

No. 724,603.

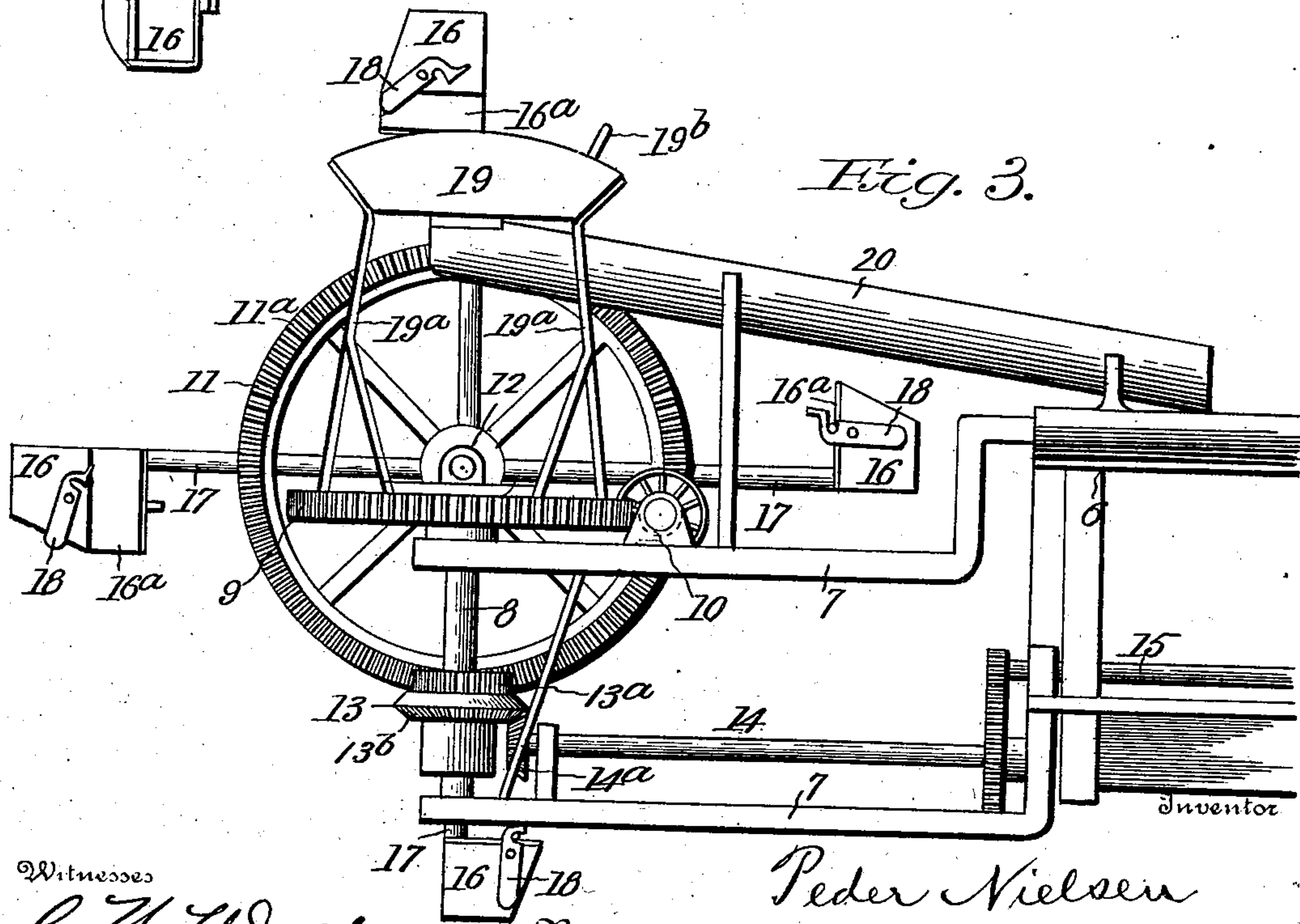
