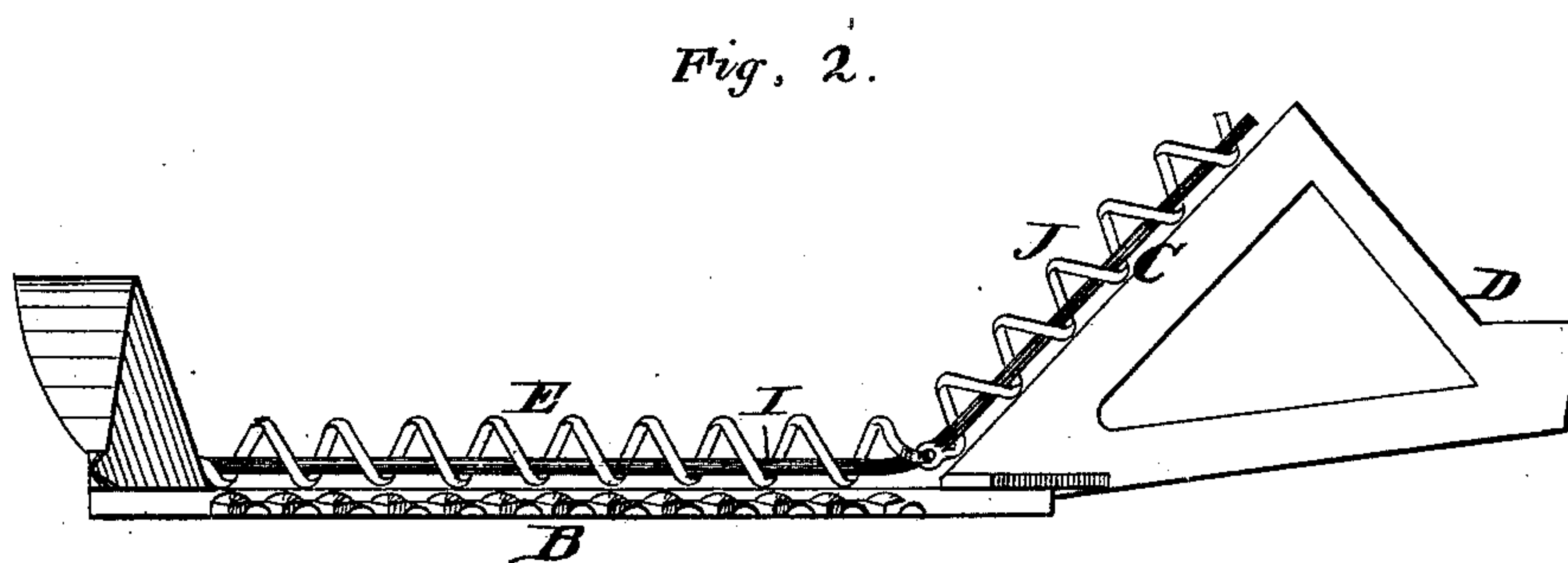
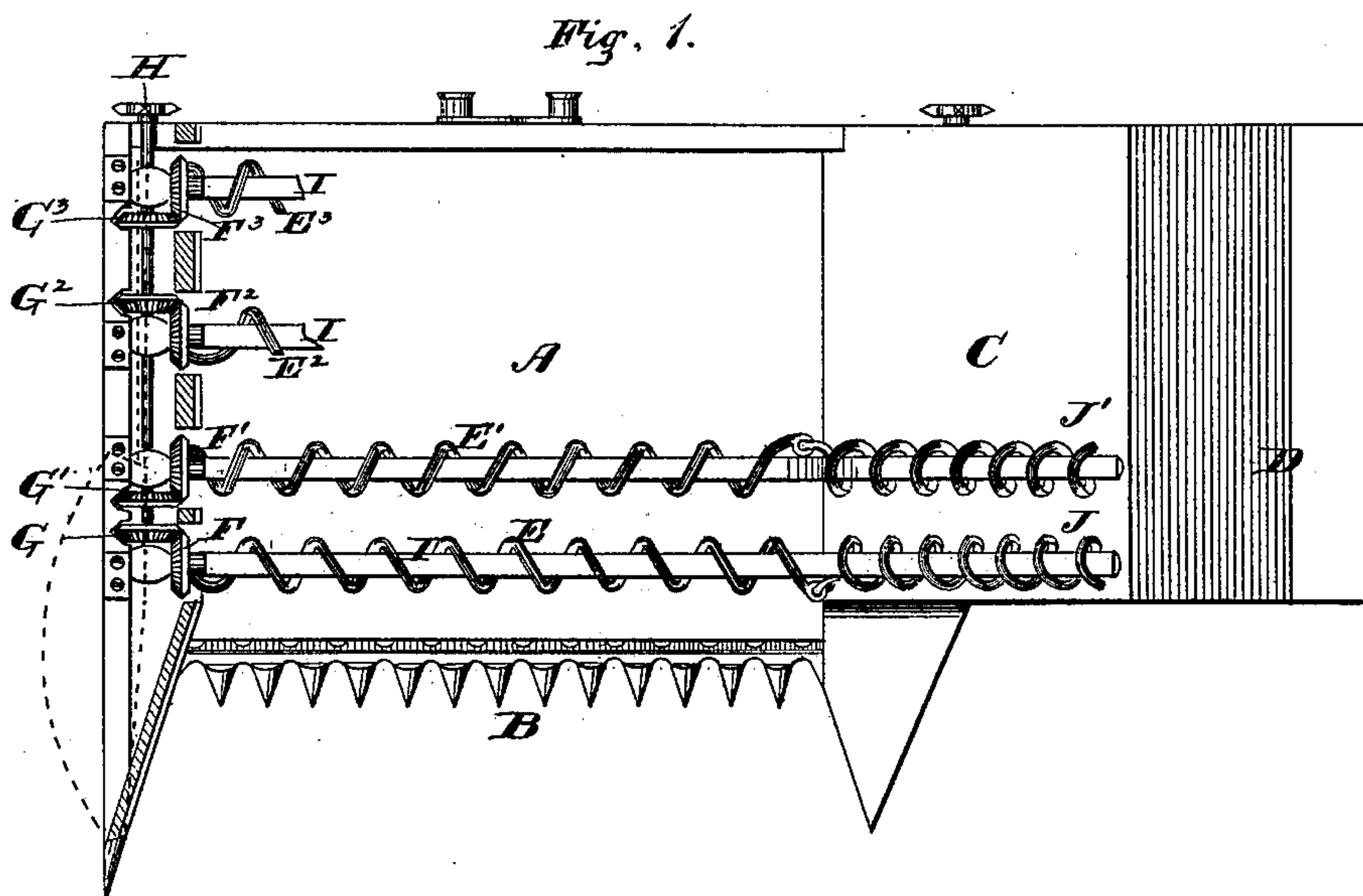


