

PROCTOR & PAYNE.

Potato-Digger.

No. 40,120

Patented Sept. 29, 1863.

Fig. 1.

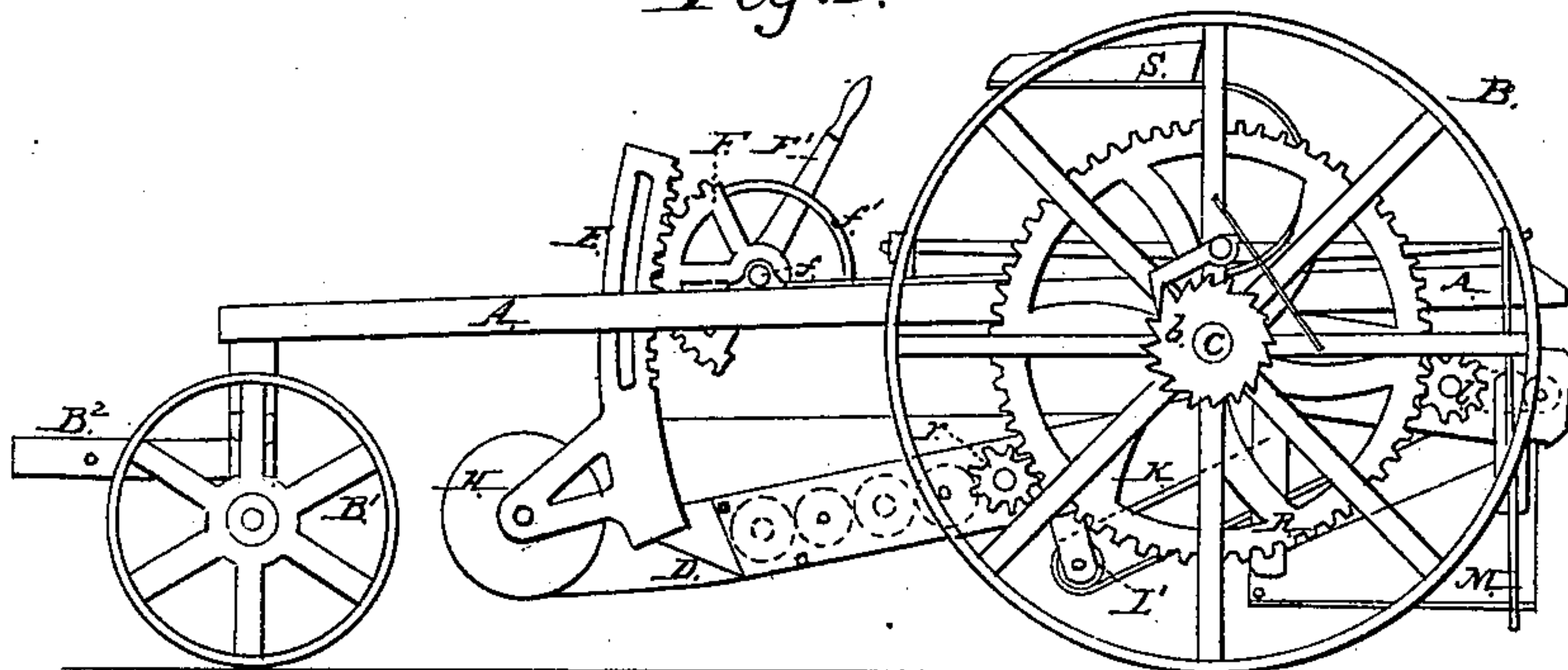


Fig. 2.

