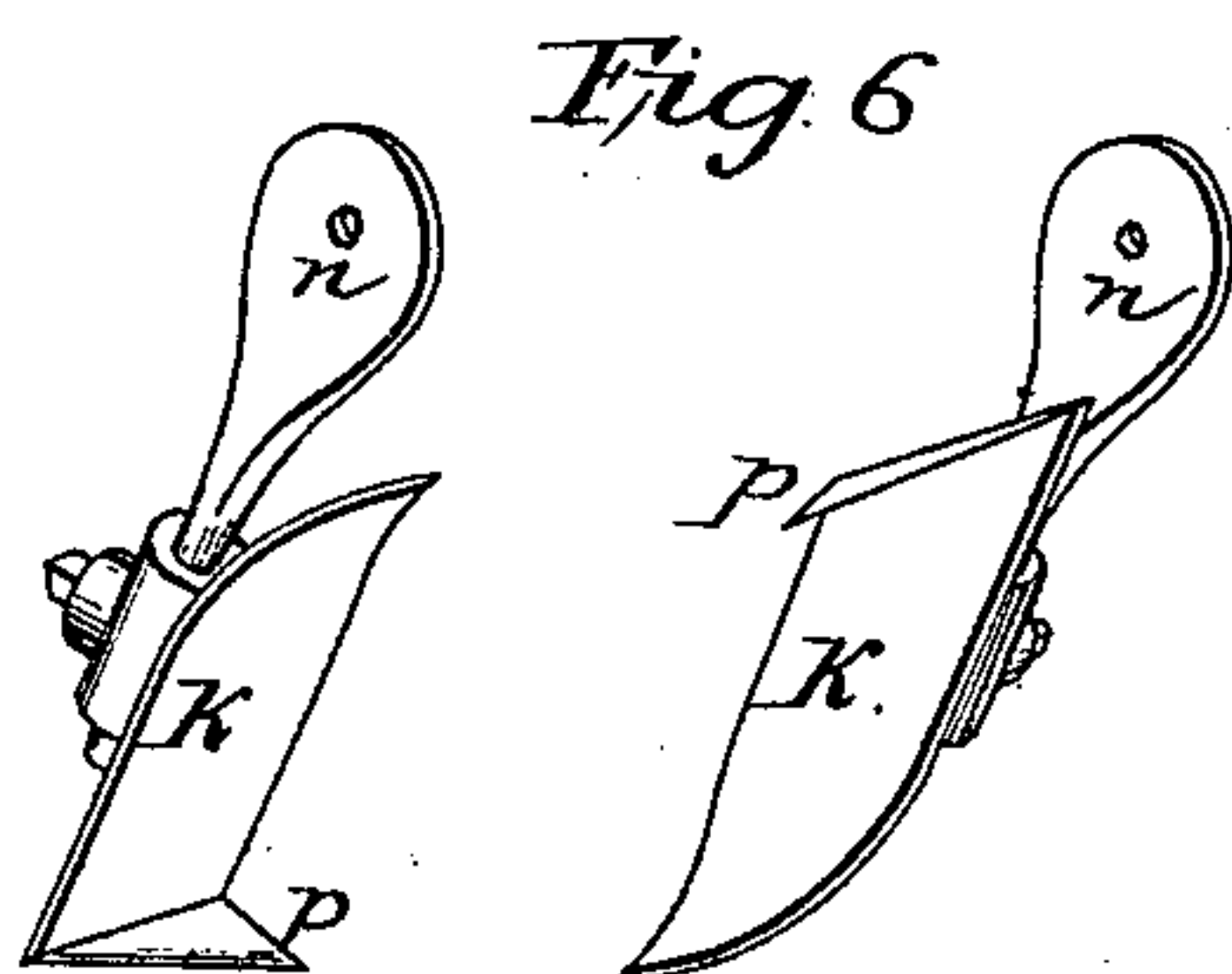
