

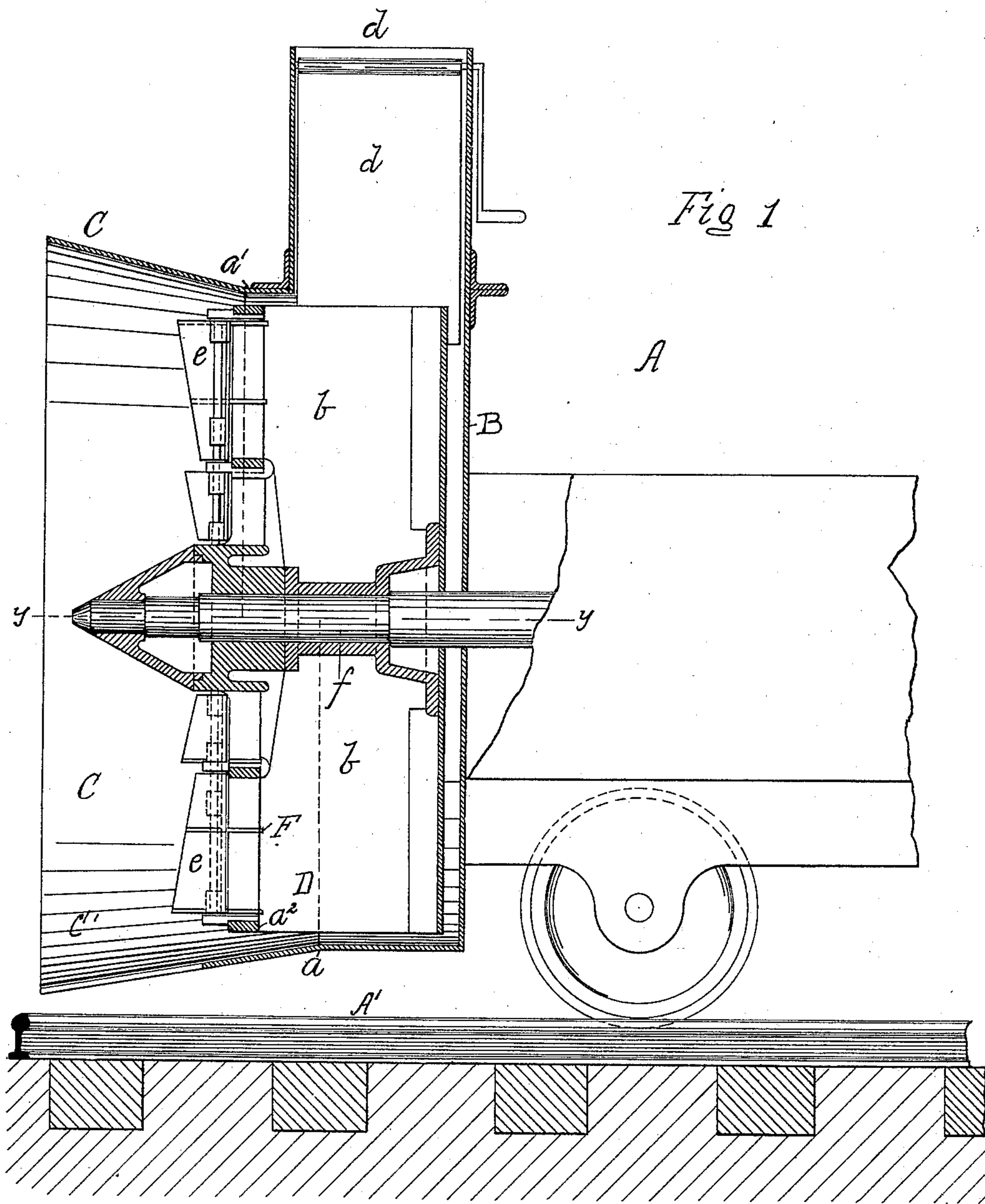
(No Model.)

2 Sheets—Sheet 1.

S. H. DUNNING.  
ROTARY SNOW EXCAVATOR.

No. 385,700.

Patented July 10, 1888.



