

No. 653,332.

Patented July 10, 1900.

L. A. ASPINWALL.

POTATO SORTER.

(Application filed Dec. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

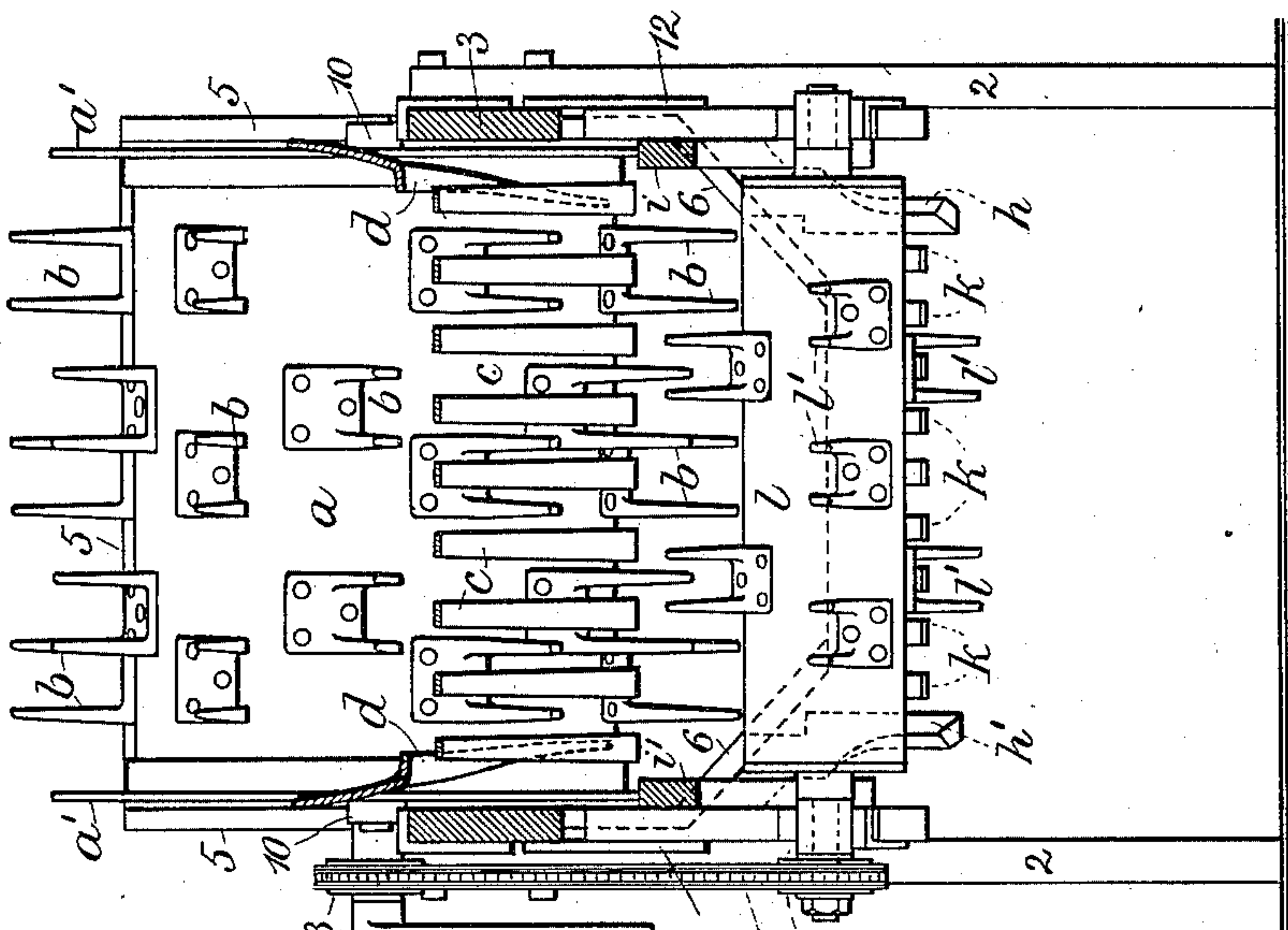
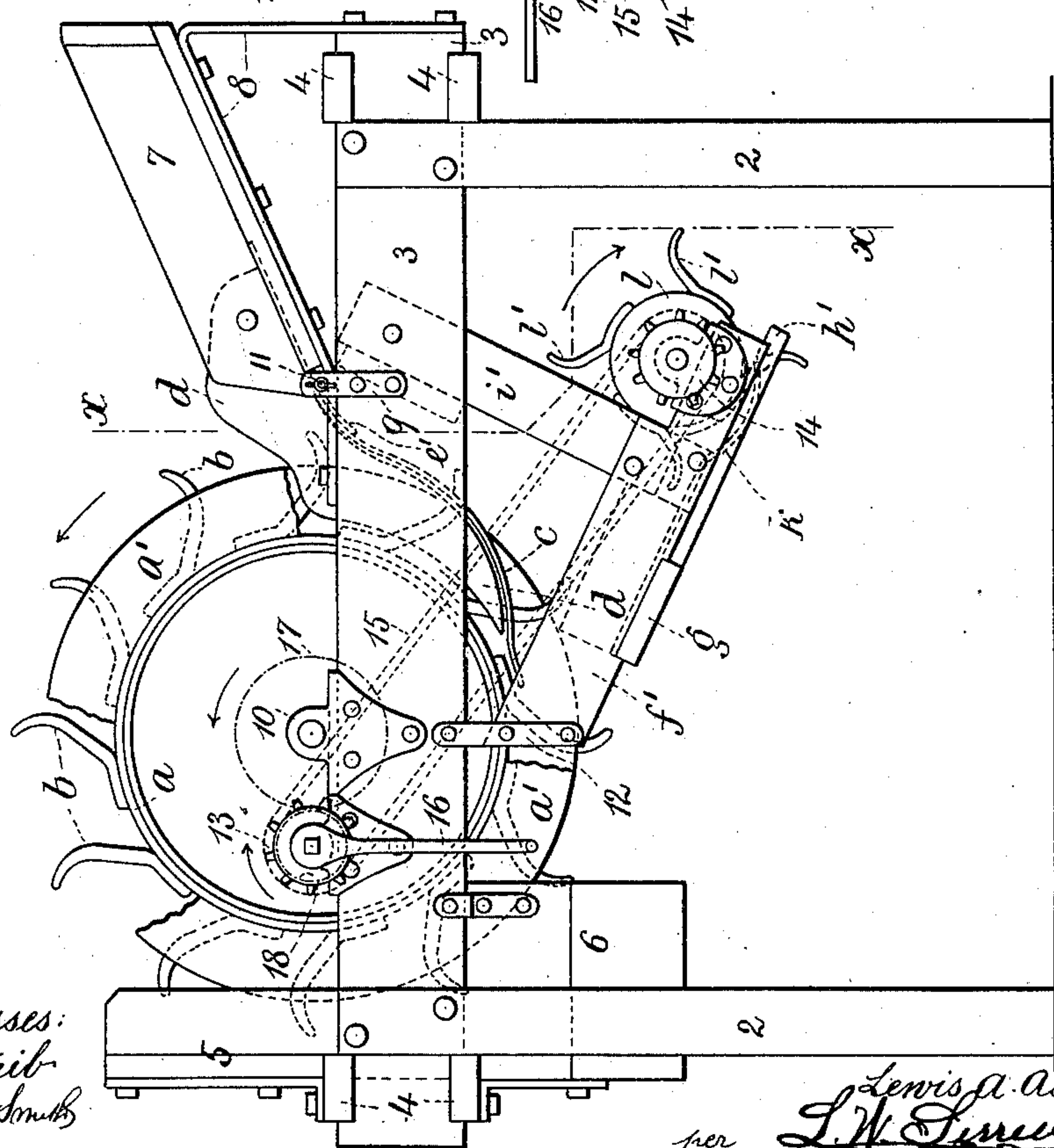


Fig. 1.



