

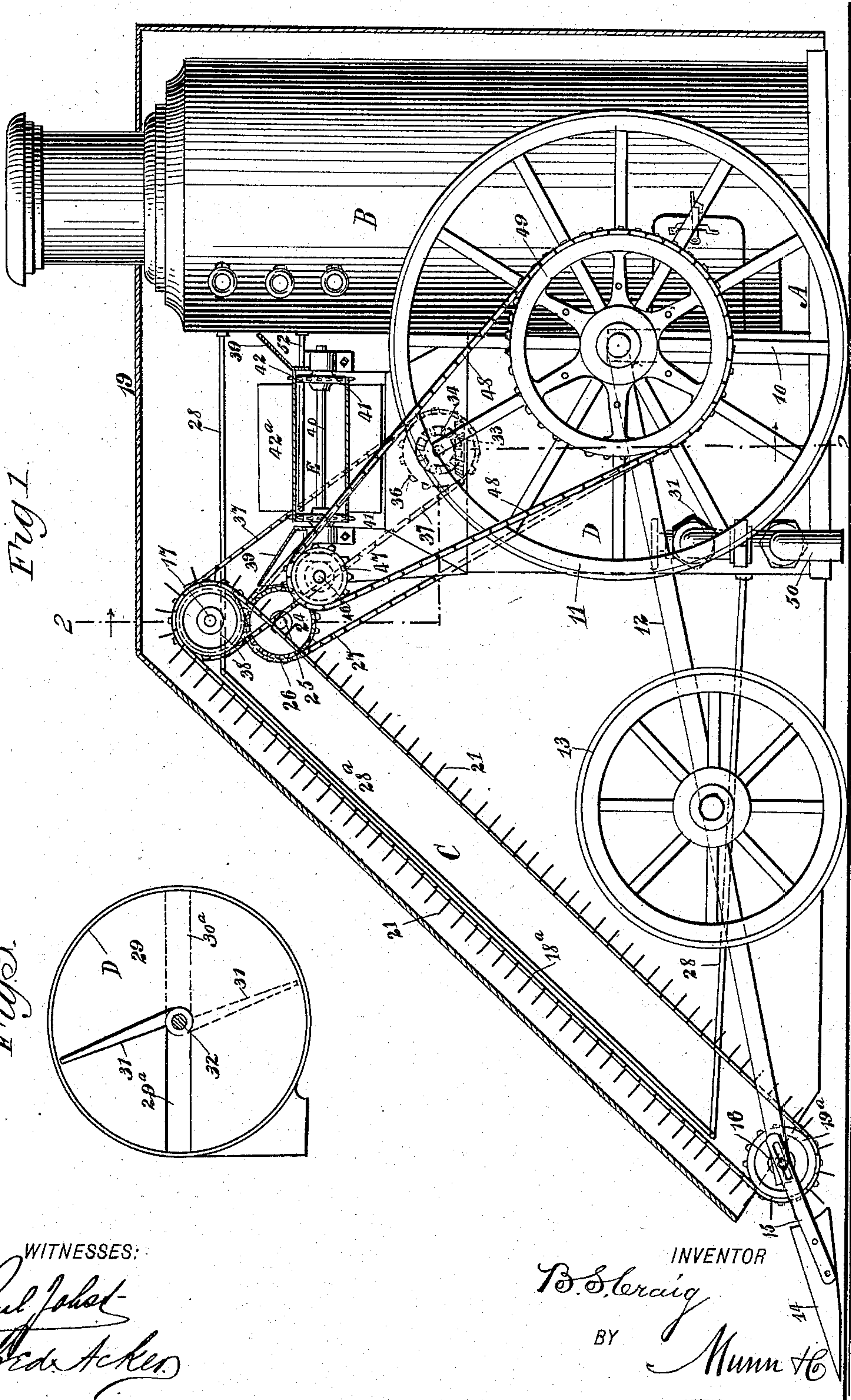
(No Model.)

2 Sheets—Sheet 1.

B. S. CRAIG.
SNOW MELTING MACHINE.

No. 557,976.

Patented Apr. 7, 1896.



WITNESSES:
Paul J. Foster
J. Fred. Acker

INVENTOR
B. S. Craig
BY *Munn & Co*
ATTORNEYS.

