

(No Model.)

W. O. BARNES.

SNOW EXCAVATOR.

No. 384,602.

Patented June 19, 1888.

Fig. 1

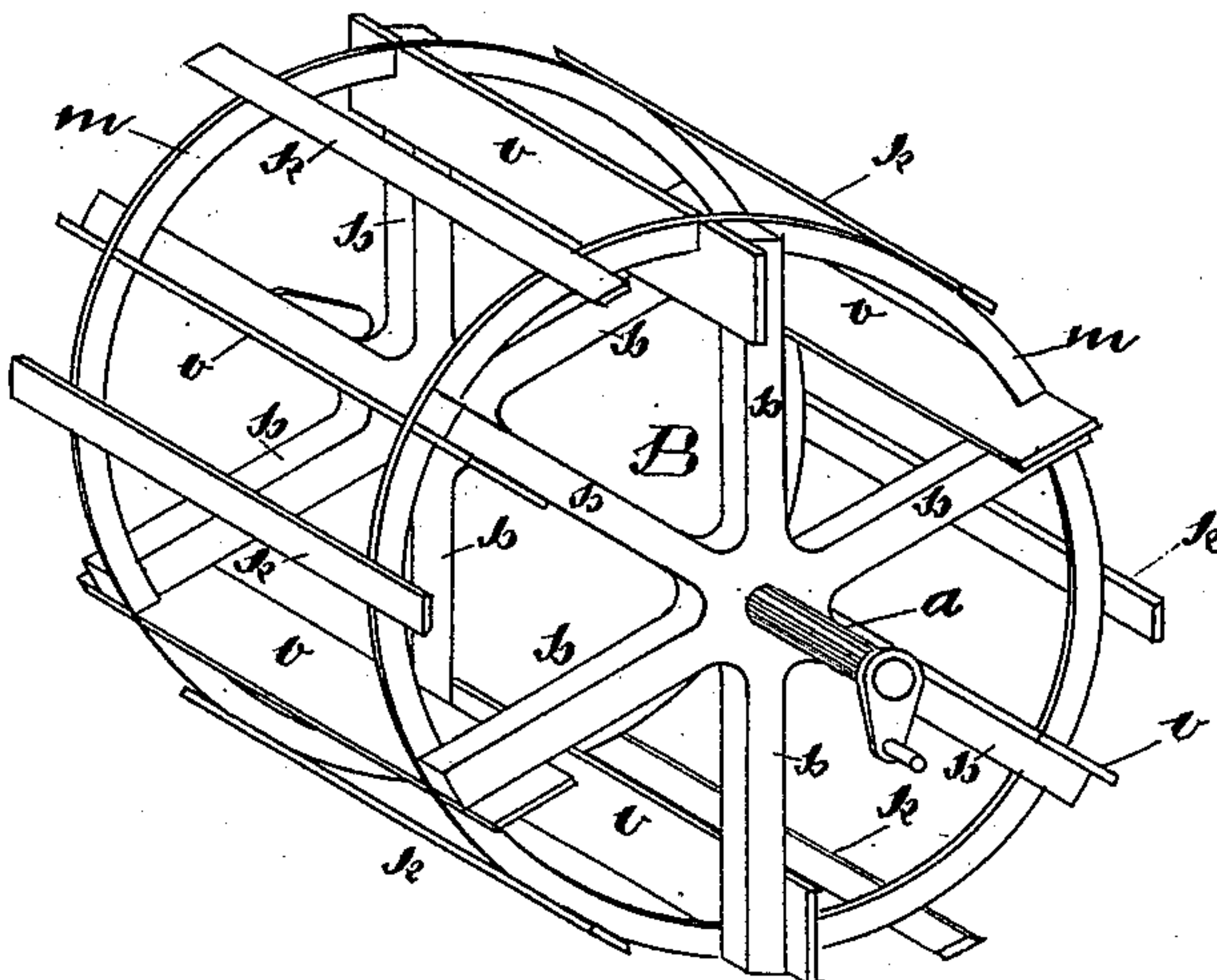
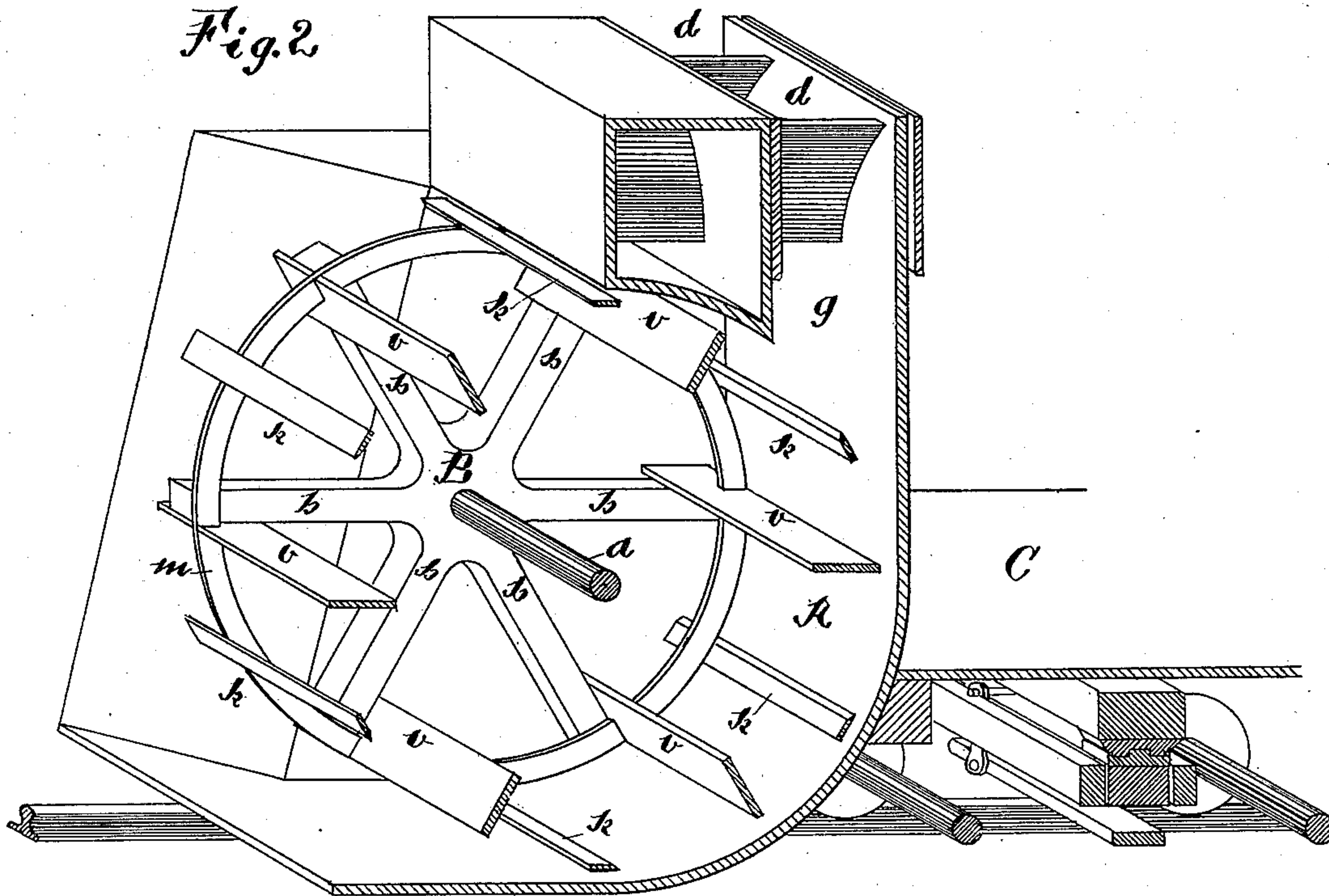


Fig. 2



WITNESSES:

*George Cox.*

*A. B. M. Humphreys.*

*William O. Barnes* INVENTOR,

BY

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# UNITED STATES PATENT OFFICE.

