

(No Model.)

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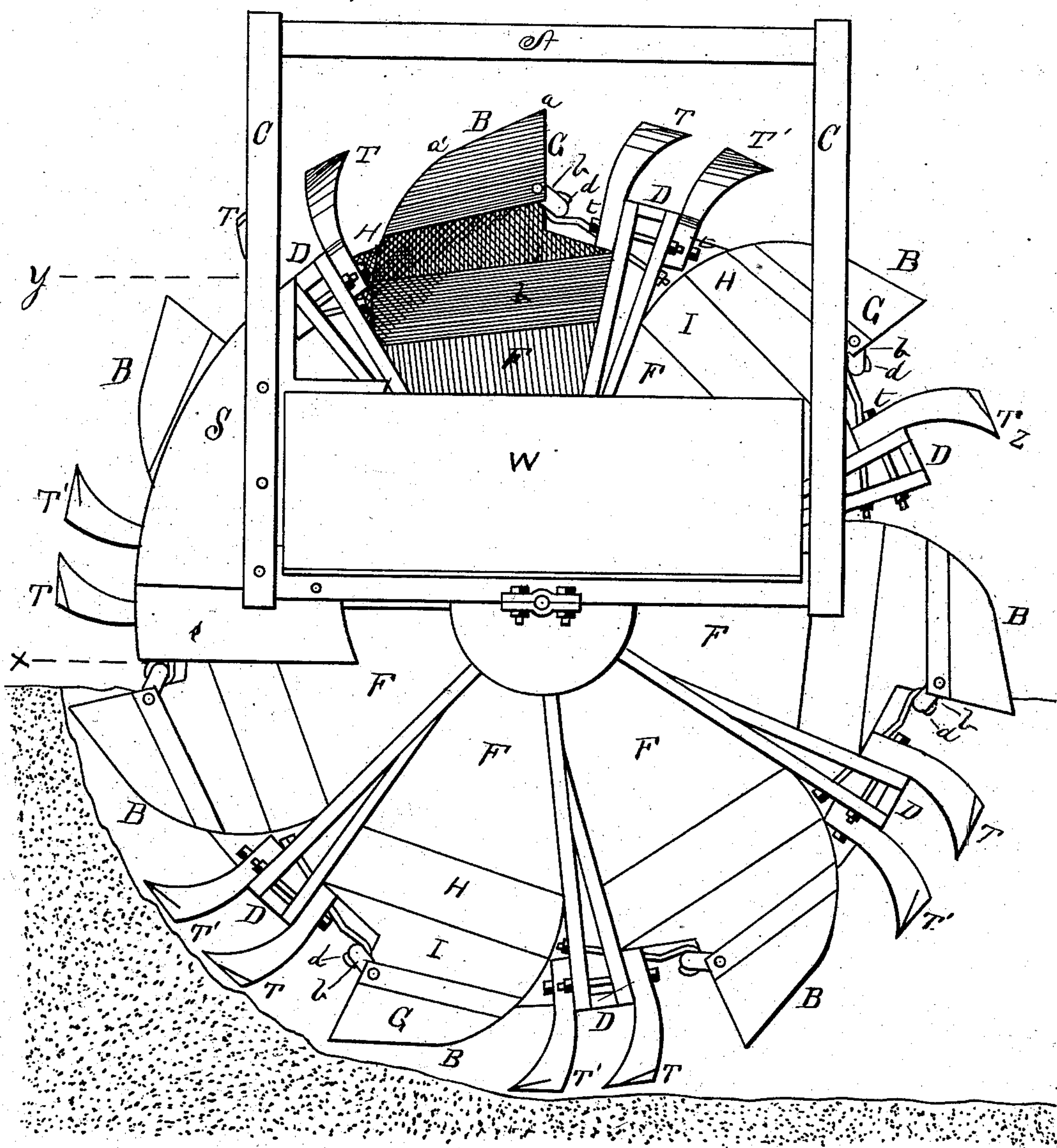
U. BLICKENSDECKER.

Ditching Machine.

No. 239,707.

Patented April 5, 1881.

FIG. 1.



WITNESSES

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(No Model.)

