

(No Model.)

R. A. HEALY & E. D. CUNDELL.
METHOD OF CLEARING STREETS OR RAILROAD TRACKS FROM SNOW.
No. 506,497. Patented Oct. 10, 1893.

Fig 1:

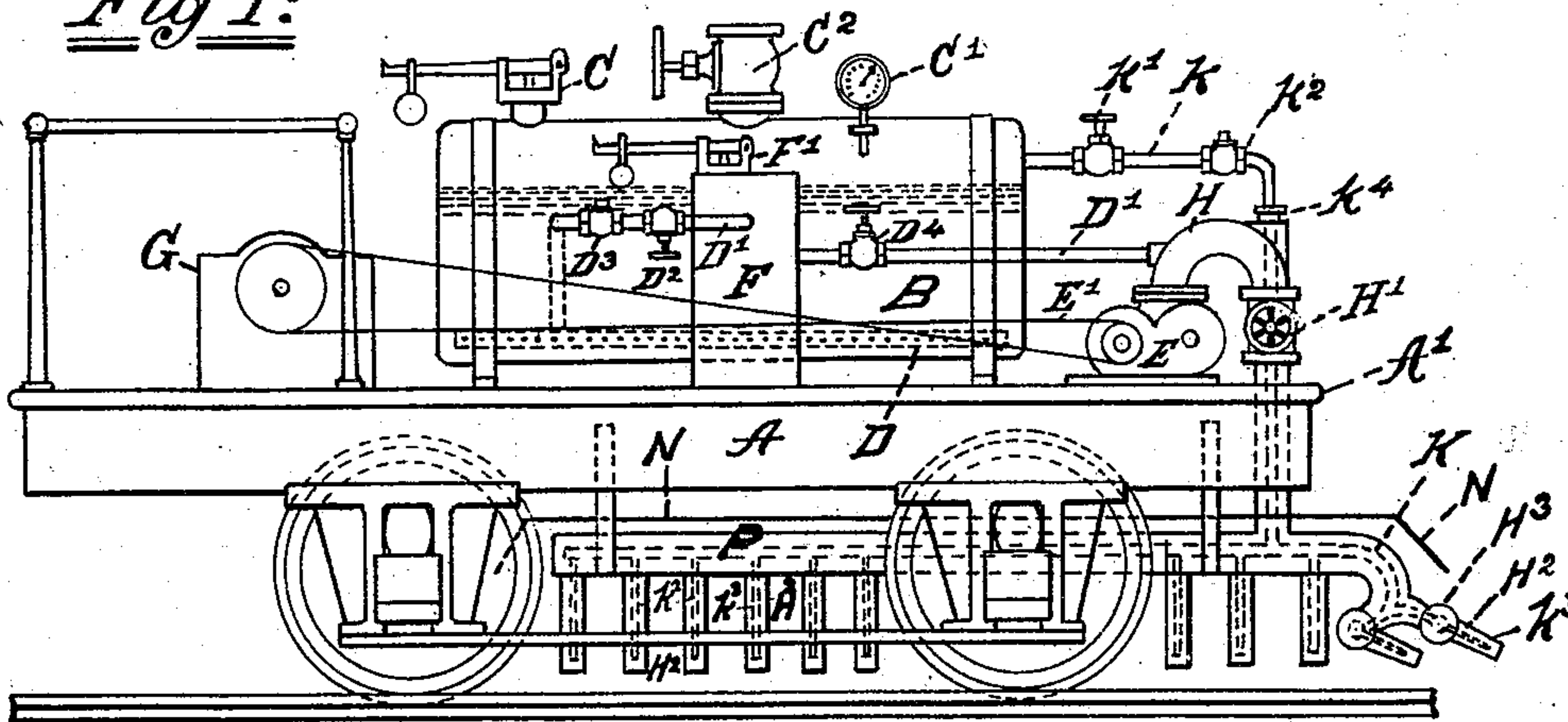


Fig 2:

