

(No Model.)

D. C. KINGMAN.

ROLLER WAY OR TRACK FOR DREDGING AND OTHER MACHINERY.

No. 432,947.

Patented July 22, 1890.

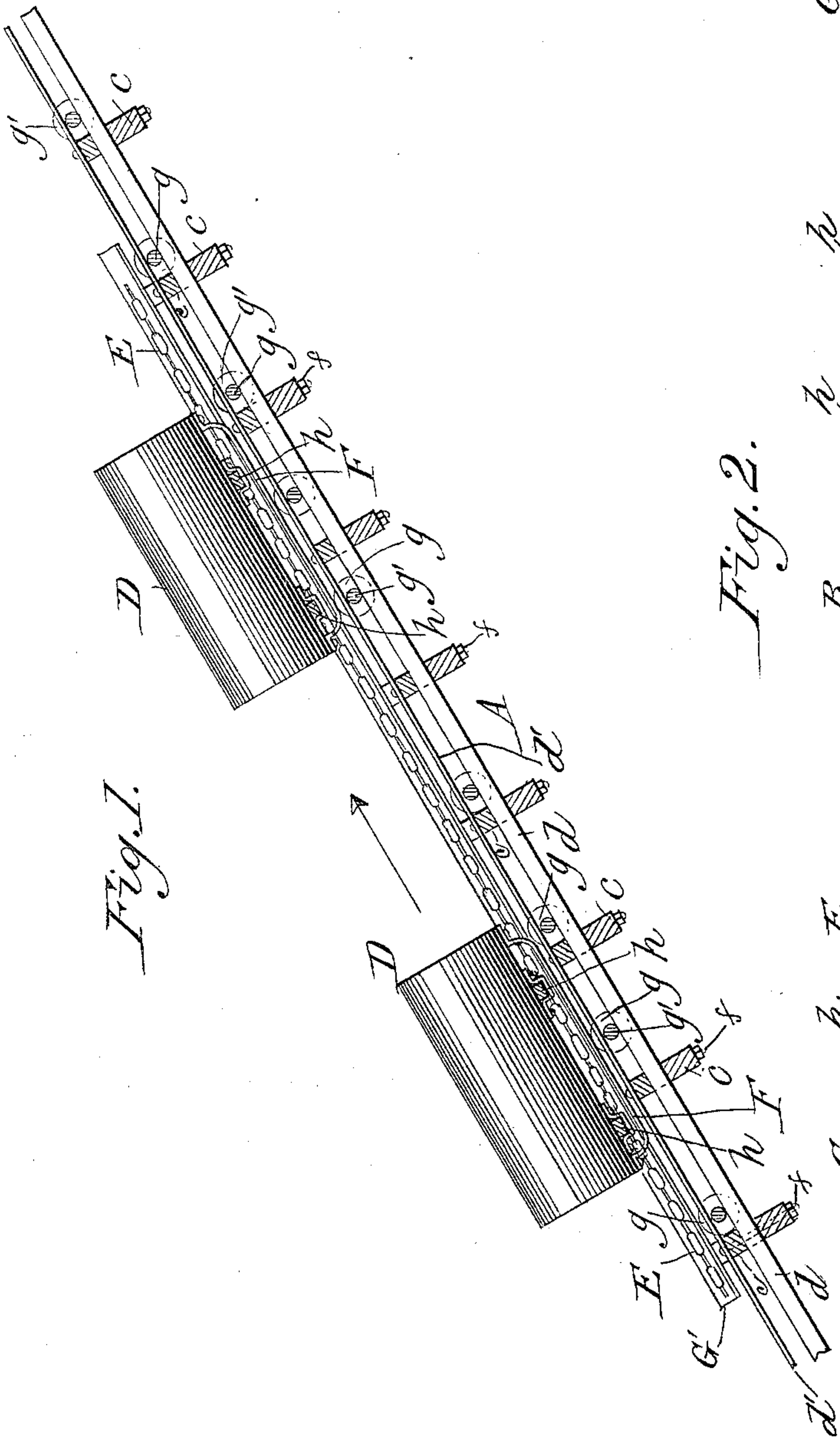


Fig. 1.

