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(54) **TRANSPORTATION SYSTEM AND METHOD**

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(57) **ABSTRACT**

A mechanically driven track system designed to transport objects of various sizes and people at rapid speeds over distances. There are stations along the track that both receive and insert objects onto the track system that can operate at constant velocity or at variable speeds. This system can fulfill the same or a similar function to our modern day airplanes, cars, trucks, and trains with greater resource efficiency.

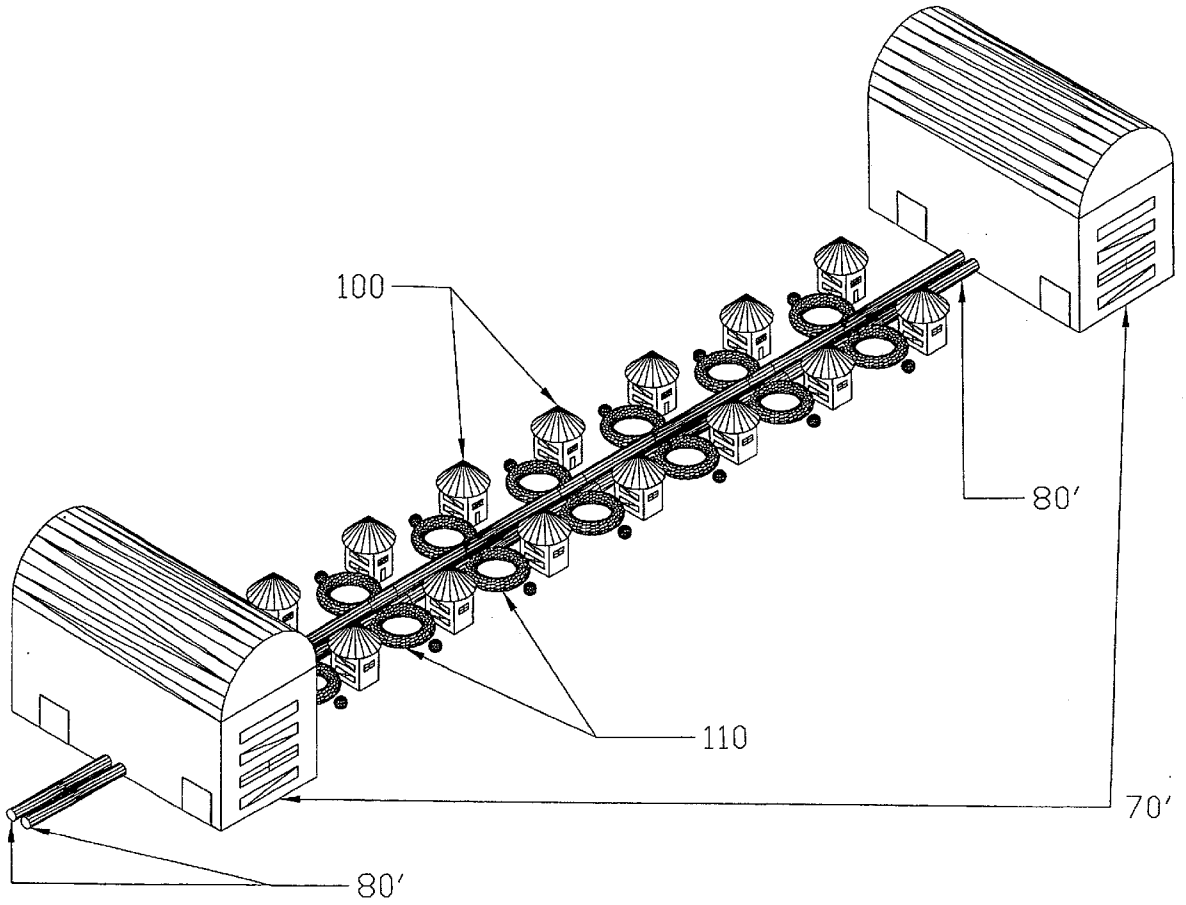
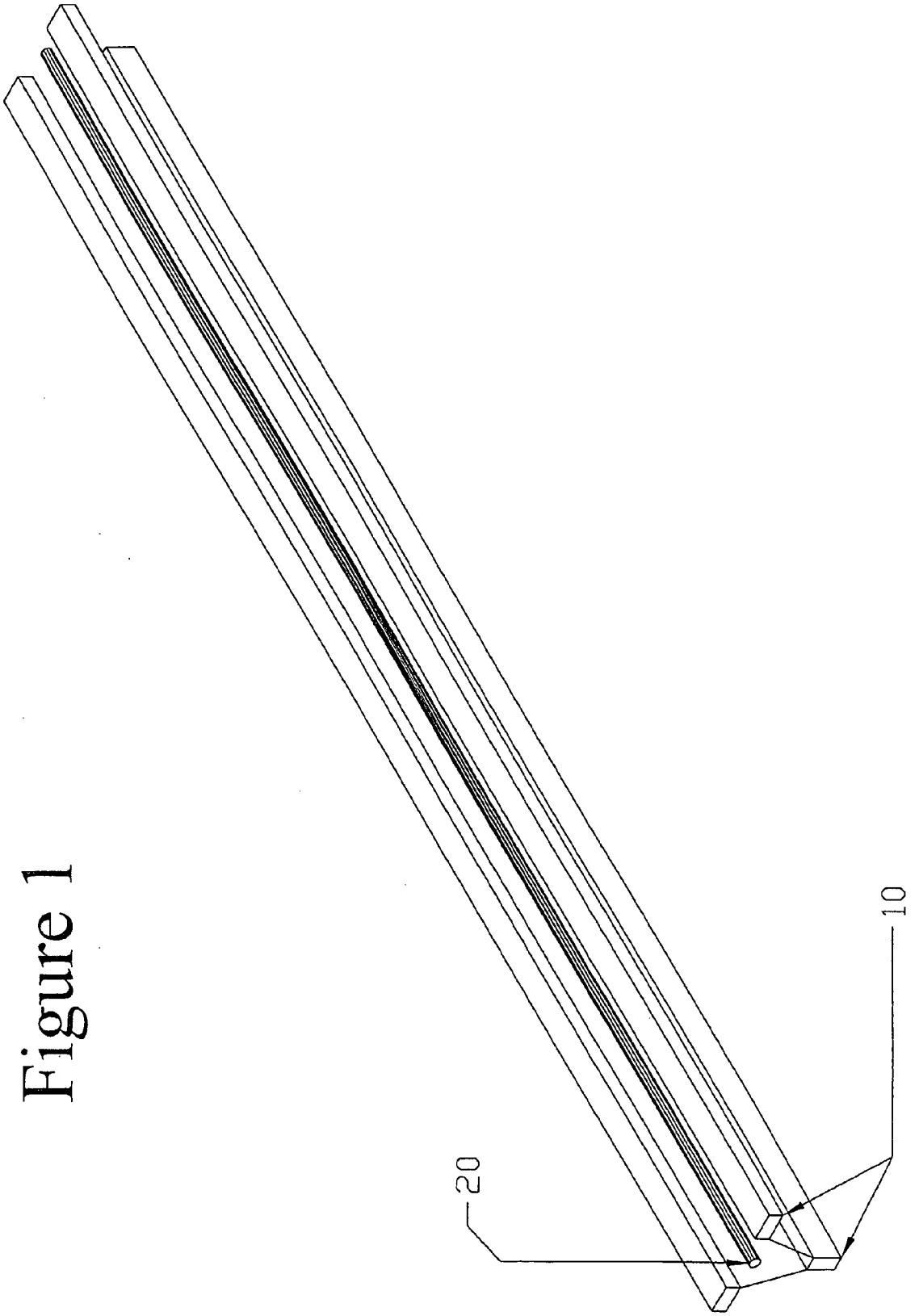