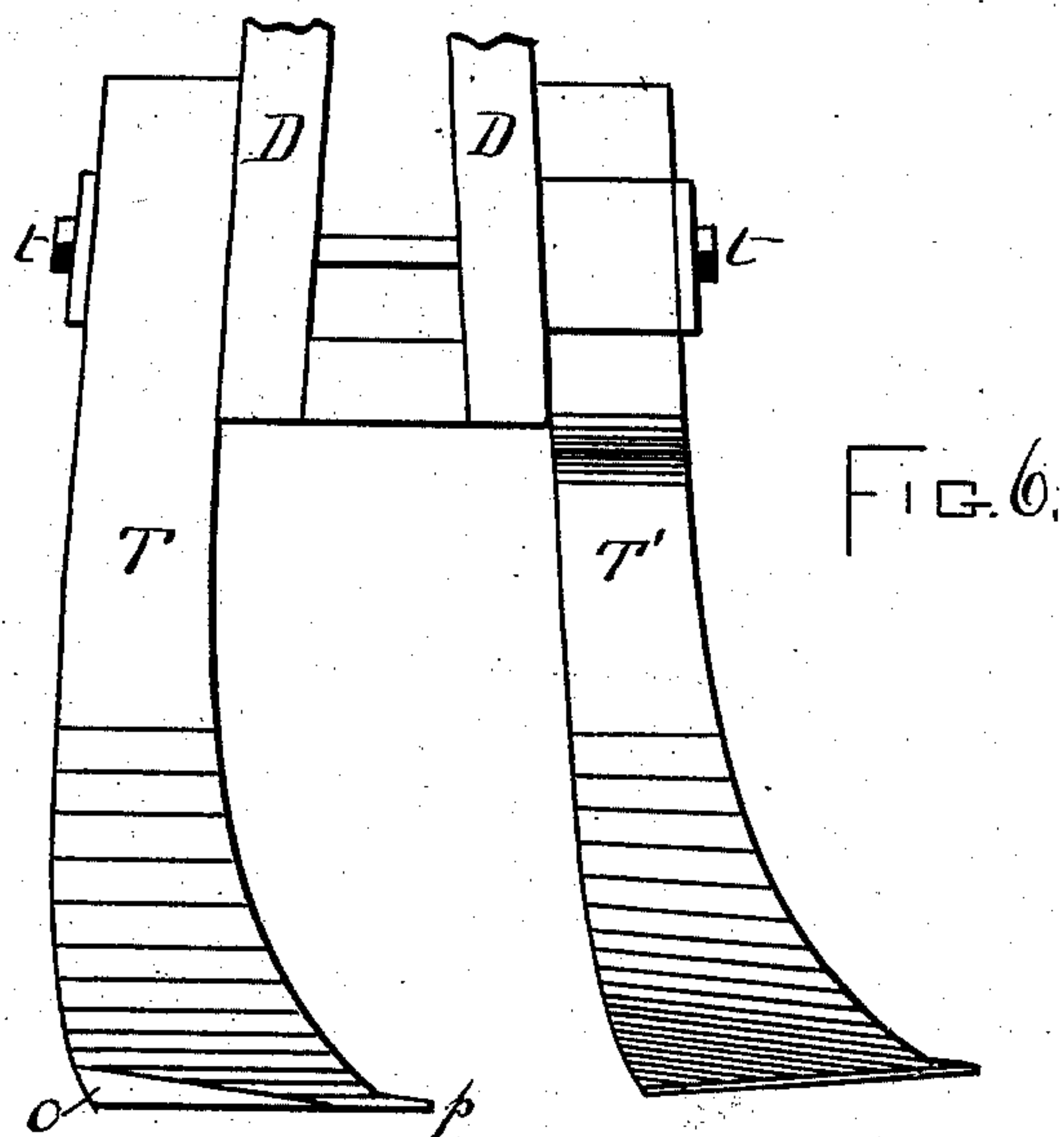