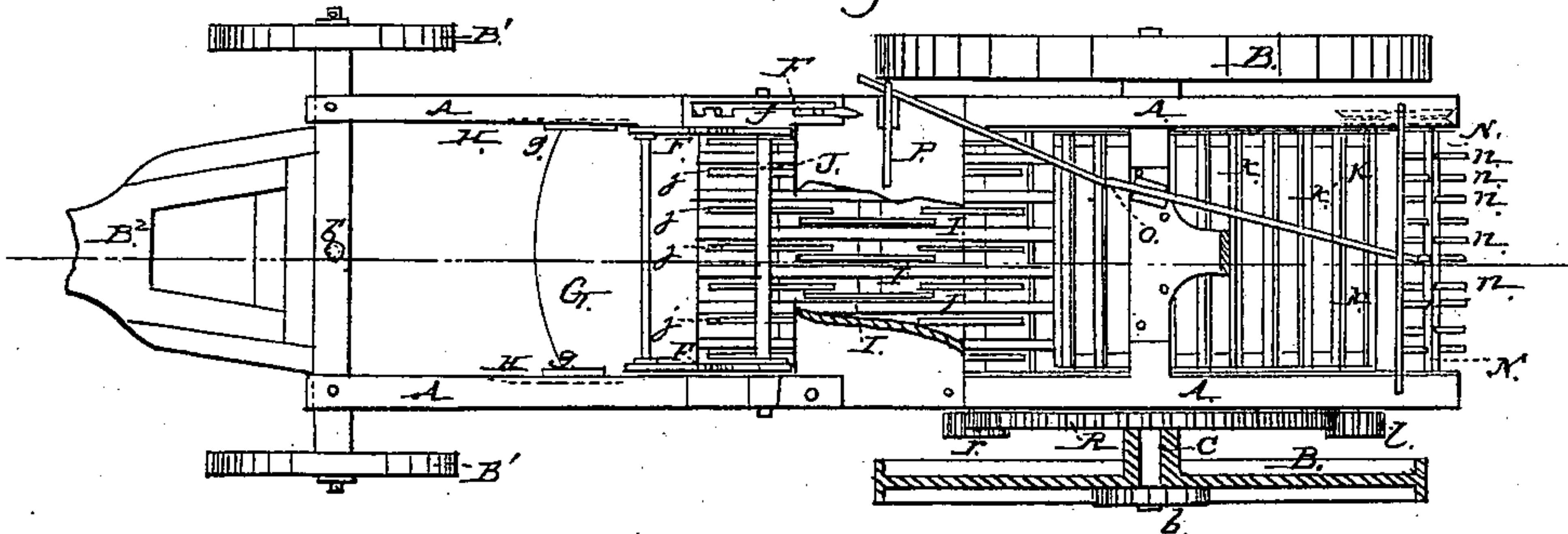
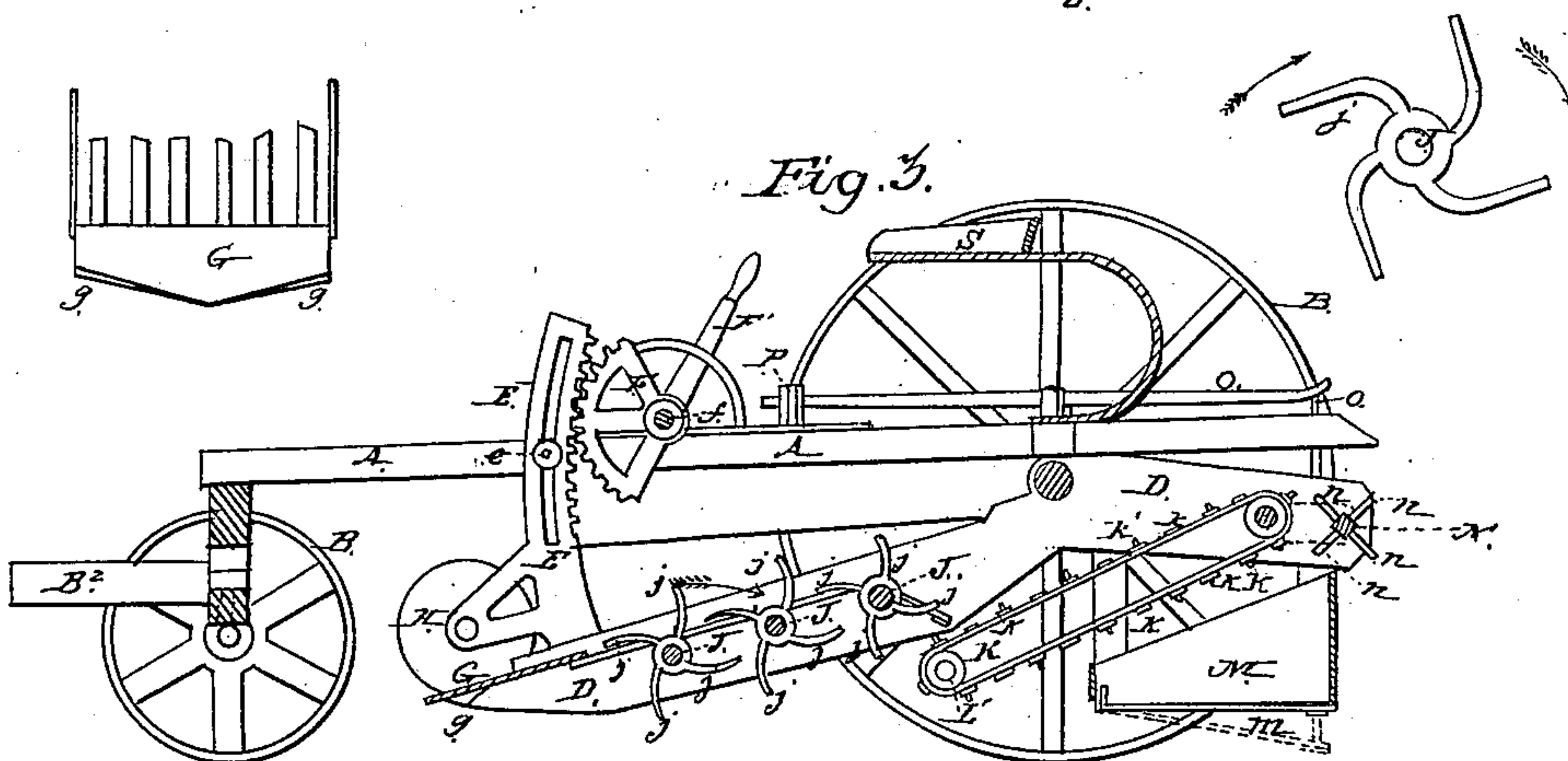