Witnesses.

Alfred B. Watson.  
Fred L. Warner.

Inventor.

Samuel H. Dunning.  
John Inglis, atty

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Fig 2

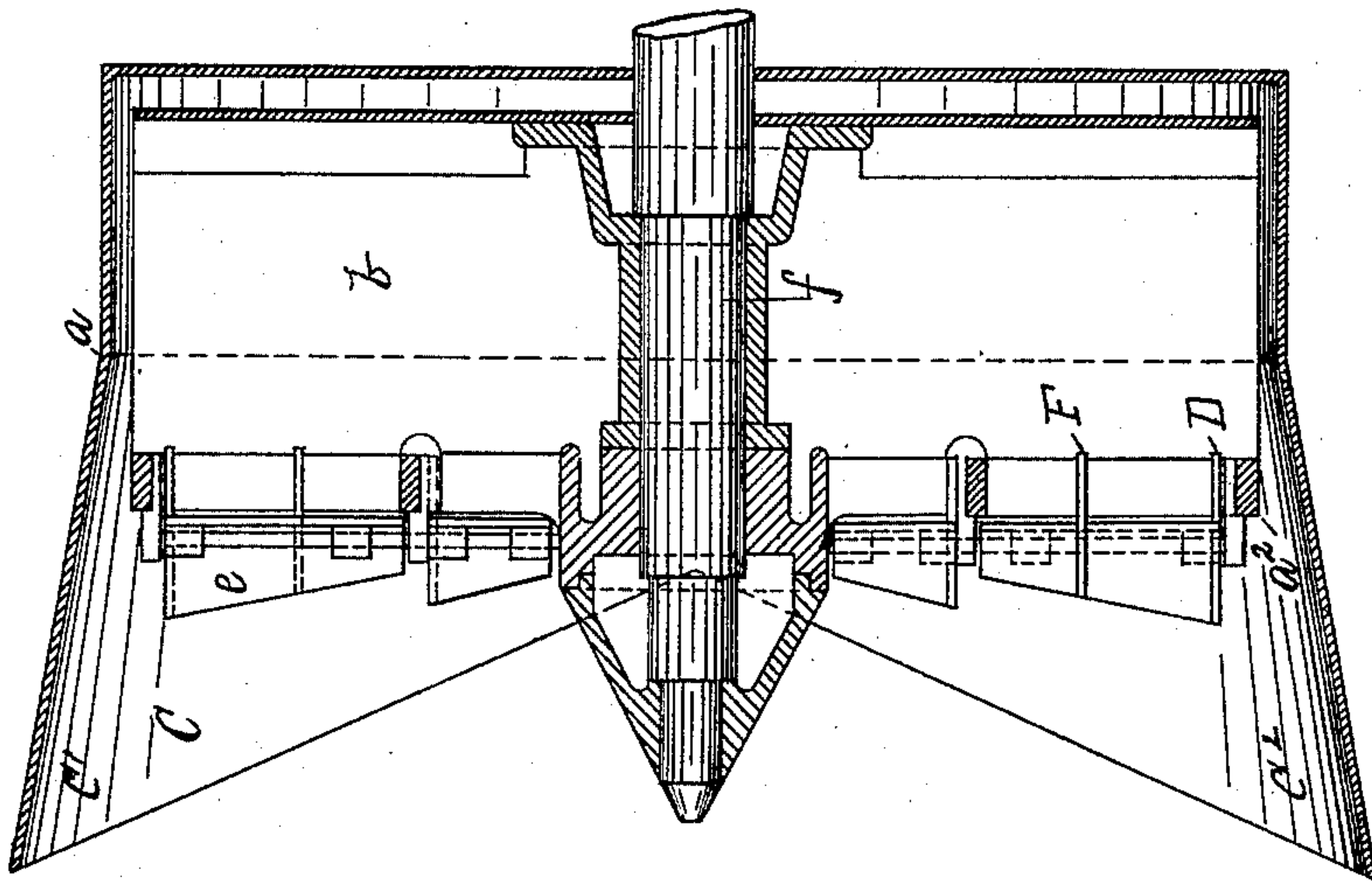


Fig 3

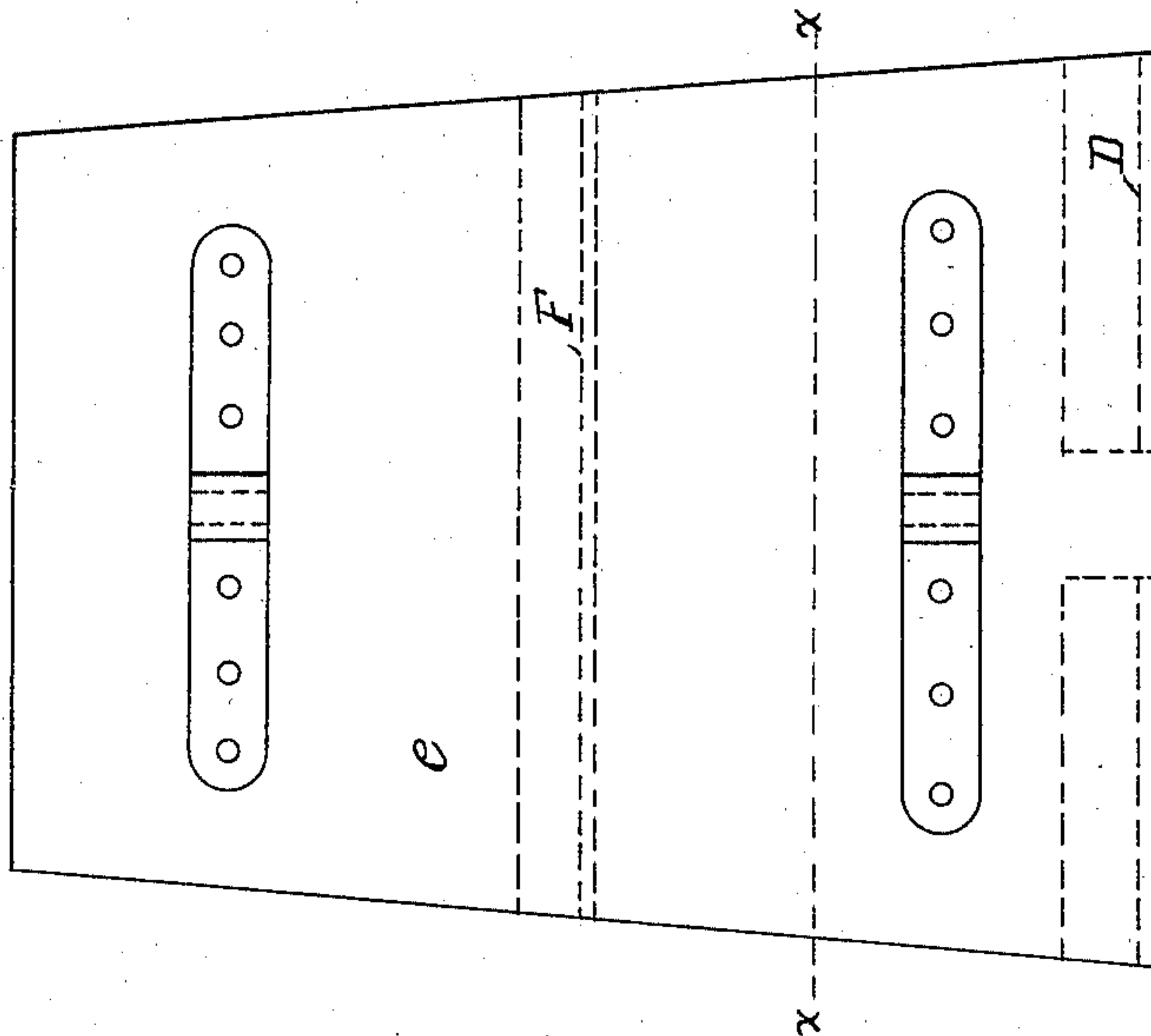
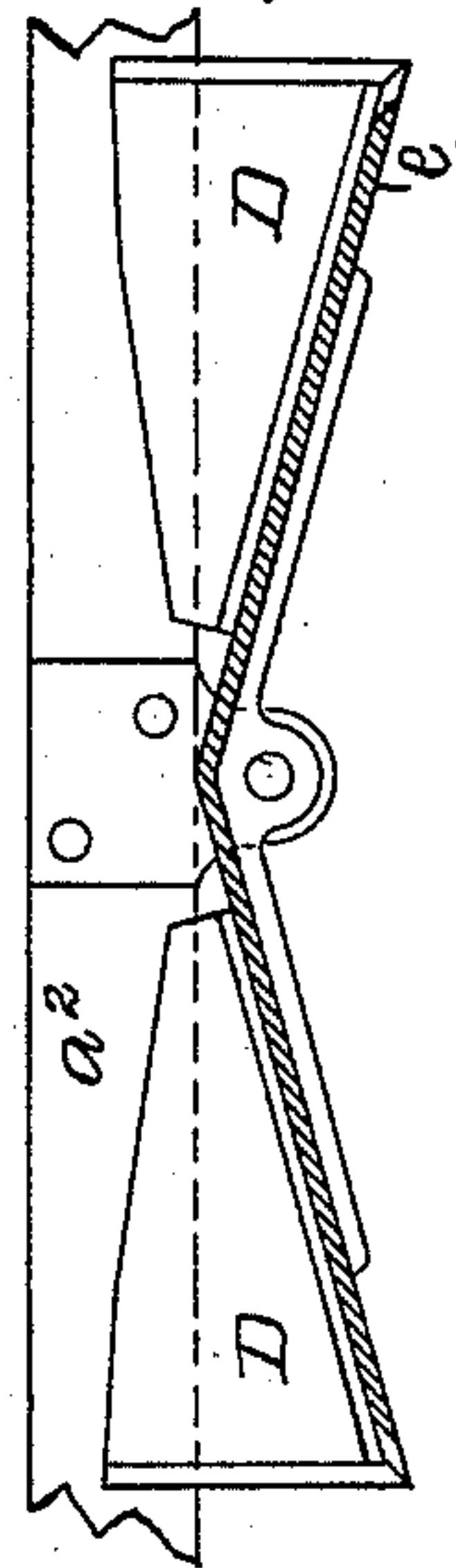


