No. 616,834. Patented Dec. 27, 1898.

C. E. FOSTER.

PORTABLE APPARATUS FOR PREPARING ASPHALT PAVING MATERIALS.

(Application filed June 13, 1896.)

(No Model.) 3 Sheets—Sheet 1.

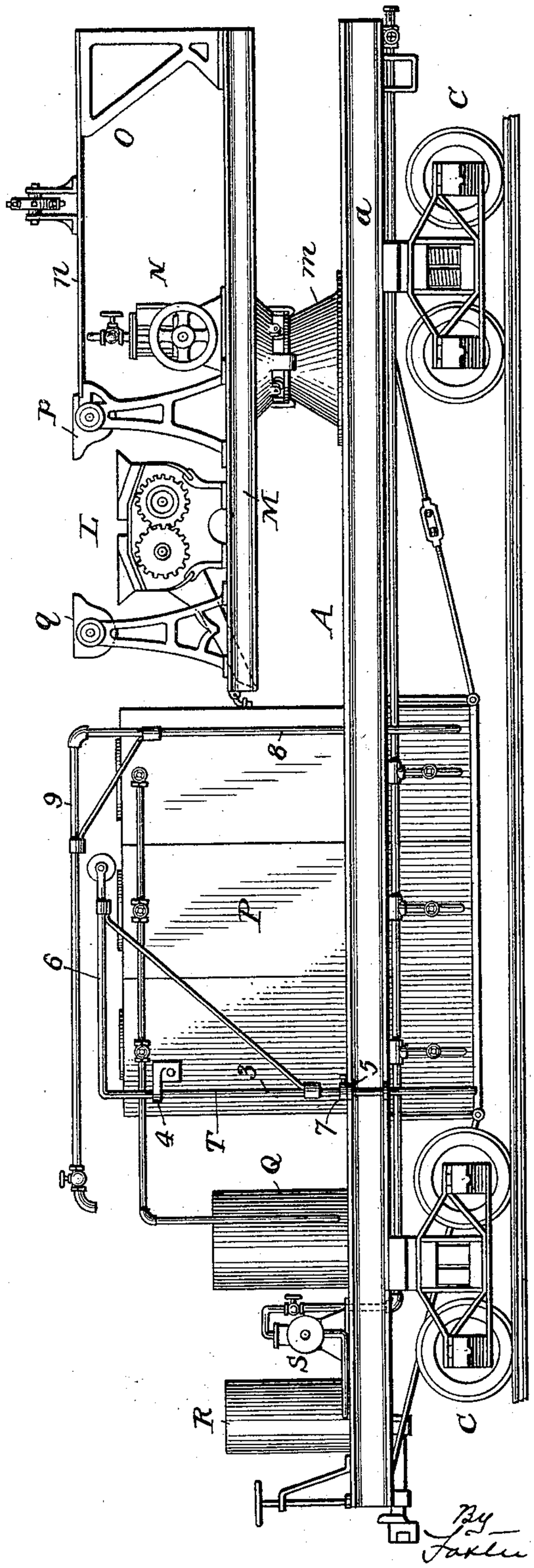

Fig. 1.

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Fig. 2.

