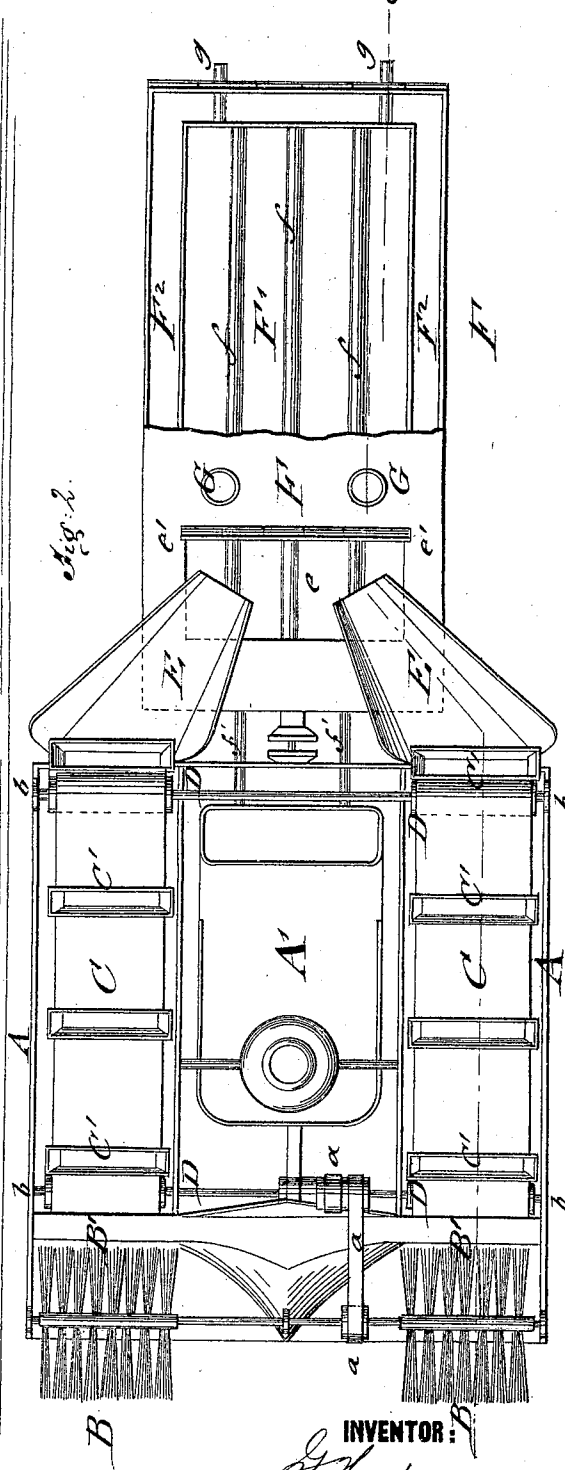
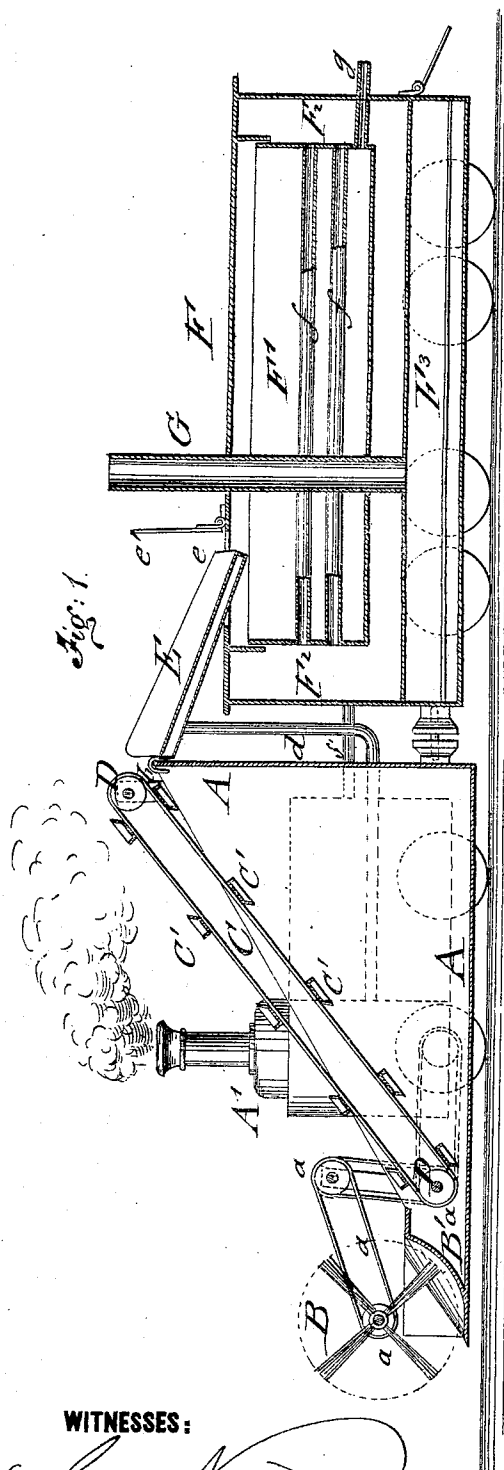


G. HART.
Machines for Removing Snow from Roadways.
 No. 145,566. Patented Dec. 16, 1873.



WITNESSES:
Chas. Nida
Seaguer

INVENTOR: *G. Hart*
BY *Wm. H. [Signature]*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE HART, OF TARRYTOWN, NEW YORK.

