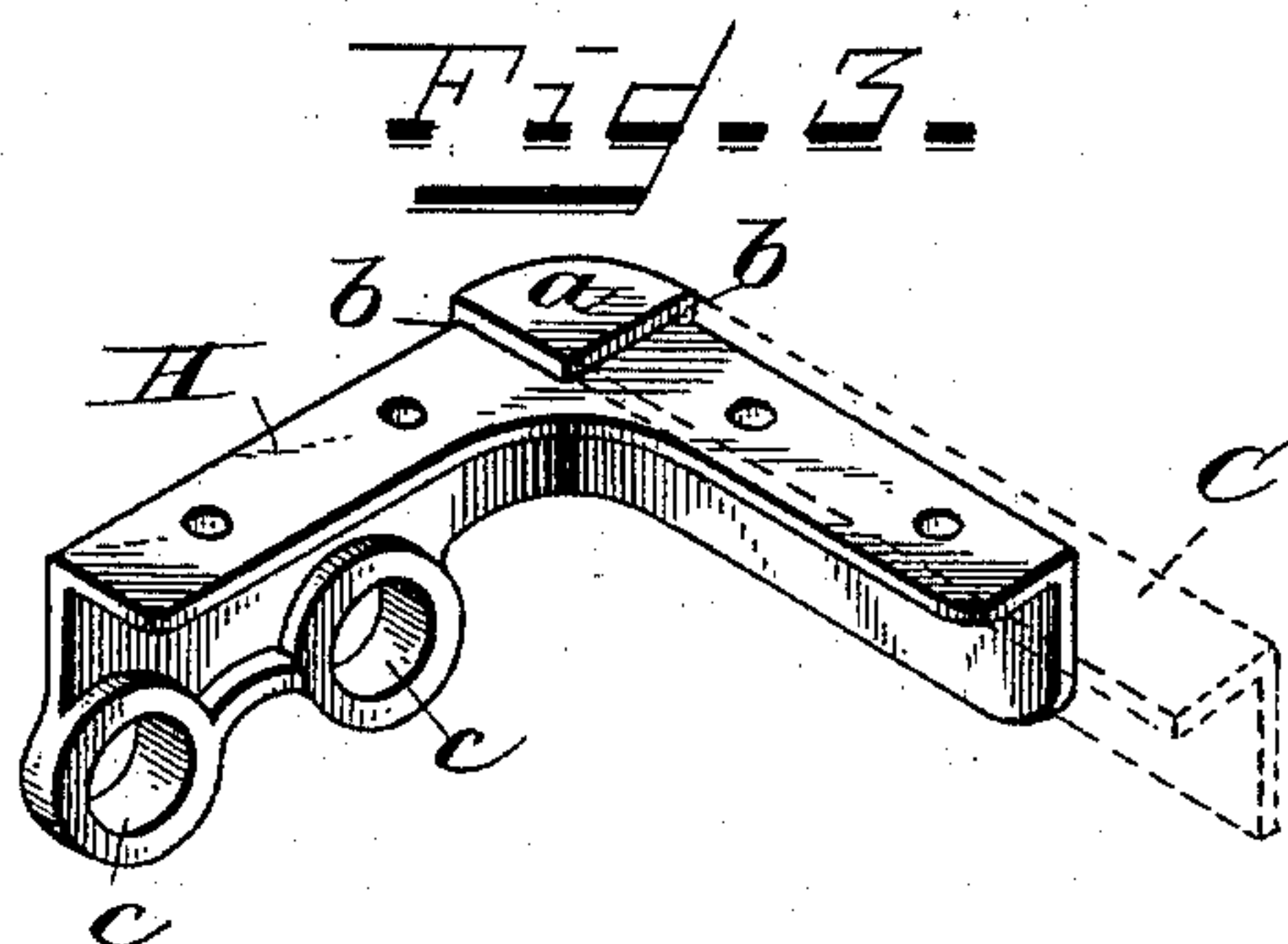