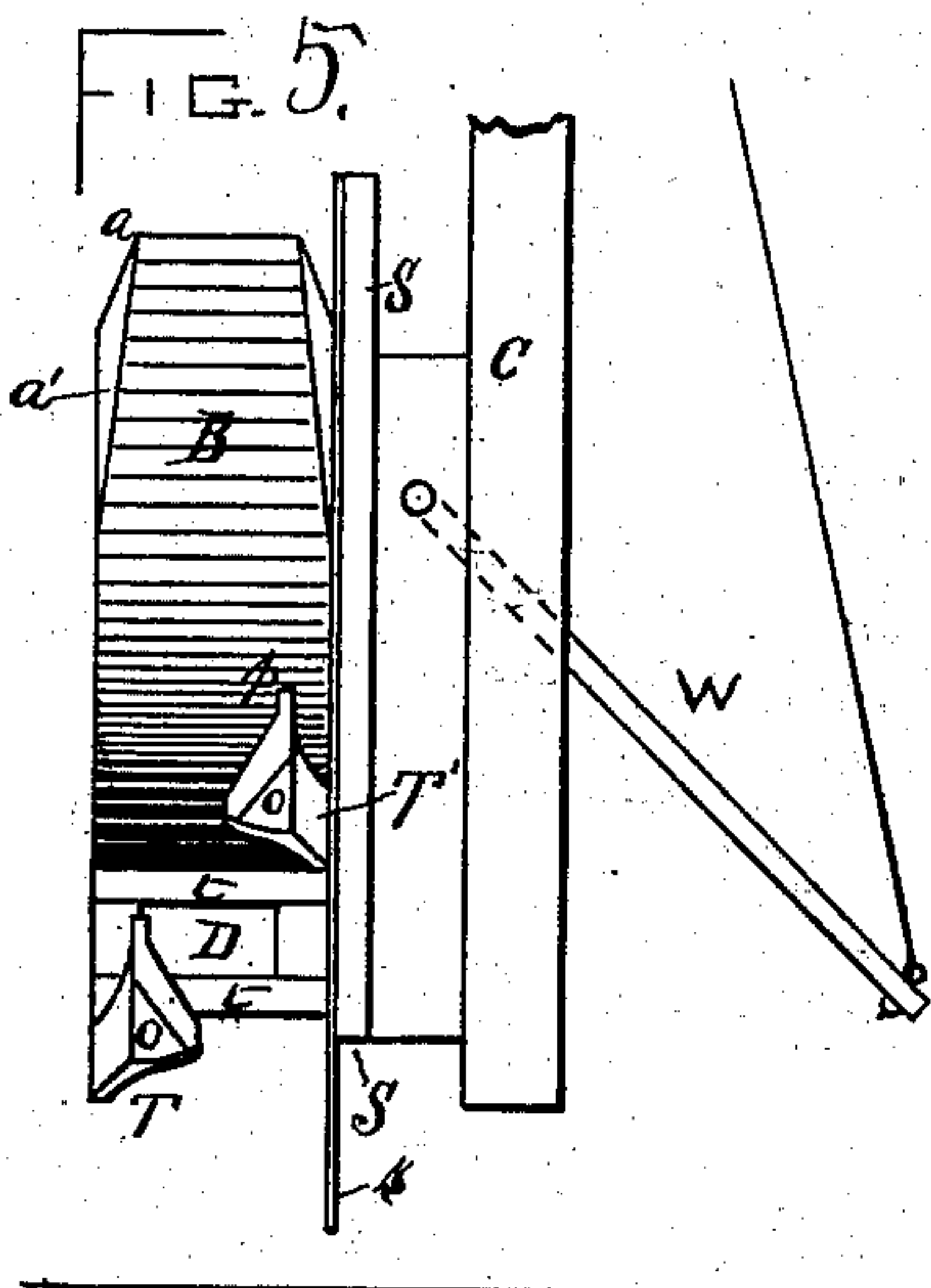
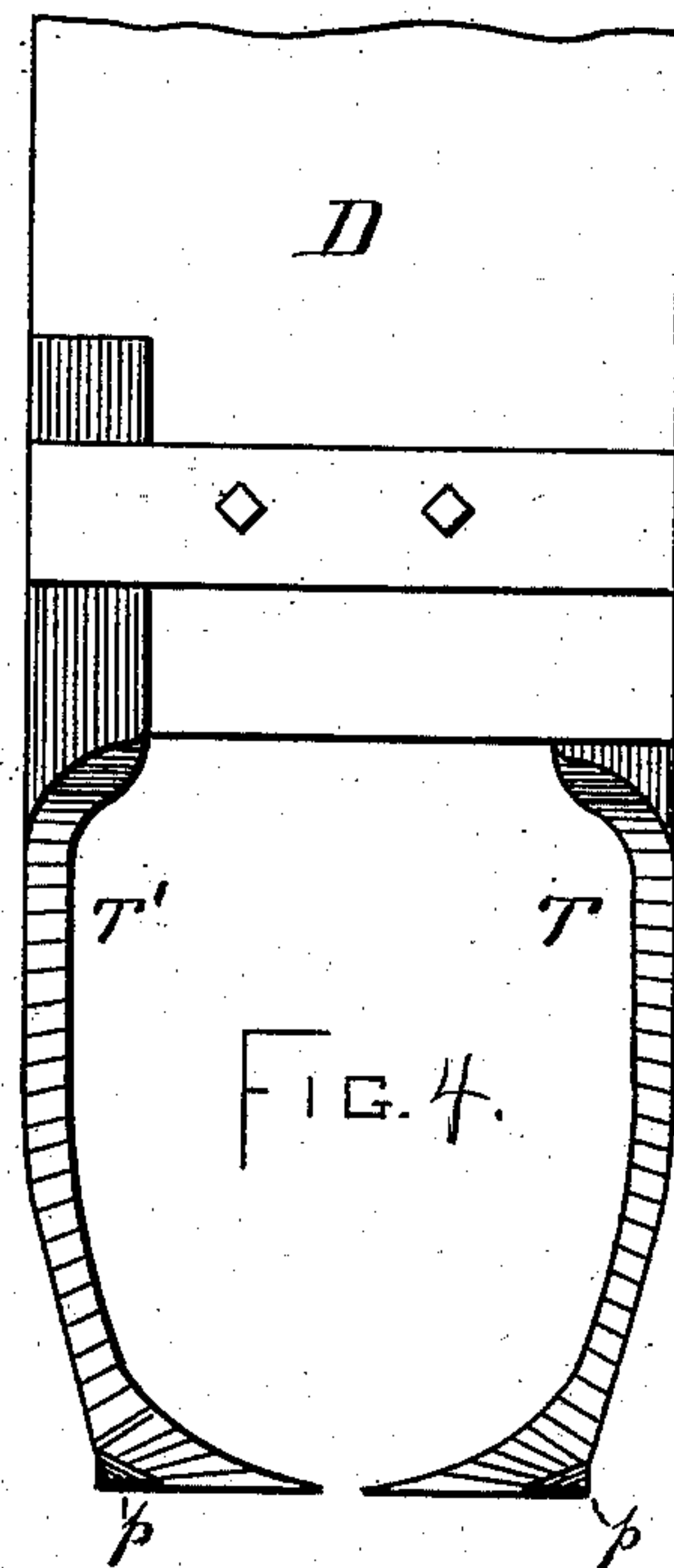