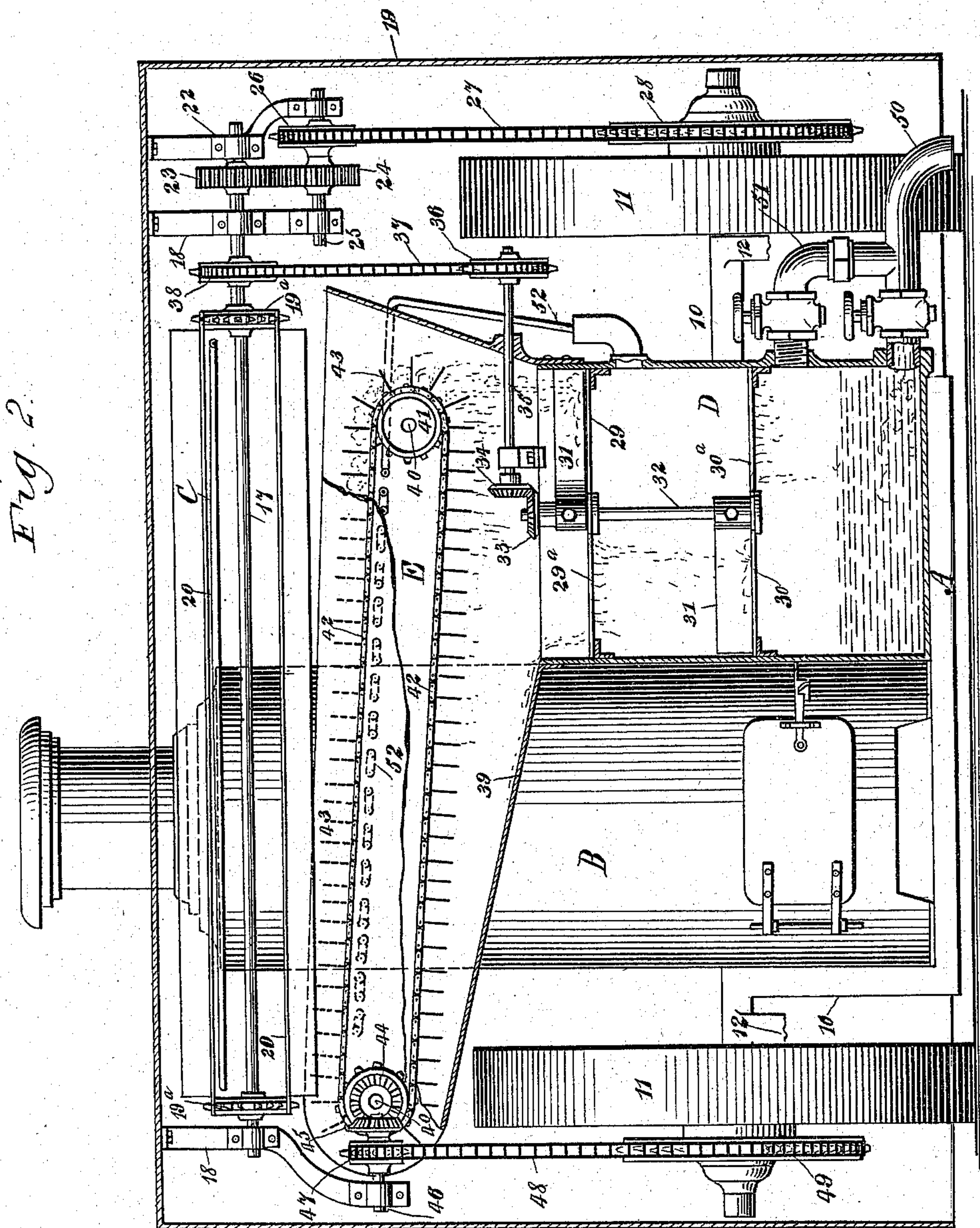
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2 Sheets—Sheet 2

B. S. CRAIG.
SNOW MELTING MACHINE.

No. 557,976.

Patented Apr. 7, 1896.



WITNESSES:

Paul J. Schick
John A. Kees

INVENTOR

B. S. Craig
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

BURTON SAXTON CRAIG, OF CLINTON, IOWA, ASSIGNOR OF ONE-HALF TO
JAMES PETERSON, OF SAME PLACE.

SNOW-MELTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,976, dated April 7, 1896.