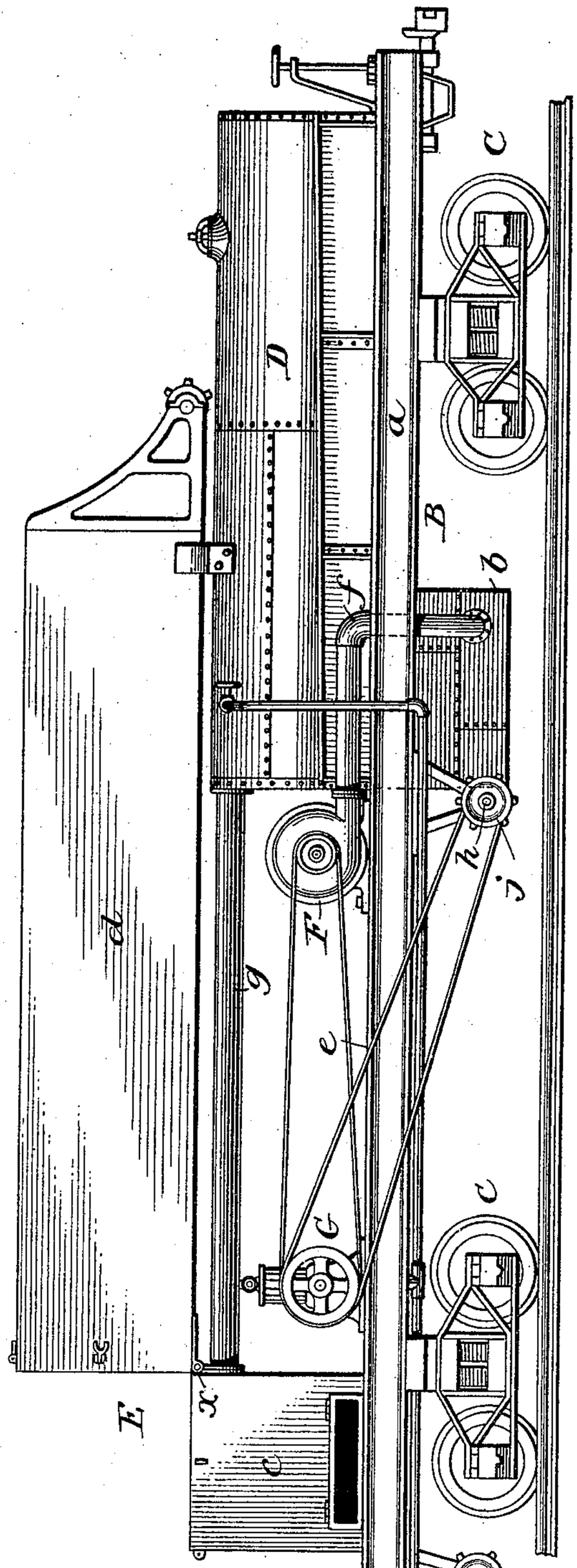

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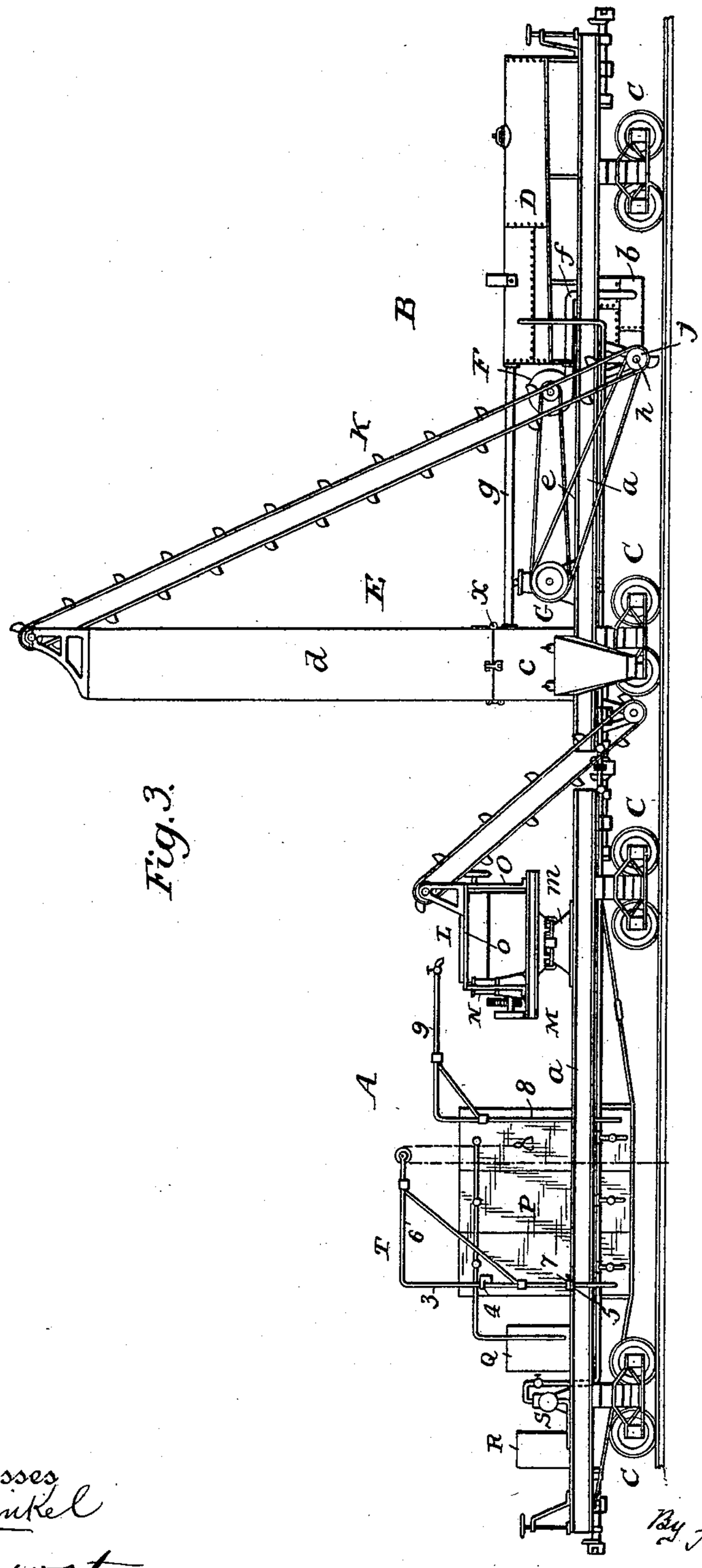
Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES E. FOSTER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE BARBER ASPHALT PAVING COMPANY, OF SAME PLACE AND NEW YORK, N. Y.