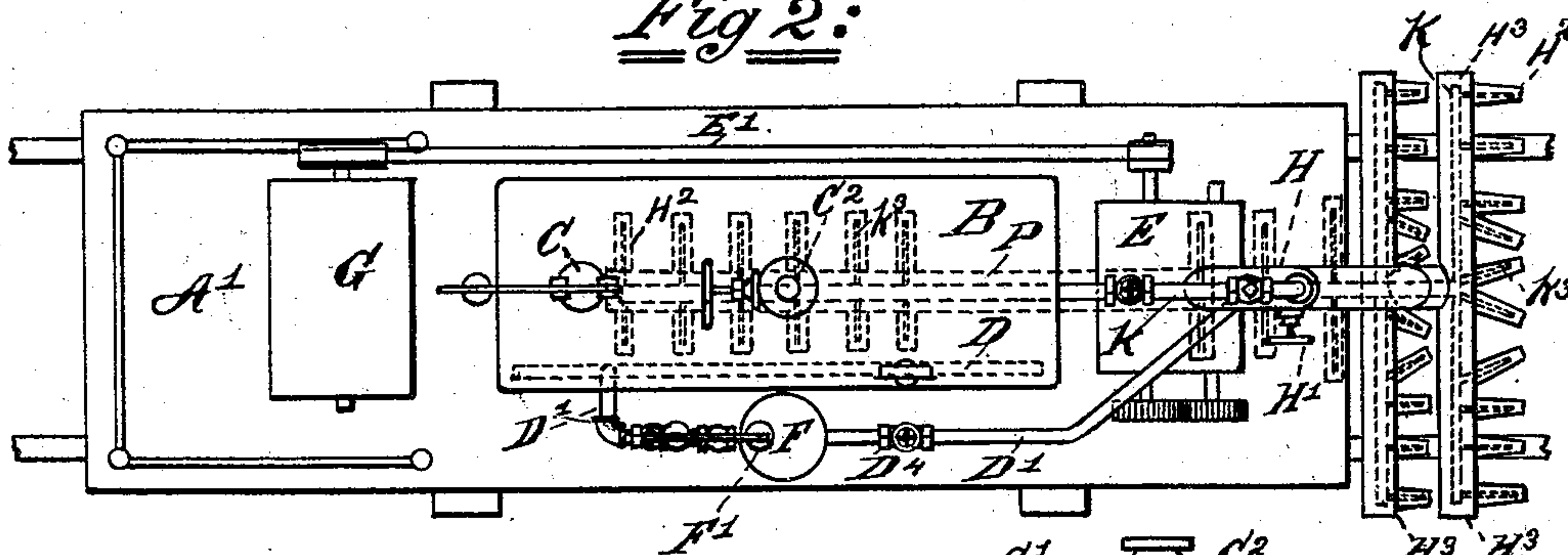
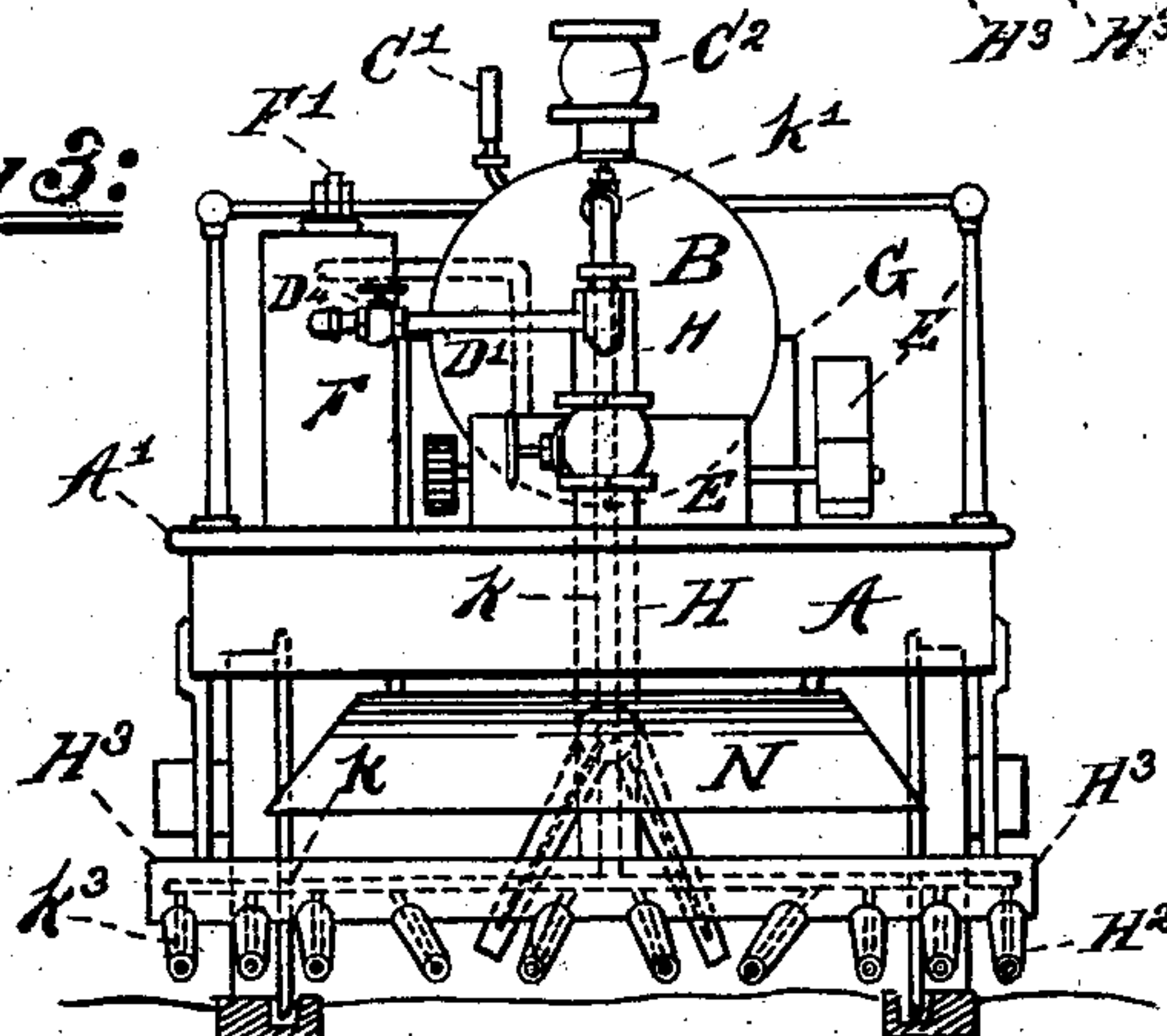


