C. S. BROWN.

EXCAVATING MACHINE.

APPLICATION FILED MAR. 13, 1909.

948,871.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

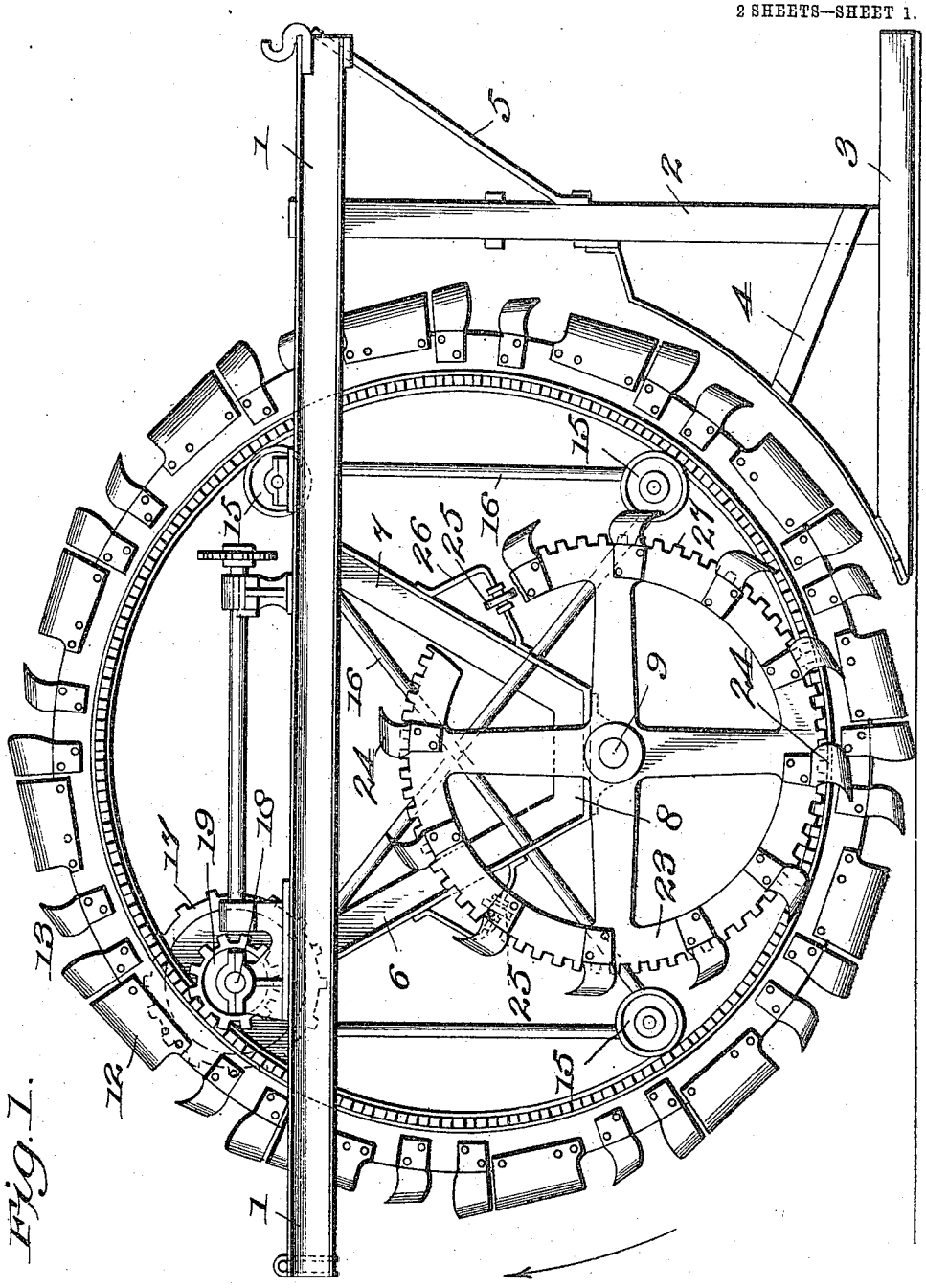

Fig. 1.

Witnesses

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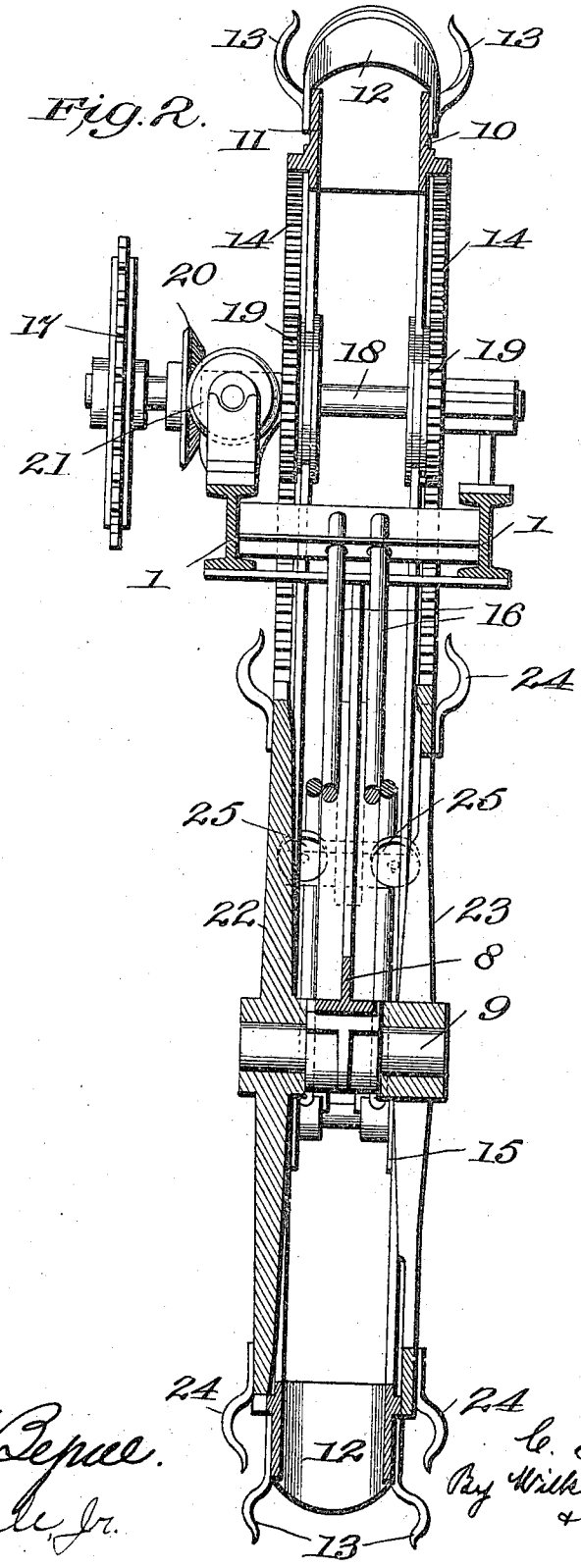
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHALMERS S. BROWN, OF FINDLAY, OHIO.

