No. 659,867. Patented Oct. 16, 1900.

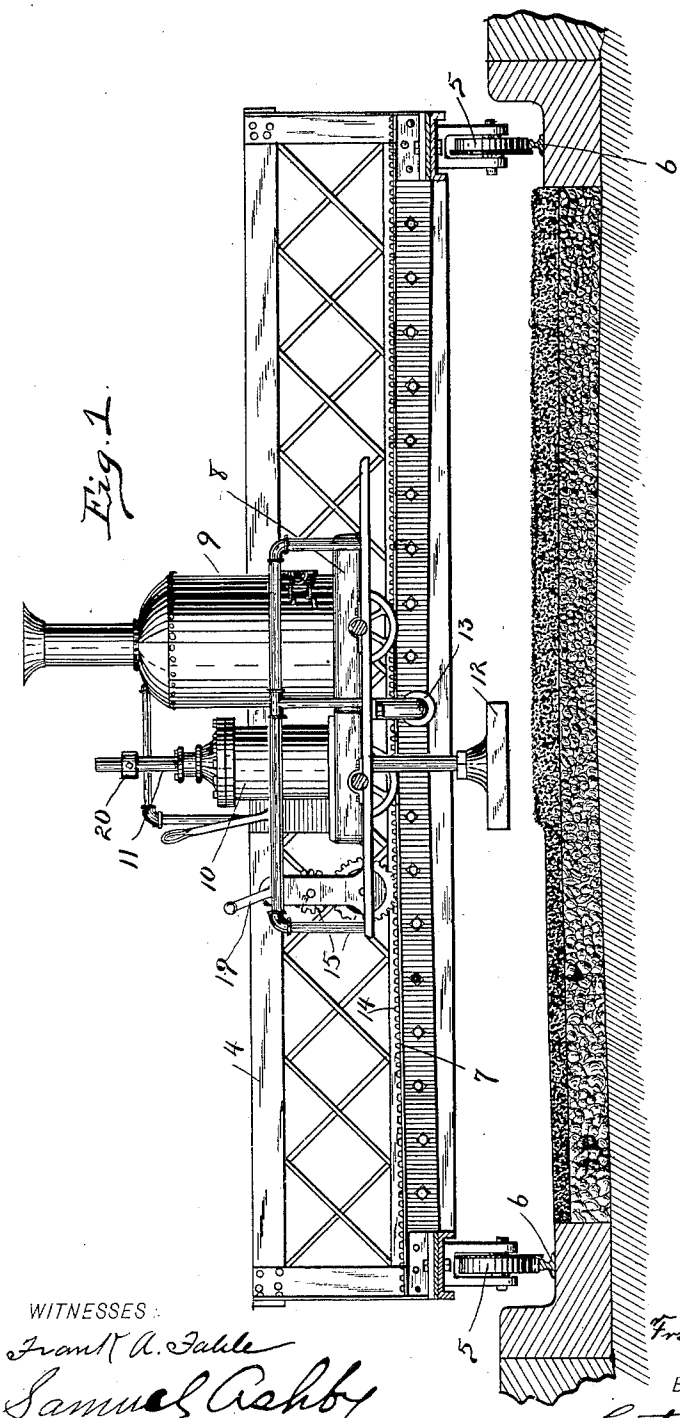
F. A. HETHERINGTON.

PAVING TOOL.

(Application filed Sept. 29, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



WITNESSES:
Frank A. Table
Samuel Ashby

INVENTOR.
Frederick A. Hetherington
BY
Arthur M. Hood.
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 659,867. Patented Oct. 16, 1900.

F. A. HETHERINGTON.

PAVING TOOL.

(Application filed Sept. 29, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