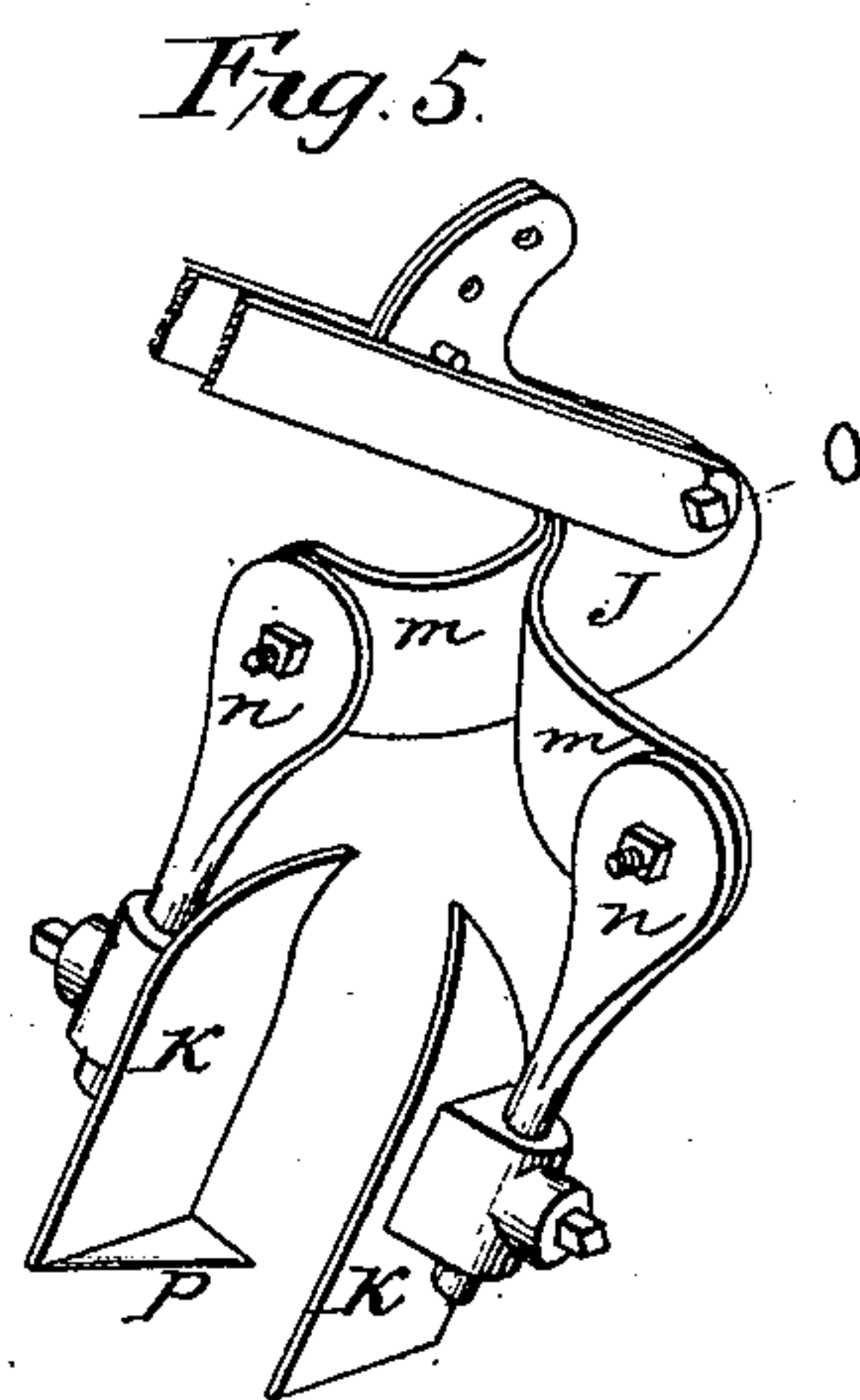