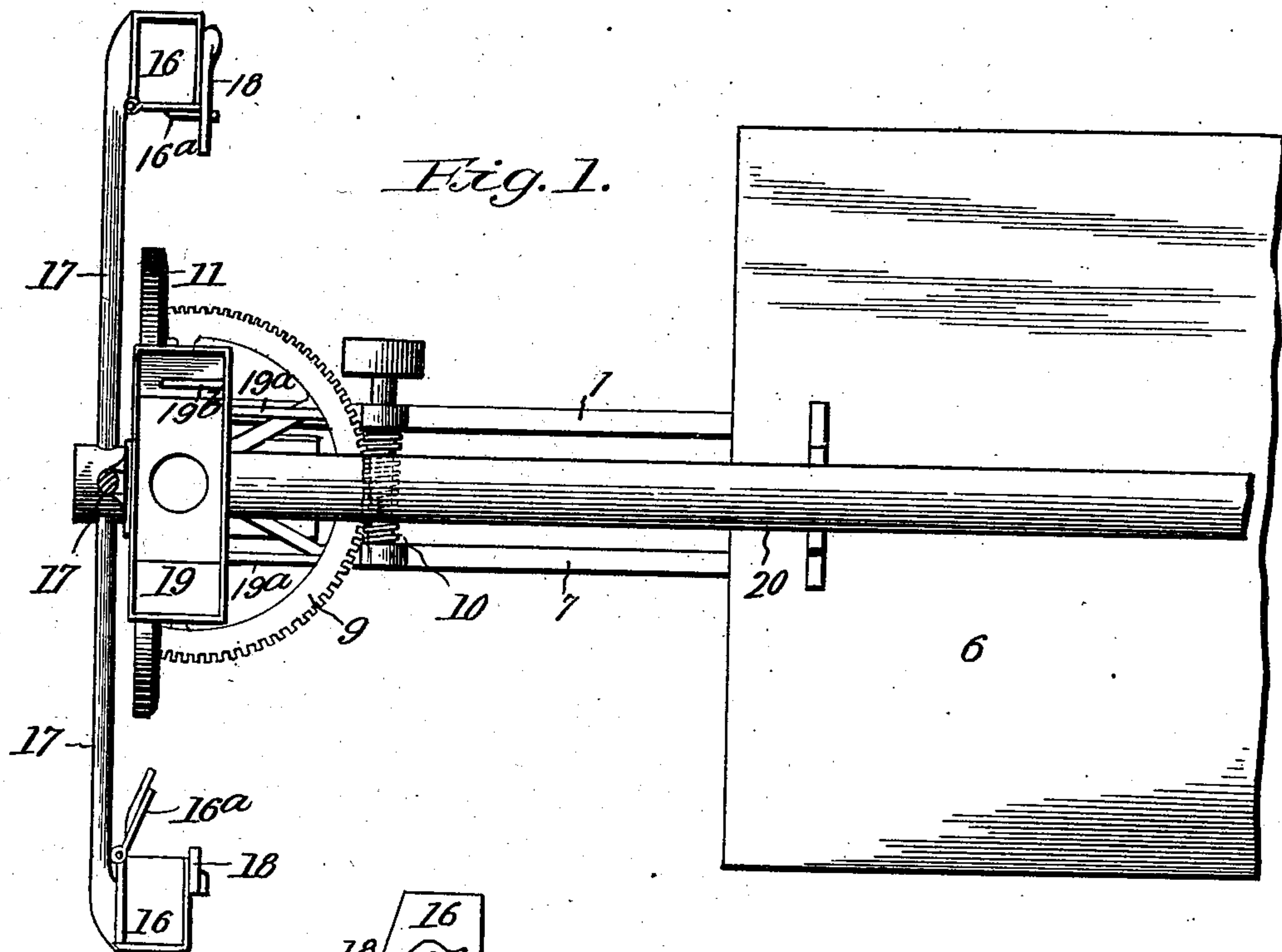
PATENTED APR. 7, 1903.