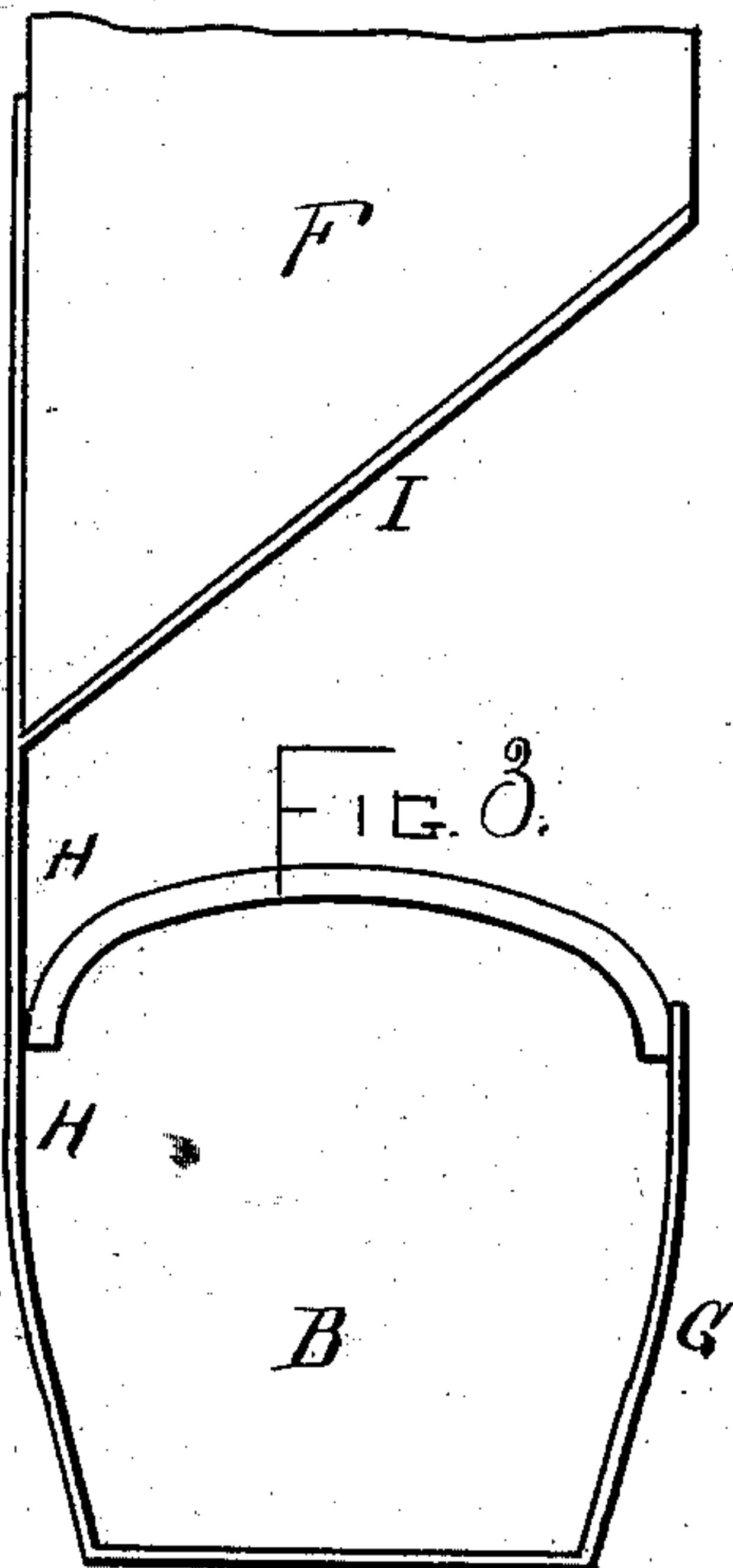
