

(No Model.)

G. WRAGG & J. STROHM.

POTATO DIGGING MACHINE.

No. 372,006.

Patented Oct. 25, 1887.

Fig. 1.

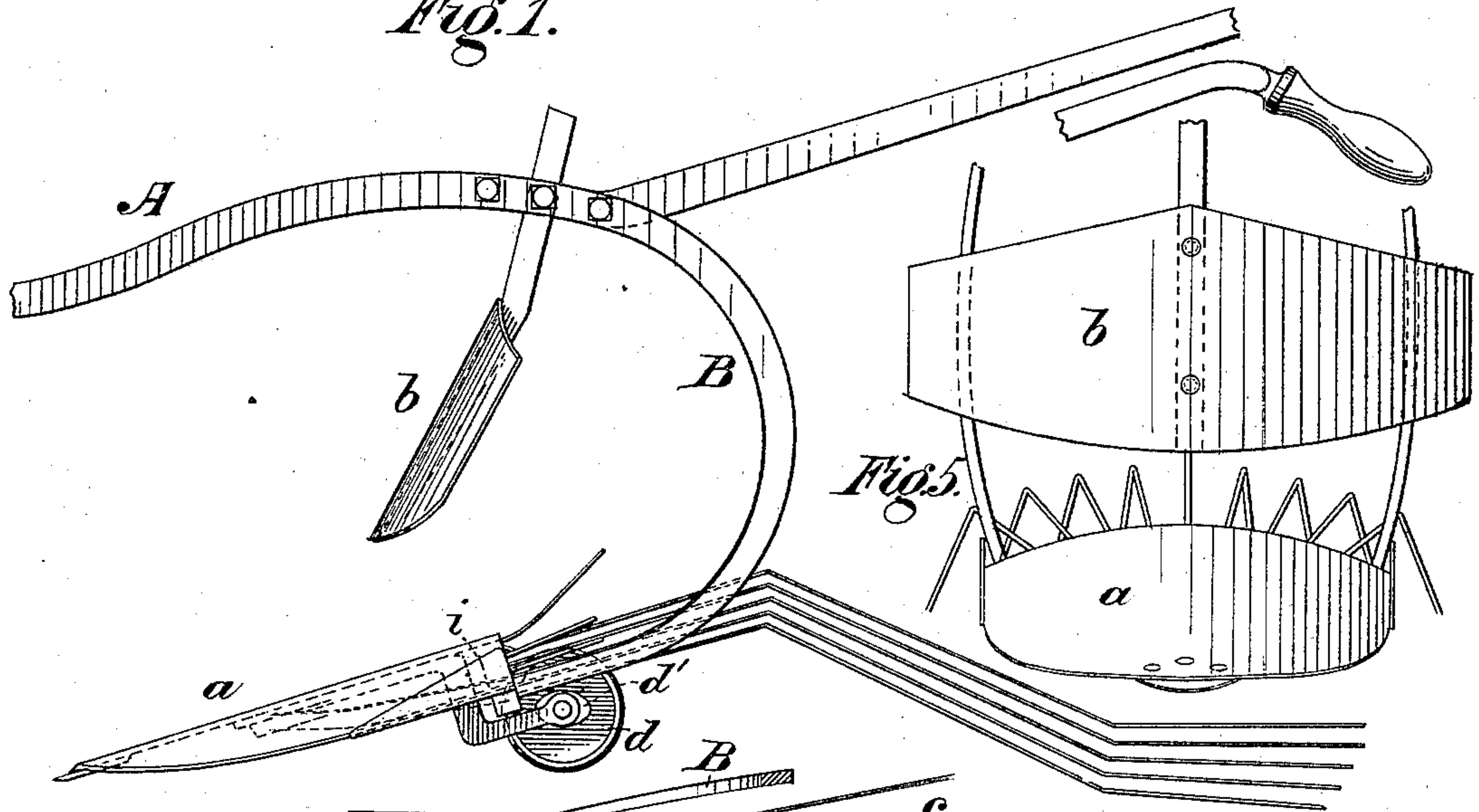


Fig. 2.

