No. 690,943. Patented Jan. 14, 1902.

M. GARLAND.

CONVEYER SYSTEM.

(Application filed Nov. 4, 1901.)

(No Model.) 4 Sheets—Sheet 1.

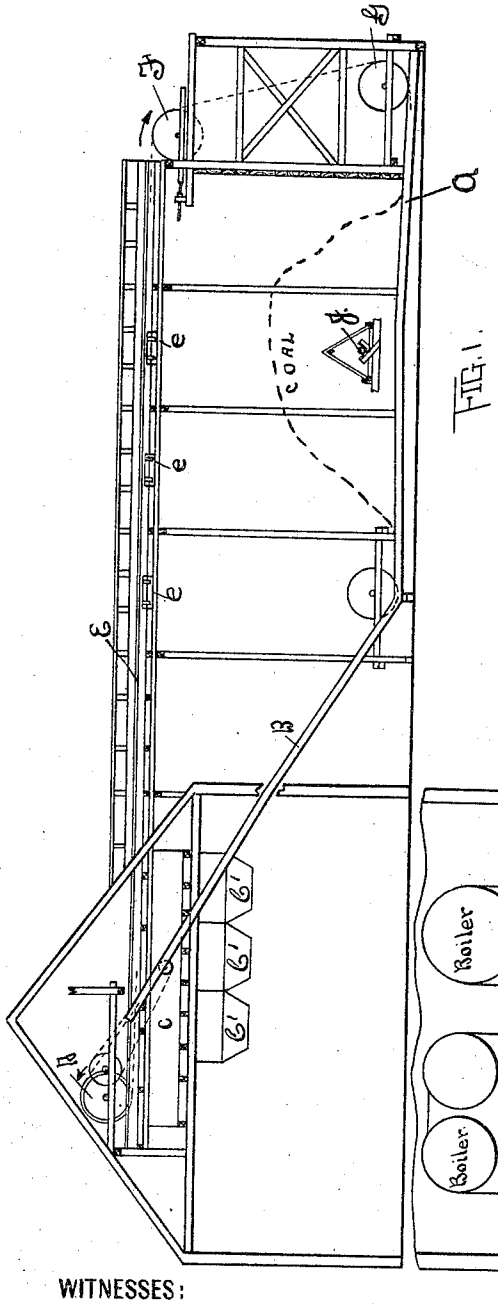


FIG. 1.