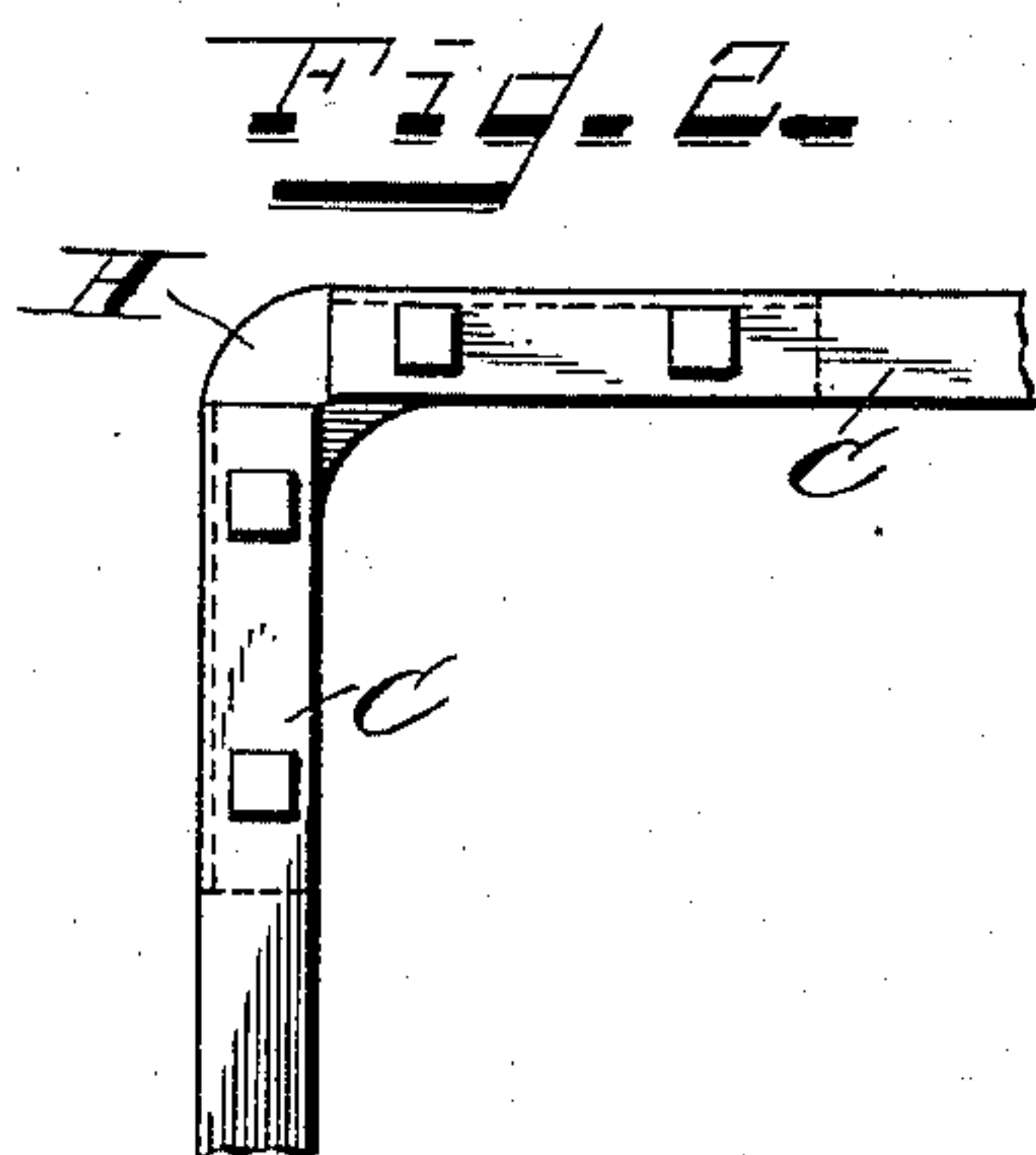