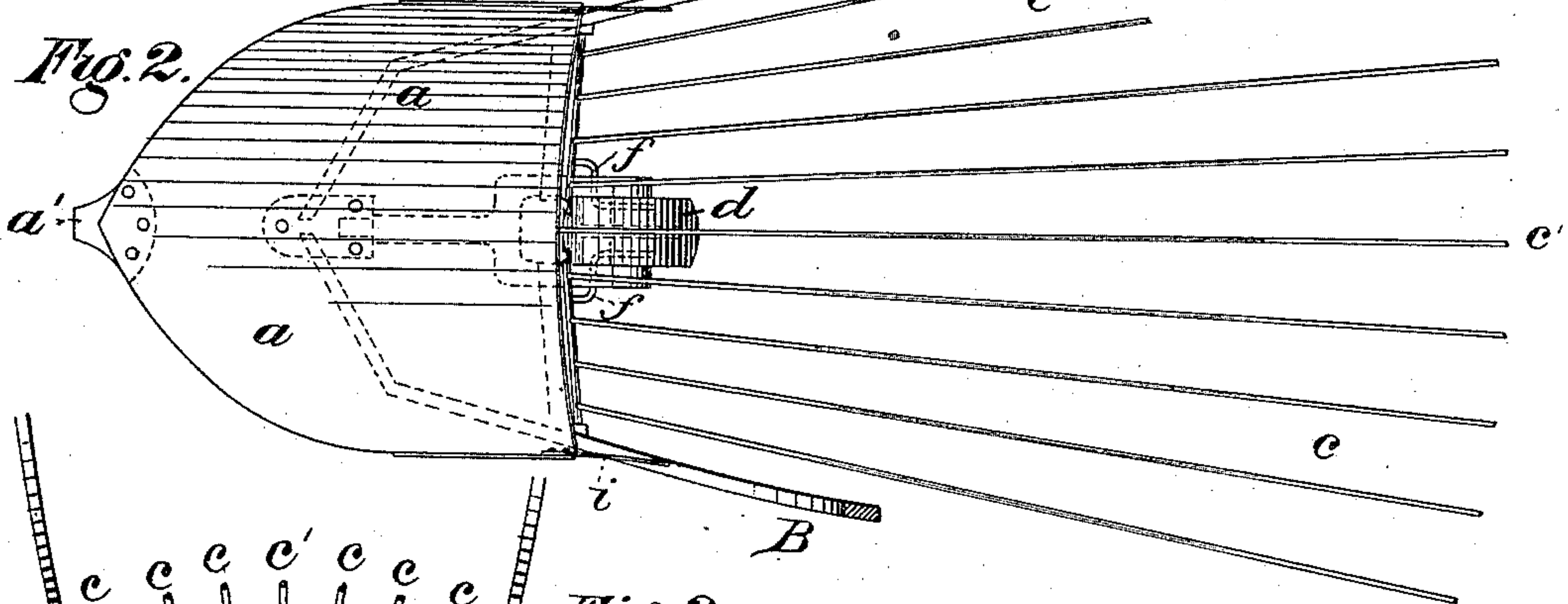


Fig. 3.