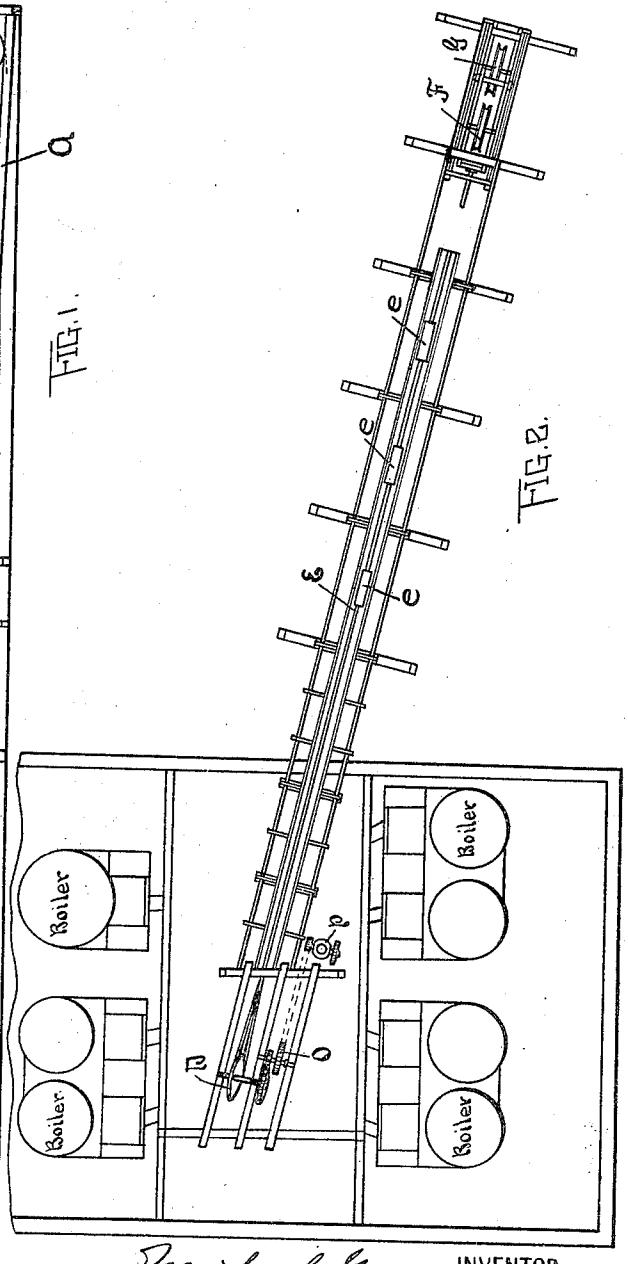


FIG. 2.

WITNESSES:

William Stephens

D. Gould.

Michael Garland INVENTOR

BY

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CONVEYER SYSTEM.

(Application filed Nov. 4, 1901.)

(No Model.) 4 Sheets—Sheet 2.

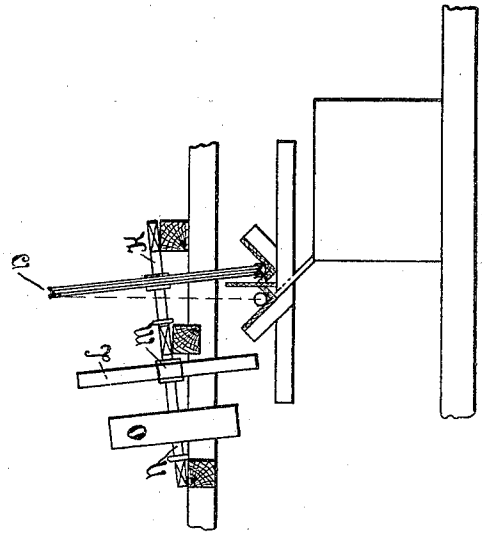


FIG. 4.

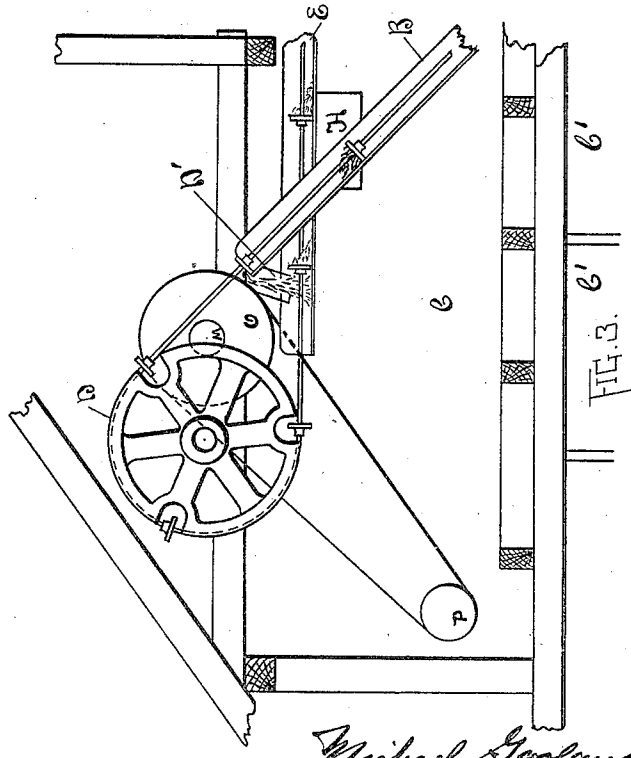


FIG. 3.

WITNESSES:

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No. 690,943. Patented Jan. 14, 1902.

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CONVEYER SYSTEM.

(Application filed Nov. 4, 1901.)