Fig 4



Witnesses.

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# UNITED STATES PATENT OFFICE.

SAMUEL H. DUNNING, OF PATERSON, NEW JERSEY.

## ROTARY SNOW-EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 385,700, dated July 10, 1888.

Application filed May 21, 1888. Serial No. 274,508. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL H. DUNNING, a citizen of the United States, residing at Paterson, Passaic county, State of New Jersey,

5 have invented a new and useful Improvement in Rotary Snow-Excavators, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

10 Usually the flaring hood fixed on and carried by the cylindrical casing in a rotary snow-excavator extends inward only to the rim of the knife-wheel, the corners of which have formed in them gussets to strengthen the hood

15 and direct the snow to the knife, while the knives arranged on and carried by the knife-wheel in the said rotary snow-excavators have no means of cutting the snow at the bottom, and which permit the snow acted upon by

20 the entire knife to fall down upon the rim of the knife-wheel. This construction of the hood and knives in a rotary snow-excavator is found to be objectionable for the reason that the hood thus constructed forms in the corners

25 of the same large resisting-surfaces that push forward and pack the snow before the same reaches the knife, by reason of which resistance increased power is required to operate the excavator, which causes increased outlay, while

30 the knives thus constructed permit the snow acted upon by them on their entire length to fall down on the rim of the knife-wheel, which acts to clog the wheel and retard its operation.

The object of my present invention is to provide means by which the hood and knives in a rotary snow-excavator shall possess the advantages of the former hood and knives, but which shall be free from their objectionable features.

40 With these ends in view my invention consists in connecting the lower part of the hood with the cylindrical casing to form a longer slope, so as to cause less resistance and permit the snow to pass freely to the knives to be

45 acted upon by them and permit the snow left by the knives to pass through under the rim of the knife-wheel to the fan to be acted upon by the fan in the usual way.