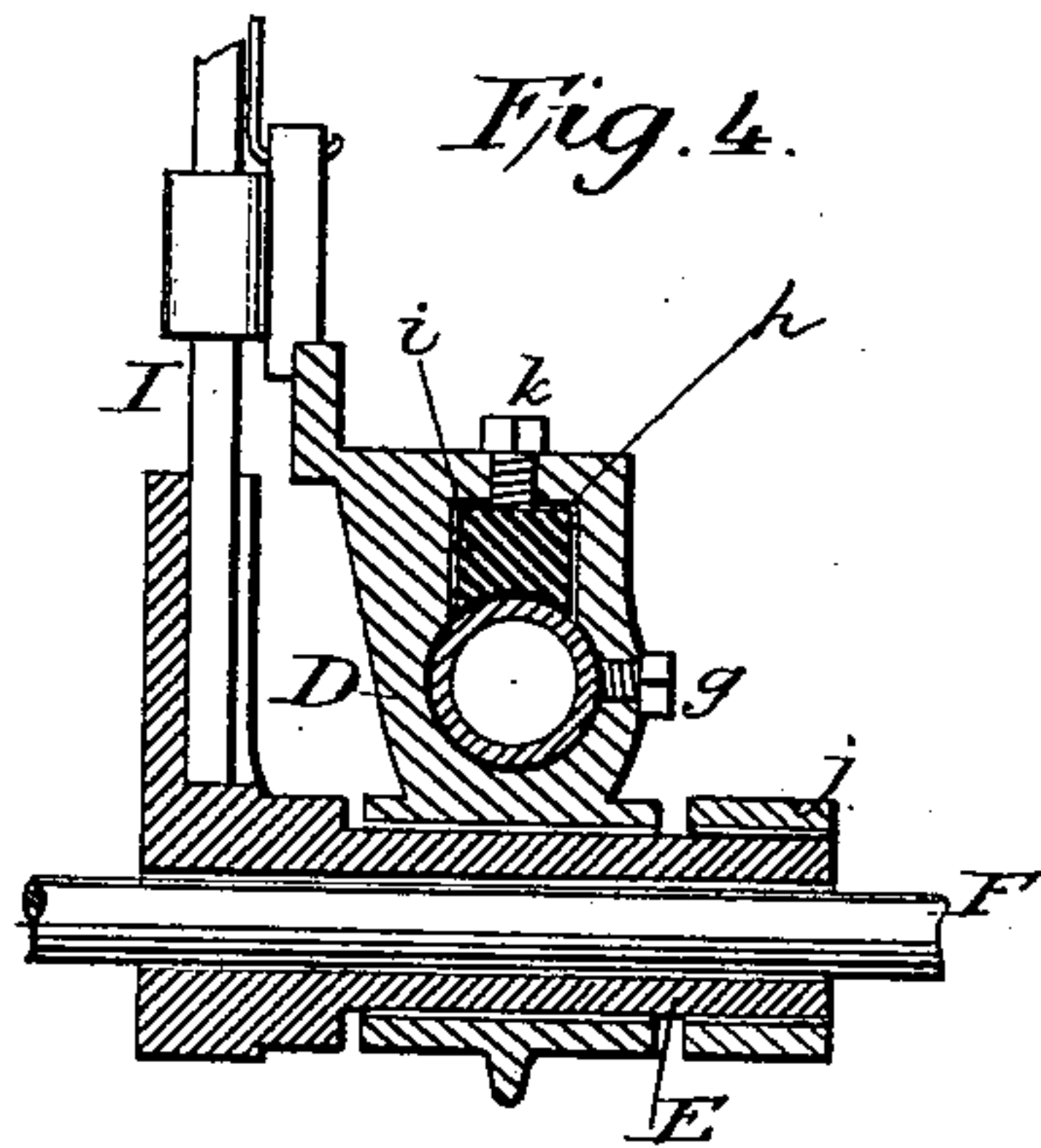
