

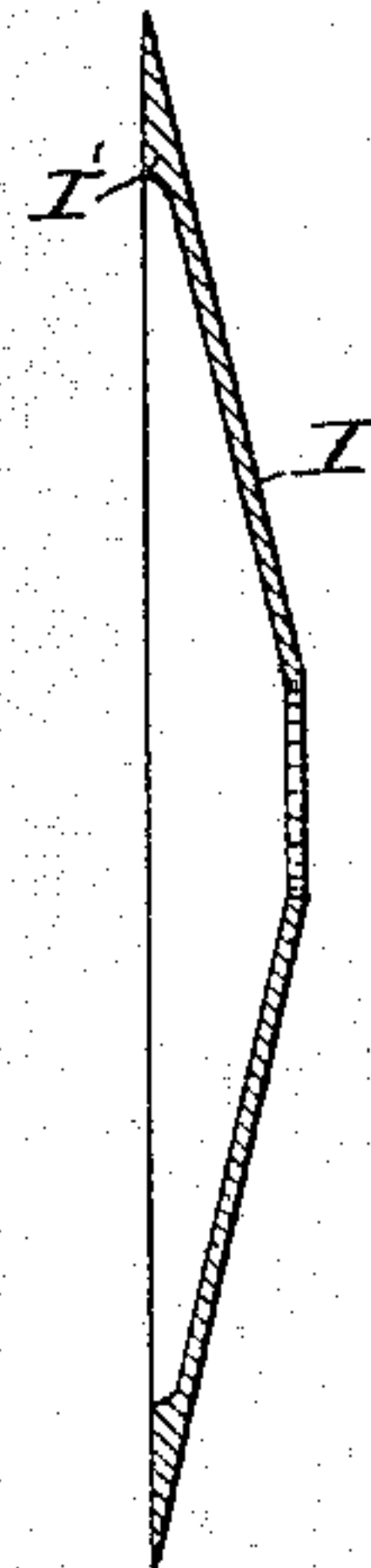