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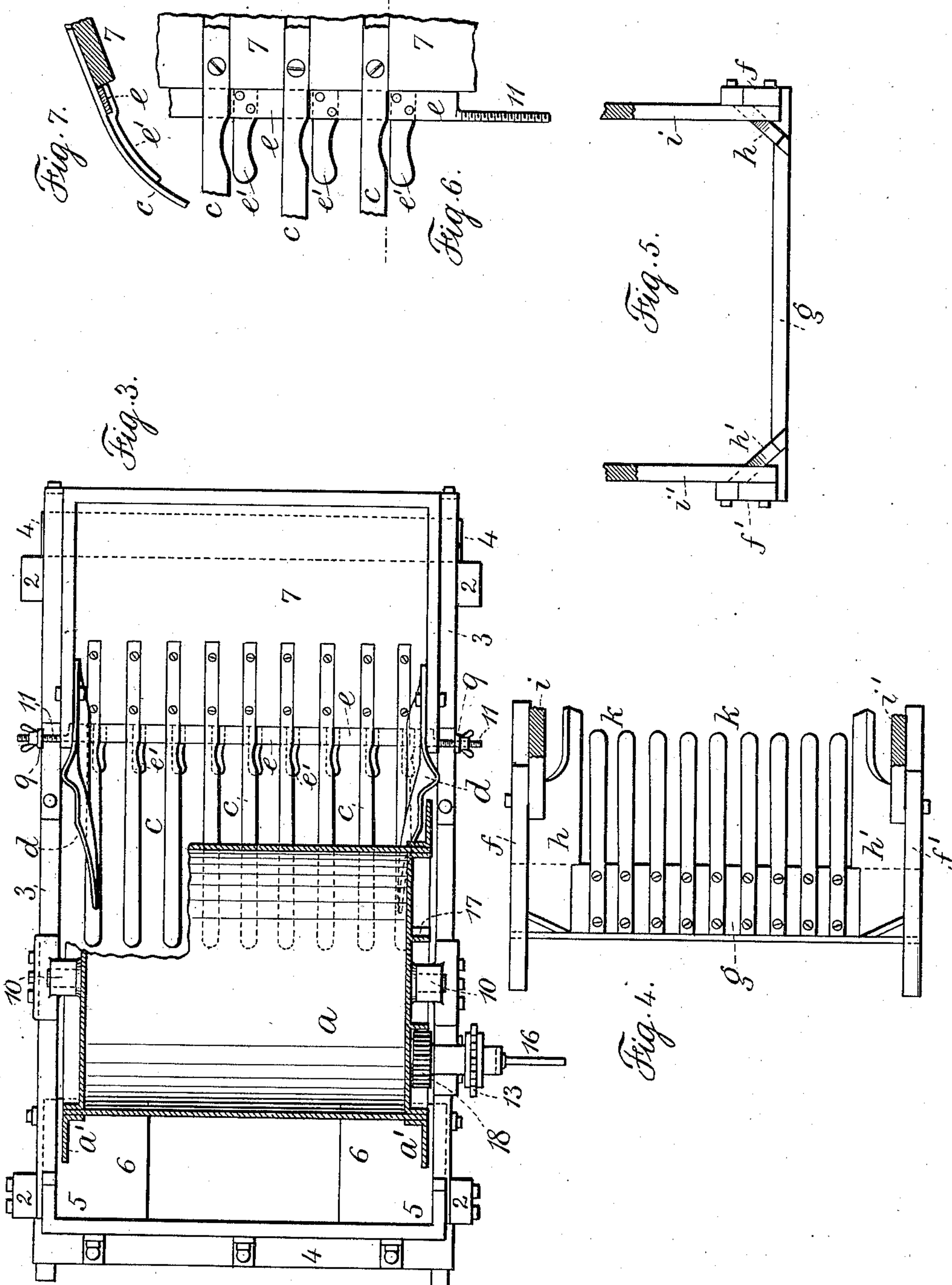
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UNITED STATES PATENT OFFICE.