PORTABLE APPARATUS FOR PREPARING ASPHALT PAVING MATERIALS.

SPECIFICATION forming part of Letters Patent No. 616,834, dated December 27, 1898.

Application filed June 13, 1896. Serial No. 595,404. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. FOSTER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Portable Apparatus for Preparing Asphalt Paving Materials, of which the following is a specification.

My invention relates to that class of apparatus which is used for the purpose of preparing the materials which are to be employed in making asphalt pavements; and my invention consists of apparatus constructed and arranged upon the frame or frames of a car, substantially as set forth hereinafter, so as to be brought to a compact position for transportation and so as to be adjusted when in operation to facilitate the mixing and discharge of the paving material.

In the accompanying drawings, Figure 1 is a longitudinal elevation of one of the cars supporting part of the apparatus as arranged for transportation. Fig. 2 is a longitudinal elevation of another car supporting the other part of the apparatus as arranged for transportation. Fig. 3 is a longitudinal elevation, reduced size, showing the parts as arranged in actual operation.

There are two cars or platforms A B. Preferably in the construction which I have adopted each car or platform is a metal frame *a*, suitably braced by cross and diagonal braces at proper intervals and supported upon the trucks C C, as usual; but instead of being provided with a floor throughout its whole extent it is open, so as to permit the boiler, asphalt-heating receptacles, and other parts to be set down through the frame to a much lower extent than would otherwise be possible, so as to permit the use of such portions of apparatus of a height which otherwise could not be employed, it of course being necessary that no portion of the apparatus should extend above the point limited by the height of tunnels, &c. Thus the car B is provided near one end with the steam boiler or generator D. As shown, this is of the horizontal type, the main body of the generator extending between the side sills of the frame of the car, and the ash-box *b* extending downward through the frame to a point close to the track. I am thus enabled to set the generator so low that I can extend above the top of the same the hinged or movable portion of a sand-heater E. The fixed portion *c* of the sand-heater has its lower end secured within the frame of the car and extends to a height about level with that of the top of the generator D, and the movable portion *d* of the heater is hinged at *x* to the fixed portion *c*, so that the said movable portion when turned down to a horizontal position will extend over or partly over the generator D, when the total height of the car will be within that which is permitted by the tunnels, bridges, &c., on the road.

When the apparatus is in use, the movable portion *d* of the sand-heater is swung to a vertical position, as shown in Fig. 3.

It will of course be understood that the generator D may be of any suitable character and that the sand-heater E may also be of any suitable character.

By forming the sand-drier in sections connected together so that one may be carried to a horizontal position for transportation I am enabled to make use of a sand-drier of a much greater height and along which the sand will flow by gravity, thereby avoiding the necessity of using propeller blades, screws, &c., which must be employed when the drier is horizontal, and by setting the generator down through the frame of the car I am enabled to use a generator of greater capacity than would be possible if the generator was upon the frame, as usual.

Between the generator and the movable portion *d* of the sand-drier is a platform *e*, upon which is the blower F and the engine G. The blower F communicates through a pipe *f* with the fire-box *b* of the generator, so that a blast of air may be blown through the generator and carry the products of combustion through a discharge-flue *g* to the stationary portion *c* of the sand-drier, and thence upward in contact with the sand as it passes downward through the drier. The engine G serves to drive the fan and also serves to

drive a shaft *h*, turning in hangers below the frame of the car, and to which is fitted the drum *j* of the elevator K, by means of which the sand is elevated to a platform above the mixer.