Figure 1



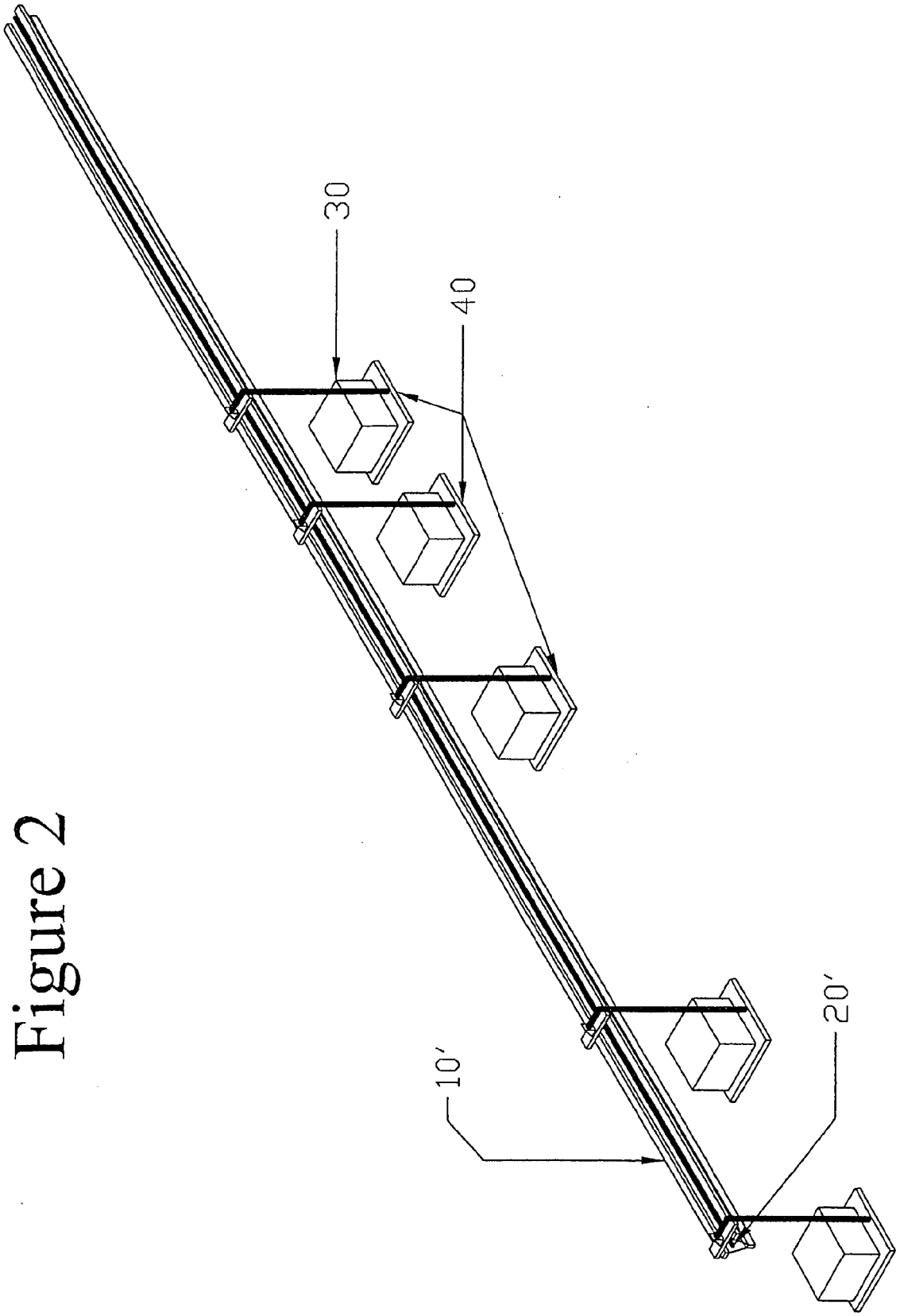


Figure 2

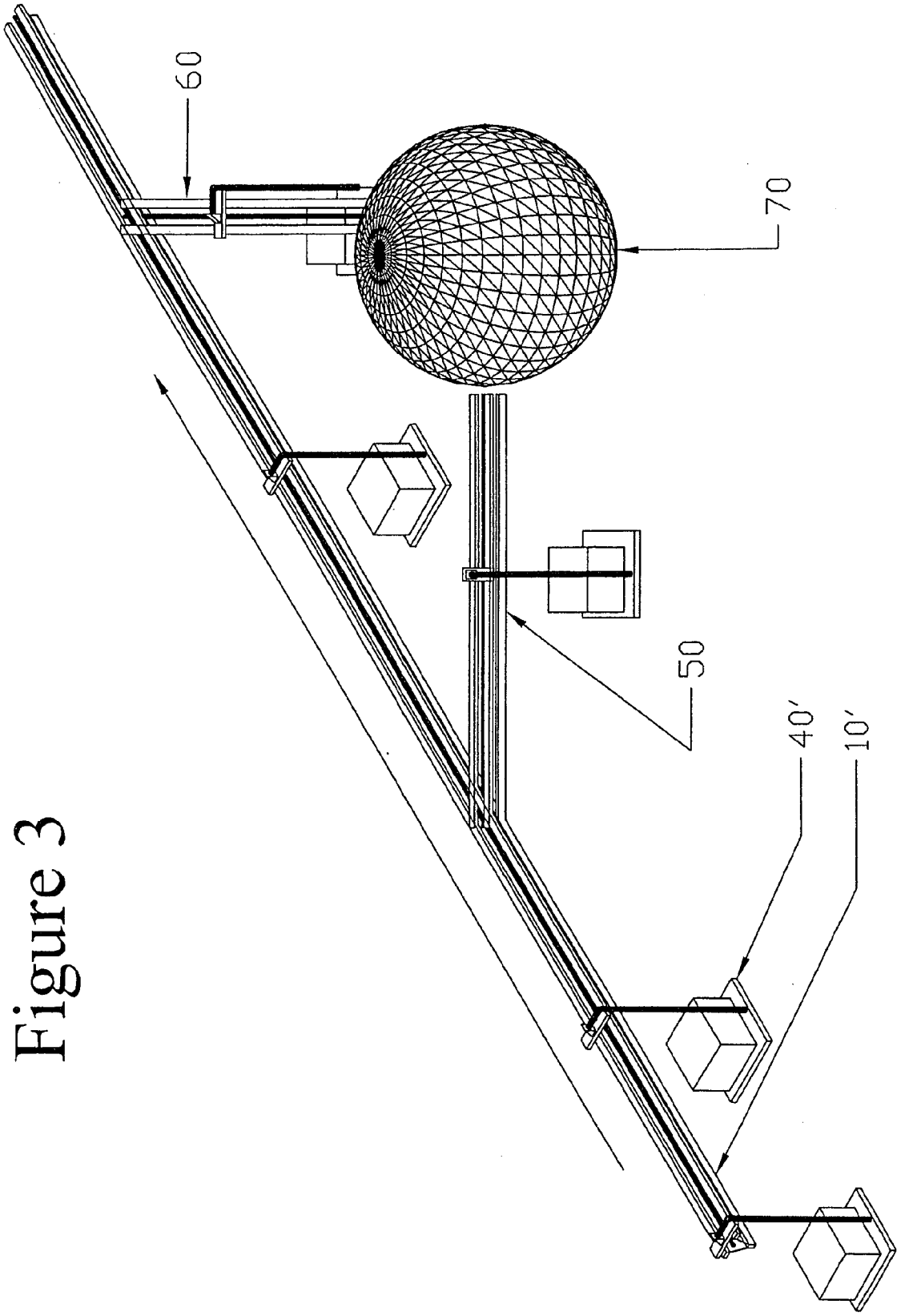


Figure 3

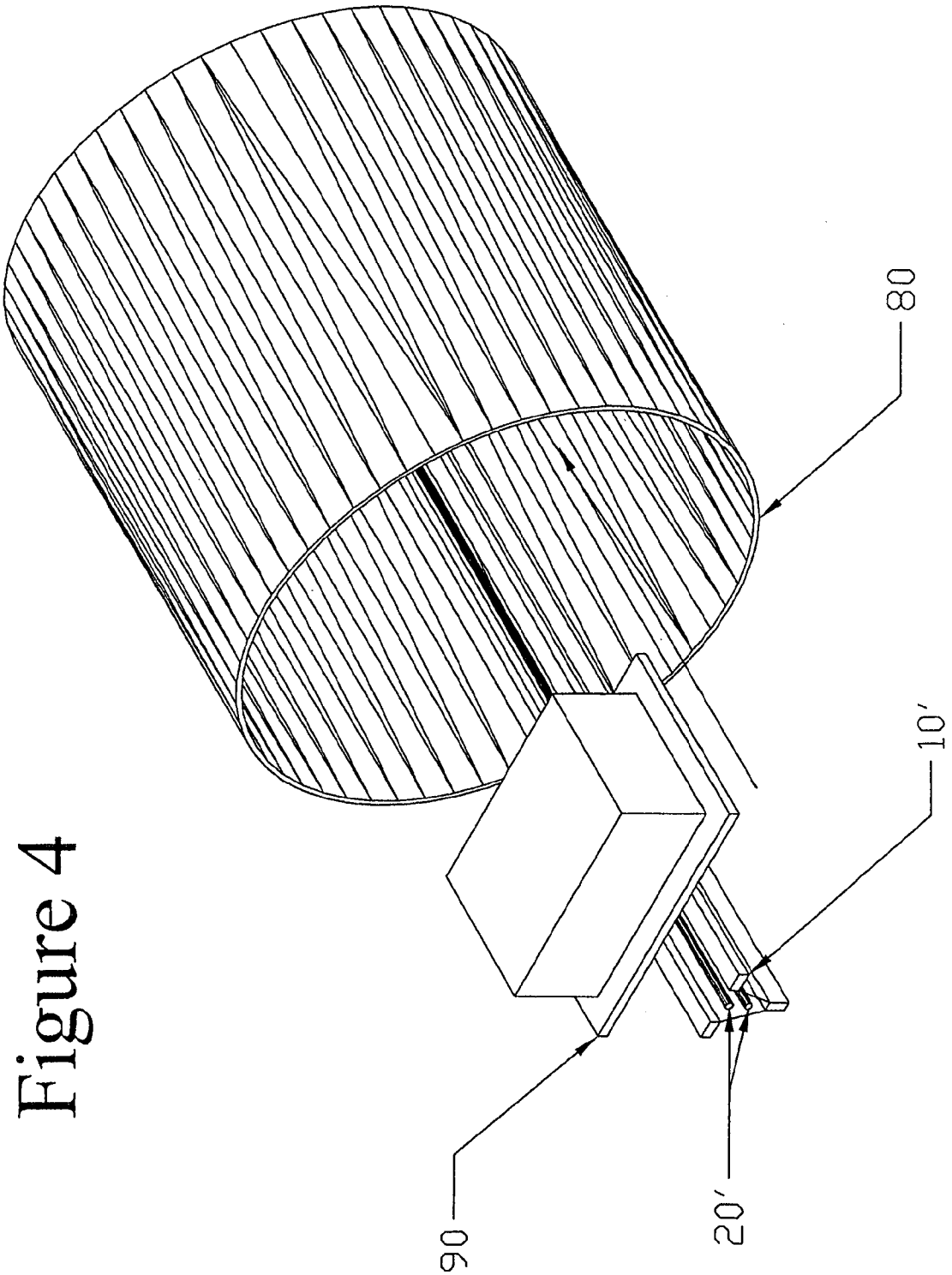


Figure 4

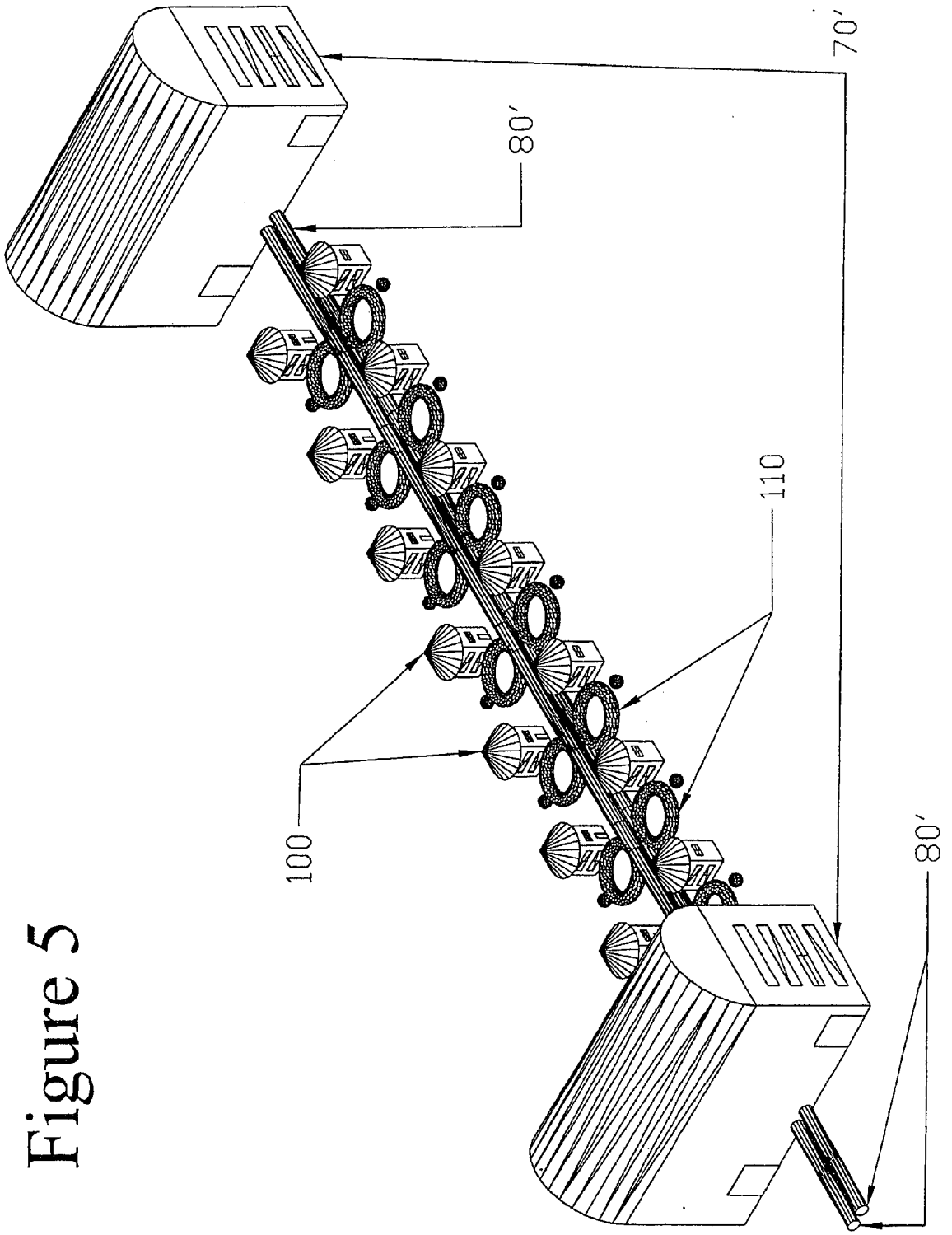


Figure 5

TRANSPORTATION SYSTEM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 60/984,139, filed Oct. 31, 2007, which is hereby incorporated herein by reference in its entirety for all purposes.

TECHNICAL FIELD

[0002] The present invention relates primarily to an infrastructure with long tracks that go over varying distances that have access stations strategically placed alongside the primary tracks; more specifically this system is designed to rapidly transport objects and/or people efficiently and safely over varying distances.

BACKGROUND OF THE INVENTION

[0003] The 20th century was a century that was economically fueled by non-renewable resources such as oil, coal, and nuclear technologies. At this point, the old infrastructure that has been created requires an immense amount of energy input. For example, all the cars that people use every day burn great quantities of petroleum just to go to work and sit in hours of traffic. This system is flawed when looked at from the viewpoint of sustainably and responsibly utilizing our global resources. The same is true of the airplane industry and the trucking industry. The amount of oil and resources utilized to transport goods and people is astronomical and can be greatly reduced.