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM PROCTOR AND DAVID C. PAYNE, OF ELKHART, INDIANA.

IMPROVEMENT IN POTATO-DIGGERS.

Specification forming part of Letters Patent No. 40,120, dated September 29, 1863.

To all whom it may concern:

Be it known that we, WILLIAM PROCTOR and DAVID C. PAYNE, both of the town and county of Elkhart, in the State of Indiana, have invented a certain new and Improved Machine for Digging Potatoes; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the said machine. Fig. 2 is a plan or top view of the same with some parts removed to exhibit parts beneath. Fig. 3 is a vertical longitudinal section at *x x*, Fig. 2.

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

The subject of our said invention is an automatic machine which, when drawn over the ground in which potatoes have grown, will unearth them and separate them from dirt, stalks, and weeds, and deposit the clean potatoes in heaps upon the ground or in any suitable receptacle.

The improvements particularly consist, first, in a peculiar construction of plow to be used in a potato-digger; second, in the use of rotary cutters for severing the vines, weeds, or other obstructions; third, in a peculiar construction and combination of rotary separating-rakes; fourth, in the combination, with the said rakes, of an open frame adapted to retain the potatoes while permitting the escape of earth; fifth, in a device for raising and lowering the plow-frame; sixth, in a peculiar construction of endless carrying-apron; seventh, in the combination, with the said carrying-apron, of a rotary rake for removing stalks and weeds.

In order that others skilled in the art to which our invention appertains may be enabled to fully understand and use the same, we will proceed to describe its construction and operation.

A A A may represent various parts of a main frame, supported near its rear end on two driving-wheels, B B, running loosely on an axle, C, but connected therewith by a ratchet-movement, as shown at *b*, so that either wheel may turn freely backward, but when turning forward will impart rotation to the axle. The front of the main frame is supported on wheels B', adapted to turn on a vertical king-bolt, *b'*,

and governed by a tongue, B², in customary manner.

