W. F. COCHRANE.

Grain Thrasher and Separator.

No. 37,132. Patented Dec. 9, 1862.

Fig. 1,

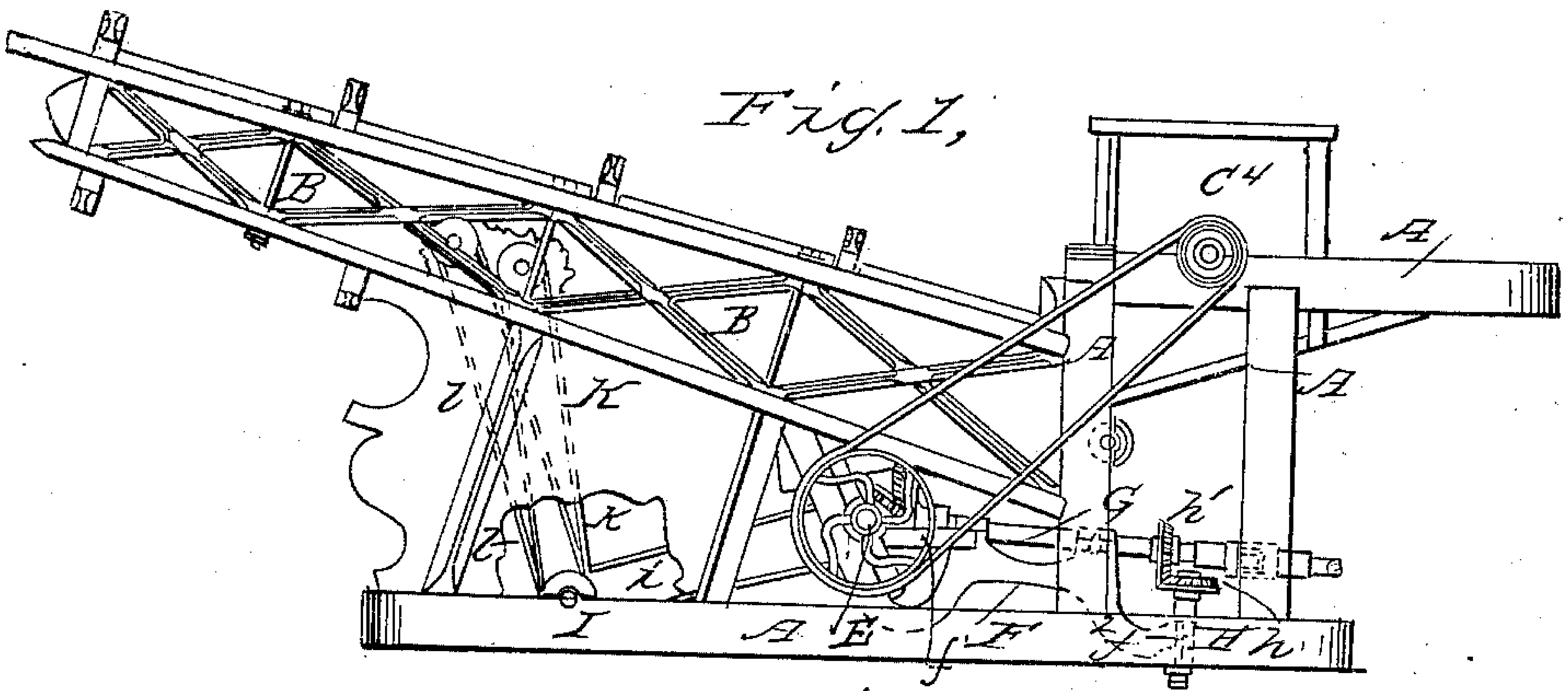


Fig. 2,