P. NIELSEN.
EXCAVATOR.

APPLICATION FILED SEPT. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

C. N. Walker.
Geo. E. Jew.

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Peder Nielsen

Milob. Stevens & Co.
Attorneys

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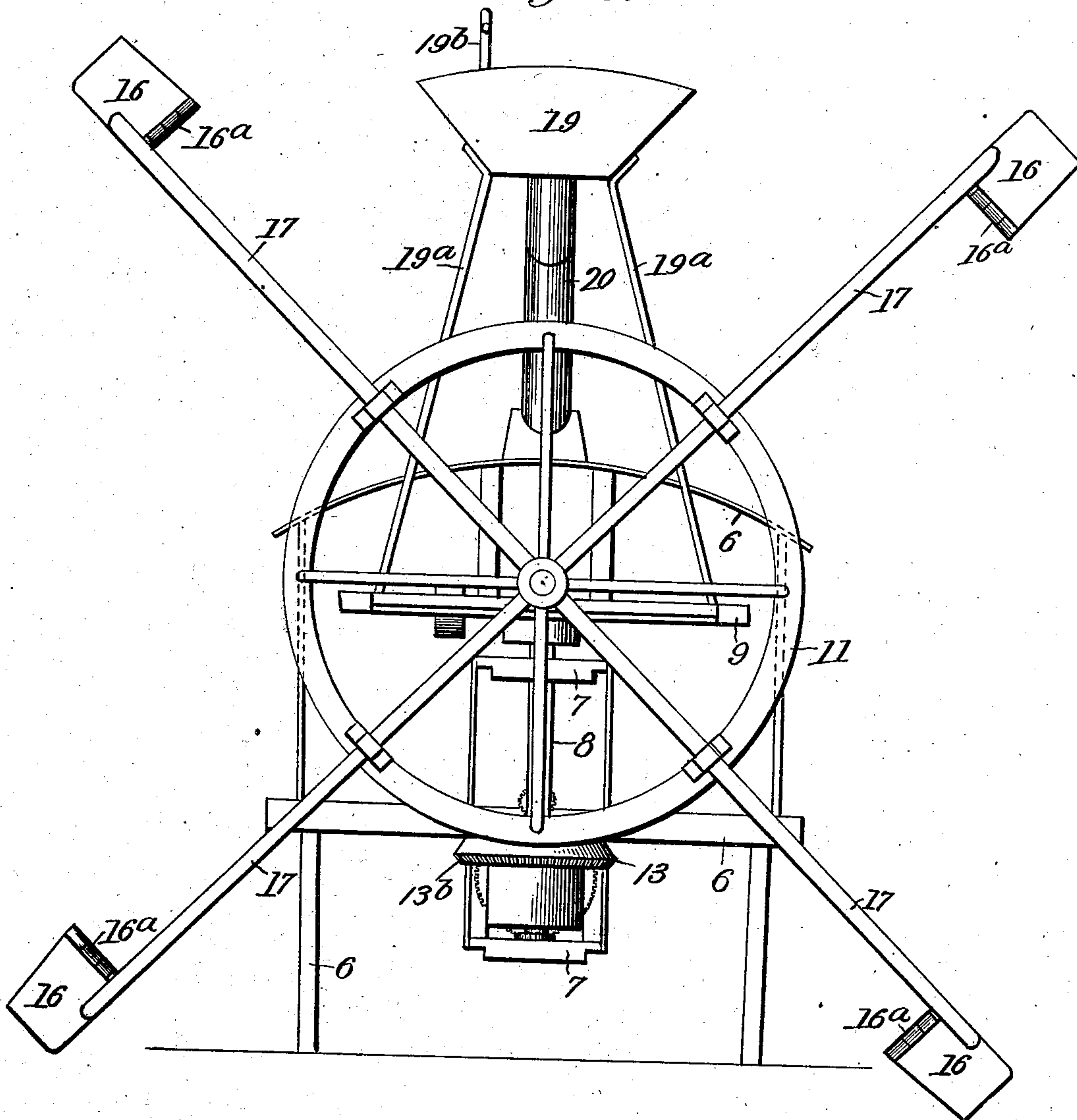
P. NIELSEN.
EXCAVATOR.

APPLICATION FILED SEPT. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.



Witnesses

C. H. Walker,
Geo. E. Tew.

By

Peder Nielsen
Milo B. Stevens & Co.,
Attorneys

UNITED STATES PATENT OFFICE.

PEDER NIELSEN, OF DETROIT, MICHIGAN.

EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 724,603, dated April 7, 1903.

Application filed September 2, 1902. Serial No. 121,789. (No model.)

To all whom it may concern:

Be it known that I, PEDER NIELSEN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Excavators; 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 the figures of reference marked thereon, which form a part of this specification.

This invention relates to excavators, and particularly to that class thereof having a rotating wheel carrying the scoops or buckets.