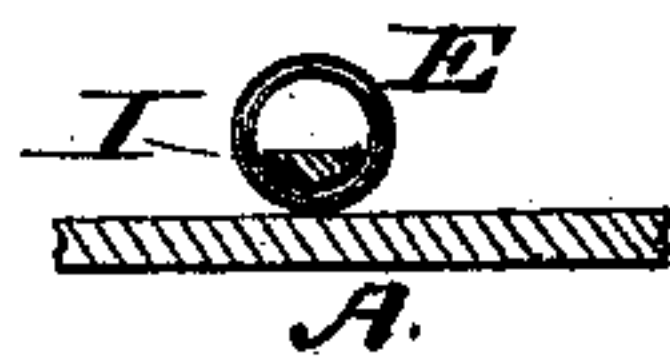
S. D. LOCKE & E. BOWHAY.  
Harvester.

No. 214,929.

Patented April 29, 1879.



*Fig. 3.*



Attest,  
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by  
L. Hill, their Attorney:



# UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE AND EGBERT BOWHAY, OF HOOSICK FALLS, NEW YORK; SAID BOWHAY ASSIGNOR TO SAID LOCKE.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **214,929**, dated April 29, 1879; application filed February 19, 1879.

*To all whom it may concern:*

Be it known that we, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, and EGBERT BOWHAY, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Harvesters; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top-plan view, and Fig. 2 a side elevation.