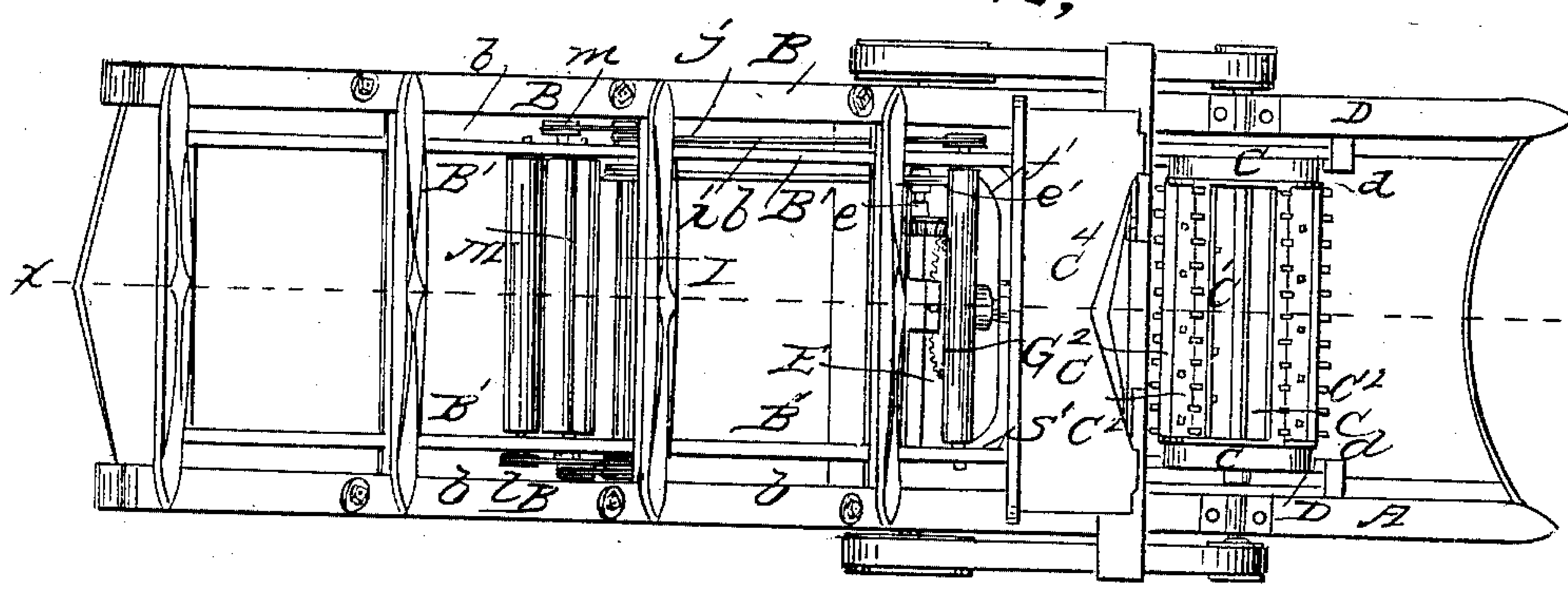


Fig. 3,

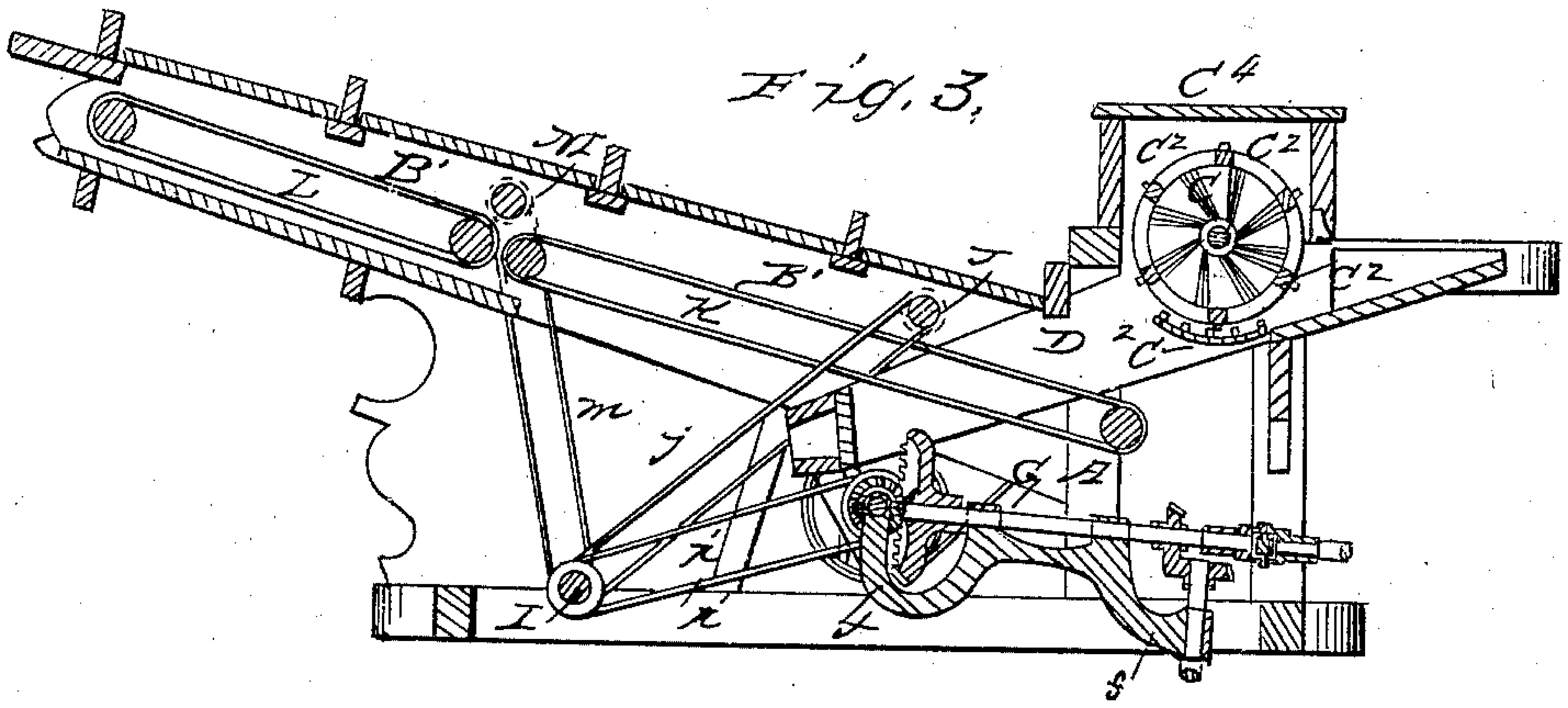
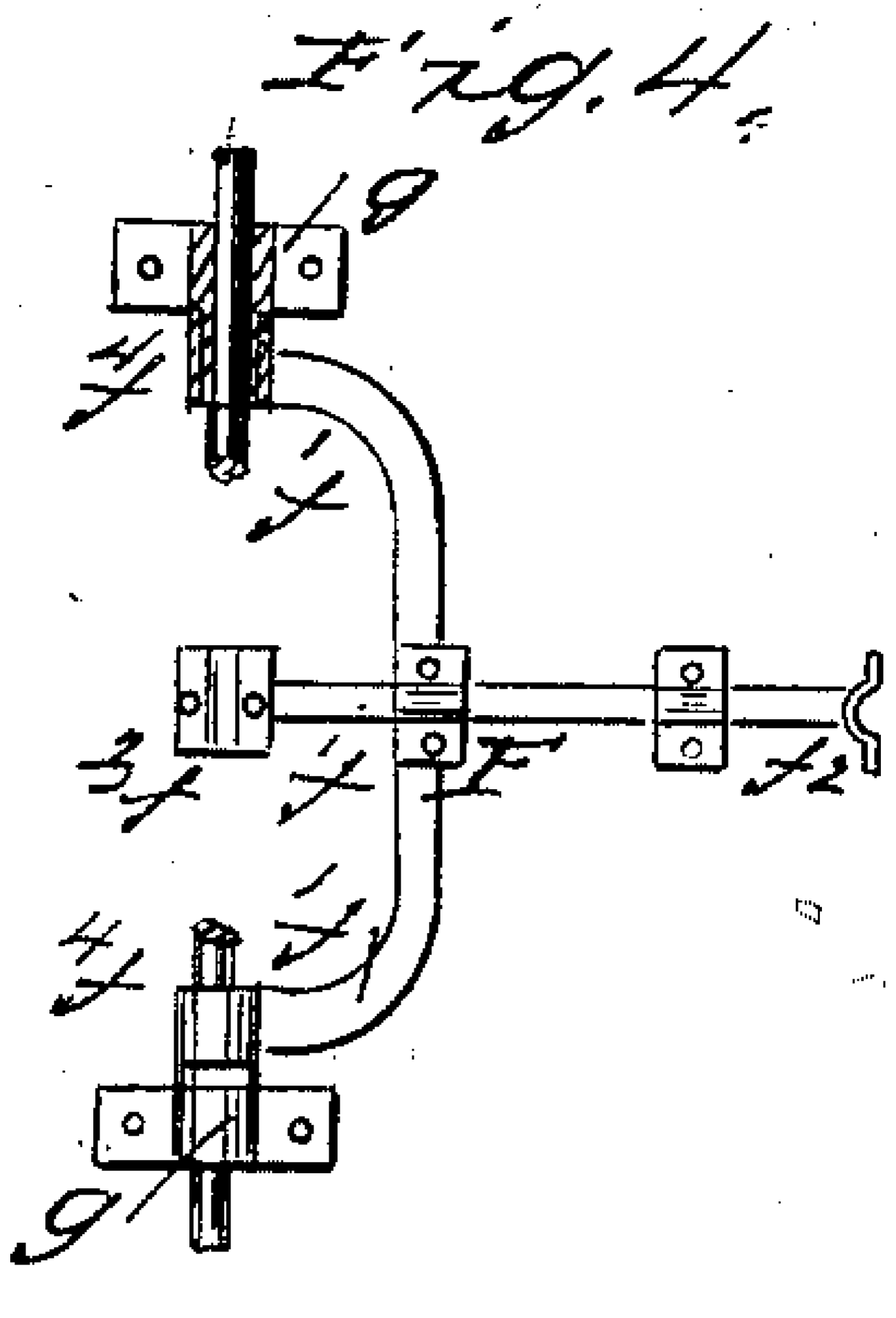


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM F. COCHRANE, OF SPRINGFIELD, OHIO, ASSIGNOR TO HIMSELF AND WARDER & CHILD, OF SAME PLACE.

