No. 648,963. Patented May 8, 1900.

W. G. KING.

PORTABLE PAVING PLANT.

(Application filed Dec. 10, 1898.)

(No Model.) 4 Sheets—Sheet 1.

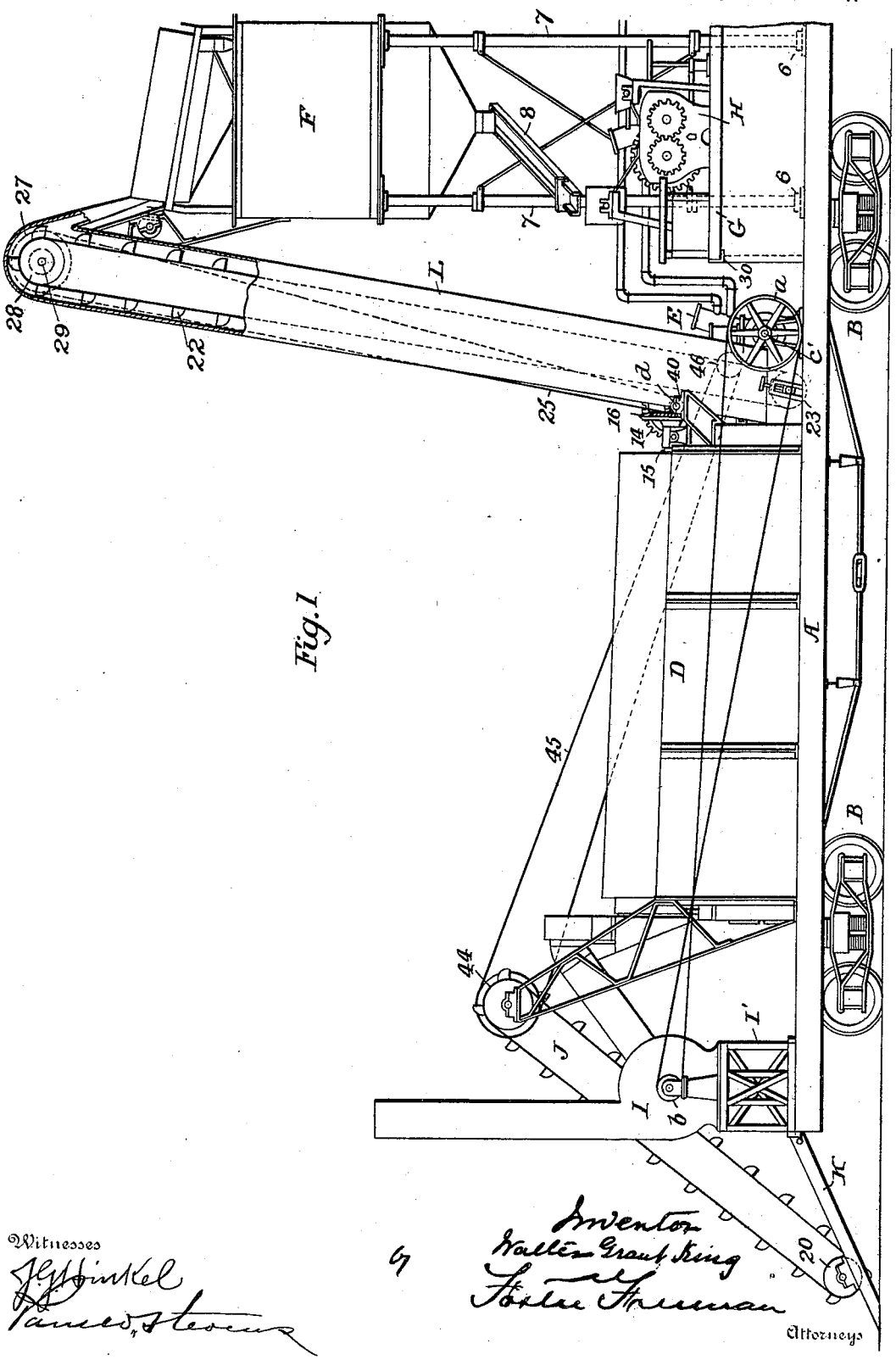

Fig. 1.