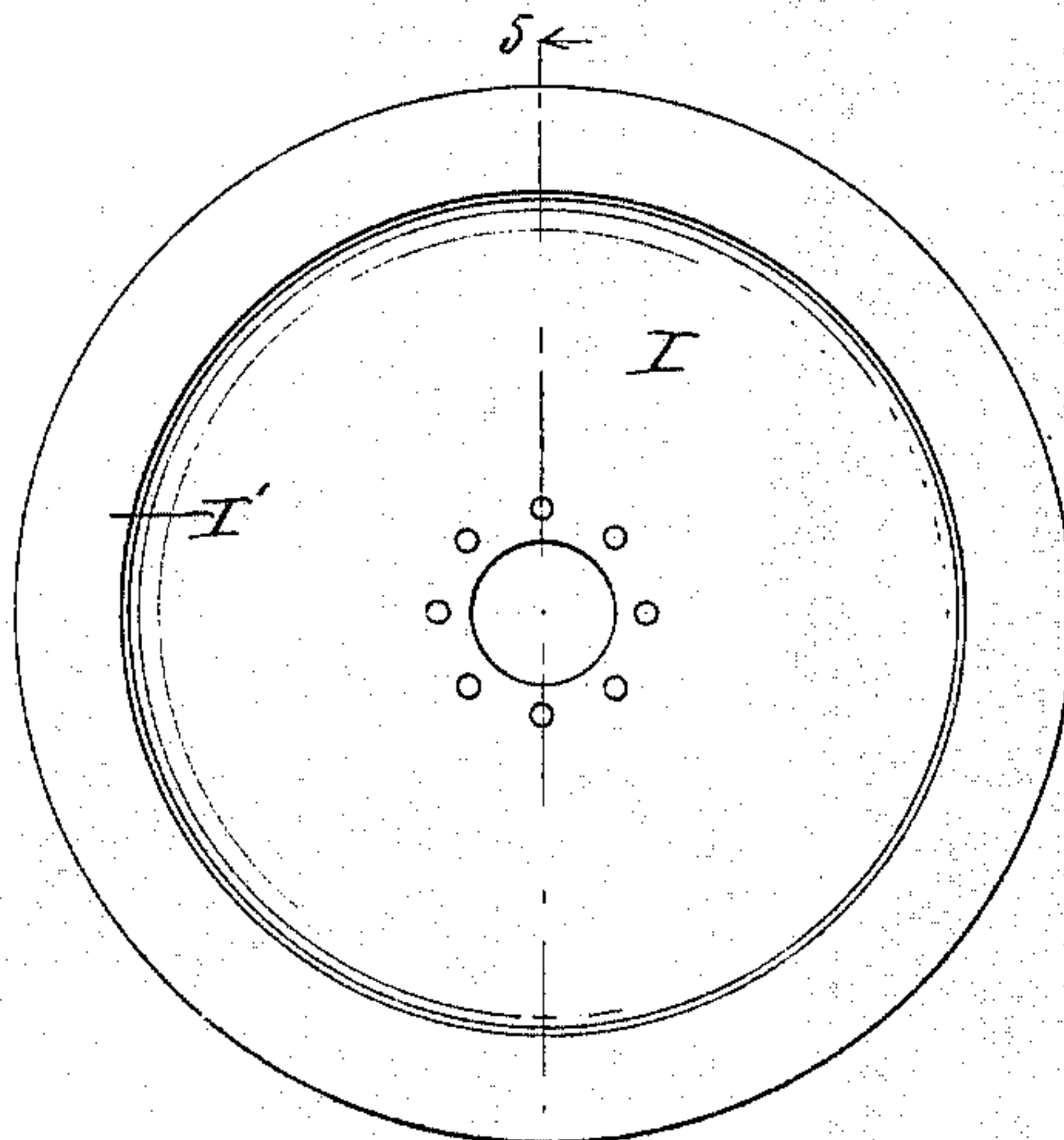
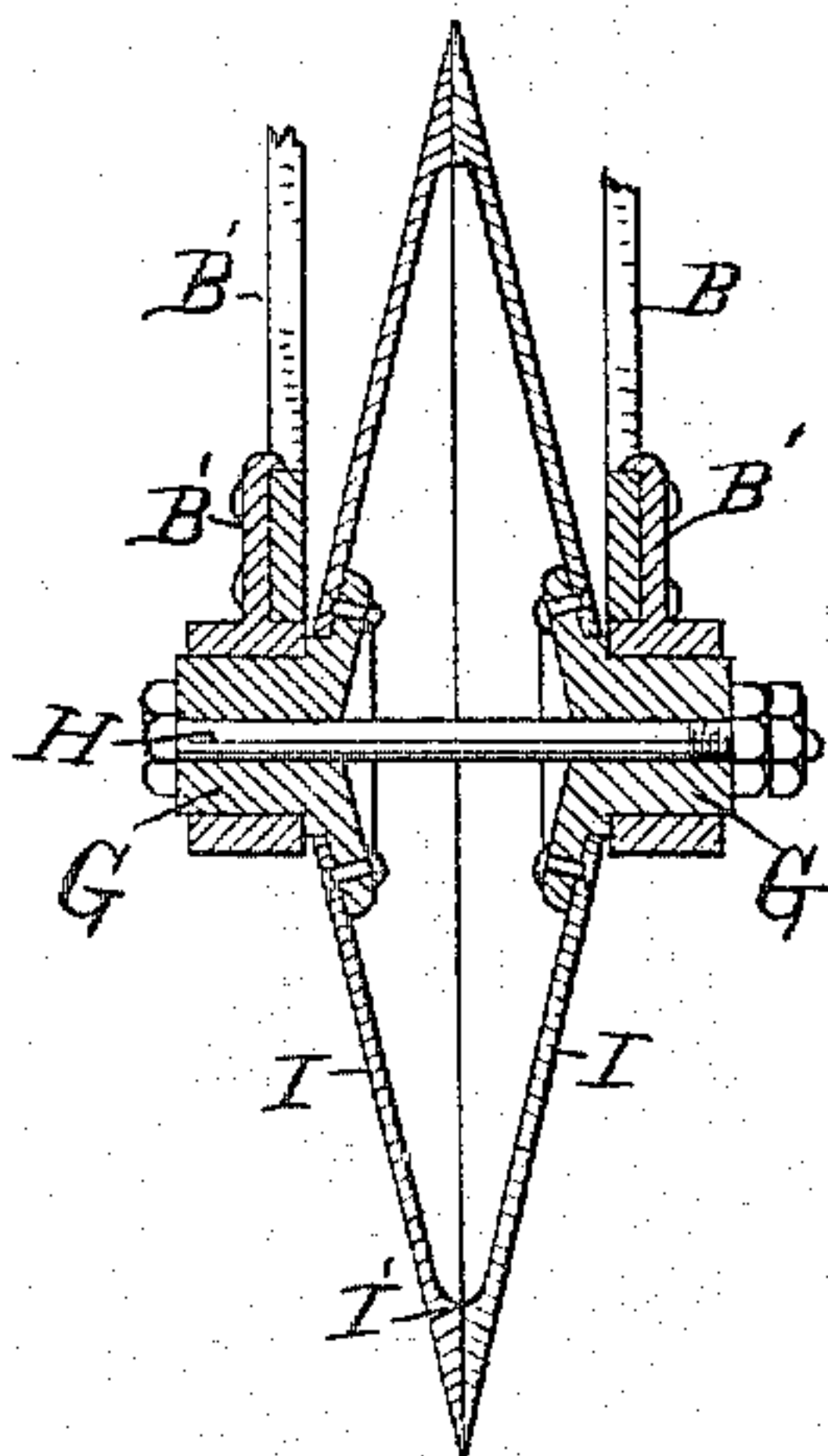