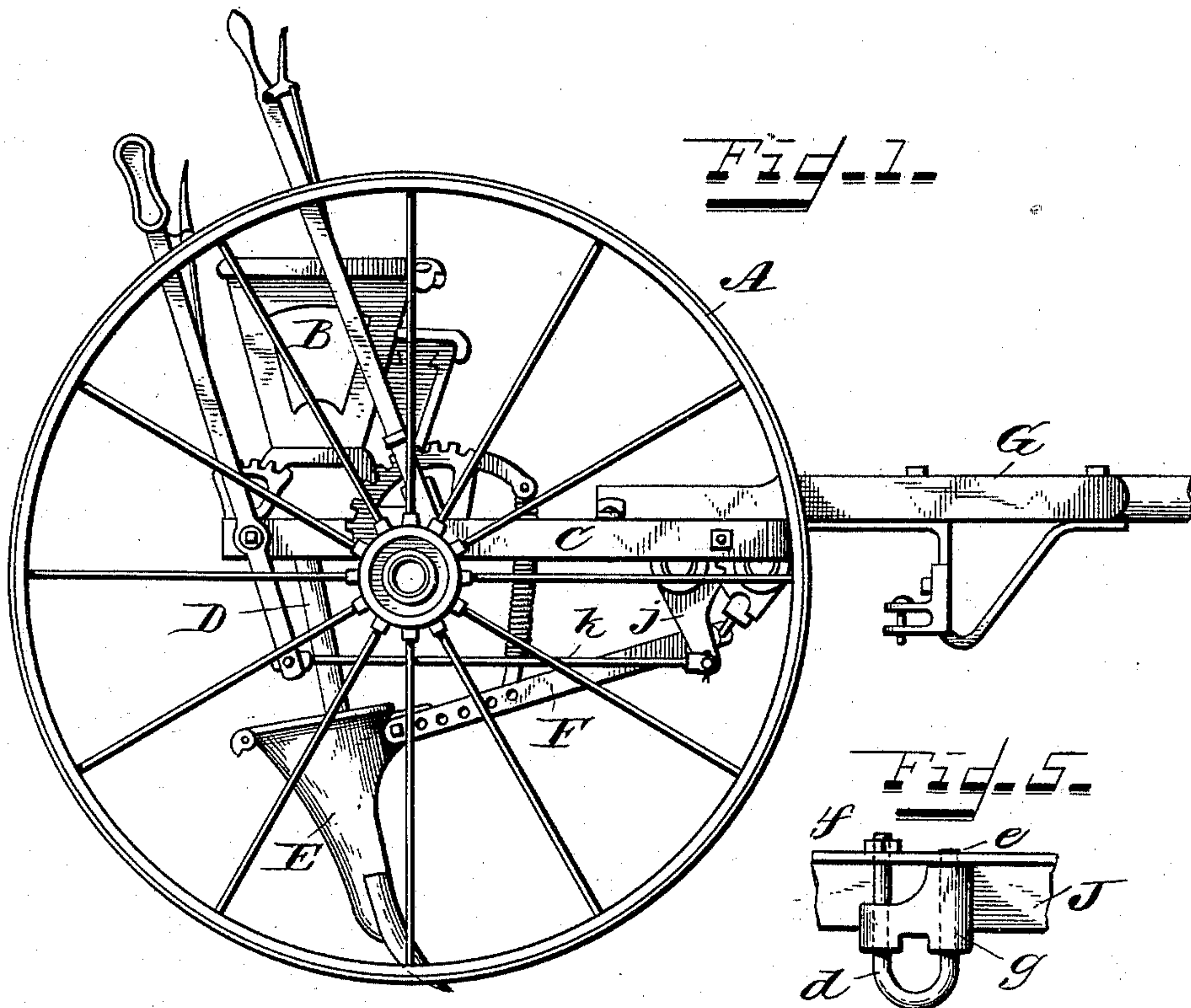