IMPROVEMENT IN GRAIN THRASHERS AND SEPARATORS.

Specification forming part of Letters Patent No. **37,132,** dated December 9, 1862.

CASE H.

To all whom it may concern:

Be it known that I, WILLIAM F. COCHRANE, of Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Machinery for Thrashing and Separating Grain, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view, in elevation, of one side of a machine for thrashing and separating grain, embracing my improvements, a portion of the frame-work being broken away to show the mechanism within. Fig. 2 represents a plan or top view of the same with the grain-belt, straw-carrier, and covering removed and the casing of the cylinder thrown back upon its hinges. Fig. 3 represents a vertical longitudinal section through the same at the line *x x* of Fig. 2, with the covering-belts and casing in position. Fig. 4 represents a view, partly in elevation and partly in section, of the swinging jack or bracket, which sustains the driving mechanism, detached.

The improvements claimed under this patent consist, first, in mounting the line-shaft and driving-gearing in a swinging jack of a peculiar construction, hereinafter described, whereby the line-shaft is allowed to play freely around the counter-shaft in a vertical plane without deranging the gearing; secondly, in combining with a swinging jack both a horizontal and a vertical driving-shaft, so that the driving-power may be applied either horizontally or perpendicularly to the mechanism, as hereinafter described; thirdly, in mounting the counter-shaft in pipe-boxes on which the bearings of the swinging jack turn, as hereinafter shown, thereby relieving the counter-shaft from the strain of the jack.

In the accompanying drawings which represent a convenient arrangement of parts for carrying out the objects of my invention, the mechanism is shown as mounted in a stout frame, A. The counter-shaft E is mounted in suitable bearings in this frame. The line or driving shaft G is mounted in a swinging jack or bracket, F, of a peculiar construction, its form being clearly shown in Figs. 3 and 4 of the drawings. This swinging jack consists of a stem, F, a central branch, *f*, two side branches or arms, *f'*, and a head, f^2. The central branch has a box, f^3, which encompasses the counter-shaft E near its center. Were this the only bearing employed, the jack might have a tendency to strain the counter-shaft. To avoid doing this I put boxes f^4 on the ends of the side branches, *f'*, while to prevent friction and strain upon the gearing, which would probably be caused by the weight of the jack, the counter-shaft is mounted in pipe-boxes *g*, Fig. 4, which project inside the framing and are encompassed by the boxes f^4 of the side branches. By this means the line-shaft is free to play around the counter-shaft without deranging the gearing, while at the same time the counter-shaft is relieved from the weight of the jack, being, in fact, to some extend, sustained by it at its center. A bevel-wheel, G', upon the line-shaft, drives a corresponding pinion *e* upon the counter-shaft and thus gives motion to the mechanism.

There are many cases in which it is desirable to be able to apply the driving-power to the mechanism from a point below the machine, as, for instance, where the machine is on one floor of a building and the driving mechanism on another. In order to provide for such a contingency I mount a supplementary driving-shaft, H, in bearings in the head f^2 of the swinging jack at right angles to the line-shaft G. A bevel-wheel, *h*, on the supplementary shaft drives a corresponding pinion, *h'*, on the line-shaft, and thus gives motion to the machine. By sliding the pinion *h'* on the shaft G the supplementary shaft would be thrown out of gear, and by varying the size of pinion *h* the speed could be increased or diminished at will. A universal joint (not shown in the drawings) serves to connect shaft H with the driving-power. When disconnected from both driving-power and line-shaft, the shaft H may serve as a leg or prop to support the swinging jack.

It is obvious that by these arrangements many advantages are secured in the adaptation of the machine to the varying circumstances under which it is required to operate.

It is deemed unnecessary here to describe in detail the construction and operation of the other portions of the mechanism, as they form

no part of the subject-matter herein claimed, and, besides, are fully described in two other applications filed simultaneously with this, and marked, respectively, Divisions "F" and "G."

What I claim under this patent as my invention is—

1. The combination of the counter-shaft and swinging jack, when arranged and operating substantially as and for the purpose set forth.

2. The combination, with a swinging jack, of both a horizontal and a vertical driving-shaft, substantially in the manner and for the purposes described.

3. The combination of the pipe-boxes in which the counter-shaft turns with the side branches of the swinging jack, substantially in the manner described, for the purpose of relieving the shaft from the weight of the jack, as set forth.

I testimony whereof I have hereunto subscribed my name.

WILLIAM F. COCHRANE.

Witnesses:
WM. WARDER,
JOHN H. WARDER.