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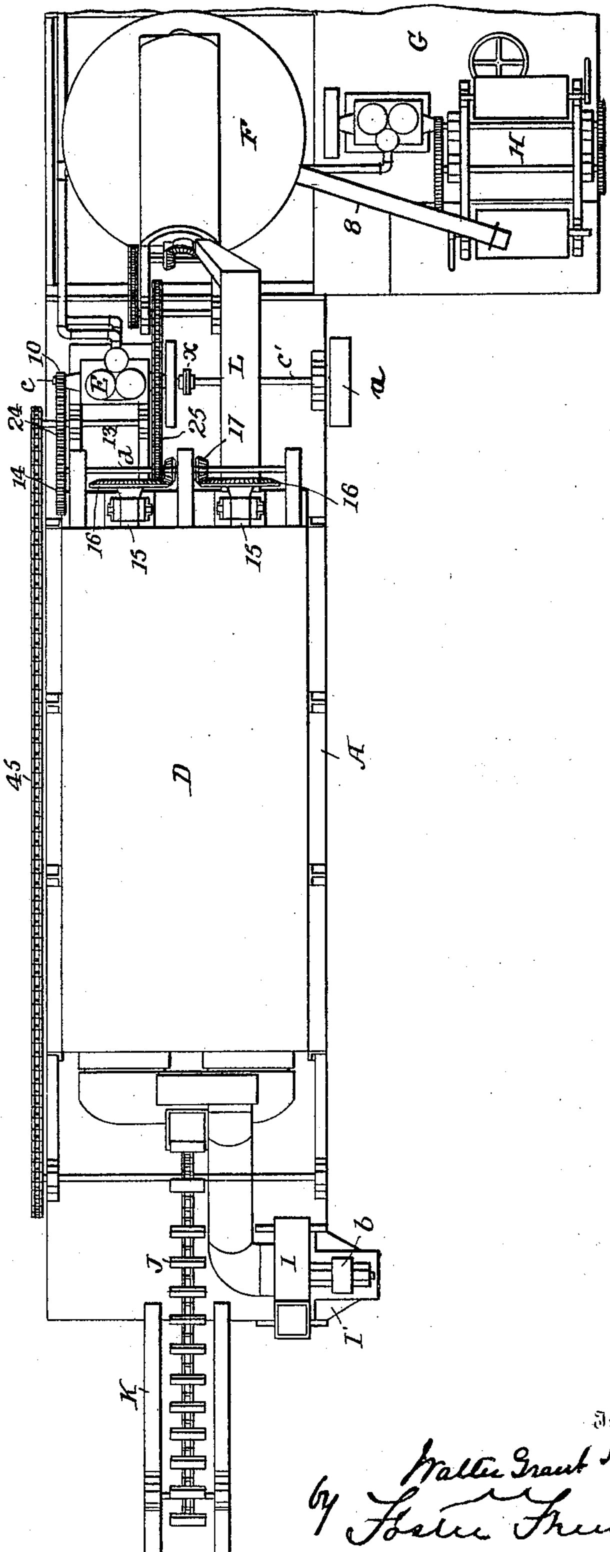

Fig. 2.

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Fig. 3.

