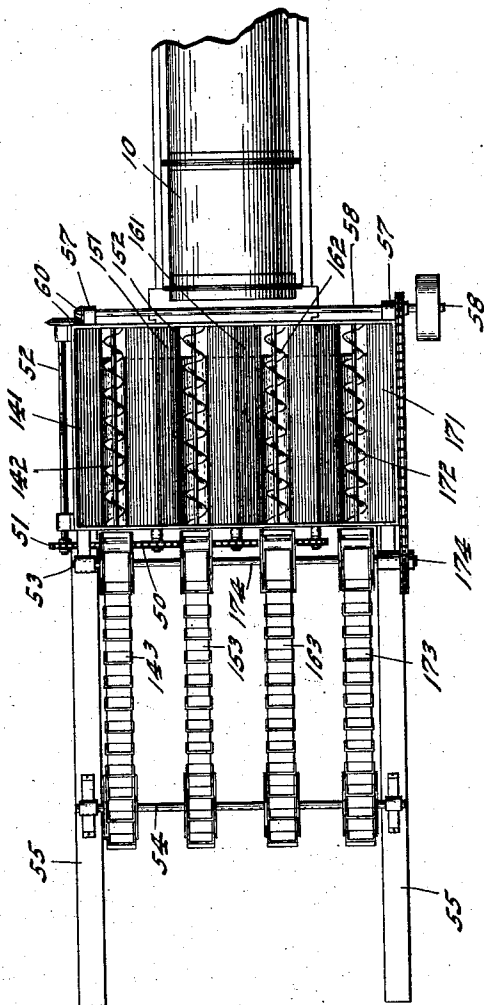


F. A. HETHERINGTON.
PAVING PLANT.
APPLICATION FILED AUG. 14, 1908.

Patented May 21, 1912.
2 SHEETS—SHEET 1.

1,027,334.

Fig. 1.



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Fig. 3.

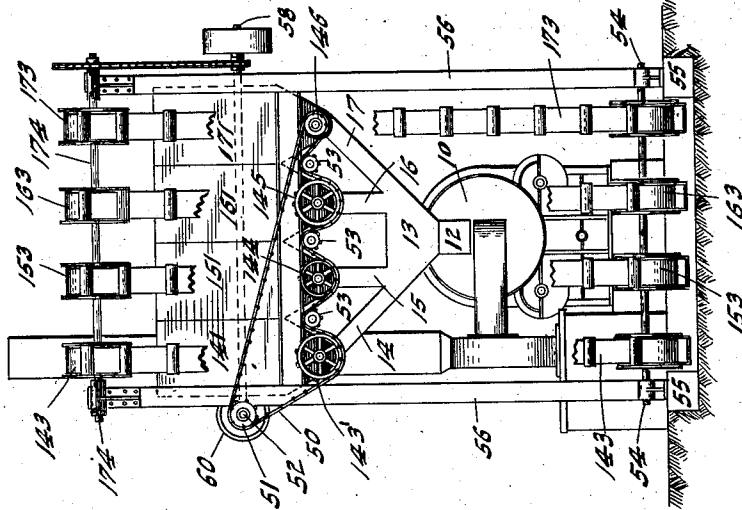
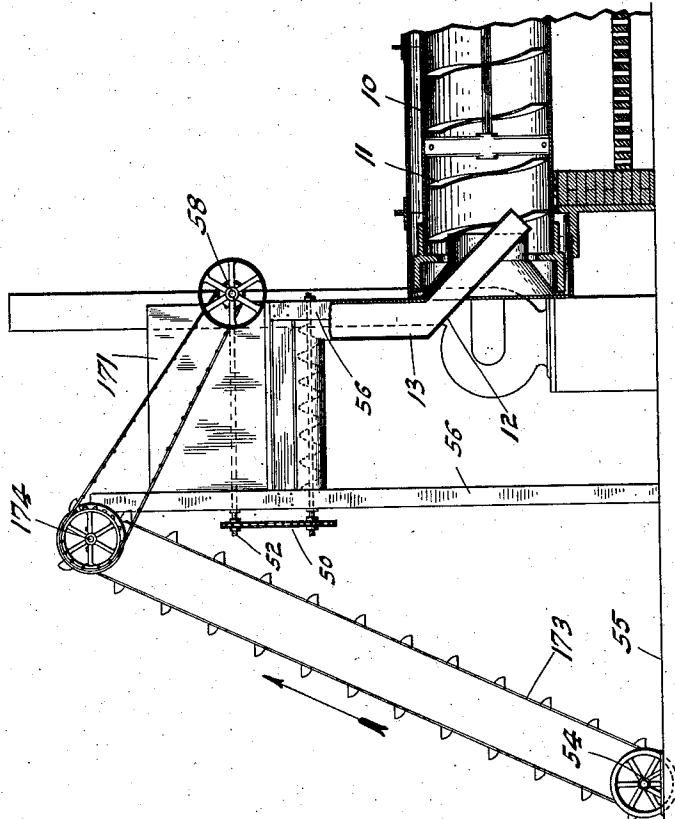


Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK A. HETHERINGTON, OF INDIANAPOLIS, INDIANA.

PAVING PLANT.

1,027,334.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed August 14, 1908. Serial No. 448,564.

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 certain new and useful Improvements in Paving Plants, of which the following is a specification.

In the manufacture of street pavements of the type now commonly known as "bitulithic" it is important, in order to insure permanency of the pavement, that the various solid ingredients be very nicely proportioned in order that a minimum amount of voids will be left for the reception of the bituminous cement. The pavement comprises proportioned volumes of several sizes of crushed stone, the proportions of the different sizes depending upon the size of the several particles, and it is desirable that a maximum quantity of the largest size be used. It is therefore desirable that some mechanism be provided for uniformly proportioning the several volumes, and the object of my present invention is to produce an apparatus capable of performing this work automatically, the structure being such as to admit of ready adjustment for differing conditions.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of an apparatus embodying my invention; Fig. 2 a side elevation with a suitable drier mechanism shown in section; Fig. 3 an end elevation with portions of the feeder belts omitted.

In the drawings, 10 indicates a drying and heating device by means of which the crushed stone is to be dried and heated before delivery to the mechanism by which the asphaltic or bituminous binder is mixed therewith. This drier mechanism may be in any desired form but in practice I have found it should be preferably of such character as to insure the continuous movement of all portions of a given mass which may be introduced therinto at any particular time. In other words, the structure should be of such character that, if a mass of broken stone comprising specified proportions of particles ranging in size from a 3" mesh to a 1/4" mesh, the entire mass, comprising both the coarser and finer particles, shall pass simultaneously through the drier mechanism so that the proportions of the several sizes will not be altered. For this reason a

drier mechanism, having substantially continuous flights 11 which compel uniform propulsion of all portions of any mixture delivered to the drier, is preferable. Leading into the drier is a feed chute 12 which, at its upper end, is provided with a hopper-like portion 13, into which lead spouts 14, 15, 16 and 17 which spouts deliver from comparatively small bins 141, 151, 161 and 171 respectively. In the bottoms of the bins I mount positive feeding mechanism 142, 152, 162 and 172 respectively, the same being conveniently ordinary screw conveyers provided at their outer ends with readily removable sprocket wheels 143', 144, 145, and 146. Gears may, of course, be substituted for the sprocket wheels. These sprocket wheels are made readily removable in order that, without inconvenience, the feeding capacity of any one of the conveyers may be readily changed by a proper change of sprocket wheels.

In order to drive the sprocket wheels just mentioned I provide a chain 50 which passes over the several sprocket wheels and over a driver 51 carried by a shaft 52. In order that all of the conveyers may have the same direction of movement the chain 50 is passed over idlers 53 arranged between each pair of sprocket wheels, as clearly shown in Fig. 3. By this arrangement a considerable amount of slack may be left in the chain 50 without in any way interfering with a proper driving of the various conveyers, so that the chain 50 may be made long enough to accommodate the largest sprocket wheels which may be needed on the various conveyor shafts and yet permit the substitution of smaller sprocket wheels without the necessity of readjustment of the length of the chain 50. An apparatus for a fixed proportion might be made by using conveyers of different diameters or pitches.