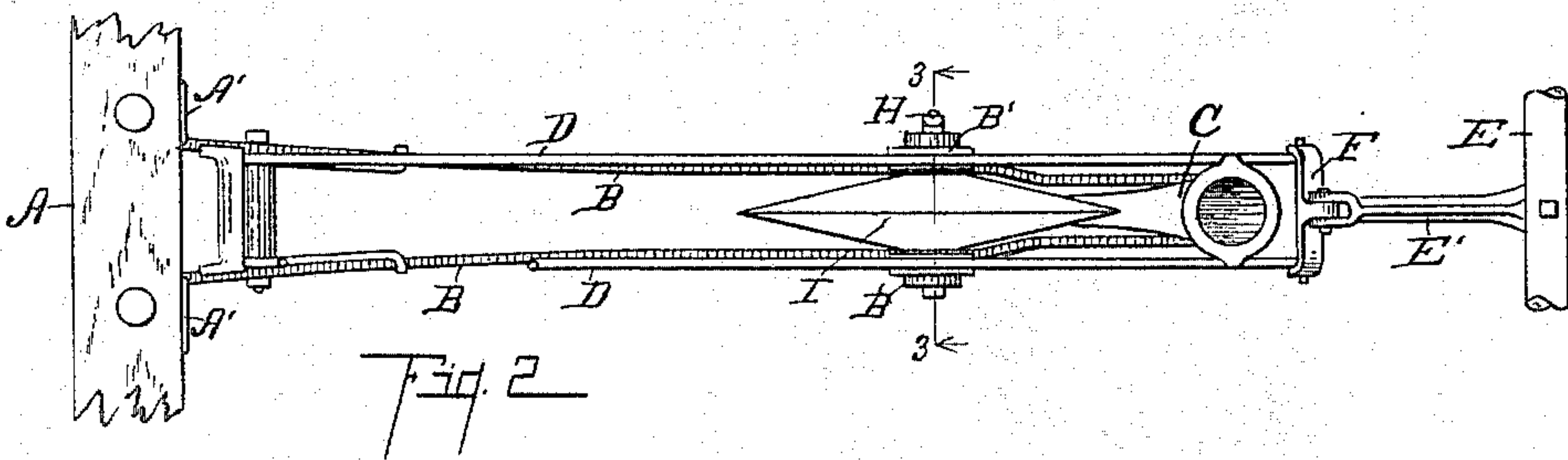