EXCAVATING-MACHINE.

948,871. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed March 13, 1909. Serial No. 483,285.

To all whom it may concern:

Be it known that I, CHALMERS S. BROWN, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Excavating-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.

My invention relates to improvements in excavating machines and the object of my invention is to provide means whereby a wider cut may be made than that made by the main excavating wheel, which is of considerable advantage when digging through sandy, caving soil or when it is desired to cut ditches of different width to accommodate tile or pipe of different widths.

By my invention I provide a small wheel which is revolved, by the same means that operates the main excavating wheel, at a considerably higher speed than the main wheel, and which is provided with cutters located outside the cutters of the main wheel, whereby a cut wider than that made by the main wheel is obtained and whereby the hard soil is loosened, thus preventing clogging.

With these objects in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a side view of a part of an excavating machine, showing my invention applied thereto, and Fig. 2 is a cross section of the same.

1 represents eye beams which support the two excavating and cutting wheels, and which are carried in the usual way on the frame of the machine. These beams are parallel with each other, as shown in Fig. 2, and separated by a space large enough so that the main ditching wheel may revolve between them. 2 and 3 represent parts of the ordinary frame, 4 and 5 being braces therefor.

Beams 6 and 7 are attached to the beams 1 and extend downwardly therefrom and toward each other, terminating in a cross beam 8, and in bearings on this beam is mounted the shaft 9 of the smaller excavating wheel.

Between the beams 1 is mounted the main excavating wheel, consisting of a pair of rims 10 and 11, on the outer circumference of which are carried elevator buckets 12 and cutters 13. Each of these rims is provided with an internal toothed rim 14, all the parts of this main excavating wheel being of the usual construction. This main wheel is supported on four pairs of pulleys 15, mounted on a braced frame 16, which is supported on the beams 1.

17 represents the driving wheel driven by a sprocket chain from any suitable source of power, carried by the machine itself, and being mounted on the shaft 18, which is provided with gear wheels 19, meshing with the teeth 14 on the rims 10 and 11. On the shaft 18 is mounted a beveled gear wheel 20, which meshes with a similar gear wheel 21 on a shaft, which carries the delivery apron, the entire construction of the main excavating wheel and the supports therefor being well known in the art.

Secured to the shaft 9 and on either side of the central bearing carried by the beam 8, are located two cutting wheels 22 and 23, provided with cutters 24 located outside of the cutters 13 on the main ditching wheel, so that said cutters 24 will make a wider cut than the cutters 13. The cutters 24 are removably attached to the wheels 22 and 23, so that cutters of different sizes, as desired, may be attached to said wheels. The resistance offered by the soil tends to force these wheels toward each other, and to resist this thrust I have provided a series of rollers 25, mounted on brackets 26, carried by the beams 6 and 7, which rollers engage the inside of the rims of the wheels 22 and 23, respectively. The rims of the wheels 22 and 23 are provided with gear teeth 27, which mesh with the teeth 14 on the rims of the main excavating wheel, and on account of the difference in size of the wheels, the revolution of the main excavating wheel will obviously drive the small cutting wheels 22 and 23 at a higher speed than that of the main wheel.

Having thus described my invention, I claim:—

1. In an excavating machine, the combination of a main excavating wheel provided with internally toothed rims, supports and operating means for said wheel, with devices for making a wider cut than that made by the main wheel, said devices being pro-

vided with teeth engaging the teeth on the rims of the main wheel, substantially as described.

2. In an excavating machine, the combination of a main wheel provided with cutters, buckets, and toothed rims, supports and operating means for said wheel, with means for making a wider cut than that made by said main wheel, consisting of a pair of wheels each provided with a series of removable cutters and with teeth for engaging the teeth in the rim of the main wheel, substantially as described.

3. In an excavating machine, the combination of a main wheel provided with cutters, buckets, and parallel rims having internal teeth, means for driving said wheel, and a supporting frame therefor, with devices for making a wider cut than that made by the main wheel, including a supporting frame mounted on the main supporting frame, a shaft revolubly mounted in said second named frame, a pair of wheels having toothed peripheries, mounted on said shaft, and each of said wheels being provided with a series of removable cutters and with gear teeth engaging the teeth on one of the toothed rims of the main wheel, and guiding rollers carried by said second named frame and engaging the rims of said second named wheels, substantially as described.

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

CHALMERS S. BROWN.

Witnesses:
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CLY C. TISDALE.