LEWIS AUGUSTUS ASPINWALL, OF JACKSON, MICHIGAN, ASSIGNOR TO THE
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POTATO-SORTER.

SPECIFICATION forming part of Letters Patent No. 653,332, dated July 10, 1900.

Application filed December 16, 1899. Serial No. 740,530. (No model.)

To all whom it may concern:

Be it known that I, LEWIS AUGUSTUS ASPINWALL, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented an Improvement in Potato-Sorters, of which the following is a specification.

My invention relates to a device for sorting potatoes in which the potatoes are delivered in several sizes and in which decayed or otherwise-imperfect potatoes may be readily detected and removed during the sorting operation.

In carrying out my invention I provide revolving cylinders carrying upon their surfaces picking-forks. An inclined hopper is provided for receiving the potatoes, and from the lower edge of this hopper extend downwardly-curved bars toward the main cylinder, and side guide-bars are placed so as to bring all the potatoes within the width of the main cylinder, and a transverse fingered bar is adjustable in relation to the curved bars, as hereinafter stated. An inclined hopper-frame and parallel curved bars and an auxiliary cylinder, also with picking-forks, are placed beneath the main cylinder and hopper for completing the sorting operations. The details and operating devices are particularly hereinafter described.

In the drawings, Figure 1 is a side elevation representing my improvement. Fig. 2 is a vertical section at the line xx of Fig. 1 and an elevation looking toward the cylinders. Fig. 3 is a plan view and section of the main cylinder without the picking-forks. Fig. 4 is a sectional plan of the lower inclined hopper-frame. Fig. 5 is an elevation endwise of the frame shown in Fig. 4. Fig. 6 is a partial plan, in larger size, of the transverse fingered bar and the hopper and adjacent bars, and Fig. 7 is an edge view and section of the same.

The frame of the machine comprises the legs or uprights 2, the side frames 3, the end frames 4, and at one end is a frame 5, forming an end stop, coming above and below the end frame and having returned corners above the side frames, and there are inclines below the side frames and at the same end as the stop-frame 5, forming the hopper 6. The main hopper 7 for receiving the potatoes is

inclined and is supported by standards 8, connected to the frame of the machine, and at their lower ends the said standards rest upon the side frame 3.

The main cylinder a is provided with side flanges a' , and upon the surface of the cylinder, spaced apart and staggered in relation to one another, are placed the picking-forks b , with curved tapering ends, the tine parts of which in the direction of Fig. 2 are approximately parallel with one another, the base portion being riveted or bolted to the cylinder.

Connected to and extending downward from the lower edge of the inclined hopper 7 are curved bars c , whose lower ends extend beneath and come closely adjacent to the surface of the main cylinder a . These bars are spaced apart, so as to come between the tines of the picker-forks or between the picker-forks themselves, and these bars are preferably wider at their lower free ends, so that between them at said ends the space is narrower than it is where the said bars are connected to the inclined hopper. Within and at either side of the hopper are connected side guide-bars d , extending toward the main cylinder and downward, with an outer edge conforming to the surface of the cylinder with a lower edge conforming to the curve of the bars c . These guide-bars prevent any outward movement of the descending mass of potatoes deposited upon the inclined hopper 7, and they furthermore direct the potatoes against the surface of the cylinder within the limits of the flanges a' of the cylinder. A transverse bar e is placed beneath the upper ends of the curved bars c , and this bar is provided with fingers e' and with threaded ends 11, which threaded ends extend beyond the limits of the inclined hopper 7 and pass through plate-supports 9 upon the outer faces of the side frames 3, and adjusting-nuts are on the said threaded ends 11, by which the position of the said transverse bar e and its fingers e' is maintained in relation to the curved bars c , and it will be noticed from Figs. 6 and 7 that the bars c are notched adjacent to the inclined hopper 7 and the transverse bar e and that one edge of the fingers e' is also notched, and when the notches of

the fingers and the curved bars coincide an opening between the bars of maximum dimensions is provided through which potatoes of a larger size may be discharged, and that this opening is regulated by the longitudinal movement of the said transverse bar and the placing of the fingers of the bar.