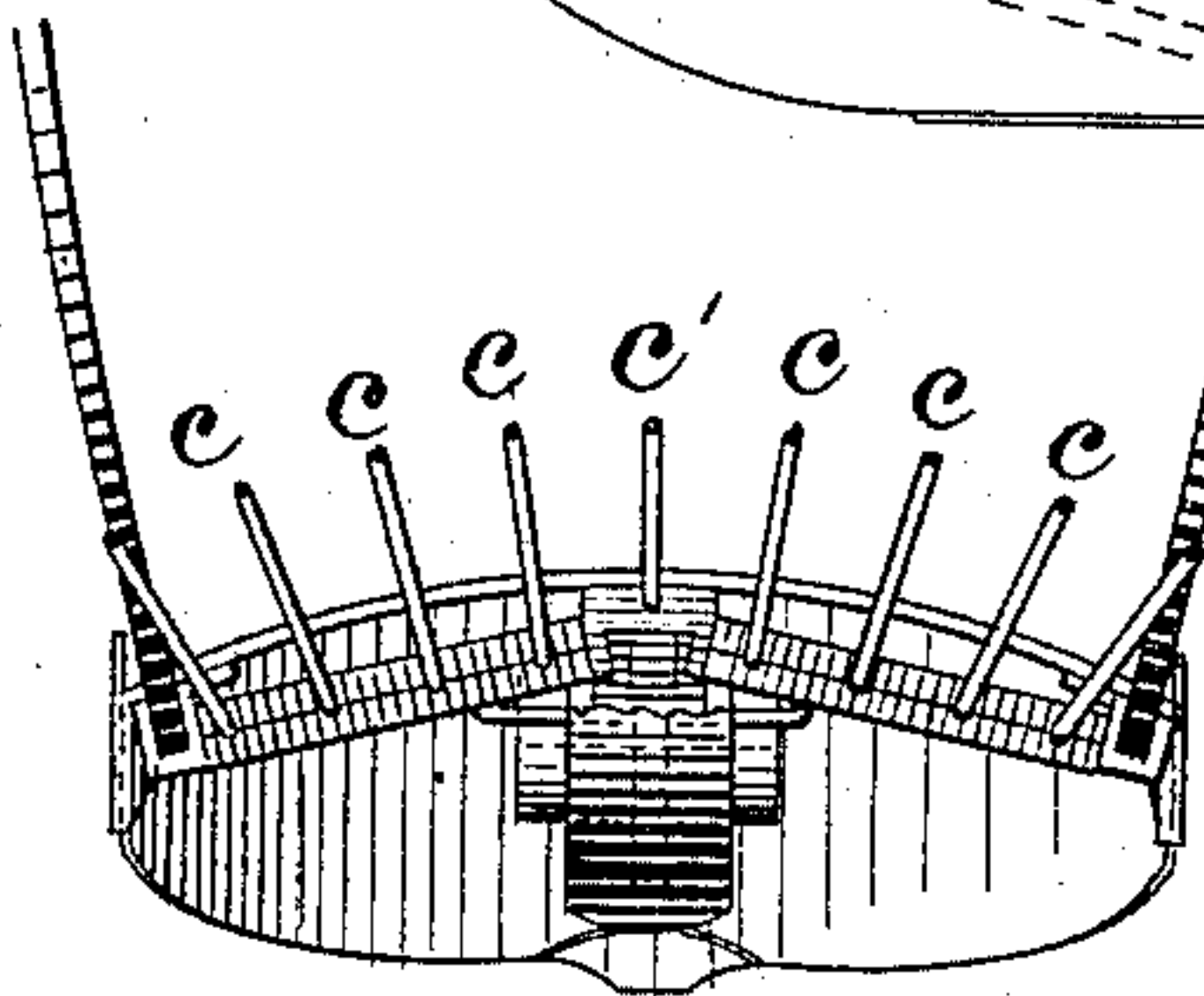


Fig. 6.

