

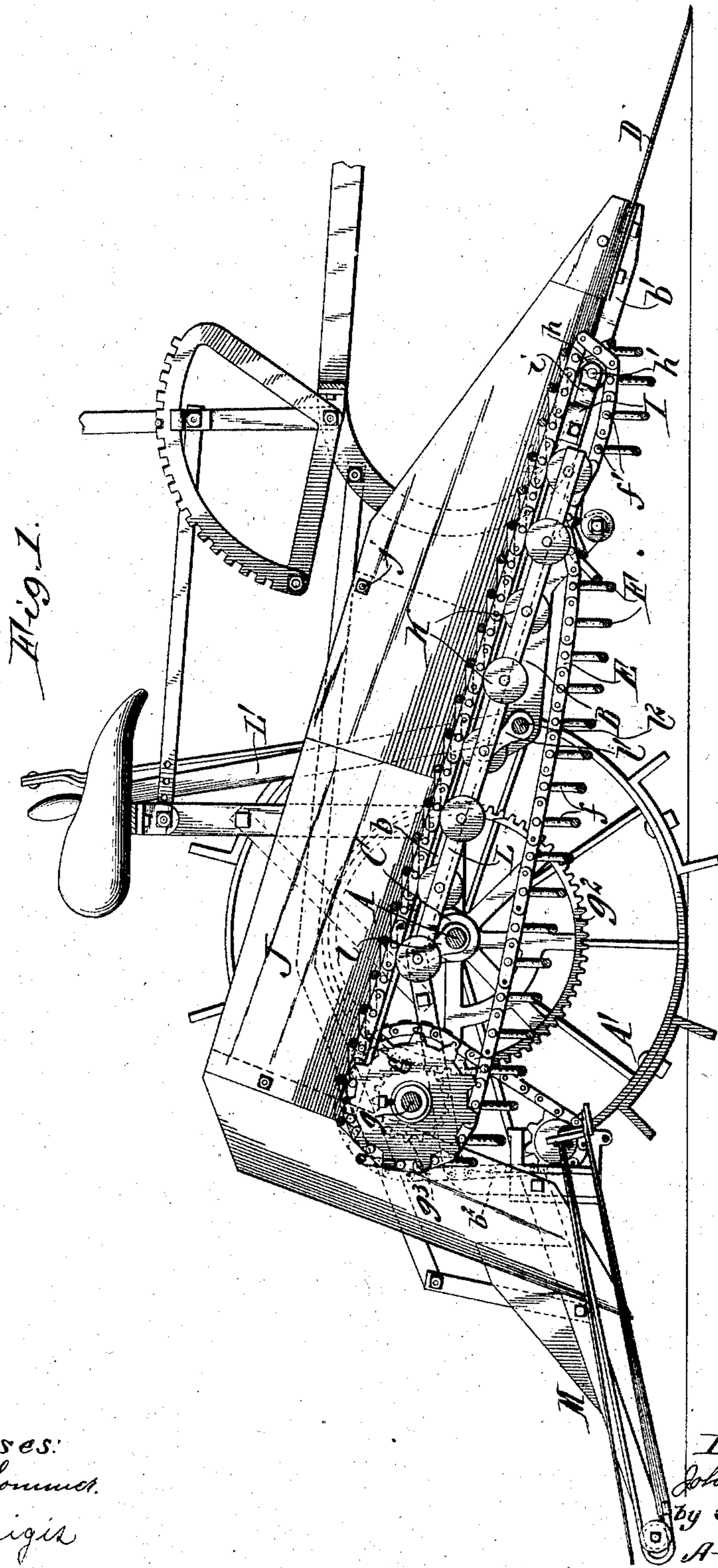
967,557.

J. REUTHER.  
POTATO DIGGER.

APPLICATION FILED SEPT. 20, 1909.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.