(No Model.) 4 Sheets—Sheet 3.

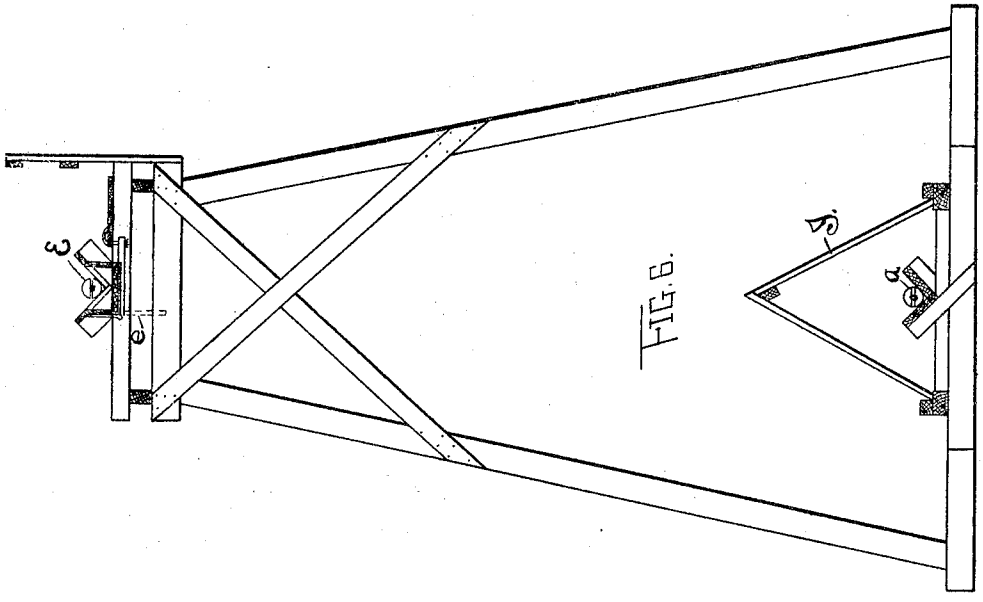


FIG. 6.

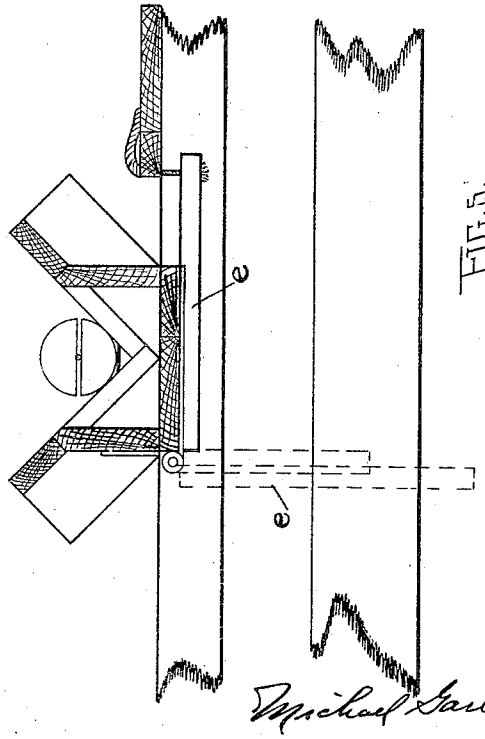


FIG. 5.

WITNESSES:

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No. 690,943. Patented Jan. 14, 1902.