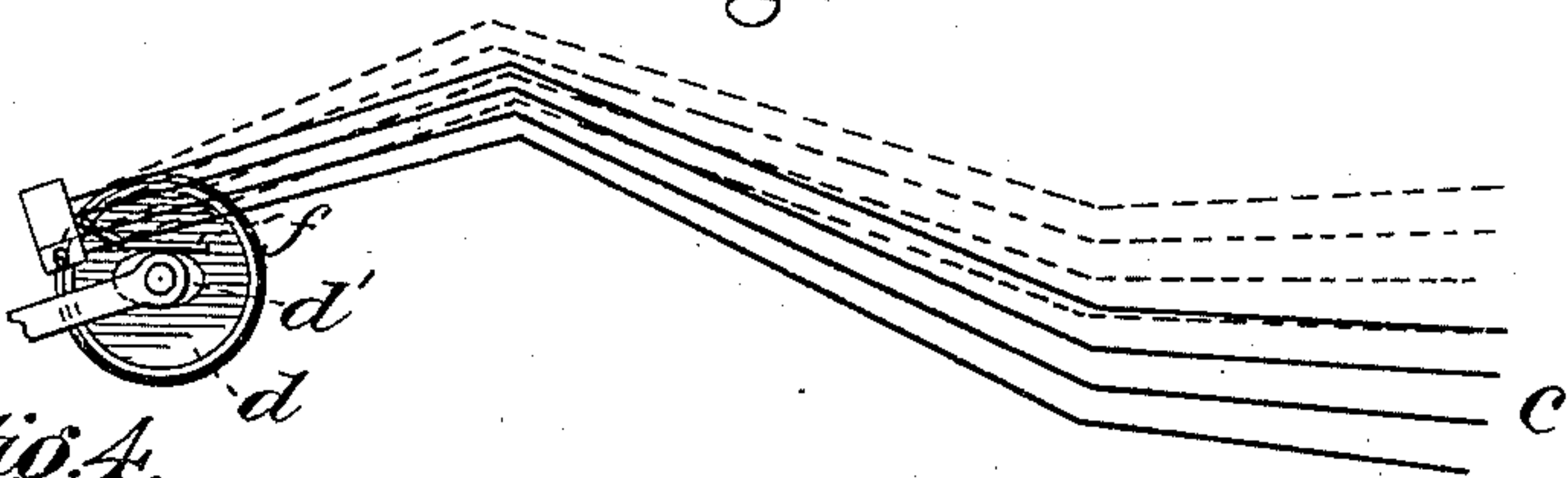
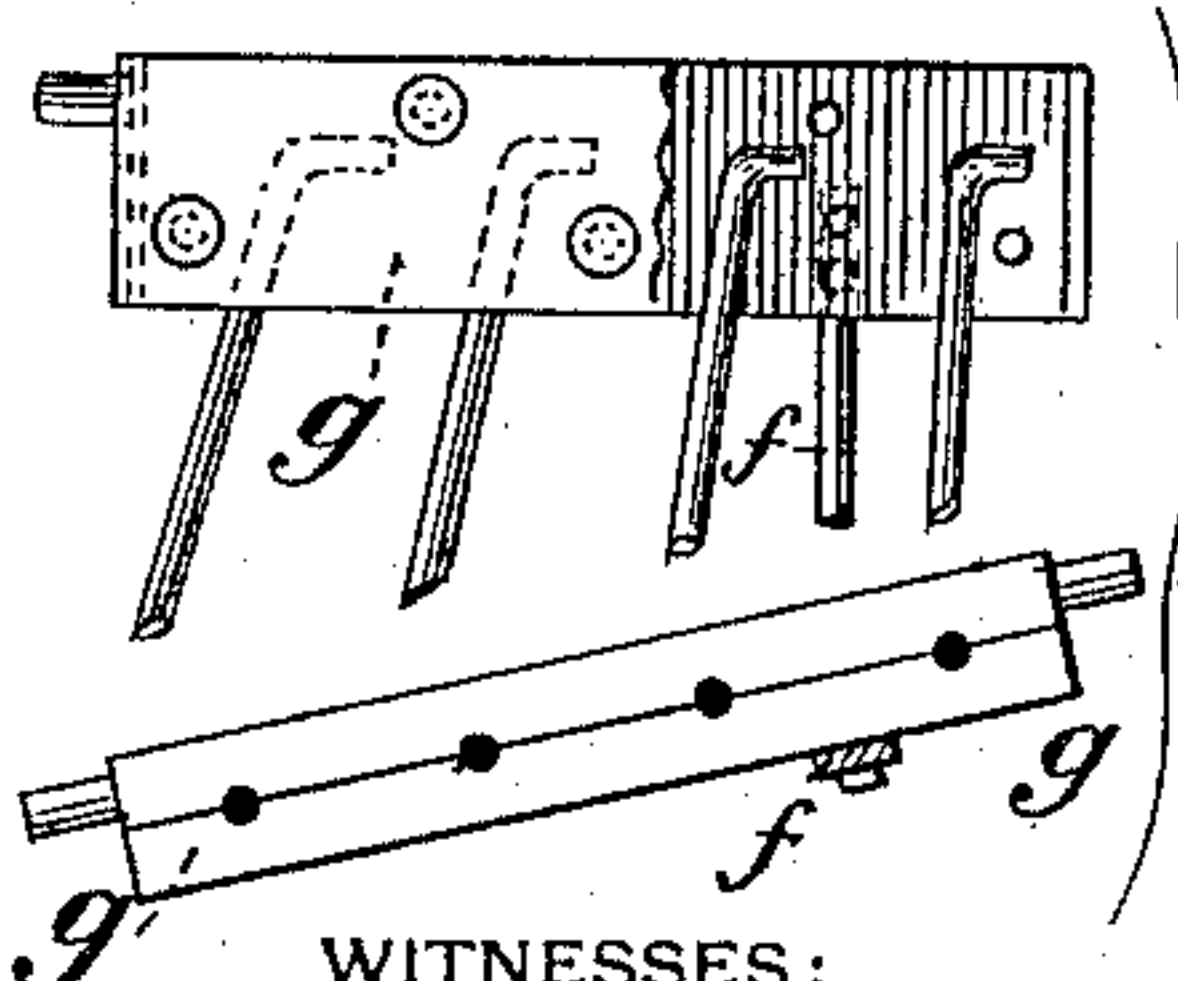