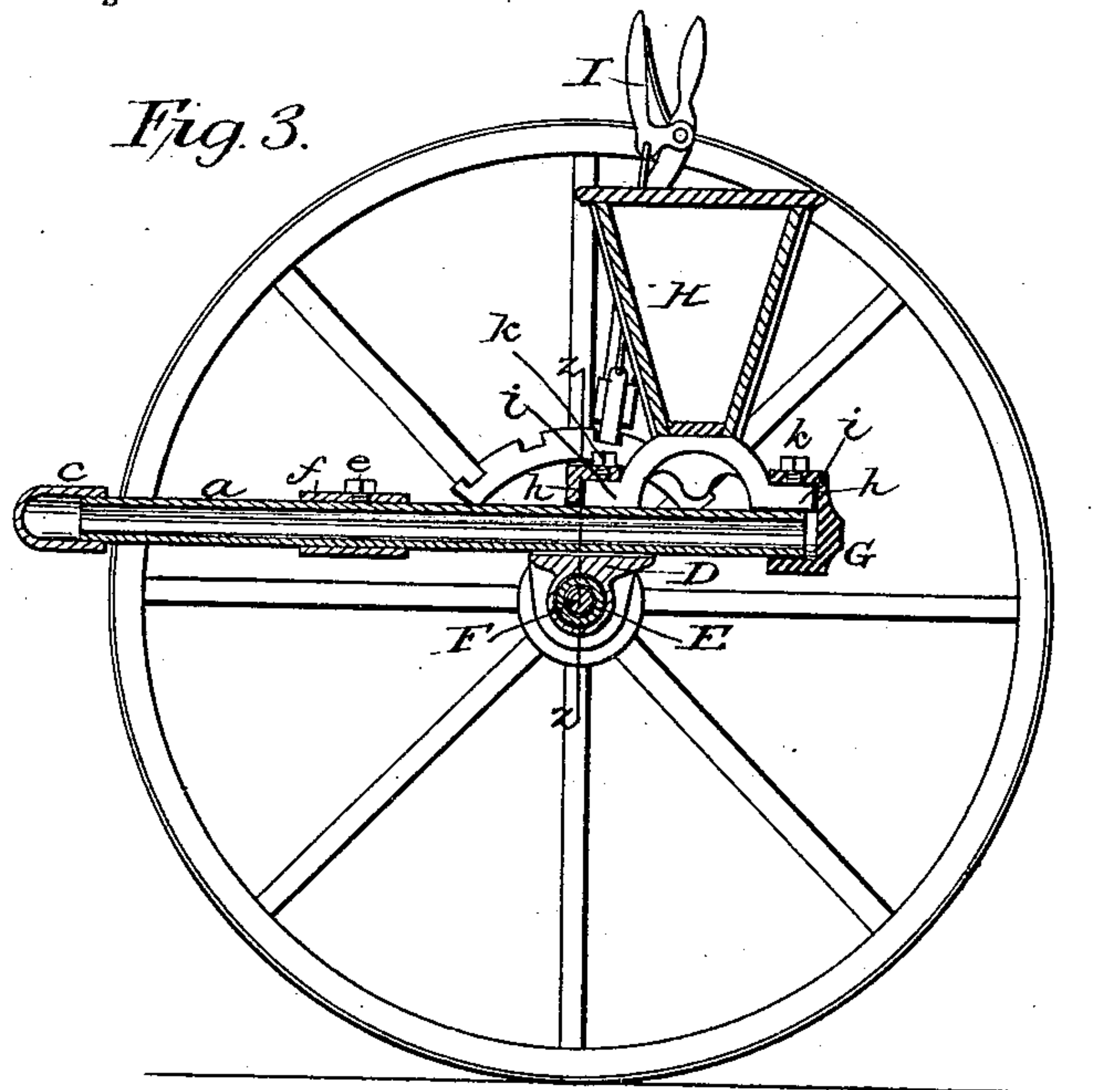