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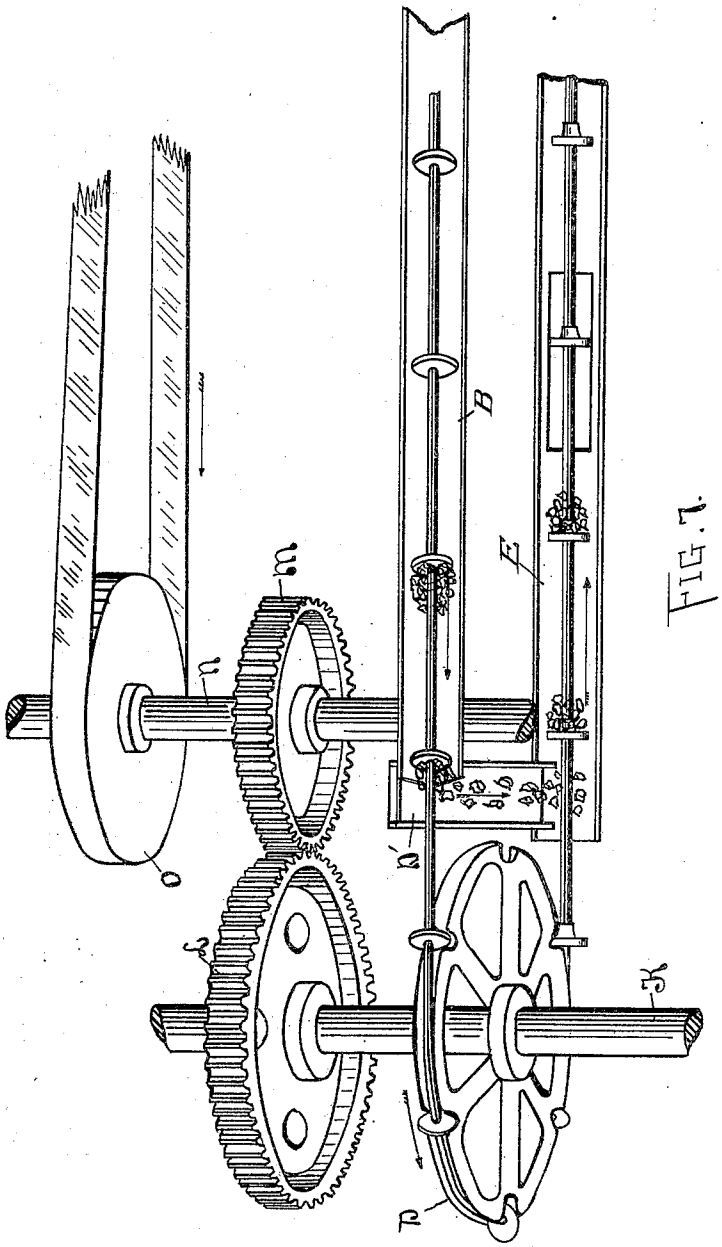


FIG. 1.

WITNESSES:

William Stephens.

A. Gould.

Michael Garland INVENTOR

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UNITED STATES PATENT OFFICE.

MICHAEL GARLAND, OF BAY CITY, MICHIGAN, ASSIGNOR TO THE M. GARLAND COMPANY, OF BAY CITY, MICHIGAN.

CONVEYER SYSTEM.

SPECIFICATION forming part of Letters Patent No. 690,943, dated January 14, 1902.

Application filed November 4, 1901. Serial No. 81,139. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL GARLAND, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Conveyer Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a conveyer system employing a chain or rope conveyer having laterally-projecting flights or scrapers running in a groove or trough.

The object of the invention is to provide a conveyer system by which coal, grain, or other material may be taken from the receiving end of the system and either carried to a point above the hoppers or storage-bins, to be distributed as desired, or it may be transferred back and dumped in a storage-pile for future use.

The invention also comprises means for taking the material from the storage-pile and delivering it to the hoppers or storage-bins.

The system is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the system applied to a coal-storage building. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of the pulley and chute for transferring the material from the inclined elevating-flight to the horizontal flight. Fig. 4 is a sectional end elevation of the same. Fig. 5 is a sectional detail of the trough and dumping-door. Fig. 6 is an elevation of a single bent. Fig. 7 is a top view of the inclined pulley and the upper ends of the chutes.