[0004] Ski resorts utilize chair lift systems and gondolas to transport people and equipment up the side of a mountain. These systems are electric motor or combustion engine driven and transport large amounts of weight very efficiently and reliably utilizing a high tensile cable braced strategically with wheels and poles. Mechanically powered systems such as these allow for minimal user error and it is physically impossible for the different chairs or gondolas on the cable to ever come into contact with each other.

[0005] Trains are presently considered by many to be the most efficient and effective means of transporting bulk-goods across the terrestrial environment. The flaw in the train system design is that the train must come to a complete stop in order to be loaded and unloaded. This greatly limits the efficiency of transporting the goods.

[0006] Maintaining and developing roads and highways in our world requires substantial time and resources. Roads often block wildlife throughways and require large amounts of prime real-estate. Track systems have the advantage of being able to be suspended in the air at varying heights or placed underground and they do not require as much real-estate and maintenance comparatively as roads.

[0007] Objects moving at rapid speeds require less travel time, thereby utilizing the transportation system for only a fraction of the time of objects traveling at slower speeds. If all of the cars in rush-hour traffic were traveling at four-hundred plus miles per hour towards their destination, they could probably all be put in one single lane instead of requiring all of the lanes currently needed, and people would reduce their time in transit dramatically. This cannot be accomplished utilizing the current automotive engineering, however.

[0008] Thus it can be seen that needs exist for improvements to transportation systems and methods. It is to the provision of improved systems and methods of transportation meeting these and other needs that the present invention is primarily directed.

SUMMARY OF THE INVENTION

[0009] The present invention provides a system that safely transports people and objects rapidly using minimal natural resources. The system can be configured in various ways utilizing a large variety of materials depending on the location and engineering requirements. The system of the present invention generally comprises a track system that has a mechanically driven mechanism that is used to transport carts carrying people or other objects that are inserted or removed from the track at strategic stations. The objects on the track move at a constant velocity in relationship with each other and never need to reduce velocity when other objects are entering or leaving the track. In different variations of this invention, wind resistance can be reduced to achieve higher speeds using wind tunnels.

[0010] There are many different systems that can be engineered to attach a cart to a track with a mechanical drive train. When viewing the different roller coasters of the world, some have a track above and others have a track below or to the sides. The present invention can include similar drive mechanism variations, but accept varying sizes of carts carrying different objects; where preferably all of the carts are continually attached to a mechanical drive system but are also able to enter and exit at strategically placed stations.

[0011] The system of the present invention can be placed in the air using poles or trestles, or under the ground, minimizing impacted real-estate. It is physically impossible to have a collision between carts because they are all traveling at the same speed on the same mechanical drive system. Objects can be grouped very close together on the track with the aid of a computer control system, and optionally one or more fail-safe systems are included while traveling at very fast speeds.

[0012] One of the primary advantages of this transportation system and method is that it can serve as an in-between or transition technology that will work hand-in-hand with cars and trucks. People with cars that travel can be transported in their personal vehicle, which has been loaded onto a cart, to their destination more rapidly and safely then they could drive or fly, and there would be no need to rent vehicles at the destination. Air travel requires enormous amounts of carbon inputs, as does travel on interstate highways; whereas the system of the present invention could reduce this carbon dioxide output greatly. Additionally, this system is designed to function in nearly any climate and weather condition whereas airplanes and cars can be greatly impacted by climatic conditions.

[0013] This technology is also very well suited to electric cars. Electric cars have been proven to be economical and reliable, but are limited in their travel range. They are great for city commuters, but not for long distance drives. With a high-speed track system, electric cars could travel short distances to transfer-stations and travel the large distances safely on a track or a track-driven cart at much higher speeds, and optionally have their batteries charged along the way. Placement of the track system of the present invention along pre-existing roadways advantageously allows travelers and transported objects to enter and exit the system at transfer points or loading/unloading stations corresponding to intersections or entrance and exit ramps already in existence, facilitating a more natural transition over to the new transport system, and

taking advantage of existing infrastructure and maps. For example, the tracks of the new system could be located alongside, over, under, along or on existing roads, railways, highways or interstates, on the shoulders or medians, along power line right of ways, near railroads, or the like.

[0014] This invention can be used on a small scale, or it can be applied to fulfill nearly every transportation need. Initially, this system may be used to connect areas of high trade of goods and services using large transfer-stations to access the tracks. In a later development, there could be tracks that go through or adjacent every neighborhood; and/or on, over, beneath or alongside every roadway, railway, waterway or other transportation corridor, to bring packages and mail directly to each house as well as provide direct transportation access without needing to use transfer-stations. As the system supplants demand for individual vehicle traffic, existing roadways or other transport pathways can efficiently be converted over to use in the present system. One example embodiment includes two or three tracks: a small track to carry mail and packages up to a certain size and a medium and/or large track to carry people and large objects.