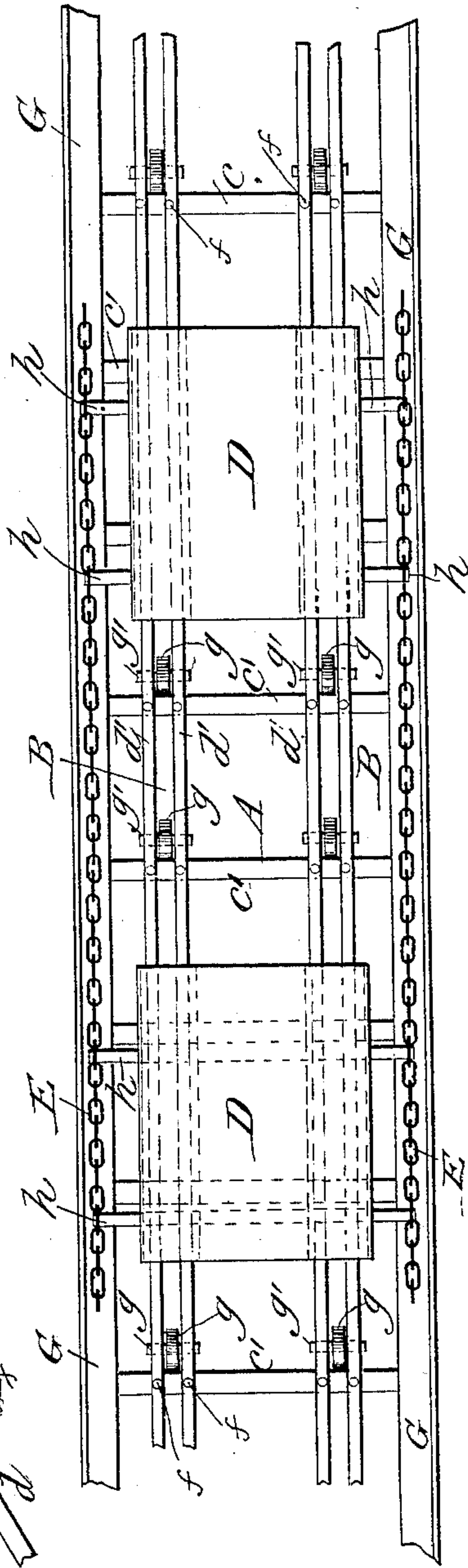


Fig. 2.

Attest:

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UNITED STATES PATENT OFFICE.

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ROLLER WAY OR TRACK FOR DREDGING AND OTHER MACHINERY.

SPECIFICATION forming part of Letters Patent No. 432,947, dated July 22, 1890.

Application filed February 1, 1890. Serial No. 338,888. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. KINGMAN, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Roller Ways or Tracks for Dredging and other Machinery; 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 consists, mainly, in a novel supporting roller way or track, especially intended for incline planes, but not limited thereto, the same comprising a platform, roller-confining rails, spaced rollers, and arresting cross-ties or stops, the rollers being arranged to travel, respectively, between the stops, while they are being revolved by separated moving bodies resting upon them, and which rollers or wheels, when the track or way is inclined, rolling back by their gravity to their normal positions, and being arrested and held separated from one another ready for coming into operation when successively advancing, ascending bodies reach them in the same manner as when at the start the first body came in contact with them, such rolling back of the rollers taking place, respectively, at the moment a preceding body which has been resting on them passes beyond any one of them. By this part of my invention the friction and wear of the roller way or track and of objects carrying loads, as well as the machinery moving such objects, are greatly lessened, and a reduction of the amount of power required for moving machinery employed in dredging-machines or apparatus employed for elevating and moving objects is effected.

The invention also consists in certain details of construction, as will be hereinafter described and specifically claimed, whereby the rollers are kept upon the track or way, and yet are allowed to both revolve and travel back and forth in said way, simplicity and durability are secured, and wear and destruction of devices in immediate contact with the roller way or track and of the chain-guide are avoided, and the utilities of the main part of my invention are very beneficially de-

veloped, both in inclined and horizontal roller ways or tracks.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my invention, illustrating the same in connection with sprocket-wheel chains and buckets of a dredging-machine; and Fig. 2 is a plan view of the parts shown in Fig. 1.

A is intended to designate an inclined platform or structure, which in this instance is formed with cross-ties *c* of wood or other material, and upon which the track or roller way is constructed.

The way or track may be constructed as follows: Upon the cross-ties *c* of the foundation A, parallel with one another, are provided longitudinal guideways B for the rollers *g* and axles *g'* of said rollers. At intervals these guideways are provided with cross-ties or stops *c'*, said stops or cross-ties separating the rollers and limiting the forward and backward travel of the same while they are revolving on their axles. The guideways B comprise strong metal base portions *d* and metal capping portions *d'*, the base portions with the capping portions being firmly secured to the cross-ties of the foundation and to the cross-ties *c'* by screw-bolts *f* or other suitable means after the rollers are set in position, with their disk portions vertically between the guideways and their axles horizontally between the base and capping-bars of said guideways. The bars *d* and *d'* under this construction can be separated when it is desirable to remove worn out or broken rollers for the purpose of substituting new ones. The bars may be made in suitable lengths and laid end to end the same as with railway-rails. The rollers, respectively, may consist of a solid disk, as *g*, with a short axle, as *g'*, passing through the center of it and projecting a short distance on each side, so as to extend under the capping portions *d'* of the guideways, as shown, or these rollers may be constructed and applied in any other suitable equivalent manner.

The preferable mode of putting down the roller-guideways upon a foundation is to have the way or track comprise strong rectangular metal bars or strips, as *d*, and support the

same on cross-ties, as *c*, arranged on an inclined platform, as *A*, these bars being separated laterally to an extent a little more than the thickness of the roller-disk; then to
 5 apply a second set of cross-ties, as *c'*, on the metal base-bars *d*, directly over the first set of cross-ties *c*, and then to place the metal capping portions *d'* upon the cross-ties *c*, so as to hold the rollers down in place and yet
 10 allow them both to revolve and travel, and this done to bolt the whole together by screw-bolts, as *f*, which pass through the two pieces *d* *d'* and both sets of cross-ties *c* *c'*, as shown.