*Witnesses:*  
*Richard Sommer,*  
*Anna Heigis*

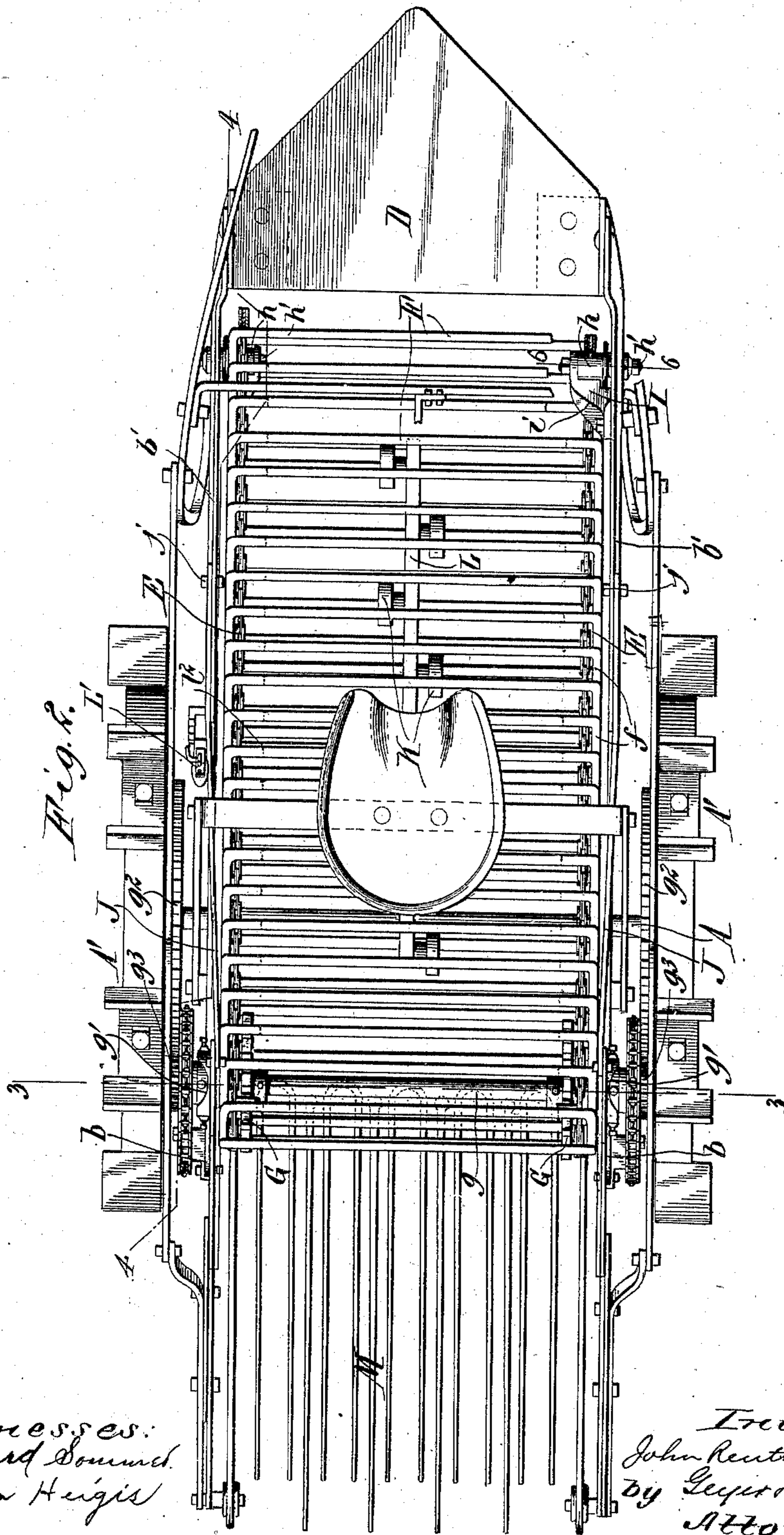
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