Application filed July 12, 1895. Serial No. 555,783. (No model.)

To all whom it may concern:

Be it known that I, BURTON SAXTON CRAIG, of Clinton, in the county of Clinton and State of Iowa, have invented a new and Improved Snow-Melting Machine, of which the following is a full, clear, and exact description.

My invention relates to a machine for melting snow; and the object of the invention is to provide a machine which, while simple and economic in its character, will take up the snow from the surface of the road-bed or ground and while elevating the snow or carrying it to a predetermined point will melt the snow, conducting the water to a tank or reservoir, from whence it will be delivered to a gutter or ditch at the side of the road.

Another object of the invention is to accomplish the melting of the snow through the medium of steam and so confine the heat from the boiler as to utilize the same to the utmost extent in the process of melting the snow.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the machine, the jacket or casing thereof being in section. Fig. 2 is a vertical sectional view taken substantially on the line 2 2 of Fig. 1, and Fig. 3 is a plan view of the tank adapted to receive the melted snow and assist in melting the same.

A platform A is supported upon preferably a U-axle 10, and at each extremity of the axle a ground-wheel 11 is loosely mounted, while upon the forward face of the axle, near the inner face of each ground-wheel, a forwardly-extending arm 12 is located, and between these arms the forward wheels 13 of the machine are journaled, while at the extreme forward end of the arms 12 a shovel or scraper 14 is adjustably secured by means of arms 15, the said bars 15 being attached to the scraper and extended rearwardly to an adjustable connection with the aforesaid arms, as shown in Fig. 1.

The steam-boiler B is secured in any suit-

able or approved manner on the platform A, and at the front portion of the machine an upwardly and rearwardly extending elevator C is placed, the lower shaft 16 of the elevator being journaled in the outer ends of the arms 12, while the ends of the upper shaft 17 are journaled in hangers 18 or their equivalents, usually attached to an overhead support, and preferably to a jacket 19, which is intended to practically cover or inclose all the mechanism of the machine except the lower end of the elevator C. This elevator preferably consists of endless chain belts 18^a, passed over sprocket-wheels 19^a, attached to the upper and the lower shafts 16 and 17, and strips or cross-bars 20, arranged at predetermined intervals apart, connect the endless chain belts. These strips are preferably provided with pins 21, secured in their outer faces.

What may be termed the "right-hand" end of the upper shaft 17 of the front elevator is journaled in two hangers, the outer hanger 22 being parallel with the inner hanger 18, and between these two hangers a gear 23 is secured on the said shaft 17, which meshes with a gear 24, journaled on a short shaft 25, placed beneath the aforesaid shaft 17, as shown in Fig. 2. This lower shaft carries a sprocket-wheel 26, and a chain-wheel 27 is passed over this wheel, and likewise over a larger sprocket-wheel 28, secured to the hub of the right-hand supporting-wheel 11.

One or more steam-pipes 28^a are carried from the steam-space of the boiler beneath the upper stretch of the forward elevator C, and these pipes may be in the form of coils, if desired, and likewise may be apertured, in order that the steam may spread or escape therefrom and impinge on the material carried by the elevator, if desired. These steam-pipes 28^a are likewise connected with a tank D, located preferably adjacent to the boiler or in close contact therewith, so as to obtain as much warmth as possible from the boiler. This tank is usually provided with an upper partition 29 and a lower partition 30, the upper partition having an opening 29^a made therein, while the other partition has an opening 30^a, which is diametrically opposite to the opening 29^a.

Scrapers 31 are held to travel over each par-

tition 29 and 30, practically in engagement therewith and with the sides of the tank, and these scrapers are secured to an upright shaft 32, journaled in suitable bearings attached to the partitions, being provided at its upper end with a beveled gear 33 engaging with a like gear 34, secured upon a short line-shaft 35, the latter having a sprocket-pulley 36 at its opposite end connected by a belt 37 with a sprocket-pulley 38, located on the extension of the upper shaft of the forward elevator.