The object of the invention is to form an improved excavator or digger suitable for grading for railroads, digging ditches, &c. It is intended that the machine shall be driven by steam; but the kind of motive power used is not essential.

The machine comprises, essentially, a wheel rotating on a horizontal axis and also turning on a vertical axis, so that the excavating-scoops may be put to work in earth in front or at the side of the machine. In machines of this class heretofore constructed the operation of the excavating-wheel has been limited to a direct line ahead, and change in direction has necessitated movement of the whole machine.

In the accompanying drawings, Figure 1 is a top plan view of the machine. Fig. 2 is a front elevation. Fig. 3 is a side elevation.

Referring specifically to the drawings, 6 indicates the supporting structure for the machine. This may be a railroad-car, a traction-engine, a float for water-work, or any other suitable supporting-platform, and will preferably carry a steam-engine or other power to drive the apparatus. It is considered unnecessary to illustrate a motor, because the same will be understood.

Brackets 7 for supporting the working parts of the machine project from the structure mentioned a distance greater than the length of the radial arms, so that the scoops may be swung around for work straight ahead, as illustrated in Fig. 3. A vertical spindle 8 is supported in proper bearings at the forward

ends of the brackets and carries fixed to the top thereof a segment 9 in gear with a worm 10, which may be driven in any suitable manner from the motor. By this means the excavating wheel and buckets may be turned to either side. Said wheel (indicated at 11) is mounted upon a horizontal spindle which passes through a long bearing-box 12, rigidly attached to the segment on top of the vertical spindle. The wheel has crown-teeth 11^a on the inner side thereof in mesh with a gear-wheel 13, which is loosely mounted upon the spindle 8. The gear-wheel 13 is a double gear-wheel, having spur-cogs 13^a in mesh with the bucket-wheel and bevel-cogs 13^b in mesh with a pinion 14^a upon a horizontal intermediate shaft 14, which is mounted in suitable bearings on the lower bracket 7 and driven, through gearing, by the main drive-shaft 15. The gear-wheel 13 is loose upon the spindle 8, so that the bucket-wheel may be driven without moving the spindle, as will be understood.

The dumping-buckets 16 are secured to the outer ends of radial arms 17, projecting from the hub beyond the rim of the wheel. The bottoms 16^a of these buckets are hinged and held closed by gravity-latches 18, pivoted to the sides of the buckets. A hopper 19 is supported by standards 19^a upon the segment and turns therewith and is located directly under the buckets when they reach their highest position, at which time the tripper 19^a, which projects from the hopper, strikes and disengages the latches and permits the bottoms of the buckets to fall and dump the contents thereof into the hopper. The descent of the buckets turns them bottom up, so that the bottoms fall to by gravity and are again caught by the latches. A chute 20 is supported on the framework with its mouth directly below the hopper and may be extended to carry off the matter excavated to any desired place.

What I claim is—

1. In an excavator, the combination with a suitable supporting structure, of a wheel, having excavating-scoops, rotating on a horizontal axis and swinging on a vertical axis.

2. In an excavator, the combination with a supporting structure, of a turning spindle, and a rotating wheel supported thereby having excavating-scoops, the axis of the wheel

being at substantially a right angle to that of the spindle.

3. In an excavator, the combination with a supporting structure and a turn-table there-
5 on turning in a horizontal plane, of a wheel supported upon the turn-table rotating in a vertical plane, and excavating-scoops carried by the wheel.

4. In an excavator, in combination, a sup-
10 porting structure, a vertical spindle thereon and means to turn the same, an excavating-wheel supported on the spindle and having a horizontal axis, and means to rotate the wheel including a gear-wheel concentric with the
15 spindle.

5. In an excavator, the combination with a turn-table on a vertical axis, of a wheel sup-

ported thereby rotating on a horizontal axis, dumping excavating-scoops carried by the wheel, and a receiving-hopper carried by the
20 turn-table and turning therewith.

6. In an excavator, the combination with a drive shaft and pinion, a spindle turning on a vertical axis, and a wheel rotating on a horizontal axis supported by the spindle, said
25 wheel carrying excavating-scoops, of a gear-wheel loose on the spindle and in mesh with the excavating-wheel and the drive-pinion.

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

PEDER NIELSEN.

Witnesses:

OSCAR GRODE,
FRANK ROELLER.