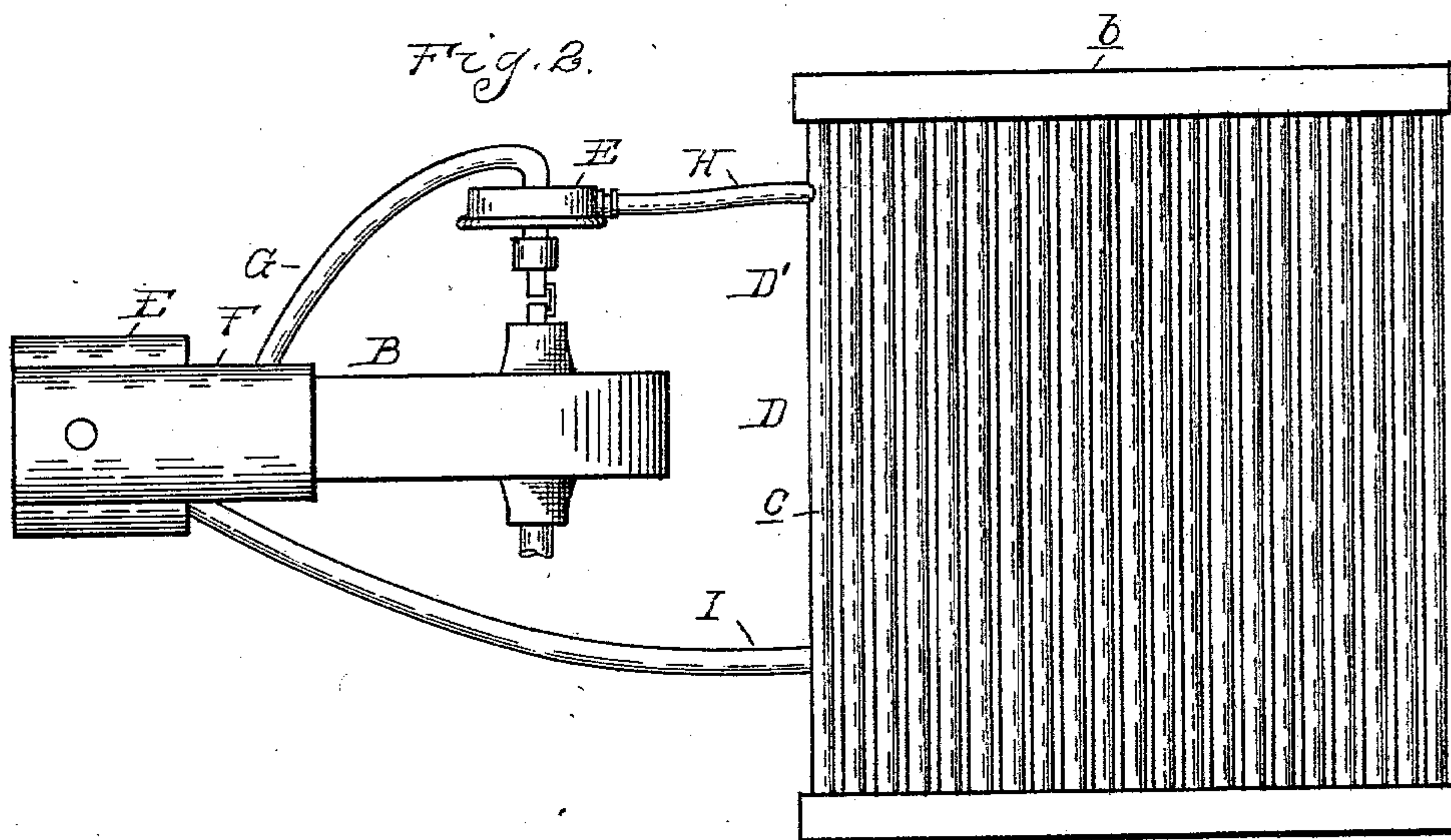