[0015] Different features can be included for different applications of this invention to provide safety and reliability. All the systems would preferably have double and triple layer engineered emergency systems and the different carts on the tracks would all have emergency brakes. The mechanical drive mechanism is preferably engineered to have a backup mechanical drive system if one failed and is constantly tested and replaced when necessary. All of the control and power systems involved in running the track would preferably be independent of local energy sources and preferably inaccessible from the internet for security reasons. Different size scales would also be designed differently. A system designed for a neighborhood would have emergency stop features to avoid hitting small objects and would travel slowly. Fast systems that travel at hundreds of miles per hour might have a more intricate emergency stop procedure to avoid backups and accidental errors.

[0016] The carts on the track can vary greatly. Initially, the carts would preferably have walls to block the air resistance and windows to view the environment and be any number of shapes and sizes depending on the load they were bearing. At the transfer-stations, objects, people, or vehicles are loaded and unloaded on the carts and the computer is programmed with the desired destination for the cart. In a later evolution, people and a new design of cars may be able to directly access the track system from their own home or business without requiring specialized transfer-stations. Cars can be adapted to ride on the track directly and serve as their own cart if the track system is developed extensively enough.

[0017] The method used to install and remove objects from the track may vary. In example embodiments, an optional loading transfer subsystem is installed that runs a length of the track and which travels at up to the same speed as the track. This system accelerates objects up to the speed of the track and then safely inserts them on to the track from either above, below or beside the track. This would leave less room for error in transfers to and from the track because the object is safely placed on the track and allowed to attach, whereas other methods may leave more room for potential failure. In this embodiment, objects would be removed from the track and decelerated using the same or a similar unloading transfer subsystem.

[0018] In different embodiments of this invention, there are a variety of technologies that can optionally be incorporated. Electro-magnetism can be used to reduce or eliminate the friction of the carts on the tracks as an alternative to wheels or other mechanisms. Electric motors, combustion engines, or other technologies may power the mechanical drive train of the track. In a different variation, the track may have a different method of propelling the carts such as electromagnetism or the carts could potentially propel themselves, but the carts would need failsafe designs in order to avoid collisions. Wind tunnels may be incorporated around the track to help achieve higher speeds by reducing air resistance and also may serve to protect the track and the objects on the track from weather conditions or vandalism.

[0019] In a different variation, this invention can be used in modern agriculture to replace the tractor. Using a track system that spans the length of a crop field, different attachments can be attached to the track to perform the different functions of a tractor such as plowing, fertilizing, harvesting, and even watering. This track is moved down the field on another set of tracks or wheels so the entire field can be maintained. The technological revolution came about with the intention of giving humans more free time and letting technology do all the work. All of these variations of this invention will help technology move closer to this direction.

[0020] These and other aspects, features and advantages of the invention will be understood with reference to the drawing figures and detailed description herein, and will be realized by means of the various elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing general description and the following brief description of the drawings and detailed description of the invention are exemplary and explanatory of preferred embodiments of the invention, and are not restrictive of the invention, as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. **1** shows a segment of a track according to an example form of the invention, shown in partial cross-section.

[0022] FIG. **2** displays carts attached to a track from below, according to an example form of the invention.

[0023] FIG. **3** shows a transfer station removing and attaching carts to and from the track, according to an example form of the invention.

[0024] FIG. **4** displays a cart attached above the track and going through a wind tunnel, according to an example form of the invention.

[0025] FIG. **5** displays a tunneled track system attaching directly to houses or other structures, according to an example form of the invention.

DETAILED DESCRIPTION OF EXAMPLE EMBODIMENTS

[0026] The present invention may be understood more readily by reference to the following detailed description of the invention taken in connection with the accompanying drawing figures, which form a part of this disclosure. It is to be understood that this invention is not limited to the specific devices, methods, conditions or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed invention. Also, as used in the specification including the

appended claims, the singular forms "a," "an," and "the" include the plural, and reference to a particular numerical value includes at least that particular value, unless the context clearly dictates otherwise. Ranges may be expressed herein as from "about" or "approximately" one particular value and/or to "about" or "approximately" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent "about," it will be understood that the particular value forms another embodiment.

[0027] The present invention provides a track system that preferably has a mechanical drive mechanism to propel carts or other carriers with objects or people on them safely, reliably, and rapidly to the desired destinations. A transfer system inputs and removes carts from the track, preferably set up as one or more strategically placed transfer-stations. In alternate embodiments, houses and buildings are able to access the track system directly without a need for designated transfer stations. The speed of the track would be determined by the proposed uses for the track and the use of available technologies, and this speed could range, for example, from zero to three thousand miles-per-hour. The track can be operated at constant velocity and/or at variable speeds. In example variations of this invention, two substantially parallel tracks transporting objects in opposite directions are provided.

[0028] FIG. **1** is an example of a track design **10** that has a cable drive system **20**. Cable is only one of the many potential variations for the mechanical drive mechanism. A different embodiment of the invention not displayed replaces the mechanical drive system **20** with another reliable efficient propulsion force such as electromagnetism or another technology. The track **20** can be made of a variety of materials and can vary greatly in shape and size depending on the design. It may be placed on the ground, in the air, or under the ground.