The lower inclined hopper is preferably composed of the sides ff' , the cross-piece g , and the inclined side strips $h h'$, which parts are connected together and are supported by and from the side frames 3 by the supporting-bars $i i'$ at one end and the bars 12 at the upper end, and connected to the cross-piece g are parallel curved bars k . The main cylinder a is supported in bearings 10 upon the side frames 3, and the auxiliary cylinder l is supported in bearings at the lower ends of the lower hopper upon the edges of the sides ff' , and this auxiliary cylinder is provided with picking-forks l' , secured to the surface thereof, which forks are of similar shape, but smaller size, to the forks b of the main cylinder, and in the rotation of the cylinder l the said forks come between the bars k .

A sprocket 13 is upon a short shaft in bearings on the side frame 3, and upon said shaft are a handle 16 and a gear 18, and on the shaft of the auxiliary cylinder l is a sprocket 14, and a chain 15 connects the sprockets 13 and 14, the auxiliary cylinder being driven by these sprockets and the chain, and around the shaft of the main cylinder and preferably connected to one end of the cylinder is a gear 17, meshing with the gear 18, the main cylinder being driven when the handle 16 is operated through the gears 17 and 18.

In the operation of the device an attendant turns the handle 16 and by the sprockets and chain and the gears 17 and 18 rotates both the main cylinder and the auxiliary cylinder. The potatoes in mass are delivered into the inclined hopper 7 and, sliding down the same, come upon the curved bars c between the side guide-bars d and against the surface of the main cylinder and its picking-forks. The small potatoes pass through between the curved bars and fall upon the hopper beneath, and the smaller of these pass through between the bars k and fall upon the ground or floor beneath the machine or into a receptacle that may be placed for that purpose. The larger potatoes are caught by the picking-forks b and are carried up over the main cylinder by the said forks, and as the cylinder revolves the said potatoes fall into the hopper 6 and through the same into a receptacle provided for receiving the potatoes. The end stop-plate 5 serves to prevent any of the potatoes coming over the main cylinder being thrown out of the machine and away from the hopper 6, as the same in such case would strike against the inner surface of the said plate and would fall therefrom into the hopper. These larger potatoes as they come over the cylinder can be seen by an attendant, and if they are imperfect or decayed such fact

will be noticed and the potatoes removed before they fall into the hopper. The picking-forks b act to raise the potatoes, lifting the same up the curved bars c before the potatoes are fully caught by the said picking-forks. In this movement if the potatoes are small enough to pass through between the said bars c at their upper ends they will not be caught by the picking-forks b , but will fall into the hopper beneath, where they will be caught by the picking-forks l' of the auxiliary cylinder l and by them will be raised over the said auxiliary cylinder and delivered into another receptacle provided for the purpose. It will thus be seen that three sortings or sizes of potatoes are possible with the present machine, which greatly facilitates the after uses of the potatoes, because those that come through the hopper 6 are specially available for the market, the small ones that fall through between the bars k for feeding purposes, and those that go over the auxiliary cylinder l for planting or other use, as most desirable.

I claim as my invention—

1. In a potato-sorter, the combination with an inclined hopper and bars connected therewith, of a cylinder and means for rotating the same, and picking-forks at intervals secured to the surface of said cylinder and adapted in the rotation of the cylinder to lift and carry over the cylinder larger-sized potatoes, and a stop-frame at the other side of the cylinder, and a hopper beneath the same and into which the potatoes are delivered, substantially as set forth.