50 The invention further consists in fixing to the lower end of the knife in a rotary snow-excavator inward-projecting flanges, and in-

termediate thereon retaining-plates by which the snow acted upon by the different portions of the knife is retained in its own circumference until carried to the fan, which will be

55 hereinafter fully described and claimed.

Figure 1 of the drawings is a sectional elevation of a pre-existing rotary snow-excavator having my invention attached, in which figure the general arrangement of parts is shown. 60

Fig. 2 is a part-sectional plan of the same. Fig. 3 is a front view of the knife, and Fig. 4 is a sectional plan of the knife on line  $x x$  of Fig. 3.

A represents portions of an ordinary rotary 65 excavator for removing snow, mounted and in position on a car, to the cylindrical casing B of which I fix a flaring hood, C, constructed according to my invention. The lower half of the hood C, I connect to the casing B at  $a$ , a

70 point more remote from the front than  $a'$ , where the upper part of the hood connects with the casing, and as shown by dotted lines in Fig. 1. By this construction and connection of the hood with the casing a longer slope is formed

75 in the angles or corners of the lower half of the hood C, whereby a large part of the resistance from the gussets in the lower corners,  $C'$  and  $C''$ , is removed, and the snow, which passes thus more freely into the lower portion of the

80 hood C, is permitted to come directly in contact with the knife  $e$  to be acted upon by said knife in the operation of removing the snow from the track  $A'$ , and the snow which is left by the knife in its operation is caused to pass

85 through under the rim  $a^2$  of the knife-wheel to the fan  $b$  to be thrown by the fan's action thereupon out of the spout  $d$  in the usual way.

To the lower end of the knife  $e$ , I fix suitably a flange-cutter, D, which cutter acts to cut the

90 snow from the bottom in the operation of its removal, and which carries the snow back to the fan  $b$  for its action thereupon and over the rim  $a^2$  of the knife-wheel.

Intermediate on the knife  $e$  of the excavator 95 I fix, by bolts or otherwise, one or more retaining-plates, F, which plates act to keep the snow cut by the several divisions of the knife  $e$  within its own circumference until the same reaches the fan  $b$ , to be acted upon by the fan

100 and thrown out of the spout  $d$  in the operation. Thus the snow, acted upon by the upper por-



tions of the knife or knives of the excavator, is prevented from falling to the bottom to clog the knife-wheel and render the removal of the snow from the track A' difficult, as in the pre-  
5 existing excavator.

The excavator being in operation, the shaft *f* rotates the knife-wheel rim *a*<sup>2</sup> and the knives *e* thereon, the snow enters the hood C and passes easily over the slopes C' and C<sup>2</sup> to the knife *e*  
10 and is acted upon by the knife, the flange-cutter D cuts the snow from the bottom and carries the same to the fan *b*, while the plate or plates F retain that portion of the snow cut by the several divisions of the knife within its  
15 own circumference and carries the same to the fan *b* for its action thereupon in common with that portion of the snow carried by the flange cutter D, all of which is expelled by the fan *b* out through the spout *d*, and from thence  
20 to its destination.

It will be seen that by my invention the excavator can be operated with much less power and with better results in the removal of snow from the track A' than what is possible to ac-  
25 complish with the pre-existing excavator without my invention.

Having described my invention, I claim as

new, and desire to secure by Letters Patent, in a rotary snow-excavator—

1. The combination, with the cylindrical casing B and hood C, of the lengthened sloping corners C' C<sup>2</sup>, whereby less obstruction is offered to the passage of the snow into the hood to the knife, and the snow left by the knife caused to pass through under the rim of the  
35 knife-wheel to the fan, substantially as described.

2. The combination of the knife *e* with the flange-cutters D, whereby the snow is cut from the bottom and carried to the fan, substantially as described. 40

3. The combination, with the knife *e* and flange D, fixed to said knife, of one or more plates, F, secured to said knife, whereby the snow cut by the several portions of the knife is retained within its own circumference and  
45 carried to the fan to be expelled by the fan in common with that carried by the flange cutter D, and fan for throwing the snow out of the spout, substantially as described.

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Witnesses:

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