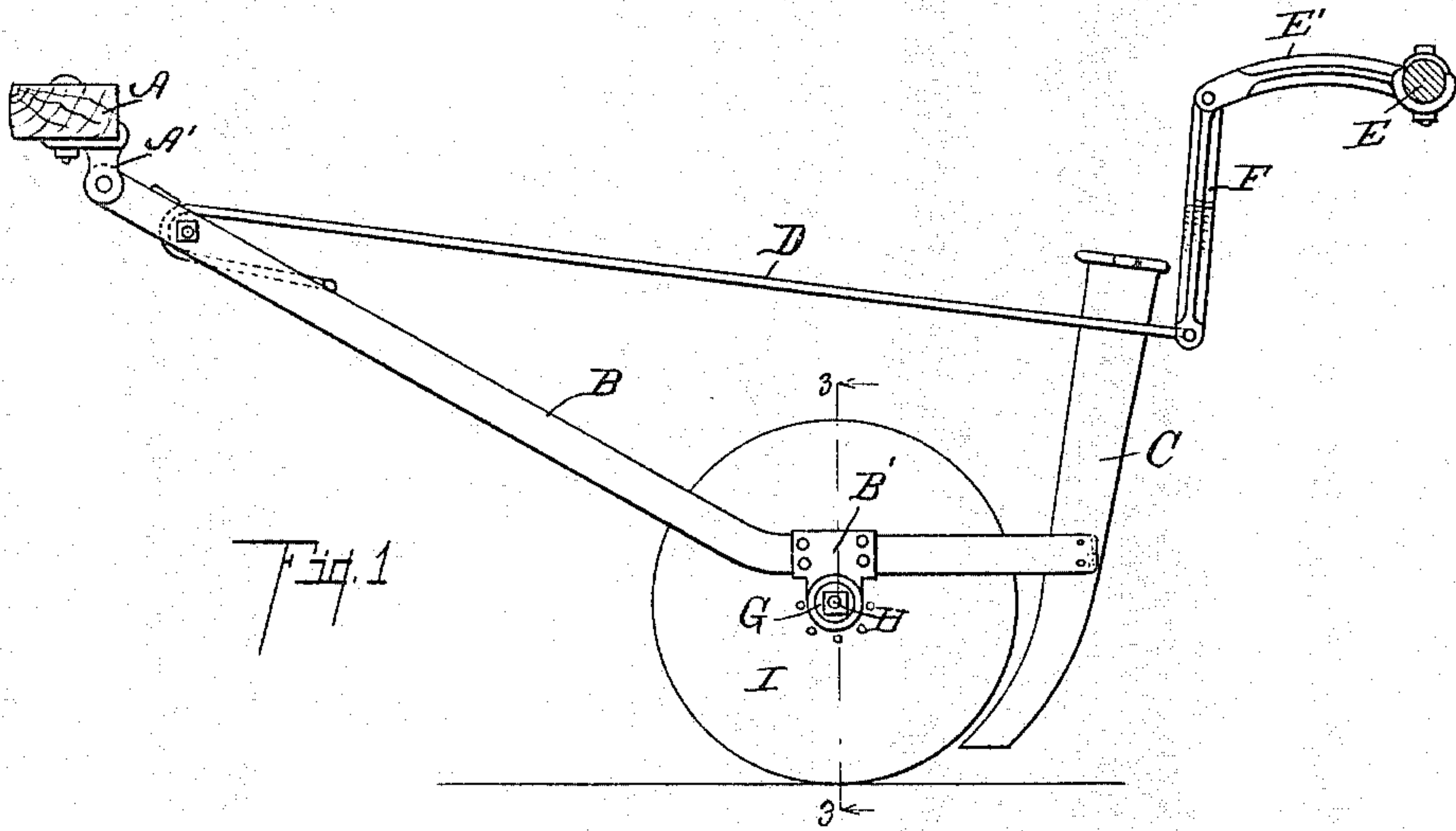
No. 640,553.