2. In a potato-sorter, the combination with a cylinder and means for rotating the same, of picker-forks upon the surface of the cylinder inclined away from the direction of rotation, a hopper into which the potatoes to be sorted are delivered, curved bars connected at one end to the lower edge of the said hopper and extending downward and beneath the said cylinder with their free ends closely adjacent to the cylinder, and spaced apart, so that they come between the tines of the picking-forks and between the forks, substantially as and for the purposes set forth.

3. In a potato-sorter, the combination with a cylinder and means for rotating the same, of picker-forks upon the surface of the cylinder inclined away from the direction of rotation, a hopper into which the potatoes to be sorted are delivered, curved bars connected at one end to the lower edge of the said hopper and extending downward and beneath the said cylinder with their free ends closely adjacent to the cylinder, and spaced apart so that they come between the tines of the picking-forks and between the forks, the said bars being wider at their free ends than at their point of attachment, so that the intermediate spaces are narrower at the free ends and wider adjacent to the hopper, substantially as and for the purposes set forth.

4. In a potato-sorter, the combination with

a cylinder and means for rotating the same, of picker-forks upon the surface of the cylinder inclined away from the direction of rotation, a hopper into which the potatoes to be sorted are delivered, curved bars connected at one end to the lower edge of the said hopper and extending downward and beneath the said cylinder with their free ends closely adjacent to the cylinder and spaced apart so that they come between the tines of the picking-forks and between the forks, one edge of each bar adjacent to the hopper being notched, and a transverse bar beneath the said bars adjacent to the edge of the hopper and provided with fingers having one edge of each notched, and means for adjusting the transverse bar, substantially as set forth.

5. In a potato-sorter, the combination with a cylinder having edge flanges and means for rotating the same, of picker-forks having inclined tapering tines connected to the surface of the said cylinder, an inclined hopper receiving the potatoes to be sorted, curved bars connected to the lower edge of the said hopper and extending downward toward and adjacent to the under surface of the said cylinder and side guide-bars connected to the sides of the hopper and extending forward and downward toward the main cylinder and within the limits of the flanges of the cylinder as a guide for the potatoes, substantially as and for the purpose set forth.

6. In a potato-sorter, the combination with an inclined hopper, curved bars extending downward from the lower edge thereof, and guide-bars connected thereto, of a main cylinder having side flanges, means for rotating the cylinder, picker-forks connected to the surface of the said cylinder and spaced apart and staggered in their relations to one another, a hopper beneath the main cylinder and the said curved bars and bars connected to the said hopper, and an auxiliary cylinder at the lower end of the hopper and picker-forks

upon the surface thereof, and means for rotating the auxiliary cylinder, substantially as set forth.

7. In a potato-sorter, the combination with an inclined hopper, curved bars connected to the lower edge thereof, a main cylinder and picker-forks upon the surface thereof, of a hopper beneath the said main cylinder and bars comprising a cross-piece and sides and parallel curved bars and inclined strips, supporting-bars connecting the said hopper to the frame of the sorter at its higher end and adjacent to its lower end, an auxiliary cylinder at the lower end of the said hopper, bearings for the same upon the sides and picking-forks upon the surface of the cylinder similar to but smaller than the picking-forks of the main cylinder, and means for rotating the auxiliary cylinder, substantially as set forth.

8. In a potato-sorter, the combination with an inclined hopper, and means for supporting the same, of curved bars connected to the lower portion of the said hopper and inclined forward and downward, and notched on similar edges adjacent to the lower end of the said hopper, a transverse bar beneath the upper ends of the said bars and adjacent to the lower edge of the hopper, fingers projecting out from one side of the said bar and each having an edge notched to correspond with the notches of the curved bars, threaded ends to the said transverse bar and plate-supports upon the side frames of the machine through which the threaded ends pass and in which the bar is adjustable, and nuts upon the said threaded ends for clamping the transverse bar in position, substantially as set forth.

Signed by me this 11th day of December, 1899.

LEWIS AUGUSTUS ASPINWALL.

Witnesses:

E. L. ROSE,
DANIEL H. PERRY.