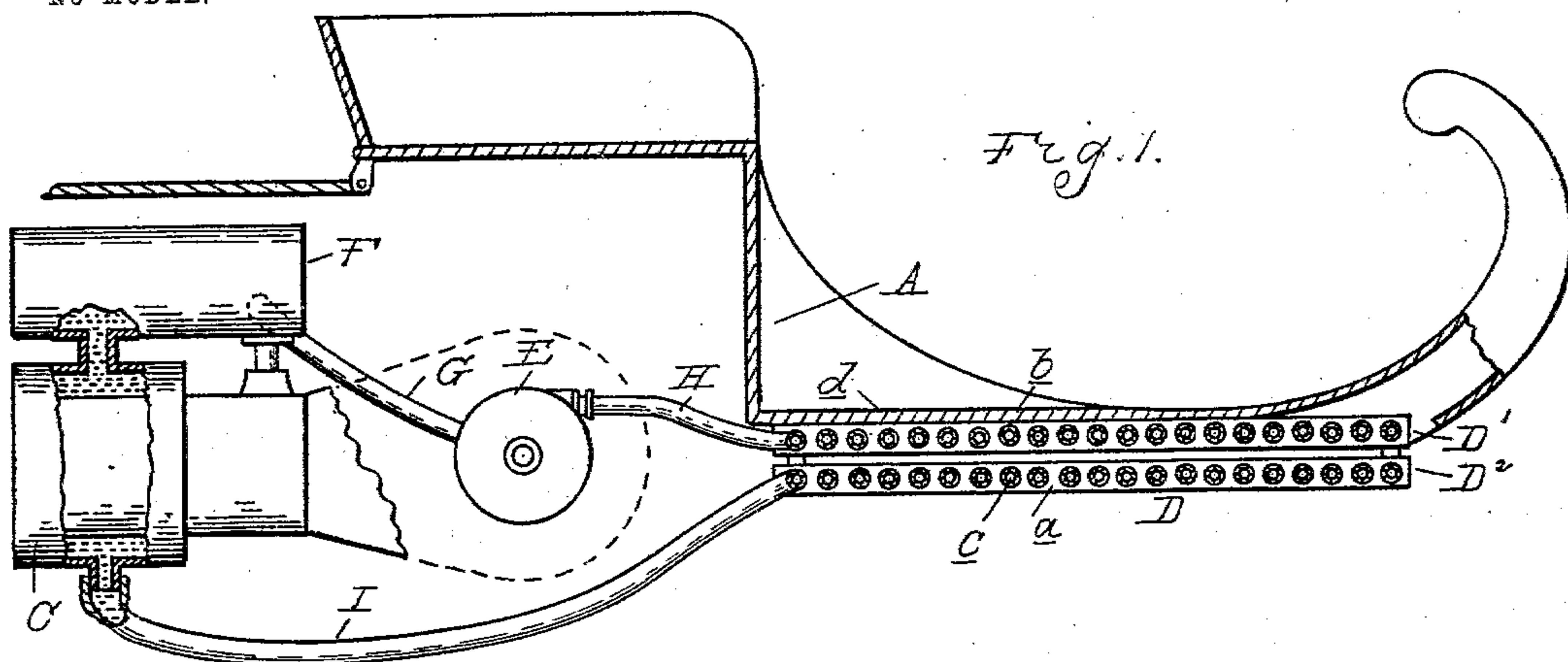