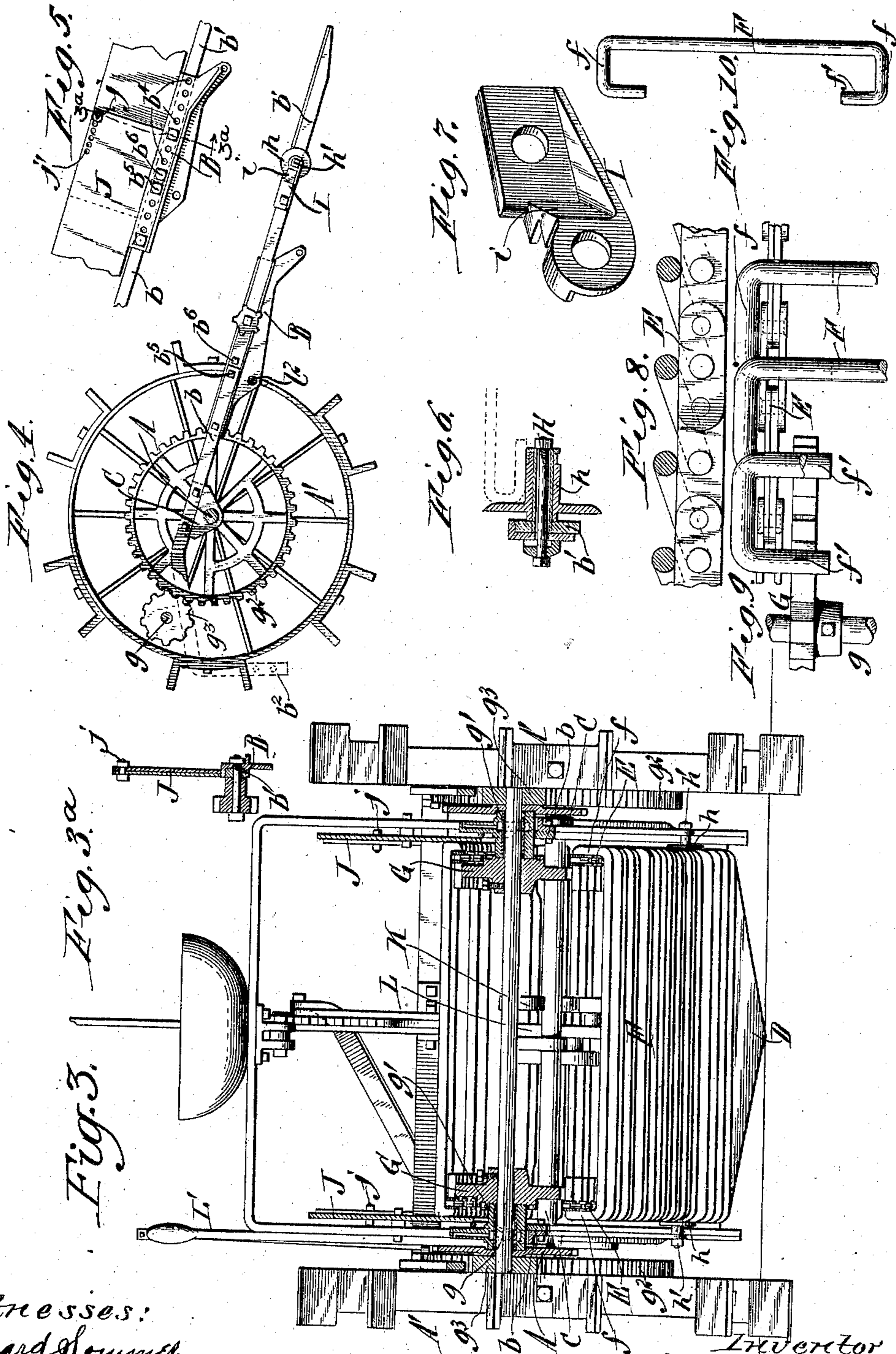
In witness whereof  
John Reuther,  
by Lewis Popp  
Attorneys.