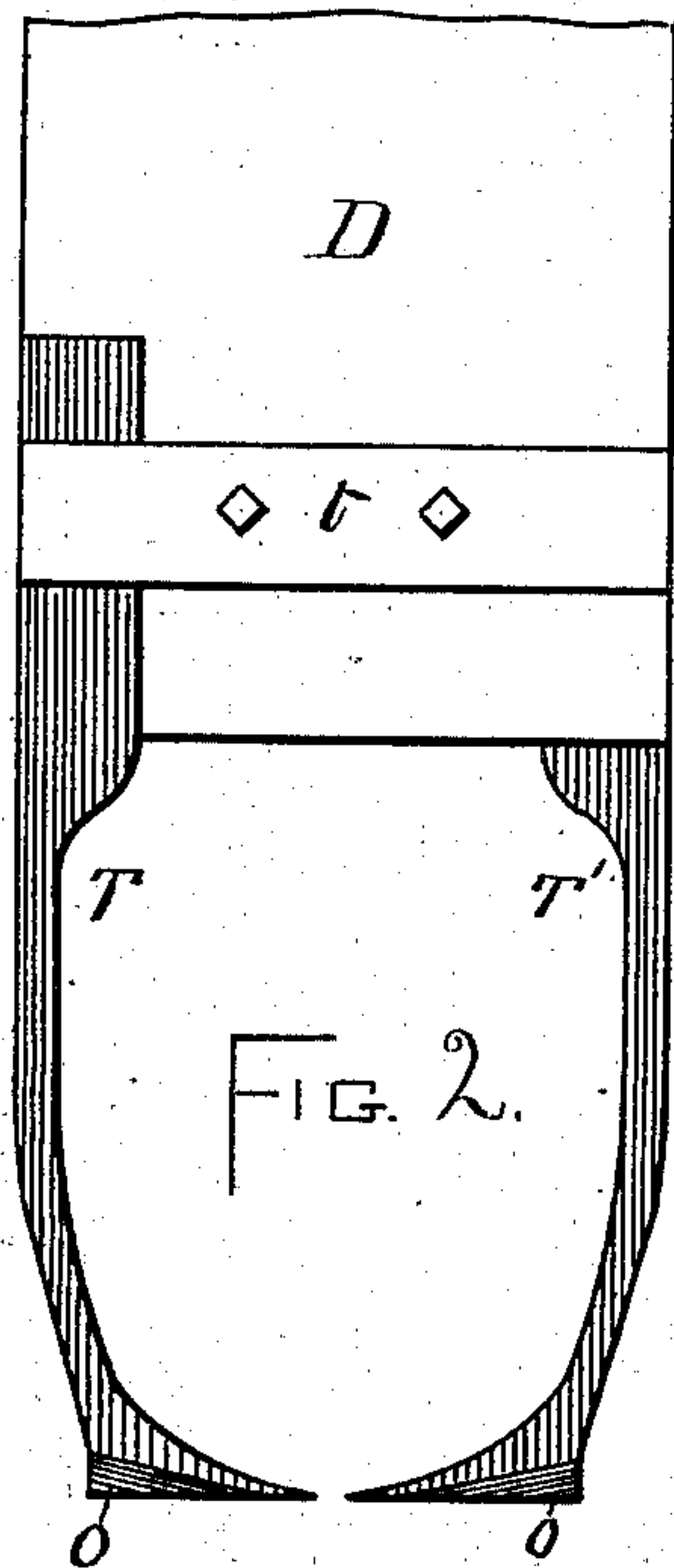
2 Sheets—Sheet 2.