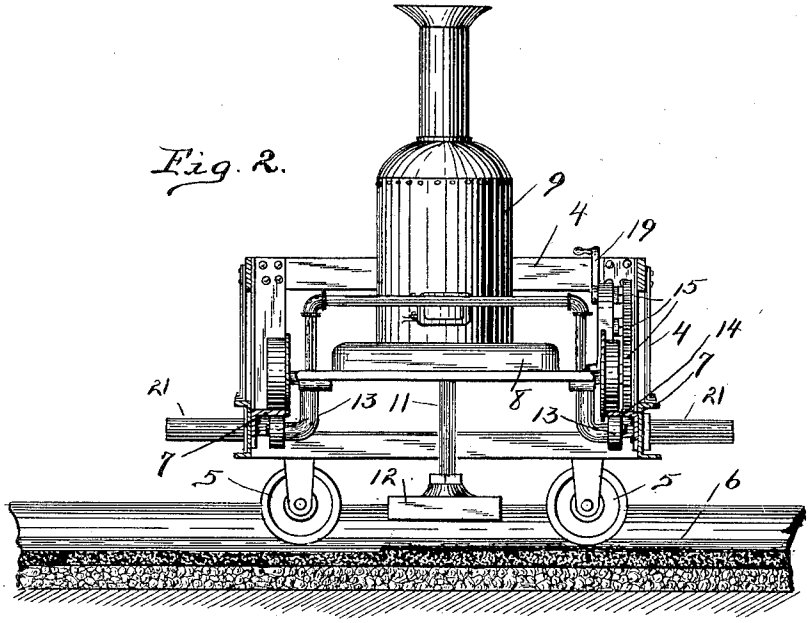
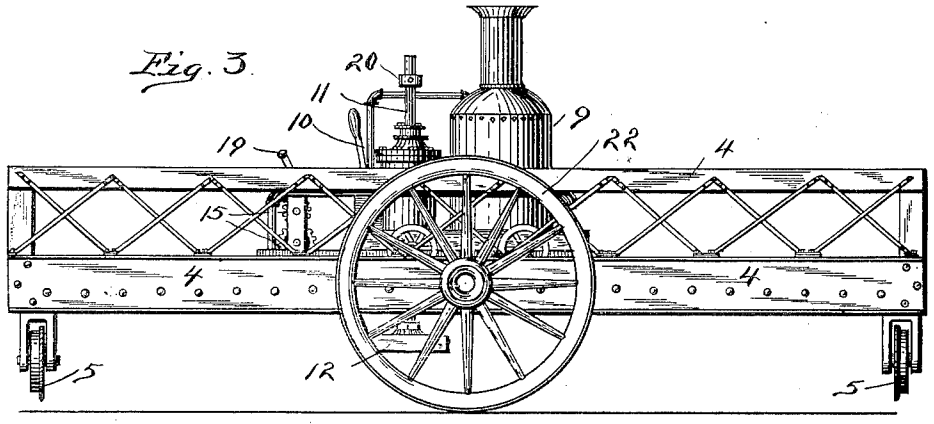


Fig. 3.



WITNESSES:

Frank A. Table.

Samuel Ashby

INVENTOR

Frederick A. Hetherington

BY

Arthur M. Hood

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK A. HETHERINGTON, OF INDIANAPOLIS, INDIANA.

PAVING-TOOL.

SPECIFICATION forming part of Letters Patent No. 659,867, dated October 16, 1900.

Application filed September 29, 1898. Serial No. 692,154. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. HETHERINGTON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Paving-Tool, of which the following is a specification.

My invention relates to an improvement in tools for laying street-pavements.

The present method of construction of the better class of paved streets consists, first, in excavating to the desired depth and rolling the graded surface with a heavy roller until a firm earth foundation has been secured. A layer of cement concrete is then put down and tamped into place by means of hand-tampers, which gives as a result an upper surface which only approximates a plane surface and which is, in fact, filled with slight depressions. The wearing-surface is then put down upon this foundation. If this wearing-surface be asphalt, the hot "topping" is put down and graded by hand, then rolled with a comparatively light hand-roller, and finally rolled over and over with a heavy steam-roller. There are many objections to this method of laying asphalt pavements. In the first place, it is practically impossible to obtain a smooth upper face for the cement concrete by means of hand-tampers. In the second place, the grading of the upper face of the topping is done by eye rather than by templet, so that with the combination of errors in the two surfaces the thickness of the topping is quite variable. The greatest objection, however, is the action of the heavy roller upon the hot and plastic topping. As this heavy roller passes and repasses over the plastic material a small billow rises in front of each roller. This shows that there is, besides the direct downward pressure, which is desired, a kneading action which, as the topping cools, operates to disintegrate the material and to a large extent injure the wearing qualities thereof. As a consequence of this kneading action the topping loses a part of its tenacity and gives way more readily under the rolling action of vehicle-wheels and soon the pavement begins to form into waves. This tendency to become wavy is increased by the variations in thickness, and consequent variations in hardness, of the topping or wearing-surface.

The object of my present invention is to provide a machine by which the earth foundation, the cement-concrete foundation, and the wearing-surface may each be compressed and brought to grade by means of a direct downward pressure exerted by mechanism which is at all times controlled by a templet which will at all times conform to the desired grade of the roadway. By this means a perfectly true templet-laid pavement may be secured, and the wearing-surface, especially if it be asphalt, may be properly compressed without the injurious kneading unavoidable in the method now commonly in use.