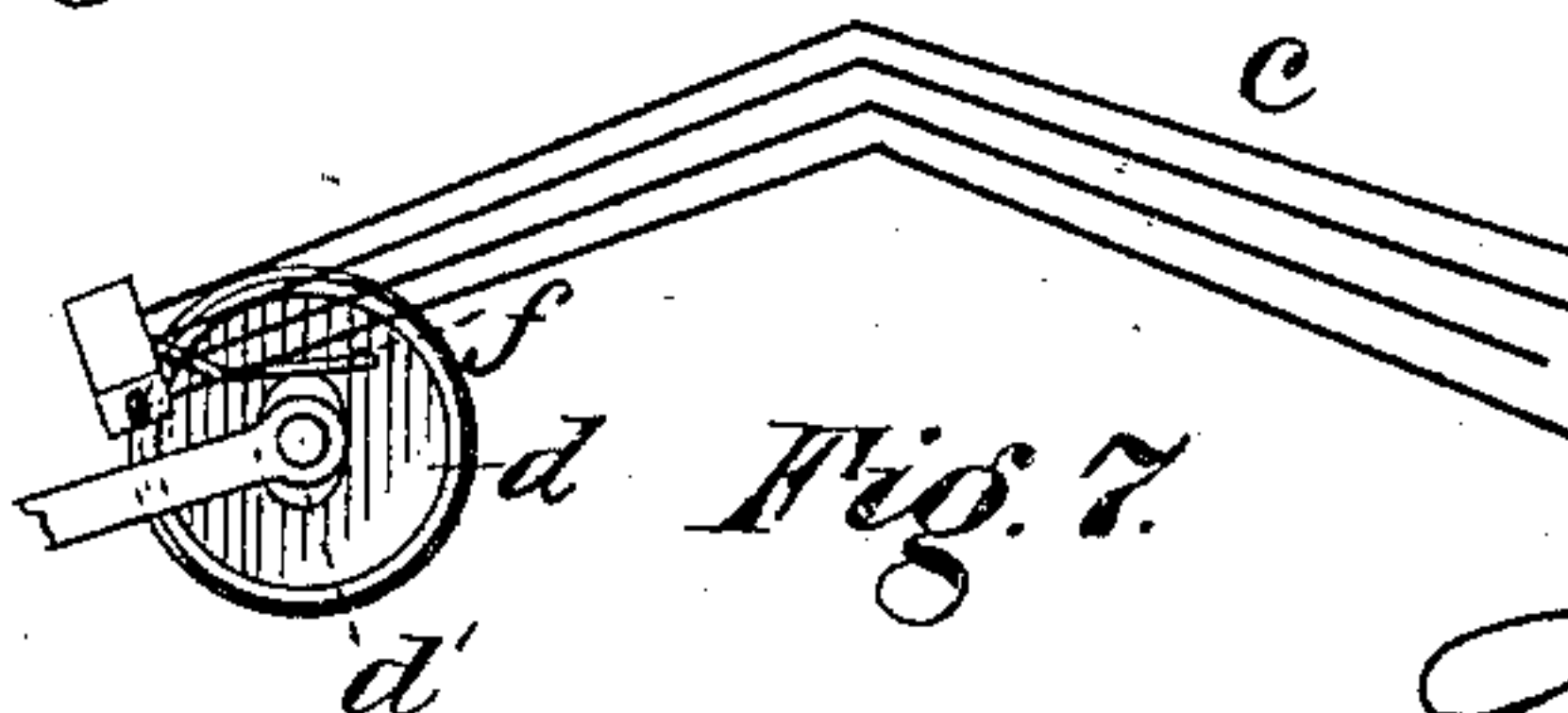
Fig. 4.