[0029] FIG. **2** is exemplary of a track system **10'** with mounted carts or carriers **40** carrying objects **30** being propelled by a mechanical drive system **20'**. The carts **40** are mounted to the track using a method where they will not fall off the track, yet can still be efficiently loaded and unloaded. The carts **40** may be a variety of sizes and shapes depending on what they are hauling, and preferably have a wall and roof system to both protect objects **30** from falling off the cart or from potential vandalism and to reflect the external wind or weather conditions.

[0030] FIG. **3** shows an example of a transfer-station **70** with an offloading track **50** that slows carts down and loading track **60** that speeds carts up to the speed of the main track **10'**. The carts are removed and reinstalled from the main track using a safe efficient system. Computers and/or other failsafe designs modifications aid in the process of removal and installation to ensure that the carts being loaded do not collide with carts that are already on the track and that unloaded carts do not collide.

[0031] FIG. **4** displays additional variations of this invention. A tunnel **80** surrounding the track **20'** can contain air flowing in the direction of intended delivery of objects at flowrates up to or exceeding the intended delivery rate, to reduce wind resistance against the cart **90** and enable higher delivery speeds. Alternatively or additionally, a vacuum or reduced pressure can be applied within the tunnel **80** to reduce wind resistance. The tunnel **80** also serves to protect the carts from external hazards such as weather or vandalism. The wind tunnel **80** can potentially be made in a variety of different shapes and the wind current within the tunnel can be produced using a variety of different technologies. In this embodiment, the cart **90** is mounted on top of the track **10'** and two mechanical drive members **20'** are used as an exemplary redundant failsafe in the event of one cable failing.

[0032] FIG. **5** is an example of a track system that connects directly to houses and buildings **100**. Inside of the optional wind tunnel **80'** there is a track system that directly connects to houses or buildings **100** using local loading and unloading ports **110**. This embodiment can be used to deliver mail or packages directly to homes and businesses, and it also may be used on a larger scale to move people or big objects with or without transfers at shared or regional transfer-stations **70** as in FIG. **3**. Individual users and/or parcels can enter a lower-speed local track at their homes via their personal local port, and travel along the local track to a regional transfer station or interchange, where they transfer from the local track to a higher-speed regional and/or interstate track; and reverse the process on the return trip.

[0033] While the invention has been described with reference to preferred and example embodiments, it will be understood by those skilled in the art that a variety of modifications, additions and deletions are within the scope of the invention, as defined by the following claims.

What is claimed is:

1. A transportation system comprising:
- a path of travel extending between an origination and a destination;
- at least one transport carrier for movement along the path of travel between the origination and the destination; and
- at least one drive member for moving the transport carriers along the path of travel.

2. The transportation system of claim **1**, wherein the path of travel comprises a track, and wherein the drive member comprises a cable.

3. The transportation system of claim **1**, wherein a plurality of transport carriers are engaged with and disengaged from the drive member.

4. The transportation system of claim **4**, wherein at least one of the transport carriers comprises or carries an electric automobile.

5. The transportation system of claim **1**, further comprising a transfer station for engaging and disengaging the transport carriers with the drive member.

6. The transportation system of claim **1**, wherein the path of travel is disposed within a tunnel.

7. The transportation system of claim **6**, wherein the tunnel is a wind tunnel.

8. The transportation system of claim **1**, wherein the path of travel generally follows an existing roadway.

9. The transportation system of claim **1**, wherein the path of travel is elevated above the ground.

10. The transportation system of claim **1**, wherein the path of travel is disposed underground.

11. A method of transporting an object, said method comprising:
- loading the object onto a carrier;
- inputting the carrier onto a track having a drive system adapted to engage and disengage a plurality of carriers;
- delivering the carrier along the track from a first location to a second location; and
- unloading the object from the carrier.

12. The method of claim **11**, wherein the object is a person.

13. The method of claim **11**, wherein the object is an electric automobile.

14. The method of claim **11**, wherein a plurality of carriers are transported along the track simultaneously.

15. A transportation system for delivering objects from a point of origination to a point of destination along a path coinciding with a previously existing transportation corridor, the transportation system comprising:

at least one track extending along at least a portion of the previously existing transportation corridor;

a plurality of carriers traversing the at least one track, each of the plurality of carriers comprising a cargo platform for carrying the delivered objects; and

a common shared drive means for propelling the plurality of carriers along the at least one track between the point of origination and the point of destination.

16. The transportation system of claim **15**, wherein the drive means is enclosed within a channel in the track.

17. The transportation system of claim **16**, wherein the drive means is a cable.

18. The transportation system of claim **15**, wherein the previously existing transportation corridor is a roadway.

19. The transportation system of claim **15**, wherein the previously existing transportation corridor is a railway.

20. The transportation system of claim **15**, wherein the at least one track is at least partially enclosed within a wind tunnel.

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