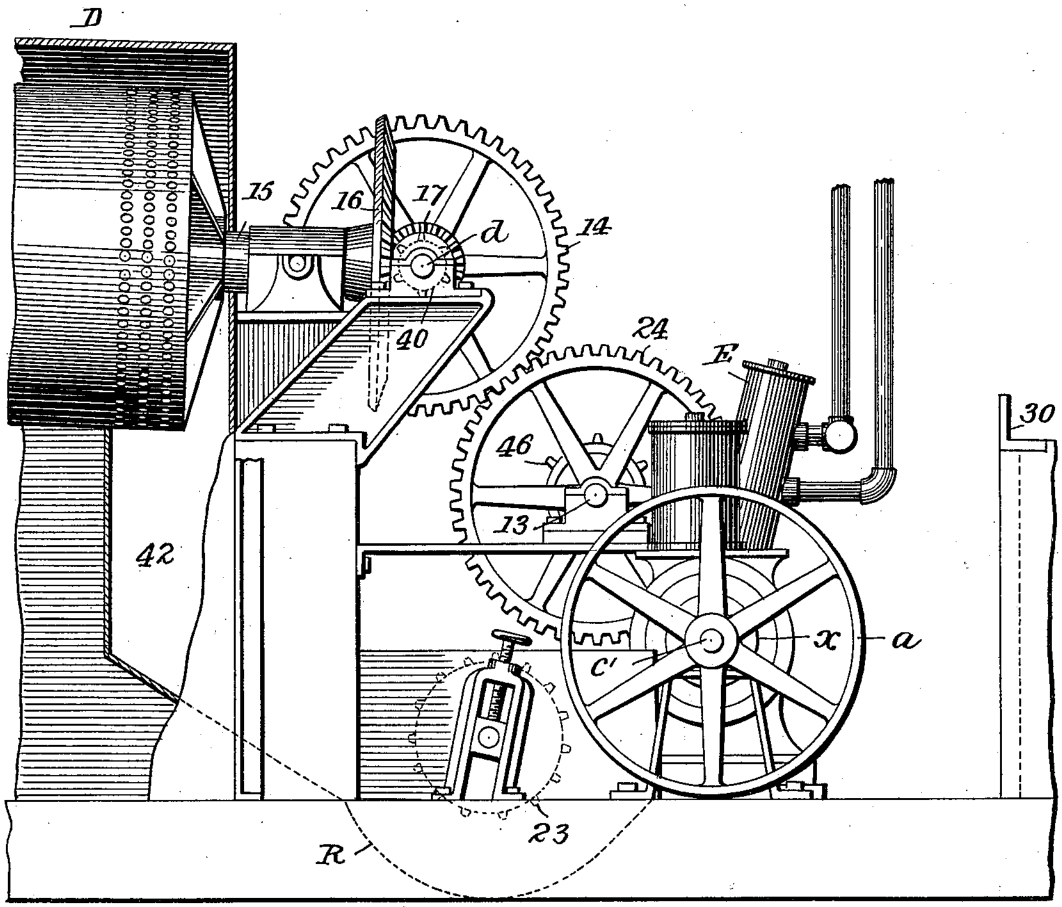

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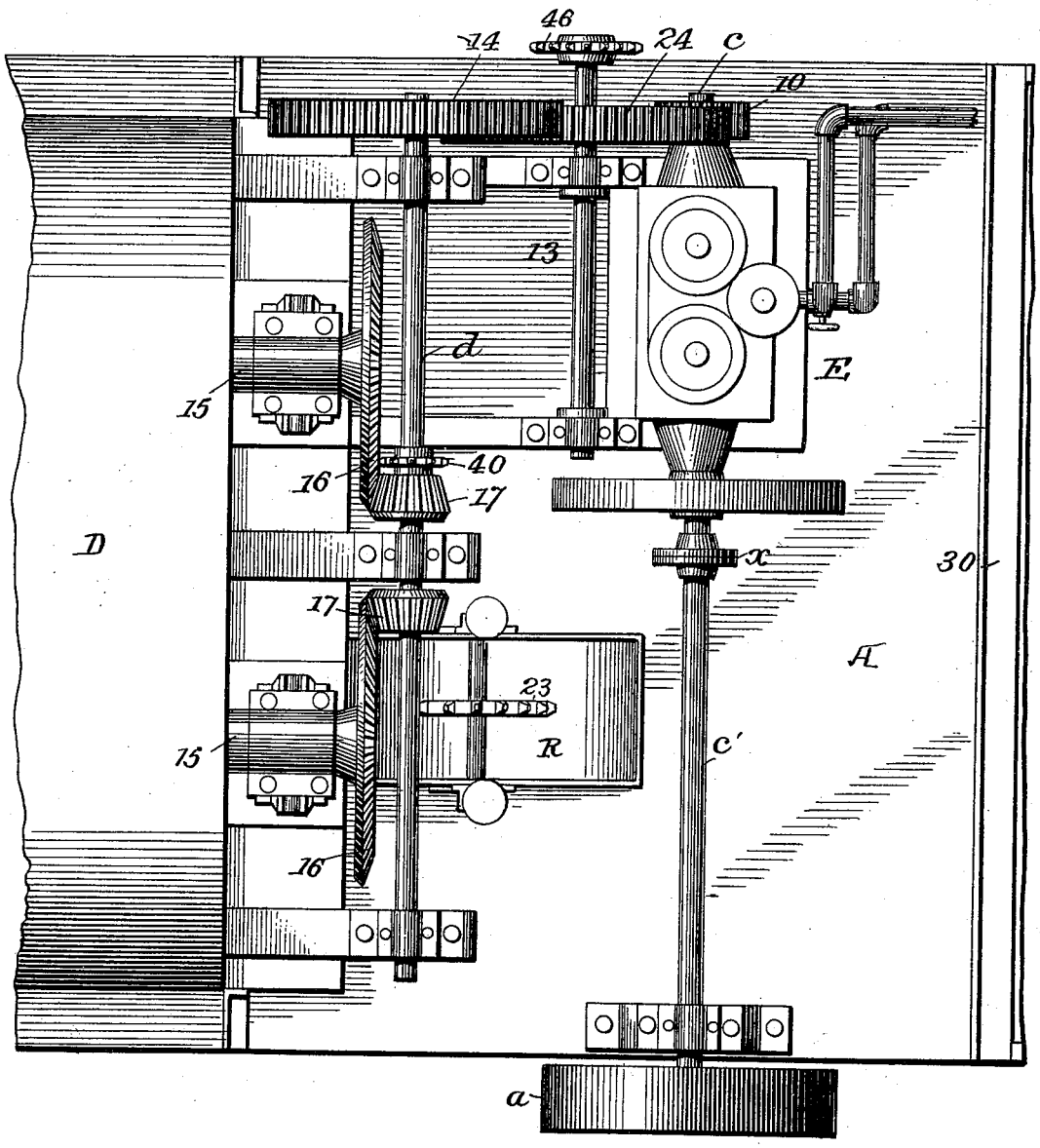
Fig. 4.