J. C. BAKER.
Combined Grain Drill and Cultivator.
No. 234,845. Patented Nov. 30, 1880.



Witnesses.

Sidney P. Hollingsworth
William W. Dodge.

Inventor.

J. C. Baker
By *Dodgeron* attys.

UNITED STATES PATENT OFFICE.

JOHN C. BAKER, OF MECHANICSBURG, OHIO.

COMBINED GRAIN-DRILL AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 234,845, dated November 30, 1880.

Application filed February 16, 1880.

To all whom it may concern:

Be it known that I, JOHN C. BAKER, of Mechanicsburg, in the county of Champaign and State of Ohio, have invented certain Improvements in Combined Grain-Drill and Cultivator, of which the following is a specification.

My invention relates to a combined grain-drill and cultivator; and the improvements consist in a peculiar construction of a tubular frame therefor and manner of applying and securing the various attachments to said frame, and in a novel construction and arrangement of a cultivating device to be substituted for the hoes of the drill, adapted for working the grain in its various stages.

In the accompanying drawings, Figure 1 represents a top-plan view of my improved machine; Fig. 2, a section through the same on the line *xx* of Fig. 1; Fig. 3, a section on the line *yy* of Fig. 1; Fig. 4, a section on the line *zz* of Fig. 3; Fig. 5, a perspective view of the cultivator-teeth of one beam or drag-bar, and Fig. 6 views showing the different operative positions of the same.

This invention is designed to obviate certain difficulties which I have experienced in the construction of tubular frames for grain-drills and cultivators, and the attachment thereto of the attendant parts, and to provide an efficient means for cultivating the grain in its early as well as its later stages.

In the construction of the frame I employ metal tubing, for the reason that a very light and strong frame may be made thereof at a small expense; but, as hitherto constructed, the parts of the frame have been joined together by screwing into thimbles or couplings, and the various parts secured to said frame by means of bolts or screws passing through holes drilled therein. Such construction is found objectionable, for the reasons that the threading of the tubes weakens them, and that the drilling of the bolt or screw holes requires to be done with accuracy, involves time and labor, and still further weakens the tubing. By my improved construction, however, these difficulties are remedied, and the adjustment and fastening of the parts rendered simple and speedy.

Referring now to the drawings, A repre-

sents the main frame, consisting of tubular side bars, *a*, and a similar front bar, *b*, connected at their ends by elbows *c*, forming a three-sided rectangular frame, open at the rear. The bars *a*, *a*, and *b* are threaded and screwed into the elbows *c*, which latter are formed each with a flange in its angle, as shown in Fig. 1, whereby the elbows are rendered much stronger and a convenient place is provided for the attachment of the ends of a cross-bar, *d*. This cross-bar serves to prevent the elbows from working from each other and materially strengthens the frame, and it also affords a suitable place for the attachment of the beams or drag-bars B.

C represents a cross-brace, also made of tubing, and provided at one end with a right-hand, and at the other with a left-hand, thread, the ends being screwed into T-thimbles, which latter are slipped freely upon the side bars or rails, *a*, and held at any desired point by set-screws, *e*, which pass through the walls or sides of the thimbles and bear upon the side bars, *a*. By turning the cross-brace C in one or the other direction, and thereby causing its ends to screw into or out of the thimbles *f*, the rear ends of the side bars, *a*, will be drawn toward each other or pressed apart, and the width of the frame thereby perfectly regulated.

D D represent the axle-blocks, each of which slips freely upon the side rail or bar of the frame, one at each side of the frame, and is made fast at the proper point by means of a set-screw, *g*, as shown in Fig. 4. The axle-blocks D consist each of a metal block or casting having two passages or openings through it at right angles, one to permit it to be passed onto the side bar, *a*, and the other to receive a sleeve or tubular shaft, E, the purpose of which will be explained farther on. The axle F is carried centrally through the short shafts or sleeves E, of which there is one at each side of the machine, and is free to turn therein, though this latter feature is not essential.

G G represent cap-pieces, which are fitted upon the rear ends of the side bars, *a*, closing their ends and giving a neat finish to the same. Both the axle-blocks and the cap-pieces are formed with a recess, *h*, into which extend

the feet *i* of the seed-hopper H, as shown in Figs. 3 and 4, the lower face of said feet being hollowed to conform to the face of the side bars, *a*, as shown in the latter figure. Set-screws *k*, passing down through the tops of the blocks D and caps G, bear upon the feet *i*, pressing them down firmly upon the side bars, *a*, and drawing the blocks and caps with like force against the lower sides or faces of the same, thereby locking all the parts firmly and immovably in place.

The hopper being always of the same length, the importance of making the bars *a a* readily adjustable to and from each other will be readily appreciated, particularly with the peculiar method here employed of fastening the hopper in place, which requires that a full and proper bearing of the feet upon the side bars be afforded.