WITNESSES:

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Fig. 7.



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UNITED STATES PATENT OFFICE.

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POTATO-DIGGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 372,006, dated October 25, 1887.

Application filed March 12, 1887. Serial No. 230,673. (No model.)

To all whom it may concern:

Be it known that we, GEORGE WRAGG and JOHN STROHM, of Sharpsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Potato-Digging Machines; and we do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a view in elevation of the principal operative parts of our improvement, the handles and front end of the beam being broken away. Fig. 2 is a plan of the lower shovel and its attachments, showing the manner of connecting it with the diverging branches of the double beam and the arrangement of the oscillating rods. Fig. 3 is a view from the rear and looking under the lower shovel, and showing a portion of the oscillating rods. Fig. 4 shows in two parts an enlarged view of the manner of attaching and seating the oscillating arms or rods and the connection of the tilting arm which operates them. Fig. 5 is a view directly from the front, showing the relative position and shape of the upper and lower shovels. Figs. 6 and 7 are diagrams of the varying positions of the oscillating arms or shaker-rods as operated by the cams.

Our invention relates to that class of shovel-plows known as "potato-diggers;" and it consists in providing a plow with two shovels—an upper and lower—a double beam with branches diverging to the outer edges of the lower shovel, and two or more sets of oscillating rods operated by means of a wheel and cams in connection with a tilting arm, the whole being arranged to operate so as to plow the potatoes out of the ground and to pass them directly backward over the oscillating arms, by which they are shaken free from the dirt, and deposit them upon the surface of the ground.

Referring to the drawings to more accurately describe the construction of our improvement, we make use of a double beam, A, which we prefer should be made of two pieces of steel bolted together, each piece approximately three-eighths of an inch in thickness by two and one-fourth inches wide, and about seven feet long. These pieces, being bolted together sol-

idly to form the body of the beam, diverge at a point directly over the middle portion of the lower shovel, as shown in Fig. 1, and a branch comes down to each side of the lower shovel at its rear end, the two branches of the beam then converging under the shovel and being suitably fastened thereto, as shown in dotted outlines in Fig. 2.