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UNITED STATES PATENT OFFICE.

WALTER GRANT KING, OF BUFFALO, NEW YORK, ASSIGNOR TO THE IROQUOIS IRON WORKS, OF SAME PLACE.

PORTABLE PAVING PLANT.

SPECIFICATION forming part of Letters Patent No. 648,963, dated May 8, 1900.

Application filed December 10, 1898. Serial No. 698,894. (No model.)

To all whom it may concern:

Be it known that I, WALTER GRANT KING, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Portable Paving Plants, of which the following is a specification.

My invention relates to that class of plants for the mixing of materials used in paving in which the various operating parts are supported by movable platforms—as, for instance, the platforms of railway-cars; and my invention consists in so constructing and arranging the parts as to facilitate construction, erection, and use, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of one of the cars of a railway paving plant with the parts arranged for use. Fig. 2 is a plan view of Fig. 1; Fig. 3, an enlarged side view of the engine and adjacent parts, and Fig. 4 a plan of Fig. 3.

The car A, constituting one of the pair of platforms of a portable paving plant, is of any suitable construction and supported by trucks B B, as usual, and supports a drying apparatus D, which may be of any of the usual constructions and which is arranged substantially at the center of the car-platform with a blower I at the end of the car-platform and a wet-sand elevator J adjacent thereto, and at the opposite end of the platform is supported a sand-bin F, between which and the adjacent end of the drier is the operating-engine E, a dry-sand elevator L serving to conduct the sand discharged from the drier to the usual screen above the bin F.

Heretofore it has been customary to support the sand-bin by supports or by a structure having bearings upon the ground adjacent to the end of the car, and in many instances the mixer has also been supported in like manner. This has proved to be objectionable because of the difficulty in frequent instances of securing a proper unyielding foundation for the structure supporting the bin or mixer, and, further, because of the frequent instances in which such foundation is irregular, while in other instances, owing to the presence of tracks adjacent to those on which the plant is stationed, there may be no room for erecting the bin-supporting structure. In view of these difficulties I support the bin directly upon the car itself. Thus in proper positions adjacent to the end of the car I secure blocks 6 6, constituting steps for the lower ends of the vertical members 7 7 of the structure supporting the sand-bin F in its desired elevated position, the bin and its supporting structure being detachably connected with each other and with the car, so as to permit dismemberment in order that the parts may be compactly stowed for transportation. By this means I provide a foundation for the bin-supporting structure which is invariably level, firm, and always available and without the necessity of occupying any space at either side or beyond the end of the car itself.

In many instances it has proved desirable to provide a movable platform G for the mixer H in order that the latter may be carried to the rear or to one side of a car to discharge material into a cart below. As shown in the drawings, the platform is supported upon elevated guide-rails 30 30, and I place the bearings 6 6 below the position occupied by the platform during transportation, so that when the platform is carried to one side the structure supporting the sand-bin may be erected at the same point, thus avoiding the necessity of securing additional space upon the car for this purpose. When the mixer is thus moved to one side, the sand may be conducted thereto in any suitable manner—as, for instance, by means of a chute 8.