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3 SHEETS—SHEET 3.



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Richard Sommer.  
Anna Heigis

Inventor  
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# UNITED STATES PATENT OFFICE.

JOHN REUTHER, OF EAST AURORA, NEW YORK.

POTATO-DIGGER.

967,557.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed September 20, 1909. Serial No. 518,669.

*To all whom it may concern:*

Be it known that I, JOHN REUTHER, a citizen of the United States, residing at East Aurora, in the county of Erie and State of New York, have invented a new and useful Improvement in Potato-Diggers, of which the following is a specification.

This invention relates to potato diggers of the so called "elevator" type, and more particularly to a digger having an elevator or separator composed of endless chains and transverse rods provided at their ends with crank-arms pivoted to the chains. A separator of this kind is shown and described in Letters Patent of the United States, No. 922,816, granted to me May 25, 1909.

One of the objects of the present invention is to improve the construction of the endless elevator or separator with a view of preventing the entrance of stones between the same and the sprocket wheels over which it runs, in order to avoid blocking and stopping of the separator.

A further object is to increase the separating and weed-elevating capacity of the separator.

In the accompanying drawings consisting of 3 sheets: Figure 1 is a vertical longitudinal section of the machine, the usual draft pole and truck being omitted. Fig. 2 is a top plan view of the machine, partly in section. Fig. 3 is a transverse section thereof, in line 3—3, Fig. 2. Fig. 3<sup>a</sup> is a transverse section on line 3<sup>a</sup>—3<sup>a</sup>, Fig. 5. Fig. 4 is a longitudinal section in line 4—4, Fig. 2, on a reduced scale. Fig. 5 is a fragmentary side elevation of the elevator, showing the means for longitudinally adjusting the frame-sections. Fig. 6 is an enlarged transverse section in line 6—6, Fig. 2. Fig. 7 is an enlarged perspective view of the stone guards or deflectors of the endless separator. Fig. 8 is a fragmentary longitudinal section of the separator, on an enlarged scale. Fig. 9 is a fragmentary top plan view thereof. Fig. 10 is a reduced top plan view of one of the separator rods.

Similar letters of reference indicate corresponding parts throughout the several views.

A indicates the main axle of the machine to which the ground wheels A<sup>1</sup> are secured in the customary manner. Supported on this axle is the main frame which, in the construction shown, comprises forwardly-inclined side bars each composed of adjust-

able front and rear sections *b*, *b*<sup>1</sup>, and vertical extensions *b*<sup>2</sup> depending from the rear sections *b*. As shown in Fig. 4 the axle is mounted in bearings C secured to the side bars.

D indicates the digging device of the machine which preferably consists of a pointed plow or blade suitably secured to the front ends of the side bars *b*<sup>1</sup>.

The elevator or separator is arranged immediately behind the plow D to receive the potatoes, soil and weeds therefrom, as in the Letters Patent hereinbefore referred to, and consists of a pair of endless chains, belts or carriers E and cranked transverse rods or bars F carried by the chains and properly spaced to intercept potatoes, while allowing the detached soil to fall between them. These rods extend across the chains and are provided with crank arms *f* arranged lengthwise of the chains and on the outer sides thereof. These crank arms terminate in pivots or wrist-pins *f*<sup>1</sup> which extend inwardly therefrom, substantially parallel with the bodies of the rods F, and are journaled in openings or bearings in the chains. In the preferred construction shown in the drawings, these wrist-pins are pivoted centrally in the chain-links. The wrist-pins extend inwardly beyond the inner side of the chain links and are adapted to engage the teeth of a pair of actuating or sprocket wheels G secured to a transverse shaft *g* supported in bearings *g*<sup>1</sup> mounted on the rear portions of the side bars *b*, whereby the rear portions of the chains are carried by said sprocket wheels. As shown in the drawings, these wheels are arranged on the inner sides of the chains. The sprocket shaft *g* is driven from the axle A by gear wheels *g*<sup>2</sup> and pinions *g*<sup>3</sup> which latter are shown by dotted lines in Fig. 1.

The front portions of the chains F preferably run around smooth guide rollers or pulleys *h* journaled on bolts or studs *h*<sup>1</sup> carried by the side-bar sections *b*<sup>1</sup>, as shown in Figs. 1, 2 and 6. The inner ends of these bolts are carried by brackets I secured to the inner sides of said side bars. These brackets are arranged on the rear sides of the guide rollers *h* between the upper and lower portions of the chains E and are preferably constructed to act at the same time as stone-guards or deflectors. For this purpose their backs are beveled and arranged to recede

toward the inner sides of the brackets, as shown at *i*, Figs. 2 and 7. By this construction, in case a stone lodges upon the lower portion of one of the chains it encounters the beveled face *i* of the corresponding bracket which deflects the stone inwardly off the chain, causing it to drop between rods of the separator and thus avoiding blocking of the separator chains.

10 J indicates the stationary side walls of the separator which are bolted or otherwise secured to the side-bars *b*, *b*<sup>1</sup>.

To enable wear or slack of the separator chains E to be taken up, the frame carrying the separator is divided into front and rear sections which are adjustable lengthwise on each other, so that the front or guide rollers *h* of the chains can be shifted relatively to the sprocket wheels G.