No. 745,654.

PATENTED DEC. 1, 1903.

R. E. OLDS.
COOLER FOR MOTOR VEHICLES.
APPLICATION FILED OCT. 18, 1901.

NO MODEL.



Witnesses
B. E. Smith
W. B. Ogden

Inventor
Ransom E. Olds
By *W. B. Ogden*
Attys.

UNITED STATES PATENT OFFICE.

RANSOM E. OLDS, OF DETROIT, MICHIGAN, ASSIGNOR TO OLDS MOTOR WORKS, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

COOLER FOR MOTOR-VEHICLES.

SPECIFICATION forming part of Letters Patent No. 745,654, dated December 1, 1903.

Application filed October 18, 1901. Serial No. 79,083. (No model.)

To all whom it may concern:

Be it known that I, RANSOM E. OLDS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Coolers for Motor-Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to coolers for use in connection with heat-engines of motor-vehicles; and the invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter described and claimed.

In the drawings, Figure 1 is a longitudinal section through the body of a motor-vehicle, showing the motor and the arrangement of the cooler in connection therewith. Fig. 2 is a diagrammatic view illustrating the cooler system.

It is one of the objects of the invention to arrange the radiator of the cooler in a position where it may be conveniently disposed and where it will be exposed to the full current of air caused by the motion of the vehicle.

It is a further object to utilize the heat of the radiator in warming the footboard of the vehicle.

As shown, A is the vehicle-body, and B the motor arranged within said body. For this a gas or other heat motor is employed, and to remove the superfluous heat the cylinder is provided with a cooling-jacket C, through which water or some other cooling fluid is continuously passed. D is the radiator. This is preferably formed of headers *a* and *b*, connected by cross-tubes *c*, the proportion of parts being such that the radiator may be placed beneath the footboard *d* of the vehicle, with the headers arranged at opposite sides thereof. As the motor is arranged within the body and the radiator beneath the footboard, it is evident that a gravity circulation cannot be used for causing a constant flow of the heated water from the jacket C to the radiator. To avoid this difficulty, a small pump, such as the centrifugal pump E, is arranged in line with and connected to the crank-shaft of the motor, and this pump is then connected into the hot-water conduit leading from the

motor to the radiator. As shown, the connecting-conduits are formed first by arranging a tank F immediately above the cylinder-jacket, into which the hot water from the latter rises. The tank F is then connected by a conduit G with the inlet-port of the pump E, while the outlet thereof is connected by a conduit H with the radiator. The opposite side of said radiator is connected by a conduit I with a port in the bottom of the cylinder-jacket. Thus when the motor is in operation a cooling fluid is forced to circulate from the jacket to the radiator and after being cooled in passing through the latter to return again into the jacket.

The arrangement of the radiator beneath the footboard of the vehicle-body has the advantage, first, that in this position the current of air caused by the forward movement of the vehicle will blow directly upon the radiator, thereby greatly assisting in the dispersion of the heat. To increase this effect, the forward end of the dashboard is preferably inclined, as shown, so as to direct a larger volume of air against the radiator, and the radiator is preferably formed in two separated sections *D'* and *D''*, between which the current from the dashboard is directed. A further advantage of this arrangement of radiator is that a very large surface area may be obtained without occupying space available for any other purpose or interfering with any of the mechanism of the vehicle and without changing the shape or appearance of the body. Still further, this arrangement of the radiator will keep the footboard warm, and thus will be of value in warming the feet of the riders in cold weather.

What I claim as my invention is—

1. In combination with a vehicle having a horizontally-disposed footboard, a motor on said vehicle, and means for cooling said motor, including a horizontally-arranged radiator directly beneath and parallel to the footboard, and a dashboard on said vehicle extending downwardly and rearwardly and terminating at a point substantially in horizontal alinement with the forward edge of the radiator and deflecting currents of air to said radiator.

2. In combination with a vehicle having a

horizontally-disposed footboard, a motor on
said vehicle, and means for cooling said mo-
tor including a radiator composed of horizon-
tally-disposed superposed sections arranged
5 directly beneath and parallel to the foot-
board, said superposed sections being slightly
separated, and a dashboard on said vehicle
extending downwardly and rearwardly and
terminating at a point substantially in hori-
10 zontal alinement with the forward opening

of the space between the sections of the ra-
diator to deflect currents of air into said
space.

In testimony whereof I affix my signature
in presence of two witnesses.

RANSOM E. OLDS.

Witnesses:

M. B. O'DOHERTY,
H. C. SMITH.