Fig 3:



WITNESSES:

Harry B. Forest
Matthew J. Flaherty

INVENTORS:

Richard A. Healy
Edward D. Cundell
By John F. Kerr
Attorney

UNITED STATES PATENT OFFICE.

RICHARD A. HEALY AND EDWARD D. CUNDELL, OF PATERSON, NEW JERSEY,
ASSIGNORS OF ONE-THIRD TO JOHN HINCHLIFFE, OF SAME PLACE.

METHOD OF CLEARING STREETS OR RAILROAD-TRACKS FROM SNOW.

SPECIFICATION forming part of Letters Patent No. 506,497, dated October 10, 1893.

Application filed November 28, 1892, Serial No. 458,398. (No model.)

To all whom it may concern:

Be it known that we, RICHARD A. HEALY and EDWARD D. CUNDELL, of Paterson, county of Passaic, State of New Jersey, have invented
5 an Improvement in Snow-Melting Machines, of which the following is a specification.

Our invention consists of devices, to be set forth hereinafter, for utilizing an intense heat produced by the combustion of a mixture of gas, and air, in properly constructed
10 burners, similar to a blow pipe, the gas and atmospheric air being ignited under a sufficient degree of force imparted by a fan, or blower. A large number of burners are located
15 beneath the platform of a movable car below the level of the snow, a few inches above the roadway or rails, and a strong and forcible blast of flame at a temperature equal to 2,500° or 3,000° Fahrenheit is forced violently from
20 the same. A system of burners is arranged in the front transversely in a double row, and directed at an angle of forty five degrees upon the snow, toward which the car is propelled. The jets of flame by their force lift
25 the snow and throw it upward, and away from the road bed, and the heat of the flame liquefies, or evaporates part in its first contact. The remainder falling through the battery of flame following the rear burners, is
30 completely liquefied. At the same time the heat from the burners removes the snow that may be frozen to the rails, or lodged in the sunken portions thereof. In the illustrations that accompany this specification we show a
35 machine which will accomplish these results Figure 1 being a side elevation of a car having oil or gas tank, blower or fan and burners mounted and attached placed upon a line of rails. Fig. 2 is a plan of the same. Fig. 3 is
40 a front elevation showing the arrangement of burners.