It will be seen from the foregoing specification that the rollers, while free to revolve, as commonly, on their axles, or with their axles, they are also, as uncommonly, free to travel back and forth between the separating and arresting cross-ties or stops *c'*, and thus
 20 if any object or a number of objects—as, for instance, a series of buckets attached to endless traveling chains *E* of any moving machine—a dredging mechanism, for instance—such objects in their movements on coming
 25 in contact with the rollers will, by their weight and friction, cause the same to revolve and at the same time carry the rollers along with them a distance equal, or nearly so, to that between any two of the stops or cross-ties, and then when the object passes beyond
 30 the first roller or set of rollers with which it comes in contact the roller or rollers will roll back to their position or positions against the cross-ties or stops, while in the meantime the first object will come in contact with a roller
 35 or rollers in advance of the first roller or set of rollers, and a succeeding object or bucket *D* will come in contact with the said roller or set of rollers and again carry the same forward a distance equal, or partly so, to that
 40 between a pair of stops or cross-ties, and thus the operation goes on from top to bottom of the inclined roller way or track.

The great utility of my invention lies in the
 45 fact that the axles of the rollers and their bearings are not constantly being worn away at one point, as in constructions wherein the axles are confined in bearing-boxes and are held from traveling between the cross-ties
 50 or stops. As the rollers have a large diameter of disk and small diameter of axle, they roll up the track but a short distance while a bucket is passing over them, and so have only a short distance to roll back.

In order to make the buckets of dredging-machines work with slight friction upon the rollers and at the same time protect the buckets from rapid destruction, a broad iron shoe
 55 *F* is fastened to the bottom of each bucket, and this shoe by resting on the rollers supports the bucket and suspends the bucket-chain *E*, so that said chains are kept out of contact with their guiding inclines *G*, and thus
 60 are not liable to be worn out by frictional contact, as is the case in other arrangements for operating buckets of endless-chain dredging-machines. The buckets in my arrange-

ment are connected by bars *h* to the chains *E*, as shown.

By reducing the friction in structures of
 70 this sort, as is done with my invention, a smaller engine can be used and much less fuel for doing the work will be required, much wear and tear of machinery will be avoided, and the length of time the buckets
 75 and chains will last, greatly increased. The herein-described invention is intended to be used for other purposes than dredging—that is, for moving heavy bodies, such as filled
 80 dry-goods boxes or filled barrels on inclined planes, and in such use of the invention the roller-way could be in form of a skid, or constructed in relation to a steamboat-stage or
 85 gang-plank, and the barrel or box could be pushed or drawn up over the rollers to the place of delivery, and during the ascent of the body the rollers will revolve and travel in the same manner as in their use in connection with the buckets of a dredge. The
 90 invention could also be used in connection with an inclined shaft in mining operations, and the buckets used would be such as are adapted for carrying ore out of the mine; but the advantages of this invention are
 95 greatest when used in connection with bucket dredging-machines, as in dredging all the exposed parts are liable to become covered with sand and water, and the chains which carry the buckets in the ordinary way slide up inclined
 100 planes on iron guides, and both the guides and chain are soon worn out, and were fixed rollers turning on axles used—that is, rollers that cannot travel as well as revolve—the sand would destroy the bearings in a short time; whereas by the plan of my
 105 invention the buckets are supported by the roller-track and the iron shoes attached to the buckets, and the buckets are thus enabled to carry the chain in suspension or above the guides of the chains, and so the
 110 chains, buckets, and other parts are not liable to be destroyed by the grinding action of the sand, and as the axles of the rollers roll up and down along the sand-covered guideways they are no more liable to wear than is
 115 the tire of a wagon-wheel rolling on the sand in the roadway, and such wear is not very great.

The improved roller-guideways herein described might be applied to a railroad on a
 120 level, where it is necessary to send a car in one direction and then in another; but its greatest utility is developed when the rollers are arranged on an inclined plane, and the rollers by their gravity roll back to receive
 125 successively advancing buckets or bodies.

What I claim is—

1. A roller way or track comprising a suitable foundation, base portions *d*, cap portions *d'*, spaced cross-ties or stops *c'*, and rollers *g g'*,
 130 which travel between the stops while they are caused to revolve by the weight of an object bearing upon them, substantially as described.

2. An inclined roller way or track compris-

ing a suitable foundation and provided with spaced cross-ties or stops and rollers, the rollers being separated and allowed to travel, while they are caused to revolve by objects
5 passing over them, and when they have been passed over caused by their gravity to roll back to their normal positions, substantially as described.

3. The combination of the inclined roller
10 way or track provided with spaced cross-ties

or stops, and rollers which travel while revolving, buckets having shoes, and bucket-carrying chains, substantially as described.

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

DAN C. KINGMAN.

Witnesses:

J. D. SCHMIDT,
ARTHUR CASTE.