The lower shovel, *a*, is constructed very much like the ordinary shovel in this class of plows, and is slightly flanged on the edges toward the rear, with rods *i* running back far enough to guard against any of the potatoes scattering at the sides. It has also a point, *a'*, riveted or bolted at its front end to take the first shock in striking an obstruction, this point being easily removed and replaced in case of accident. The point of the lower shovel runs in advance of the upper one, *b*, raising the soil so as to meet it, which thus enables the upper shovel, *b*, to be always working in loose soil, enabling it to skim off the weeds and potato-tops and throwing them to one side. The upper shovel, *b*, is bolted to a cross-piece connecting the diverging branches of the double beam A, and may be adjusted at the proper height for doing its work.

The idea in having a double beam with diverging branches B is to avoid placing any obstructions to the free passage of the earth and the potatoes, and to allow them to pass smoothly over the face of the lower shovel onto the oscillating rods behind it. It also avoids the gathering of weeds and trash which is so troublesome in the use of a single beam.

In the arrangement and attachment of the oscillating rods *c* their number is not material. The chief point to be observed is to place them so near together as to prevent the potatoes from slipping between. In my practice I use nine rods, four on each side of a central rigid rod, *c'*, which does not vibrate, each set of four vibrating independently of the other set. Under and just at the rear of the lower shovel, and suitably attached to metal fastening which receives and secures the ends of the branches B of the beam, is a wheel, *d*, with cams *d'* on each side, and arranged to rest upon these cams and be operated by them is a tilting arm, *f*, rigidly connected with frames or clamps *g*, Fig. 4, which hold and operate the oscillating

rods, as shown in Fig. 4, where the first view is a plan, partly in section, showing how the ends of the rods are held firmly in place, and the other view illustrates the construction of the clamp by showing it turned edgewise before the rods are placed in position. These oscillating rods are thus placed in two sets of four each on each side of the central rigid rod, *c'*, which is directly over the agitating-wheel. This construction is clearly shown at Fig. 3.

On the agitating-wheel *d* the cams *d'* are arranged so as to alternate the motion of the two sets of arms, so that when one is up the other will be down, and while the digger is in motion the two sets will be alternately playing up and down past the central rigid rod, *c'*, which is bolted fast under the shovel, and is held in place, also, by the metal coupling and fastening of the wheel. The wheel *d* is made of suitable size, with a broad tread and a thin web, except where the cams are attached. The oscillating arms or rods *c* we prefer to have made of the best spring-steel about five-sixteenths of an inch in diameter and tempered so that they will vibrate freely and withstand hard usage.

The operation of our machine will be apparent. The lower shovel enters the ground at the end of the row of potatoes, raising the earth, potatoes, and potato-tops all together. A portion of the earth and a large part of the tops and weeds will be cut off and thrown aside by the action of the upper shovel, *b*, and the remainder will pass smoothly back between the diverging branches of the double beam onto the oscillating arms.

We are aware that potato-diggers with

springshaker-rods have been in use, and hence do not claim, broadly, the use of spring-rods for this purpose; but we are not aware that they have ever been arranged in sets in connection with agitating apparatus giving the sets an alternately up and down movement. Our arrangement of the shaking device adds but very little to the draft of the plow, as one set of the rods balances the other.

Having thus described our improvement, we claim herein—

1. In a potato-digger, the combination, with a double beam, *A*, diverging at its rear into branches, of a lower shovel, *a*, an upper shovel, *b*, the rods *c*, secured to a frame to prevent turning on their own axes, a central rigid rod, *c'*, a rigid tilting arm, *f*, and a wheel provided with cams, substantially as set forth.

2. The combination, with the double beam *A*, of a lower shovel, *a*, and an upper or auxiliary shovel, *b*, substantially as and for the purposes set forth.

3. The combination of two or more oscillating rods, *c*, rigidly attached to a frame or clamp, so as to prevent turning on their own axes, and a rigid tilting arm, *f*, vibrating the said frame by means of its connection with a driving-wheel and cams, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our hands.

GEORGE WRAGG.
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Witnesses:

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