A trough 39 is constructed at the rear of and beneath the forward elevator, having a downward inclination and a connection at one end with the upper end of the tank D. In this trough a substantially horizontal carrier E is mounted, extending practically from end to end of the trough, and in construction it is substantially similar to the forward elevator C, comprising carrying-shafts 40, journaled in suitable bearings and provided with a sprocket-wheel 41, the apron of the carrier consisting of endless chain belts 42, and slatted material 42^a connecting said belts, the slatted material being provided with pins 43. The left-hand shaft 40 of the horizontal carrier is provided with a beveled gear 44 attached thereto, which meshes with the beveled pinion 45, secured to a short shaft 46, journaled in a suitable hanger at the left-hand side of the machine, the said shaft carrying a sprocket-pulley 47, connected by a chain belt 48 with a larger pulley 49 located on the hub of or attached to the left-hand ground-wheel.

The tank D is usually at one side of the machine, being supported on the platform or bed A, and is provided with a valved outlet-pipe 50, extending beyond the sides of the machine to deliver the water into the gutter or ditch; and in the event the lower pipe should become choked, an auxiliary pipe 51 is connected with the upper portion of the fluid-receiving chamber of the tank and with the aforesaid main outlet 50.

A coiled pipe 52 is located between the stretches of the horizontal carrier or conveyer, or the pipes may be otherwise arranged in said conveyer, being connected with the boiler at the steam-space thereof and also with the tank D, and one or more pipes or jets may be located over the conveyer.

If in practice it is found desirable the tank D may be of sufficient size to extend from one side of the machine to the other, in which event it will be provided with outlets at both of its ends, so that the water may be delivered at either side of the road. The outlet, however, may be only on the right-hand side of the machine. The water is to be carried ordinarily one block, or from one sewer-basin to another.

In operation the snow is taken up by the scraper or shovel 14 and is delivered to the elevator C, which in its turn transfers it to the horizontal conveyer E, and while the snow is but partially melted on the elevator, it will be practically altogether melted on the con-

veyer and delivered in its melted condition to the tank D, which is kept warm by the exhaust-steam and likewise by its close proximity to the boiler, the water being delivered from the tank at either side, thus preventing the middle of the road being rendered unfit for use by reason of the water freezing thereon.

It will be understood that the machine may be drawn by horses, or any motor, steam or electric, may be used to drive it. Any form of brush may be placed at the rear of the machine to sweep loose snow to the gutter, if found desirable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A machine for gathering and melting snow, the same consisting of a wheeled support, a shovel adapted to take up the snow, an elevator located at the rear of the shovel and receiving the snow therefrom, a conveyer receiving the snow from the elevator, a tank located beneath the conveyer a boiler and means for melting the snow in its transit from the shovel to the tank, as and for the purpose specified.

2. In a machine for gathering and melting snow, a shovel adapted to take up the snow, an elevator receiving the snow from the shovel, a conveyer receiving the snow from the elevator, a tank located beneath the conveyer, a boiler, and pipes leading from the boiler, adapted to convey steam therefrom, being likewise carried through the conveyer and elevator, as and for the purpose specified.

3. In a machine for gathering and melting snow, a shovel adapted to take up the snow, an elevator receiving the snow from the shovel, a conveyer receiving the snow from the elevator, a tank located beneath the conveyer, a boiler, and pipes leading from the boiler, adapted to convey steam therefrom, being likewise carried through the conveyer and elevator, the said pipes being passed from the conveyer and elevator into the said tank, and means for driving the conveyer and elevator from the supporting-wheels of the machine, substantially as and for the purpose specified.

4. In a machine for gathering and melting snow, a shovel, an elevator receiving the material from the shovel, a conveyer receiving the material from the elevator, means for heating the elevator and conveyer, substantially as shown and described, a tank receiving the material from the conveyer, the said tank being provided with an outlet extending beyond the side of the machine, whereby the water contained therein will be deposited in the gutter or at the side of the road, as and for the purpose specified.

5. In a machine for gathering and melting snow, a shovel, an elevator receiving the material from the shovel, a conveyer receiving the material from the elevator, means for heating the elevator and conveyer, substantially as shown and described, a tank receiv-

ing the material from the conveyer, the said
tank being provided with an outlet extending
beyond the side of the machine, whereby the
water contained therein will be deposited in
5 the gutter or at the side of the road, aper-
tured partitions located within the tank,
scrapers held to revolve over the said parti-

tions, and means, substantially as described,
for receiving the exhaust-steam in the said
tank, as and for the purpose specified.

BURTON SAXTON CRAIG.

Witnesses:

CHARLES F. BELL,
FLORANCE S. ROBERTS.