Delivering to the several bins 141, 151, 161 and 171 are elevators 143, 153, 163, and 173 respectively, said conveyers being supported at their upper ends upon a driving shaft 174 and at their lower ends upon an idler shaft 54 said shaft being journaled upon the main horizontal frame members 55. The frame members 55 carry vertical posts 56 which support the structure heretofore described so that the entire mechanism may be readily mounted adjacent the receiving end of the drier. Journaled in suitable brackets 57 on two of the posts 56 is a main

drive shaft 58 connected by gears 60 with shaft 52.

In ordinary pavements four sizes of stone are all that are usually used and I therefore show my apparatus equipped for that character of pavement. If a less number of sizes are used it will be readily understood that it is merely necessary to loosen the driving sprocket wheel of one or the other of the conveyers in the bottoms of the bins so that that conveyer will not be driven. It will also be understood that if more than four sizes are desired the machine will be equipped with a greater number of bins, etc.

In operation the material of the different sizes is delivered, either by hand or by any suitable mechanism, to the several elevators 143, 153, 163 and 173 and delivered by them into bins 141, 151, 161, and 171, these bins being of sufficient size to compensate for any slight inequalities of delivery to or by the elevators. From the bins the material will be fed in a continuous stream by the several conveyers each stream bearing a predetermined relation to the other streams which relation will remain fixed during the operation of the machine irrespective of the speed of the operation and the several streams will flow simultaneously into the spout 12 and from thence to the drier where they will become thoroughly mixed and the proportions maintained by the continuous conveyer flight 11 in the drier so that, when the mixture is delivered from the drier it will contain in proper proportions the several sizes of stone so that the heated mixture may be delivered directly to mechanism for associating with it the desired cement.

It will be noticed that by this apparatus the thorough and proper proportioning of the several materials will be independent of any skill on the part of the operators.

I claim as my invention:—

1. In a paving plant, the combination of a drier provided with means for maintaining the general character of the mixture delivered thereto, a plurality of bins, a receiver supplied in common by said several bins and supplying the drier, positive continuous feeding means arranged in each of said bins for feeding material freely therefrom into said receiver, and means for feeding material into the several bins.

2. In a paving plant, the combination of a drier provided with means for maintaining the general character of the mixture delivered thereto, a plurality of bins, a receiver supplied in common by said several bins and supplying the drier, and positive continuous feeding means arranged in each of said bins for feeding material freely therefrom into said receiver.

3. In a paving plant the combination of a plurality of bins each having a delivery spout delivering to a common point into a drier provided with means for maintaining the general character of a mixture delivered thereto, the said drier, screw conveyers one mounted in each of said bins and arranged to deliver material freely from the bins to their discharging spouts, and means for driving said conveyers comprising readily changeable members whereby the relative speeds of the conveyers may be changed.

4. In a paving plant the combination of a plurality of bins each having a delivery spout delivering to a common point, a screw conveyer mounted in each of said bins and arranged to deliver material from the bins to their discharge spouts, and means for driving said conveyers comprising a readily removable sprocket wheel on each conveyer shaft, an idler between each pair of sprocket wheels, and a sprocket chain passed over said sprockets and idlers substantially as and for the purpose set forth.

5. In a paving plant, the combination of a drier provided with means for maintaining the general character of the mixture delivered thereto, a plurality of bins, a receiver supplied in common by said several bins and supplying the drier, positive continuous feeding means arranged in each of said bins for feeding material freely therefrom into said receiver, and means for driving said feeding means comprising readily changeable members whereby the relative speeds of such feeding means may be varied.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this fourth day of August, A. D. one thousand nine hundred and eight.

FREDERICK A. HETHERINGTON. [L. S.]

Witnesses:

ARTHUR M. HOOD,
THOMAS W. McMEANS.