Heretofore the operation of portable plants has been attended with difficulties and some danger in consequence of the arrangement of the parts necessitating the use of various counter-shafts and belts for driving the blower, dry-sand and wet-sand elevators, and the shaft or shafts of the sand-drying apparatus. To obviate these objections, I provide means whereby to secure an almost direct transmission of power in each case, making use of a high-speed engine, which can be operated most advantageously, and a single counter-shaft with reducing speed-gear by which said counter-shaft is driven at the comparatively-slow speed required for the various

parts operated therefrom. As this engine E must operate both upon the shaft or shafts 15 of the sand-drier and upon the dry-sand elevator L, I arrange the driving-gear of the drier at the inner end thereof, providing each shaft 15 with a beveled gear 16, and I arrange the operating-engine E adjacent to such gear and between the latter and the sand-bin F. In this connection I make use of a counter-shaft *d*, having pinions 17 meshing with the gears 16, and from this counter-shaft, geared with the shaft *c* of the engine E, I may drive the elevators as well as the shafts of the drier. This, however, would necessitate arranging the engine E in such an elevated position that the pinion 10 on its shaft *c* could mesh with the wheel 14 on the shaft *d*. This might be done if necessary; but as I prefer to support the engine in a lower position directly on the car-platform I use an intermediate gear 24, which may be secured to or turn on a shaft or stud 13, and the elevator L may be driven either from the gear 24 or the gear 14 or their shafts. As shown, the belt 25 of the elevator passes from a pulley 40 to a pulley 27 at the top of the elevator, secured to a shaft 29, carrying a drum or pulley 28, around which passes the chain of buckets 22 to the lower drum 23 of the elevator above the basin R, into which the hot sand falls from a chute 42, into which the drier discharges.

The upper drum 44 of the wet-sand elevator J is driven directly by a belt or chain 45, passing from a wheel or sprocket 46 on the counter-shaft.

In order to directly drive the shaft of the blower I, there must be a band extending between the engine-shaft and the blower-shaft. To secure this arrangement, I make the engine-shaft in two sections *c c'*, coupled together at *x*, the outer section carrying a pulley *a* and supported so as to be removable during transportation to carry the pulley within the area of the car, and I support the blower I upon a support I', laterally movable upon the platform of the car, so that it may be carried outward to the position shown in Fig. 2 to bring the pulley *b* of the blower-shaft in line with the pulley *a* and for transportation to bring the blower and all parts thereof within the area of the car. I am thus enabled to drive the roller directly without the use of counter-shafts.

It is often difficult to properly supply the drier of a portable paving plant with sand in consequence of the limited area available in some instances—as, for instance, when the plant is upon a somewhat-elevated road-bed or where there are side tracks which cannot be obstructed. I therefore provide for the dumping of the sand directly opposite the end of the car upon a temporary platform when necessary, so that only the road-bed upon which the car stands is obstructed, and I arrange the frame K of the wet-sand elevator so as to support the lower drum 20 of the elevator in a position just above the track and opposite the end of the car, as shown.

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

1. The combination with the car of a portable paving plant, of a mixer, a separable elevated sand-bin structure, bearings on the car-platform near one end for said structure, and means for supporting the mixer on the platform adjacent to said bearings when the apparatus is in position for transportation, substantially as described.

2. In a portable plant, a car, a platform supported upon said car and movable to extend beyond the same, a mixer upon said platform, bearings on the car near one end of the car adjacent to the position of the platform during transportation and a sand-bin and supports therefor resting on said bearings, when the apparatus is in use, substantially as described.

3. The combination in a portable paving plant, of a car, a separable elevated sand-bin structure, its lower end supported in bearings on the car, a mixing apparatus movably supported on the car to be shifted to a position beyond the same, and means for conducting the sand from the bin to the mixing apparatus after it is shifted, substantially as described.

4. In a portable paving plant, a car, a sand-drying apparatus supported centrally thereon, an elevated sand-bin at one end, an operating-engine between the bin and drier, a shaft extending from the engine and provided with a pulley *a*, beyond the side plane of the drier, a blower at the opposite end of the car provided with a pulley in line with the pulley *a*, substantially as described.

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

WALTER GRANT KING.

Witnesses:
PHILIP F. LARNER,
HARRY E. HAY.