The accompanying drawings illustrate my invention.

Figure 1 is a transverse section showing the machine in position on a roadway and a section of the wearing-surface or topping partially compressed. Fig. 2 is a section at right angles to Fig. 1. Fig. 3 is a side elevation, on a smaller scale, showing the machine ready for transportation.

In the drawings, 4 indicates a truss or bridge like frame, which is adapted to span a part or the whole of a roadway. The frame 4 is provided at each end with wheels 5, which are adapted to rest and run upon suitable tracks 6, which are laid along the street so as to conform to the longitudinal grade thereof. Mounted upon the frame 4 is a pair of templet-tracks 7 7, which conform to the arch or transverse grade of the roadway. These templet-tracks are removable, so that any desired form of arch may be had. Mounted upon the templet-tracks and longitudinally movable thereon is a carriage 8, upon which is mounted, if desired, a suitable power plant 9. There is also mounted upon carriage 8 a power tamping mechanism, which consists, preferably, of a steam-cylinder 10, to the lower end of the piston-rod 11 of which is secured a tamping-head 12. The tamping-head 12 may be controlled as to its reciprocation by regulating the amount of steam within the cylinder in any well-known manner. In order that the weight of the entire machine may become available to resist the pressure of the tamping-head, wheels 13, carried by the

carriage 8, may be arranged so as to engage the under side of the templet-tracks, and thus tie the carriage down upon the said tracks.

Carriage 8 may be moved along the templet-tracks transversely across the roadway by any suitable means—such, for instance, as the rack 14, gears 15, and crank 19. If desired, a driving-engine may be provided and connections made thereto in such manner that the carriage 8 may be driven thereby, and the frame 4 may also be moved along the tracks 6.

In operation the tamping-head 12 is to be preferably moved downward and the compression of the pavement produced by a gradually-acting pressure rather than by a sudden blow, and the limit of the downward movement will be regulated by any suitable stop, such as the stop 20. It will be noticed that by this means every portion of the pavement, the foundations as well as the upper wearing-surface, may be brought to an absolute templet grade, thus insuring an even thickness, a smooth surface, and a uniform density of all parts, and the action upon plastic materials is such that the bond is not broken and the tensile strength is unimpaired.

For the purpose of easily transporting the machine from one place to another I secure to each side of the frame 4 a stud-axle 21, upon which may be mounted a suitable carrying-wheel 22.

If desired, the tamping-head 12 may be made hollow, so as to receive a suitable supply of steam from the power plant and be kept hot thereby. For the purpose of grading the several layers of the pavement the carriage 8 may be removed and a lighter carriage mounted in its place, the said carriage carrying a scraper instead of the tamping-head.

I claim as my invention—

1. In a paving-tool, the combination with a templet-track, of means for supporting said track above the roadway, and tamping or compressing mechanism mounted upon said templet-track and adapted to operate upon the roadway.

2. In a paving-tool, the combination with a templet-track, of means for supporting said track above the roadway, tamping or compressing mechanism mounted upon said templet-track and adapted to operate upon the roadway, and means for moving said compressing mechanism along the templet-track.

3. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch or grade of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

4. In a paving-tool, the combination with a suitable truss, means for supporting said truss across a roadway, a templet track or tracks removably mounted upon said truss and conforming to the transverse arch of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

5. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway and longitudinally movable along said roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

6. In a paving-tool, the combination with a suitable truss, means for supporting said truss across a roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, a carriage mounted upon and movable along said templet track or tracks, and tamping or compressing mechanism carried by said carriage and adapted to operate upon the roadway.

7. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway and longitudinally movable along said roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, a carriage mounted upon and movable along said templet track or tracks, and tamping or compressing mechanism carried by said carriage and adapted to operate upon the roadway.

8. In a paving-tool, the combination with a templet track or tracks, means for supporting said track or tracks above a roadway, a carriage mounted upon said track or tracks, and a tool carried by said carriage and adapted to operate upon the roadway.

9. In a paving-tool, the combination with tamping or compressing mechanism, of means for supporting said mechanism above a roadway, and a templet for limiting the downward movement of said mechanism.

10. In a paving-tool, the combination with a tamping or compressing mechanism, of means for supporting said mechanism above a roadway in position to operate thereupon, and a templet for limiting the downward movement of said tamping or compressing mechanism.

FREDERICK A. HETHERINGTON.

Witnesses:
A. B. HOOD,
FRANK A. FAHLE.