IMPROVEMENT IN MACHINES FOR REMOVING SNOW FROM ROADWAYS.

Specification forming part of Letters Patent No. **145,566**, dated December 16, 1873; application filed November 22, 1873.

To all whom it may concern:

Be it known that I, GEORGE HART, of Tarrytown, in the county of Westchester and State of New York, have invented a new and Improved Machine for Removing and Melting Snow, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved machine for removing and melting snow on the line *c c*, Fig. 2, and Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide an apparatus for removing snow from the streets, pavements, railroad-tracks, &c., and to convey the same to a heated receptacle for melting it, so that the streets of a city may be rapidly and effectively cleaned from snow, and the interruption of business arising from a too great accumulation be prevented. My invention consists of a small locomotive-engine, which is surrounded at the sides by a casing, with inclined endless belts with buckets, which take up the snow from rotating brushes or wings and convey it over connecting chutes to a separate tank, where the snow is melted by steam connecting-pipes and the direct application of heat. The different parts which come in contact with the snow are heated by steam from the boiler, to prevent the clogging of the machine and insure a rapid delivery of the snow to the tank.

In the drawing, A represents the casing, which is placed on truck-wheels at both sides of an engine, A', of suitable construction. The engine A' serves not only to propel the whole machine, but also to communicate motion, by belts and pulleys *a a*, to the brush-shaft and endless belts. The brushes or wings B rotate with suitable velocity, gathering the snow and carrying the same along a curved incline, B', to the buckets C' of endless belts C. The connecting part of side casing A, in front of the engine, is of double plow or wedge shape, and throws the snow sidewise toward the brushes. The rollers D, on which the endless belt C is stretched, turn in bearings *b* of casing A, the lower one being arranged at the front part, near the brushes, the upper one at the rear part, at sufficient height to conduct the snow

under suitable inclination to the tank or receptacle in which the melting process is performed.

When the snow has settled on the street, either by the traffic over it or by freezing, a detachable roller with picks or teeth for breaking and loosening the hardened snow or ice may be employed, and motion imparted to it by a driving-belt connected with the engine.

The side casings A are hung to the engine in such a manner that the front part may be lowered sufficiently to pass as near the ground as possible, for taking up the snow swept thereon from the street or pavement. The heat of the engine, or a supply of steam to casing A, will loosen the snow carried up by the buckets, so that the same is readily delivered to the chutes E, and prevents clogging of the belt or insufficient action of the buckets. The chutes E connect the casings A with the tank or receptacle F, which is mounted on a separate truck-frame, and coupled, like a tender, to the snow-conveying part of the machine. The double bottom of the chutes E is connected, by flexible pipes *d*, with the steam-boiler of the engine, which keeps the chutes heated, and causes thus the smooth and rapid passage of the snow over the same. The tank F has a top opening, *e*, in which the ends of the chutes E are placed. A hinged cover, *e'*, closes opening *d*, when the tank is detached. Tank F is divided into three main parts, the central snow-melting chamber F¹, the steam-chamber F², and the furnace F³. A system of longitudinal pipes, *f*, extend through the snow-chamber F¹, and forms the communication of the surrounding water-chamber F², in which the water is heated partly by steam-pipes *f'*, connected with the boiler of the engine, but mainly by the fire in furnace F³, arranged below chamber F². The chimneys G extend from the furnace through the water and snow-melting chambers F² F¹, by which also the heat of the gases of combustion is utilized. The steam generated in the water-chamber F² surrounds the sides of the snow-chamber F, passes through the connecting-pipes *f*, and causes thus the effective and rapid melting of the snow, as delivered from the buckets. The steam from the engine would not be sufficient to melt the quantity of snow with a rapidity corresponding with

the accumulation of the same, so that it is necessary to supply the main body of heat by a separate furnace and steam-chamber. The snow-water is conducted from the tank by a pipe, *g*, in suitable manner to the gutter, and may also be used, in part, for feeding the engine and tank boilers. The apparatus disposes, therefore, in an effective manner, of the snow as quickly as removed, and will form a very useful machine in large cities, where it is of the greatest importance to have the streets cleared of snow without delay.

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

1. The machine for removing and melting snow, consisting of engine A' with side casings A, brushes B, endless belts C with buckets C', double-bottomed chutes E', and snow receiving and melting tank F¹ F² F³, all combined and constructed to operate substantially as and for the purposes described.

2. The casings A, having plow-shaped front connection and inclined curved parts B' for taking up the snow from the brushes, as described.

GEORGE HART.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.