Similar letters have reference to similar parts in all cases.

A Fig. 1 represents a car mounted on wheels
45 upon which a boiler or tank B is secured by strap bolts. The tank B is provided with a safety valve C, pressure gage C', feed valve C². A perforated pipe D is fitted in its interior space with suitable pipes D' provided with
50 check valve D³, stop valve D² leading to the intermediate receiver F which is provided with

a safety valve F'. Leading from said receiver is an air pipe D' fitted with a stop valve D⁴ and connected with the large air pipe H which is attached to the blower E which is in turn
55 secured to the car platform A' in front of the tank B.

A motor G communicates motion to the blower E by a belt E'. Leading from the delivery outlet of the blower E is an air pipe
60 H provided with a controlling valve H' conducted downward below the car platform as shown in Fig. 1, and extending longitudinally under the car platform and transversely to the right and left in advance of and below
65 the platform to form two transverse tube sections H³, which as well as the tube section extending below the car platform are provided with branch burner tubes H² inclined downward at an angle of forty-five
70 degrees, the burner tubes on the transverse sections in front of the car being inclined also in the direction in which the car moves and the burner tubes on the tube section below the car being also inclined laterally. A
75 pipe K is connected with upper portion of the tank B and provided with a stop valve K' and a check valve K² and is carried down as shown in Fig. 1 to the air tube H and is inserted centrally therein through the stuffing
80 gland K⁴ from which the pipe K is led its entire length through the tube H. At the burner tubes H² short branch tubes K³ project from the pipe K, the ends of the tubes K³ being so arranged in relation to the ends
85 of the burner tubes H² that a thorough mixture of gas and air is obtained. The pipes below and on front of the car are covered by a metal deflecting plate N, which serves to prevent the heat from rising and to protect
90 the frame of the car from injury by heat.

In operation the tank B is nearly filled with kerosene, naphtha, benzoline, or other gaseous oil or vaporous fluid, through the feed valve
95 C² which being then closed the motor G being put in motion imparts by the belt E' a rotary motion to the fans of the blower E, by which means air is forced at a pressure into the large air tube H, and into the receiver F which being fully charged, the valve D² is
100 opened permitting a necessary amount of air to pass through the pipe D' into the tank B

through the perforated pipe D which is submerged in the naphtha oil or other vaporous fluid. The air then rising through the vaporous fluid into the space formed in the tank
5 above the fluid carries with it the gaseous vapor and particles of the oil into such receiving space. The valve K' is then opened which permits the gas to flow through the tube K to the different tubes K² located within the tube
10 H². A light being applied the gas will ignite at the orifice but with a low degree of heat. The valve H' is opened admitting air from the blower E through the pipe H connecting pipes H³ to the tubes H² where mixing with the gaseous
15 flame proceeding from the tubes K² it is projected outward violently. The car is then propelled forward by suitable means. The jets of flame issuing from the tubes H² K², &c., striking the snow lying upon the track or sur-
20 face of the street the same is whirled about through the flames and heat and dissolved, liquefied or dispersed in vapor.

Having described the method of cleaning streets from snow and an apparatus fully suitable for performing the operation, what we
25 claim, and desire to secure by Letters Patent, is as follows:

1. The combination with a vehicle of a gas

apparatus and air compressor on the same, of a transverse tube in front of the vehicle
30 and having downwardly and frontwardly inclined burner tubes, and a tube extending longitudinally under the vehicle and having laterally and downwardly inclined burner tubes, substantially as shown and described. 35

2. The combination with a vehicle of a transverse tube in front of the same and below the vehicle platform, downwardly and frontwardly inclined burner tubes on said transverse tube, a tube extending longitudi-
40 nally under the vehicle and laterally and downwardly inclined burner tubes on said tube extending longitudinally under the vehicle and means for conducting gas and air to said tubes, substantially as shown and de- 45 scribed.

3. A vehicle having a row of burner tubes arranged transversely in front of the vehicle and a row of burner tubes arranged longi-
50 tudinally under the vehicle, substantially as shown and described.

RICHARD A. HEALY.
EDWARD D. CUNDELL.

Witnesses:

MATHEW J. FLAHERTY,
R. V. BUTLER.