Patented Jan. 2, 1900.

C. L. FOWLE.
GRAIN DRILL.

(Application filed Nov. 11, 1899.)

(No Model.)



Witnesses:

Alice E. Houghton
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Inventor,

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UNITED STATES PATENT OFFICE.

CHARLES L. FOWLE, OF DOWAGIAC, MICHIGAN, ASSIGNOR TO THE DOWAGIAC MANUFACTURING COMPANY, OF SAME PLACE.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 640,553, dated January 2, 1900.

Application filed November 11, 1899. Serial No. 736,713. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. FOWLE, a citizen of the United States, residing at the city of Dowagiac, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

This invention relates to improvements in grain-drills, and particularly to improvements in grain-drills having disks for furrow-openers and to improvements in the disk.

The object of the invention is to provide in a grain-drill a practical and effective disk furrow-opener and connections therefor which are easy to adjust and keep in order and which shall be effective, satisfactory, and durable in use.

I accomplish the object of my invention by the devices and means described in this specification.

The invention is clearly defined and pointed out in the claims. Portions of a grain-drill embodying the features of my invention are clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation of a section of a grain-drill. Fig. 2 is a detail plan view of the structure appearing in Fig. 1, a portion of one of the spring pressure-rods being broken away. Fig. 3 is a vertical transverse detail sectional view through the disk opener and draw-bars, taken on a line corresponding to lines 3 3 of Figs. 1 and 2. Fig. 4 is a detail inside view of one of the halves of the disk furrow-opener; and Fig. 5 is a detail sectional view of the same, taken on line 5 5 of Fig. 4.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A is one of the beams or cross-pieces of a grain-drill.

A' are the usual hangers thereon, to which the draw-bars are pivoted.

B are the draw-bars, which extend downwardly and rearwardly, being connected at their rear ends to the boot C. Springs D are

coupled to the draw-bars at their forward ends by suitable means and curved backwardly, so that they engage over the bars, whereby spring-pressure is applied by applying pressure at the rear ends thereof by the rock-shaft E, arm E', and fork F, coupled thereto, as clearly appears in Figs. 1 and 2.

In front of boot C and between the draw-bars is supported the furrow-opener disk I. This is constructed of two parts which are preferably slightly thickened toward their edges and made to form a disk which is convexed on both sides and hollow. To the center of each half is secured a hub G by suitable rivets, the same projecting through central perforations in each disk and being riveted or otherwise secured in that position. Small brackets B' are riveted or otherwise secured to the draw-bars B and serve to embrace these hubs or axles G at this point. A bolt H, with nut and jam-nut, extends through the center of these hubs, whereby pressure is put upon the halves of the disk, and a jam-nut prevents the retaining-nut from becoming loosened. Thus a simple and practical means is provided for supporting the disk to open a furrow in front of the boot C.

With this apparatus any suitable covering device for the furrows may be employed, such as a chain to drag over the furrow, or a press-wheel covering, plows, or any suitable device now in common use.

I desire to state that while I believe it the best construction to secure the axles or hubs G within each disk the same might be secured by suitable flanges on the outside; that the journal-bearings might be formed in the draw-bars, though this would unnecessarily weaken the same, and I prefer to use brackets attached thereto for this purpose. The exact form of the boot to the rear is immaterial to my invention, as these boots are made of various shapes in different styles of drills, and further experience may indicate that a modification in form from any of these is desirable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grain-drill the combination of draw-bars B connected at their forward ends to the drill and extending rearwardly; a disk made

up of two parts I, with suitable hubs or axles secured thereto; a bolt extending through the hubs or axles to secure the parts in position; and journal-bearings secured to the draw-
5 bars and a boot supported to the rear of said disk for the purpose specified.

2. In a grain-drill a furrow-opener consisting of oppositely-faced concavo-convex plates I, with hubs or journals at their center and a
10 bolt extending through said hubs to draw the concave sides of the plates together to form a disk which is convex on both sides for the purpose specified.

3. In a grain-drill a furrow-opener consisting of oppositely-faced concavo-convex
15 plates with hubs or journals at their center and means of securing the plates together to form a disk which is convex on both sides, for the purpose specified.

In witness whereof I have hereunto set my
20 hand and seal in the presence of two witnesses.

CHARLES L. FOWLE. [L. S.]

Witnesses:

E. S. McMASTER,
O. SCHMATZRIED.