Our invention has for its object to provide an improved grain-conveyer for harvesting-machines; and it consists, primarily, of a series of single spirals, the discharge ends of which are entirely free and unconnected with any internal rotating shaft or fixed support, whereby a smooth and unobstructed delivery of the grain is effected and the conveyer prevented from becoming clogged and rendered inoperative.

It further consists in the combination, with the spirals having free delivery ends, of internal stationary supporting-bars for preventing the lateral movement of the spirals and preserving their relative arrangement upon the platform.

It further consists in jointing the series of platform-spirals to the series of elevator-spirals, for the purpose of driving the latter by the former.

In the accompanying drawings, A represents the grain-platform of a harvester; B, the cutters; C, the elevator-platform, and D the binder-receptacles.  $E E^1 E^2 E^3$  are single spiral conveyers or worms, preferably four in number, arranged longitudinally of the grain-platform and parallel with the cutters B. These spirals are connected at their outer ends to bevel-gears  $F F^1 F^2 F^3$ , which mesh with corresponding gears  $G G^1 G^2 G^3$ , secured to a common shaft, H, driven by means of an endless chain or other equivalent arrangement. Each spiral is provided with an internal supporting metal bar, I, extending from end to end. These bars need not be thick, but should be made sufficiently wide to properly support the spirals

and keep them parallel with the cutters, and they should be flat on their upper surfaces, to facilitate the passage of the grain, and rounded on their under surfaces, to conform to the interior diameter of the spirals. Inasmuch as there is a slight tendency of the spirals to carry the moving grain toward or from the cutters by reason of the presence of the supporting-bars, we preferably employ right and left hand single spirals and arrange them alternately, and so gear them to the shaft H that they will be rotated in opposite directions—that is to say, the spirals  $E E^2$  are right-handed and are rotated to the left, and the spirals  $E^1 E^3$  are left-handed and rotated to the right. This arrangement overcomes the tendency above mentioned and secures a regular and even feed of the grain.

If the supporting-bars were omitted it would not be necessary to employ right and left spirals, because the action of the upper part of the spirals would be counteracted by that of the lower part, as will be apparent.

It is obvious that a conveyer similar to the one described can be arranged on the elevator-platform C for the purpose of elevating the grain and depositing it into the binding-receptacle. This second conveyer may consist of a separate series of spirals driven from an independent shaft at the foot, or, as shown in the drawings, it may consist of a series of spirals, J J', &c., jointed to the spirals,  $E E^1 E^2 E^3$ , and operated therefrom, in which latter case the bars I may be extended to the top of the elevator and serve as supports for the upper series of spirals. Any number of single spirals (not less than two) may be employed in a series.

The invention is equally applicable to harvesters in which an elevator is not used.

We are aware that spiral conveyers have heretofore been used upon harvester-platforms for removing the cut grain therefrom, and do not seek to broadly claim such arrangement. All prior applications of the spirals, however, have proved impracticable, from the fact that the delivery ends of the spirals have either been secured to a central rotating shaft or else connected to an outside fixed support, in both of which cases the free and unobstructed delivery



of the grain has been prevented by reason of the tendency of the latter to wind about said shaft or fixed support. We have effectually remedied the defects in these old forms of conveyers by the employment of spirals, having delivery ends entirely disconnected from any shaft or support; and to this important improvement, and its attendant changes of construction, our claims are intended to be limited.

We claim as our invention—

1. A grain-conveyer consisting of a series of single spirals, the discharge ends of which are free and unconnected with any internal rotating shaft or fixed support, whereby an unobstructed delivery of the grain is effected and the conveyer prevented from becoming clogged and rendered inoperative, substantially as described.

2. The combination, with the spirals having free delivery ends, of internal stationary supporting-bars for preventing the lateral movement of the spirals and preserving their relative arrangement upon the platform, substantially as described.

3. In a harvester, the combination, with a series of spirals on the grain-platform, of a second series of spirals for elevating the grain, jointed to the first-mentioned series, and rotated thereby, substantially as described.

SYLVANUS D. LOCKE.  
EGBERT BOWHAY.

Witnesses:

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C. A. BROWN.