The sleeves or shafts E above referred to pass through the axle-blocks D and carry on their inner ends crank-arms *j*, between which extends a cross shaft or bar, *l*, provided with links for raising and lowering the beams or drag-bars, which latter are attached to the cross-bar *d* by jointed couplings, as shown, one of the sleeves E being furnished with a hand-lever, I, by which to control the position of the drag-bars. A segmental rack and locking device is furnished for locking the lever, as usual.

The grain feeding or delivering devices will be of any of the well-known force-feed constructions, and the hoes used for drilling will likewise be of common form.

In order that the machine may be used for working crops in their early stages without danger of covering up the plants, it is customary to provide shields or fenders to keep clods or stones from falling upon the latter; but this expedient, while adding to the expense of the machine, is found to be not altogether satisfactory.

To adapt my machine for working the crops at early and subsequent stages I provide the cultivating attachment shown in Figs. 5 and 6, which consists of a head, J, made either in one or in two parts, and adapted to be substituted at will for the hoe of the drill, each head being formed with two outwardly-turned ears, *m*, for the attachment of legs *n*, to which the cultivator-teeth are secured, one tooth being arranged to pass on each side of the plant.

The head J is pivoted to the drag-bar and provided with the usual perforations and break-pin of the common cultivator-tooth.

The ears *m* and the legs *n* may, if desired, be serrated or roughened, by which means all slipping will be prevented, while the distance between the teeth or blades of any pair may be adjusted at will by simply loosening the central bolt, *o*, and swinging the leg to position and again tightening the bolt. Each tooth or blade consists of a plate, K, having the usual

form of such teeth at one end, but having its other end turned over on an oblique line to project from the face or body of the blade K at right angles, as shown in Figs. 5 and 6, forming a lip or offset, *p*. The plate or blade K is furnished on its back with a sleeve or eye to encircle the lower rounded end of the leg *n*, a set-screw serving to fasten the plate in its adjusted position.

When the plants are very young the blades are placed in position with the lip ends lowermost, and as the machine is drawn forward the blades entering the ground carry the lips under the plants, loosening up the soil without disturbing them, the blades being placed edgewise, as shown. After the plants have attained a larger growth the teeth or blades are simply inverted and the machine used as before.

I am aware that in mold-board plows the mold-board and landside have been adjusted by right-and-left screws; also, that in wheeled cultivators having two plows a divided frame connected by a complicated mechanism has been adjusted by a right-and-left screw to change the distance between the two plows; and also that cultivator-beams or drag-bars have been connected by screws to change the distance between them; but I lay no claim to the above arrangements or either of them.

My invention relates solely to that well-known class of seeding or drilling machines in which a rectangular wheeled frame is used in connection with a series of drag-bars and hoes and a long transverse hopper which supplies grain to all the hoes, and I believe myself to be the first to construct a frame suitable for a machine of the above character which can be adjusted readily in width to suit the exact length of the hopper.

Having thus described my invention, what I claim is—

1. The combination, in a seeding-machine, of a rectangular frame composed of a front bar and two side bars, a transverse hopper sustained by the side bars of said frame, and a transverse brace having its ends threaded in reverse directions to adjust the side bars to and from each other as the length of the hopper may require.

2. A tubular grain-drill frame consisting of tubular front and side bars, elbows screwed thereto and forming corners, T-thimbles mounted on the side bars, and a cross-brace having its two ends threaded in reverse directions and seated in the thimbles, as shown and described.

3. In combination with a frame having its front and side bars connected by elbows, a cross-bar extending between and connecting the elbows, substantially as shown.

4. In combination with a hopper having feet *i*, the blocks D, and caps G, recessed to receive the feet, and provided with set-screws, as shown.

5. The elbow herein described, provided with the flange in its angle, as and for the purpose set forth.

6. A reversible cultivator-tooth, K, pointed at one end and furnished with a lip, *p*, at its opposite end, as shown.

7. The combination of the head J, the lat-

erally - swinging arms *n n*, pivoted thereto, and two shovels attached to the pivoted arms.

JOHN C. BAKER.

Witnesses:

T. E. SHEPHERD,
A. B. CREAMER.