20 In the preferred construction shown in the drawings, the side bars of the stationary separator-frame are for this purpose composed of the front and rear sections *b*, *b*<sup>1</sup> which are adjustably connected by longitudinal plates B each having a longitudinal series of holes *b*<sup>4</sup> for the reception of clamping bolts *b*<sup>5</sup>, *b*<sup>6</sup> passing respectively through the adjoining portions of the sections. By placing the bolts of the front sections *b*<sup>1</sup> in one or another set of holes of the connecting plates B, the separator frame is extended or contracted and the separator chains are tensioned accordingly in an obvious manner. To permit of this adjustment, the side walls J of the separator are also divided transversely in line with the joints of the side-bar sections *b*, *b*<sup>1</sup>. Said wall sections overlap each other and are adjustably secured together by bolts *j* passing through a single hole in one wall-section, and one of a longitudinal series of holes *j*<sup>1</sup> in the other section. These wall-sections may, however, be adjustably connected by any other suitable means.

45 As in the Letters Patent hereinbefore referred to, the machine is preferably provided with an agitator consisting of a longitudinal series of smooth-faced rollers K carried by a frame L arranged underneath the upper portion of the separator. This frame is vertically adjustable to agitate the separator bars more or less vigorously, according to the condition of the soil. Said frame is carried at its rear end by the usual link *l* pivoted upon the axle A, and near its front end by an arm *l*<sup>1</sup> secured to a transverse rock shaft *l*<sup>2</sup> carried by the connecting plates B and having a hand lever *L*<sup>1</sup> for turning it. It will be observed that none of the parts of the agitator are mounted on the adjustable front sections *b*<sup>1</sup> of the stationary frame, and these sections can therefore be adjusted without disturbing the agitator.

65 M indicates a shaker or final separator

arranged to receive the material from the tail of the endless main separator or elevator. This shaker forms no part of my present invention and may be of any suitable construction.

As the separator rods F extend across the chains E, they rest thereon while on the upper or ascending side of the separator, thus supporting them in their normal elevated position. They are, however, free to swing rearwardly into a pendent position upon passing around the rear sides of the sprocket wheels G and while returning on the underside of the separator, in the same manner as the rods of the separator described and shown in the Letters Patent hereinbefore referred to.

By extending the rod-pivots or wrist-pins *f*<sup>1</sup> inwardly and arranging the actuating or sprocket wheels G on the inner sides of the chains, stones are prevented from entering between the sprocket wheels and the side plates J and blocking the chains. This arrangement also permits elevated stones to drop between the rods on the inner sides of the sprocket wheels where there is ample room for their discharge, thus preventing their entrance or lodgment between the wrist-pins *f*<sup>1</sup> and the sprocket wheels and obviating stretching of the chains or stoppage of the separator.

By extending the rods across the chains, as shown, the width of the separator and its capacity are correspondingly increased. This arrangement of the rods affords the further advantage that they act as elevating flights, shoulders or projections which more reliably elevate the weeds and vines than a construction in which the rods terminate at the inner sides of the chains.

I claim as my invention:

1. In a potato digger, the combination of a separator, comprising endless carriers and transverse separating rods spaced to intercept potatoes, the ends of said rods extending across said carriers, and means for delivering the material upon the separator.

2. In a potato digger, the combination of a separator, comprising endless carriers and transverse separating rods spaced to intercept potatoes, said rods being provided with crank arms arranged on the outer sides of said carriers and having wrist-pins extending inwardly from the arms and pivoted to said carriers, and means for delivering the material upon the separator.

3. In a potato digger, the combination of a separator, comprising endless carriers and transverse separating rods spaced to intercept potatoes, actuating wheels arranged on the inner sides of said carriers, said rods being provided at their ends with crank arms arranged on the outer sides of said carriers and terminating in inwardly extending wrist pins which are pivoted to

the carriers and engage said actuating wheels, and means for delivering the material upon the separator.

4. In a potato digger, the combination of  
5 a separator, comprising endless carriers and  
transverse separating rods spaced to intercept potatoes, toothed wheels arranged on  
the inner sides of said carriers, said rods  
extending across the carriers and having  
10 crank-arms arranged on the outer sides of  
the carriers, said arms having inwardly-

extending wrist-pins journaled in the carriers and meshing with said toothed wheels, and means for delivering the material upon the separator.

Witness my hand this 17th day of September, 1909.

15

JOHN REUTHER.

Witnesses:

C. F. GEYER,  
ANNA HEIGIS.