WILLIAM O. BARNES, OF PATERSON, NEW JERSEY.

## SNOW-EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 384,602, dated June 19, 1888.

Application filed February 14, 1888. Serial No. 263,981. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM O. BARNES, a citizen of the United States, residing at the city of Paterson, in the county of Passaic and State of New Jersey, have invented a certain new and useful Improvement in Excavators or Machines for Removing Snow or other Matter from Railway-Tracks or other Surfaces, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved fan-wheel adapted for use in a class of machines for removing snow from railroad-tracks, such as is shown and described in Letters Patent of the United States, numbered 375,132, issued on the 20th day of December, 1887, to one George Cox, consisting of a car carrying on its forward end a casing partially inclosing a fan-wheel, said fan-wheel being mounted on and revolving with a horizontal shaft placed at right angles to the direction of the railroad-track. The said casing is so combined with the fan-wheel, a vertical spout, and one or more sets of deflecting-plates, that when the fan-wheel is rapidly revolved and the machine as a whole is pushed forward into the snow, the snow is engaged by the vanes of the fan-wheel and thrown upward through the vertical spout, where it comes in contact with the deflecting-plates and is deflected toward the side of the machine, as is clearly shown and described in the said Letters Patent, numbered 375,132.

The object of my improvement is to provide the fan-wheel of such a machine with knives so placed that in case the snow to be operated upon be packed or in a solid condition the said knives will first detach, cut up, and disintegrate the snow before it is struck by the flat surfaces of the vanes of the fan-wheel. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a fan-wheel embodying my invention; and Fig. 2, a vertical section, also in perspective, of an excavator provided with one of my improved wheels.

Similar letters refer to similar parts throughout both views.

*a* represents the horizontal shaft, to which is secured the fan-wheel B. Fan-wheel B is composed of arms or spokes *b b*, &c., carrying vanes *v v*, &c., and of rings *m m*, which serve to brace the spokes *b b*, &c., and also to carry the knives *k k*, &c.

The knives *k k*, &c., are strips of metal fastened to the circumference of the rings *m m*, and so arranged that there is one knife placed in front of each vane at a sufficient distance therefrom to admit of the snow escaping between the back of the knife and the front of the following vane.

In operation the wheel B is mounted at the forward end of a car, C, Fig. 2, by means of suitable bearings for crank-shaft *a*. The fan-wheel is partially inclosed by a casing, A, which is provided with a discharge-spout, *g*, and deflecting-plates *d d*, so that when the fan-wheel is rapidly revolved by means of an engine carried on car C and coupled to crank-shaft *a*, and when at the same time the car is pushed forward into the snow, the snow is first cut up or disintegrated by the knives *k k*. As fast as the snow is disintegrated by a knife *k*, the loosened or detached snow is engaged by the following vane *v* and carried around on vane *v* until it reaches the discharge-spout *g*, where the snow is thrown upward through *g* and, striking the deflecting-plates *d d*, is deflected toward one side of the machine.

I do not limit myself to the use of rings *m m* to carry the knives *k k*, but the knives may be carried by another set of spokes or by any other suitable means. Neither do I limit myself to any particular conformation or shape in the construction of these knives.

I am aware of and have referred to the improvement in excavators invented antecedently to this my invention by George Cox and covered by the said Letters Patent, numbered 375,132. I therefore do not claim any part of the mechanism therein described; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In an excavator, a fan-wheel having on

its periphery a series of longitudinal knives,  
each knife being placed a sufficient distance in  
advance of a vane so as to leave room between  
the back of the knife and the front of the  
5 vane for the escape of the snow or other ma-  
terial, substantially as shown and described.  
2. In an excavator fan-wheel, the combi-

nation of spokes *b b*, vanes *v v*, rings *m m*, and  
knives *k k*, substantially as shown and de-  
scribed.

WILLIAM O. BARNES.

Witnesses:

CHAS. E. BARNES,

D. B. VAN BUREN.