The mixer L, of any suitable construction, is upon a platform M, which is adjustably supported, so that it can be moved to a position beyond the frame of the car and at such a height that the material can be discharged directly into a cart below. Thus, as shown, there is a post *m*, constituting the lower portion of a turn-table, so that the platform M, supporting the mixer and connected parts, may be brought to a horizontal position in relation to the frame of the car for transportation, but can be carried at right angles thereto, so as to carry the mixer to a position beyond the side of the car to discharge its contents downward into a truck or cart during the operation of the apparatus. As shown, the platform M supports also an engine N, by means of which the revolving portions of the mixer are driven, and a framework O serves to support another platform *n*, which may be a temporary platform, in proximity to a pivoted bucket *p* suspended near the mixer. The sand from the heater is discharged by the elevator K′ onto the platform *n* when the apparatus is in operation and may be measured into the bucket *p*, while the melted asphalt is discharged into a tilting bucket *q*, and the buckets may be tilted to discharge their contents into the mixer.

Any suitable number of asphalt receivers or melters P are suspended within the frame of the car A, extending through the latter and as nearly to the track as possible, so as to secure the desired height, and adjacent to these melting-tanks are arranged the tank Q for containing residuum or oil for mixing with the melted asphalt and the air-compressing tank into which air is forced by the engine S, the air passing from the tank R to the melting-tank P, as usual.

Adjacent to the melting-tank P is arranged a crane T, consisting of a vertical shaft 3, sliding in brackets 4 5 and carrying the arm 6, having a pulley at the outer end, over which may pass the cable for raising the blocks of asphalt to the tops of the tanks. In transportation the crane occupies the position shown in Fig. 1; but in use the shaft 3 is raised, so as to permit the arm 6 to be swung around away from or above the tanks, as may be desired, and the crane is supported in this position by means of a collar 7, which is bolted in place when the crane is elevated.

In order to conduct the liquid asphalt from the bottom of the tanks P, a vertical pipe 8 communicates at the upper end with a swinging pipe 9, having a cock at the end, which pipe 9 may be swung into position and deliver the melted asphalt into the bucket *q*. In transportation the parts occupy the position shown in Figs. 1 and 2; but when in use they are arranged as shown in Fig. 3, the platform M being swung around at right angles to the body of the car A, so as to extend beyond the side of the latter, so that the contents of the mixer L may be discharged into a cart or truck below.

It will of course be understood that the engines S N G are supplied with steam from the generator D through suitable pipes and that there are connections between the tanks R Q and the melting-tanks P; but I have not shown these pipes, as their arrangement will be understood and as it is well known in this class of apparatus.

It will be evident that the parts may be assembled differently from that shown. For instance, the melting-tanks P may be upon the car B and the generator D may be upon the car A. It is preferable, however, to have the generator adjacent the sand-drier E in order that the products of combustion from the generator may pass directly to the sand-drier, and it is also preferable to have the melting-tanks P as near to the mixer L as practicable.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

1. In a portable apparatus for treating paving materials, the combination with a car, of a sectional sand-heater supported thereon and one portion being movably connected with the other so as to assume a horizontal or vertical position, substantially as described.

2. In a portable apparatus for treating paving materials, the combination with a car, of a sand-heater supported thereon and having a hinged portion adapted to be moved to a vertical or to a horizontal position, a furnace and boiler likewise supported upon the car for supplying heat to the heater, an engine communicating with the boiler, means for conveying material to the top of the heater, and connections between the said means and engine whereby the former is operated by the latter, substantially as described.

3. In a portable apparatus for preparing paving mixtures, the combination of a car, a platform supported by the car and adapted to be projected beyond a side thereof, and a mixing apparatus permanently supported upon the platform, substantially as described.

4. In a portable apparatus for preparing paving mixtures, the combination of a car, a platform supported in an elevated position upon the car and movable to a position to one side thereof, and a mixing apparatus supported on the platform substantially as described.

5. In a portable apparatus for preparing paving mixtures, the combination of a platform-car, apparatus for preparing the mixtures supported upon the car, and an auxiliary platform likewise supported upon the car in an elevated position and movable to a position to one side thereof, and a mixing apparatus supported by the auxiliary platform substantially as described.

6. The combination with a car, of a platform, a mixing apparatus, an actuating-engine and a generator thereon, the platform being movable to position either directly above or projecting beyond a side of the car, and connections between the engine and generator, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. FOSTER.

Witnesses:

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PAUL W. STEVENS.