U. BLICKENSDERFER.

Ditching Machine.

No. 239,707.

Patented April 5, 1881.



WITNESSES

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UNITED STATES PATENT OFFICE.

ULRIC BLICKENSDERFER, OF ERIE, PENNSYLVANIA.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 239,707, dated April 5, 1881.

Application filed May 21, 1880. (No model.)

To all whom it may concern:

Be it known that I, ULRIC BLICKENSDERFER, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Ditching-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to the construction of machines for ditching and draining land; and it consists in improvements on machines patented by me August 23, 1870, No. 106,653, and May 4, 1880, No. 227,209. These improvements are as follows: first, in the form of the bucket, and its construction and attachment to the machine; second, in attachments for preventing the buckets discharging any part of their burden until in the proper position; third, in the picks or teeth which precede the buckets and loosen the earth, all of which will fully appear in the following general description.

My devices are shown in the accompanying drawings as follows:

Figure 1 is a side elevation of the bucket-wheel and the frame in which it is adjusted. (In this figure only part of the devices are shaded, the duplicates thereof being left in outline.) Fig. 2 is a back view, Fig. 4 a front view, and Fig. 6 a side view, of the picks or teeth which precede each bucket. Fig. 3 is an outline, showing the form of the bucket in front. Fig. 5 is an elevation of the parts between the dotted lines *xy* in Fig. 1, looking from the front of the machine.

That part of my invention which relates to the form of the bucket B, its construction, and attachment is shown in Fig. 1 most fully, and in Figs. 3 and 5. It consists in making the bottom of the bucket, from the mouth or cutting-point *a* to a point, *a'*, a few inches back from the mouth, straight or substantially so. The direction of this straight part of the bottom of the bucket should be on a line which, if projected beyond the bucket, would form such a chord to the circle of motion or rotation of the bucket as would

cut from said circle a narrow segment, substantially as shown in the drawings. The drawings, Fig. 1, show the line *a a'* in the position or direction which I have so far found to be preferable; but of course a variance from this will not be material, and may be advisable. The object of this construction is to give the bucket free clearance underneath, as will be seen in the trench shown in Fig. 1, and it gives a more rapid slope up the slanting sides of the bucket than a curved bottom, and hence it gives a more rapid width or clearance inside the bucket. (See patent of May 4, 1880, above referred to.) It will there be seen that a cutting-point which ledges off at its back has an appearance of giving the bucket a bottom straight for a distance; but this did not extend back so as to serve any of the objects gained by the form I have just described, and it did not give a straight bottom back from the point for a short distance on the outside of the bucket, which is essential, or at least desirable, and is one of the objects of the construction I now present. The remaining portion of the bottom of the bucket is substantially the same as in my patent of May 4, 1880. The mold-board form of the back, as shown in the patent just named, is in the present case dispensed with.

