

T. Davidson, Jr.

Road Rammer.

N^o 14,054.

Patented Jan. 8, 1856.

Fig. 1.

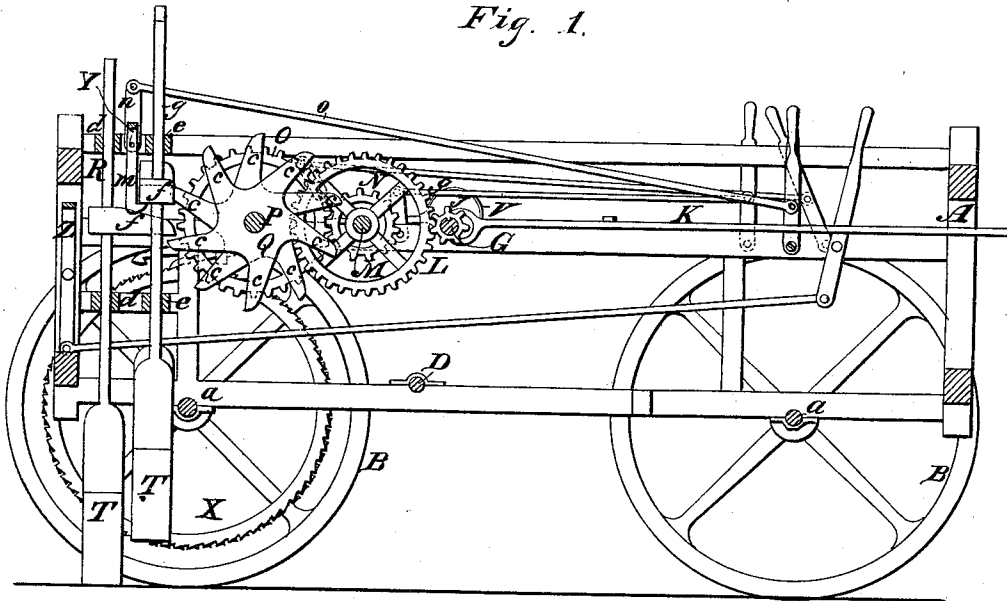


Fig. 2.

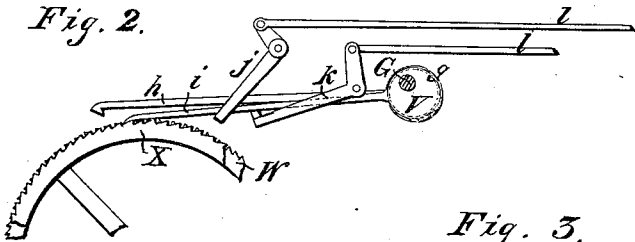
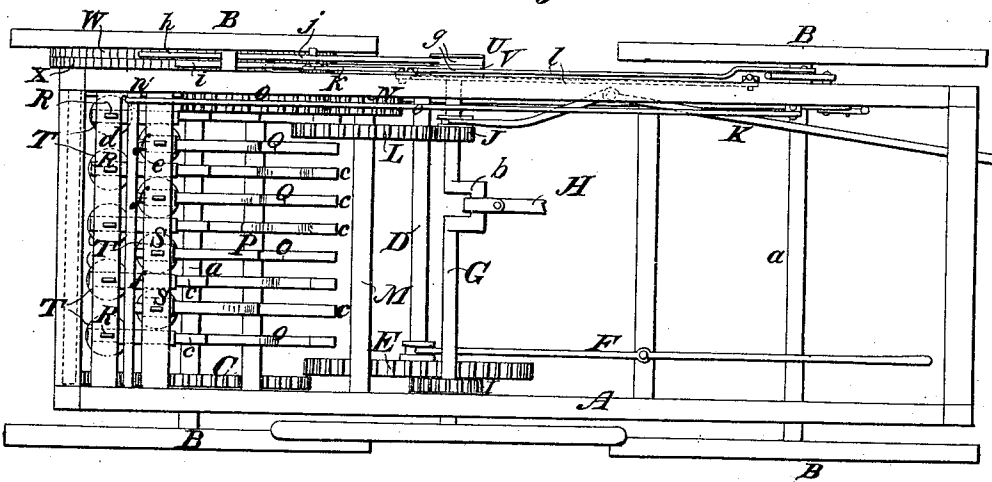


Fig. 3.



UNITED STATES PATENT OFFICE.

THOMAS DAVIDSON, JR., OF KENSINGTON, PENNSYLVANIA.

STREET-PAVING MACHINE.

Specification of Letters Patent No. 14,054, dated January 8, 1856.

To all whom it may concern:

Be it known that I, THOMAS DAVIDSON, of Kensington, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Machine for Ramming Paving-Stones in Streets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my improvement. Fig. 2, is a detached view of the pawls and a portion of the ratchet by which the machine is moved along. Fig. 3, is a plan or top view of my improvement.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a rectangular framing supported by four wheels B, the axles (*a*), of which work in suitable bearings attached to the lower part of the framing, the wheels B, being permanently attached to the axles. On the front axle (*a*), of the framing there is placed a pinion C, and D, is a transverse shaft placed in the framing A, on which shaft a gear wheel E, is placed, said wheel being fitted on a feather on the shaft so that it may be shifted or moved on the shaft and at the same time turn with it. The wheel E, is moved or shifted by a lever F, by which the wheel may be turned in and out of gear with the pinion, C.