(No Model.)

A. J. FISHER.
GRAIN DRILL.

No. 495,670.

Patented Apr. 18, 1893.



Witnesses.

Thomson Cross
Bernard J. Haufeldt.

Inventor:
Andrew J. Fisher
by *Chas. M. Beck*
his Attorney.

UNITED STATES PATENT OFFICE.

ANDREW J. FISHER, OF DAYTON, OHIO, ASSIGNOR TO THE FARMERS FRIEND
MANUFACTURING COMPANY, OF SAME PLACE.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 495,670, dated April 18, 1893.

Application filed January 12, 1893. Serial No. 458,147. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. FISHER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Grain-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of grain drills in which the hoes can, by a single movement, be changed from a straight line to a zig-zag line or vice versa; and it has for its object the simplified and improved construction of the machine.

The novelty of my invention will be hereinafter set forth and specifically pointed out in the claims.

In the accompanying drawings: Figure 1, is a side elevation of a grain drill embodying my invention. Fig. 2, is a plan view of one corner of the main frame. Fig. 3, is a perspective of the corner block and bearing for the rock-bars. Fig. 4, is a sectional end elevation of the rock-bars and connected parts. Fig. 5, is an enlarged elevation of one of the clips for the drag-bars.

The same letters of reference are used to indicate identical parts in all the figures.

The drill may be of the usual or any suitable construction, except in the particulars to be pointed out, and in describing it generally it is only necessary to say that A are the supporting wheels, B the hopper, C the main frame, D the spouts from the seed mechanism, E the hoes, F the drag-bars for the hoes, and G the tongue or pole.

The main frame is constructed of three straight pieces of L shaped angle iron or steel, two of which form the parallel side bars and the third the front cross bar. At the front corners these bars are bolted to a subjacent casting H, Fig. 3, with a rounded corner and raised boss *a* against which the top ends of the bars C of the main frame abut. The block or casting H is substantially L shaped in section so as to fit snugly in the angle of the bars C, as shown by the dotted line in Fig. 3, and the rounded corner projects out to form shoulders *b* for the side ends of the bars C to abut against, thus forming a very simple and secure coupling for the corners of the main frame. In addition to their office

as a coupling for the main frame the pendent side walls of the pieces H are provided each with two circular apertures *c* with inwardly extending bosses in which apertures are journaled studs upon the intermeshing segment racks I, Fig. 4, to which the rock-bars J are bolted. These rock-bars, as seen in Fig. 4, are constructed of angle metal and the forward ends of the drag-bars F are secured to them by the combined staple and clip shown in Fig. 5 where the staple *d* passes through the flat side of the rock-bar with one end riveted or upset, as seen at *e* and with the other end threaded to receive a clamping nut *f*. To stay and stiffen the staple, it is passed through a perforated clip *g* which has a leg *h* resting upon the rock bar and with two fingers *i* overlapping and embracing the edge of the rock-bar, as shown. The projecting bow of the staple passes through a perforation in the drag-bar. In this way I obtain great strength with a comparatively light and a very cheap construction. One of the segment racks I has a projecting arm *j* to which is pivoted the forward end of a rod *k* whose rear end is pivoted to the usual or any suitable lever K for simultaneously rocking the bars J to straighten or zig-zag the hoes.

Having thus fully described my invention, I claim—

1. In a grain drill, the combination with the main frame, composed of three pieces of angle metal, of the corner blocks for coupling the same bolted thereunder and having the bosses *a* and rounded corners with shoulders *b*, substantially as described.

2. In a grain drill, the combination of the main frame composed of three pieces of angle metal, the corner blocks bolted thereto for uniting the same, the hoes, the drag-bars and the rock-bars journaled in the corner blocks, substantially as described.

3. In a grain drill, the combination of the intermeshing segments I, the rock-bars of angle metal bolted thereto, the hoes and drag-bars, and the combined clip and staple for uniting the drag- and rock-bars, substantially as described.

ANDREW J. FISHER.

Witnesses:

CHAS. H. SCHAEFFER,
GEORGE O. WARRINGTON.