Over the top of the bucket, and against the arm F, to which the bucket is attached, is an inclined surface, I, which, when the bucket is inverted, as shown at the top of Fig. 1, serves as an apron or chute to throw the earth off onto the apron W, which is shown in my patent of 1870, above referred to. The closed side of the bucket H and the inclined surface I just described are extended laterally, so as to attach to the tooth-arm D preceding and succeeding it, and the form or arm F also extends to the same arms. This gives great strength, and is a decided improvement in the construction. The cross-rod *b*, which serves to strengthen the mouth of the bucket, I now bend in the form of a bow or bail. This gives a wider opening at the mouth of the bucket, which, when the machine is working in turf or bogs, is advantageous. To the bow or apex of this bail is attached a strong hook, *d*, which is attached to the tooth-arm D in front of the bucket. This also adds strength and holds the mouth of the bucket firm.

In place of the bail and hook, a Y-shaped

brace extending from the arm D to the sides of the bucket may be used, the object being to stay the mouth of the bucket and give a wide opening into it between the arms of the stay.

5 The next feature of my invention consists in an attachment for keeping the open side of the bucket closed until the bucket reaches the proper place for discharging. This device consists in a shield, S s, which is in effect a side
10 board placed between the frame C and the buckets, and comes down toward the ground, and so serves to cover the open side of the bucket as it leaves the trench, and thus retains the earth in the bucket as it journeys upward
15 and toward an inverted position. When the bucket has reached a point where it can discharge its contents onto the apron W the shield ceases. The advantage of this device is obvious, and its construction can be easily
20 understood from the drawings. (See Figs. 1 and 5.)

The third part of my invention relates to the picks or teeth which precede the buckets and loosen the earth. These devices are marked
25 T and T'. They are attached to arms D in such a manner as to precede the buckets and loosen the earth. They may be attached to the arms D, so as to allow one to precede the other, or so as to stand side by side, as is shown
30 at Z in Fig. 1. The contour of these picks or teeth or colters is such as cause them to cut an opening in the earth in front of the bucket in the form of the buckets. Fig. 3 shows the form of the mouth of the bucket, and Figs. 2
35 and 4 show the form or contour of the picks T T'. Fig. 4 is a front view of the picks, and Fig. 2 is a back view. In front the picks come to a sharp cutting-edge, like a plow-colter, and in the rear they are about a half-inch in thick-
40 ness. The feet or bottoms of the picks are in the form of a plow-point, one, T, being right hand, and the other, T', being left hand. The outside of the heel is beveled or cut away, as at o, to give free clearance. (See Fig. 5 for
45 best view of this.) The effect of these picks is to cut the earth into a form that will enter the bucket freely, and they protect the buckets against stones or other obstructions, the essential feature of this part of my invention
50 being the employment of picks or colters, substantially as before set forth, in front of the above-described scrapers or buckets, and conforming to the form of the mouth of the buck-

ets or scrapers, and cutting the earth into a form which will readily enter the said buckets 55 or scrapers.

One of the most beneficial effects of the use of picks of substantially the form and operation shown is that the earth, no matter if it be the most plastic clay, will not stick or cling to 60 the bucket, as in the case where the sides and bottom of the bucket do all the cutting or loosening of the earth.

What I claim as new is—

1. In a ditching-machine bucket which has 65 converging sides, a bottom which passes from the cutting-point or mouth to a point back of the same, as from *a* to *a'*, in a line which is a portion of a chord to the circle of motion of said buckets, and from thence curves eccen- 70 trically to the center of motion of said bucket, as shown, and for the purposes described.

2. A ditching-machine bucket substantially as herein shown, having its closed side projected beyond the mouth and back of the 75 bucket and attached to arms preceding and following the bucket, substantially as shown.

3. In a ditching-machine wherein the buckets or excavators are attached to the arms or spokes of a revolving wheel, the combination, 80 with said buckets, of an arched bail across the mouths of said buckets, and stays attaching said bails to the arms preceding said buckets, substantially as described, and for the purposes mentioned. 85

4. In combination with a ditching-machine bucket operating substantially as herein shown, a shield or stationary side board adapted, substantially as described, to close the open side of said bucket until it reaches the 90 desired discharging-point, as set forth.

5. In a ditching-machine, the combination, with the scrapers or buckets B, of picks or colters T T', preceding said buckets or scrapers, which conform to the form of the buckets and 95 cut the earth into the form of the bucket in advance of the same, and thereby lessen the tendency of the earth to cling or stick to the sides of the bucket, as set forth.

In testimony whereof I affix my signature 100 in presence of two witnesses.

ULRIC BLICKENSDEFFER.

Witnesses:

JNO. K. HALLOCK,
E. R. BLOOD.