G, is a crank shaft placed transversely on the framing, A. This is the driving shaft and a pitman, H, is connected with the crank (*b*). A pinion, I, is also placed on this shaft, into which pinion the wheel E, gears when said wheel is thrown in gear with the pinion, C. There is also a sliding pinion, J, on the shaft, G, which is moved by a lever K, so that it may be thrown in and out of gear with a wheel, L, on a transverse shaft M, which has a pinion, N, at one end, which pinion gears into a wheel, O, on a shaft, P. The gearing above described is shown clearly in Fig. 2.

The shaft, P, has a series of lifting wheels, Q, upon it. These lifting wheels have each a series of radical arms (*c*), projecting from a center or hub. It would be preferable to have the arms of the lifting

wheels attached by screws to the hubs in order that new ones may be attached in case of breakage and also to allow the arms to be adjusted or moved outward as they wear.

R, S, represent two series of vertical shafts which are fitted in mortises in cross pieces (*d*), (*e*), at one end of the framing, A, the shafts being allowed to slide freely up and down in the mortises. Each shaft has a projection (*f*), attached to it upon which the arms of the lifting wheels act. The rows or series of shafts are placed one in front of the other and the projections (*f*), on the outer row or series of shafts R, are somewhat longer than the projections on the inner row of shafts, S, so that the ends of both will be in line with each other vertically but the projections on the outer row of shafts are somewhat lower than the other projections so that they will be first acted upon by the lifting wheels. The arms of every alternate lifting wheel are in line with each other, and the arms of the intermediate ones are in line with each other, the latter being between the spaces of the other. To the lower ends of the shafts, R, S, there are attached rammers, T. These rammers may be formed of wood inserted in iron sockets the lower ends of the rammers being bound with a strong iron band.

On one end of the driving shaft G, there are placed two eccentrics U, V, which have straps (*g*), passing around them said straps having pawls (*h*), (*i*), attached to them which pawls act against ratchets W, X, on the front axle (*a*), of the framing. These pawls (*h*), (*i*), may be raised free from the ratchets when desired by means of levers (*j*), (*k*), attached to one side of the framing, the levers being operated by rods (*l*), see more particularly Fig. 2. The teeth of one ratchet, W, are in a reverse position to that of the other.

V, represents a bar having a series of hooked fingers (*m*), attached to it. This bar has an arm (*n*), and rod (*o*), attached to it at one end by which the fingers may be thrown under the projections (*f*), on the inner row or series of shafts, S, and keep the rammers elevated when desired. A similar device consisting of a swinging bar, L, is employed for sustaining the rammers on the outer row of shafts R, see Fig. 1.

The operation of the machine will be readily understood.

By applying power to the pitman H, by means of a steam engine on the framing, A, the shaft, G, will be rotated and by shoving the pinion, J, on the shaft G, in gear with the wheel L, a rotating motion will be given the shaft, P, and the arms (*e*), of the lifting wheels, Q, will raise the shafts R, S, and rammers T, the rammers and shafts falling as the arms pass from underneath the projections. The two rows or series of rammers rise and fall alternately, the rammers falling upon the stones which are consequently driven into the earth or concrete prepared to receive them. At each revolution of the shaft, G, the eccentrics, U, V, actuate the pawls (*h*), (*i*), one only at a time, as one of the pawls is always thrown out of gear. For instance, if the machine is to be moved forward the pawl (*h*), is thrown out of gear and the pawl (*i*), will move the ratchet X, and consequently the front axle will be turned and the machine will be gradually moved forward as the rammers work. In case the machine is to be moved backward the pawl (*i*), is thrown out of gear with the ratchet, X, and the pawl (*h*), in gear with the ratchet, W. If both pawls are thrown out of gear the rammers will work over the same place, the machine being stationary.

By turning the bar, L, and the hooker fin-

gers (*m*), underneath the projections (*f*), on the shafts R, S, the rammers may be kept suspended or up from the earth or pavement, and by shoving the wheel, E, in gear with the pinions C, I, and the pinion, J, out of gear with the wheel, L, the machine may be driven along from one place to another by the motive powers employed to operate the rammers.

I do not claim separately the rammers T, operated by the lifting wheels, Q, for this is a well known device and used in many cases for pounding, crushing, etc. but

I claim—

1. The rammers, T, operated by the lifting wheels, Q, in combination with the ratchets W, X, and pawls (*h*), (*i*), arranged as herein shown whereby the machine is moved along either backward or forward as the rammers perform their work.

2. I further claim the arrangement of the gearing E, C, I, as shown whereby the motive power employed to operate the rammers may by adjusting the wheel E, be employed to drive the machine from place to place when the rammers are not in operation.

THOMAS DAVIDSON, JR.

Witnesses:

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HENRY F. JUMM.