A horizontal conveyer-flight A extends under the coal-storage building and near the place from which the coal is delivered. A diagonal or inclined flight B extends to a point above the openings C of the bins which are to be filled and runs over a conveyer-pulley D. Passing around the pulley D the conveyer extends by an overhead horizontal flight E to the pulley F at the end of the storage-building, and thence over the pulley G beyond the point where the material is received, forming an endless conveyer. The operation of the system is as follows:

Material delivered from cars or other source of supply at one end of the storage-building is carried by the horizontal flight A and the diagonal flight B to a point above the openings C of the storage-hoppers C′. Just before the material reaches the pulley D it is delivered down a chute D′ to the horizontal flight E. It moves along the trough of the flight E and may be distributed among the hoppers C′ by dumping through trap-doors H in the trough. If more cars remains to be unloaded when the hoppers C′ are filled, the coal is carried along by the flight E and dumped in the storage-building through the trap-doors *e* in the trough. The empty flights pass over the pulley F and are again ready for loading.

When it is desired to take material from the storage-building instead of from cars, as above described, the pile is tapped in the following manner:

Covering the lower flight A on the floor of the storage-building is an inverted-V-shaped trough I, built up of narrow planks standing on end, their tops meeting in the center at the apex of the V, as shown in Fig. 6. By removing these planks as the edge of the pile recedes the material may be easily fed to the conveyer-flight A at any rate desired.

When necessary, as in very large storages, cross-conveyers J are provided, so as to take the material from a larger area. These cross-conveyers extend transversely over the flight A of the main conveyer and bring the material to it. In order that the flights B and E may not interfere with each other as they advance toward and move away from the conveyer-pulley D, the pulley is arranged with its axis inclined, as shown in Figs. 4 and 7, so that the plane of the pulley is not vertical, but is sufficiently inclined so that the oppositely-moving flights can pass each other. This construction and arrangement of the pulley D is an important feature of my invention, for by tilting the pulley, as above described, material can be delivered from the upwardly-inclined flight B to the horizontal flight E by a simple straight chute D′, thus doing away with the necessity of complicated

series of pulleys and by-pass chutes heretofore employed for transferring material from one conveyer-flight to another.

The power to drive the conveyer is applied to the shaft K, upon which the conveyer-pulley D is rigidly mounted. A gear L is secured to the shaft K to rotate it. The gear L is driven by a second gear M, mounted on the shaft N, which is driven by a pulley O, deriving its motion from a motor or other source of power P, belted to the pulley O.

By this system, which essentially consists in an endless conveyer having the inclined pulley arrangement above described, I am enabled to take coal or similar material from cars and either distribute it to bins as desired or to deposit it in a main storage-pile and later by the same conveyer to take it from the storage-pile and deposit it in the bins.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a conveyer having an inclined flight and a substantially horizontal flight which pass each other; a pulley carrying said conveyer and located beyond the passing-point of said flights; said pulley having its axis inclined.

2. In combination with an endless conveyer having an inclined flight and a substantially horizontal flight which pass each other; a conveyer-pulley carrying said flights and located beyond their passing-point, said pulley having its axis inclined, whereby said flights are prevented from interfering; together with a straight chute sloping downwardly from the upwardly-inclined flight to the horizontal flight.

3. In combination with an endless conveyer having an inclined upwardly-moving flight and a substantially horizontally-moving flight which pass each other; a conveyer-pulley carrying said flights and located beyond their passing-point, said pulley having its axis inclined and provided with means for driving the conveyer, substantially as described.

4. In a conveyer having an inclined elevating-flight and a horizontal distributing-flight, the means for transferring material from the inclined flight to the horizontal flight and for preventing interference of the flights: comprising a conveyer-pulley having its axis inclined and carrying the upwardly-inclined flight on its upper periphery and the horizontal flight on its lower periphery, substantially as described and for the purposes set forth.

5. In combination with an endless conveyer having an inclined flight and a trough for carrying said flight, together with a substantially horizontal flight passing the first flight and a trough for carrying said horizontal flight; a conveyer-pulley for driving said flights, said pulley being located beyond their passing-point and having its axis inclined; trap-doors at intervals along the horizontal trough; and a downwardly-sloping chute for delivering material from the upwardly-inclined flight to the horizontal flight, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL GARLAND.

Witnesses:
I. GOULD,
WILLIAM STEPHENS.