D D represent a gear-frame suspended from the axle C, and supported at its forward end by slotted racks E, working over guide-pins *e*, and raised or lowered by cogged segments F F, attached to the respective ends of a shaft, *f*, and turned in either direction by a lever, F', which is held in any position in which it is placed by means of a spring forcing it into notches in a stationary rack, *f'*, in order to sustain the front of the frame D at any height to which it may be adjusted.

G represents a plowshare of peculiar form, attached to the front of the frame D in an oblique position, the share having a convex or pointed edge to adapt it to enter the ground, and turned down toward the outer corners, *g*, as shown in Fig. 3, in order to bring all parts of the edge on or near a level with the central prominent part of the same when in its working position.

H H represent rotary cutters, mounted at each side of the plow, to sever stalks, weeds, &c., and prevent their obstructing the working of the machine.

I I represent bars extending longitudinally backward from the rear edge of the share G, and constituting an open frame, which rises gradually backward to near its rear end, where it descends more abruptly over the forward end of an inclined endless carrying-apron, K, of peculiar construction, stretched over rollers or pulleys L L'. The said apron is formed of endless chains or bands connected by slats *k* *k'*, placed at a sufficient distance apart to permit earth to fall between them, each alternate one, *k'*, of which slats projects to a greater height above the surface of the apron, in order to carry up any potatoes which may be deposited on the apron.

J J J represent shafts, two, three, or more in number, journaled transversely across the gear-frame D beneath the open frame I I, and each provided with teeth *j j*, arranged in sets of two or more, surrounding the shafts J, and each set working through one of the spaces between the bars I. These teeth are by preference curved backward to a short distance from the shaft, and from thence take a straight form or direction to their outer ends, their

office and effect being, as they revolve in the direction indicated by the arrows in Fig. 3, to take the potatoes and earth which are elevated upon the share G by the forward motion of the machine, cutting and breaking the clods of earth, separating the potatoes therefrom, and passing the latter backward by the successive action of the toothed shafts until they finally descend over the rear of the frame I onto the apron K. In passing upward upon the slat-apron, any dirt which may have accompanied the potatoes thus far will be separated and fall through the apron to the ground. On reaching the rear end of the apron the potatoes fall over into a box, M, or other receptacle, and at the same time any stalks, weeds, or trash is carried away and discharged on the ground at the rear of the machine by a toothed shaft, N, the ends of whose teeth *n* revolve nearly in contact with the edges of the prominent slats or bars *k'* of the apron. The box M may be provided with a hinged bottom, *m*, supported by rods *o*, depending from a lever, O, held down by a catch, P, so that it may be released at will by the driver sitting upon the seat S.

Motion is communicated to the rakes J *j* by means of a large cog-wheel, R, on the axle O gearing with a pinion, *r*, on the rear rake, and by a train of gearing, (indicated by dotted lines in Fig. 1,) the intermediate pinions causing all the rakes to rotate in one direction. The apron K is driven by a pinion, *l*, on the roller L gearing with the said cog-wheel R, and the rake N *n* is driven by a band from the roller L, as indicated by dotted lines in Fig. 3. The ar-

rows indicate the directions in which the various parts move.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. The employment or use, in a potato-digger, in connection with the plowshare, as aforesaid, of rotary cutters H H, applied at each side of the plowshare to sever stalks or weeds.

2. The combination, in a potato-digger, substantially as described, of a series of two or more revolving rakes, J *j*, to carry the potatoes backward from the plowshare and pulverize and separate the earth, in combination with the plowshare G, as specified.

3. The combination, with the aforesaid rakes J *j* and inclined open frame I I, of a plow, G, constructed, arranged, and operating as specified.

4. The combination, with the gear-frame D, constructed and operating as described, of cogged segments F, shaft *f*, and lever F' for raising and lowering the same.

5. The endless carrying-apron K, constructed with alternate slats *k k'* of unequal width, substantially as and for the purposes specified.

6. The combination, with the endless apron K, when constructed as described, of the rotary rake N *n*, operating in the manner and for the purposes specified.

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Witnesses:

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