

G. H. YOUNG.

GARAGE.

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1,341,097.

Patented May 25, 1920.

2 SHEETS—SHEET 1.

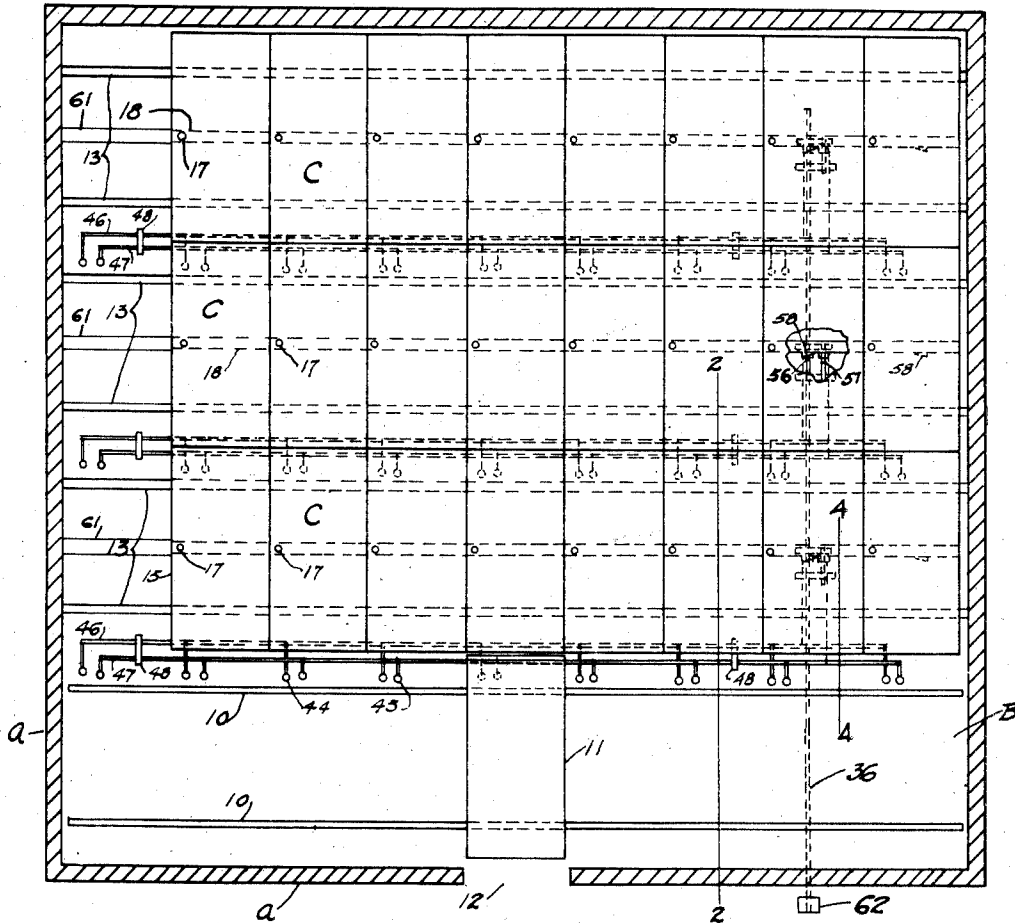


FIG. 1

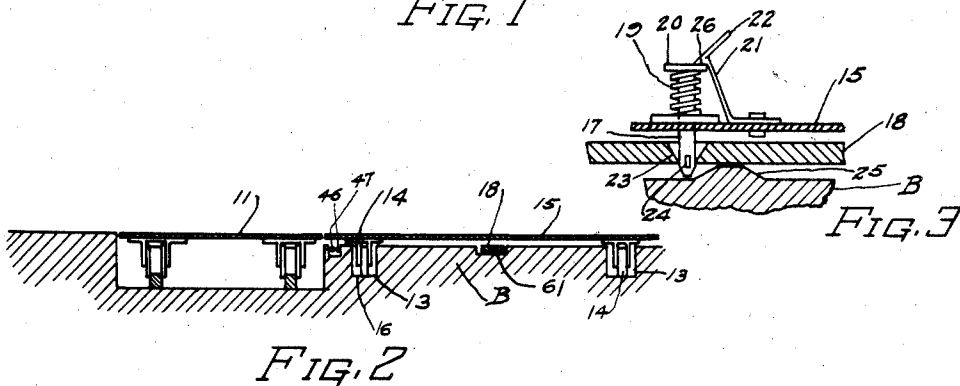


FIG. 2

FIG. 3

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2 SHEETS--SHEET 2.

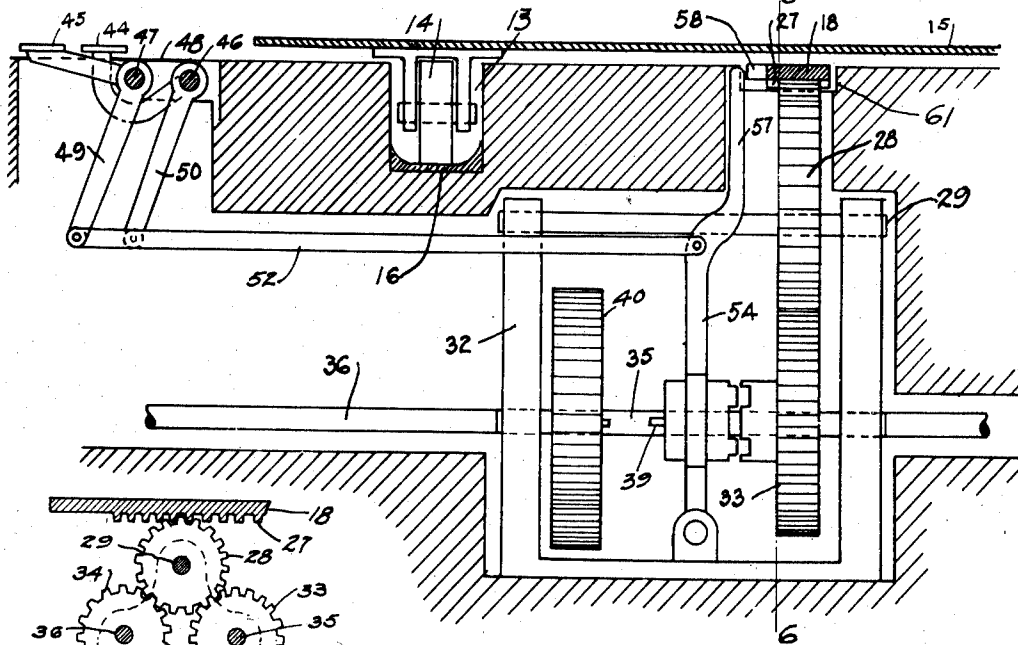


FIG. 4

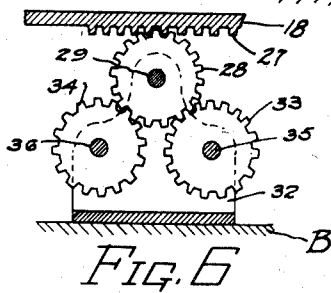


FIG. 6

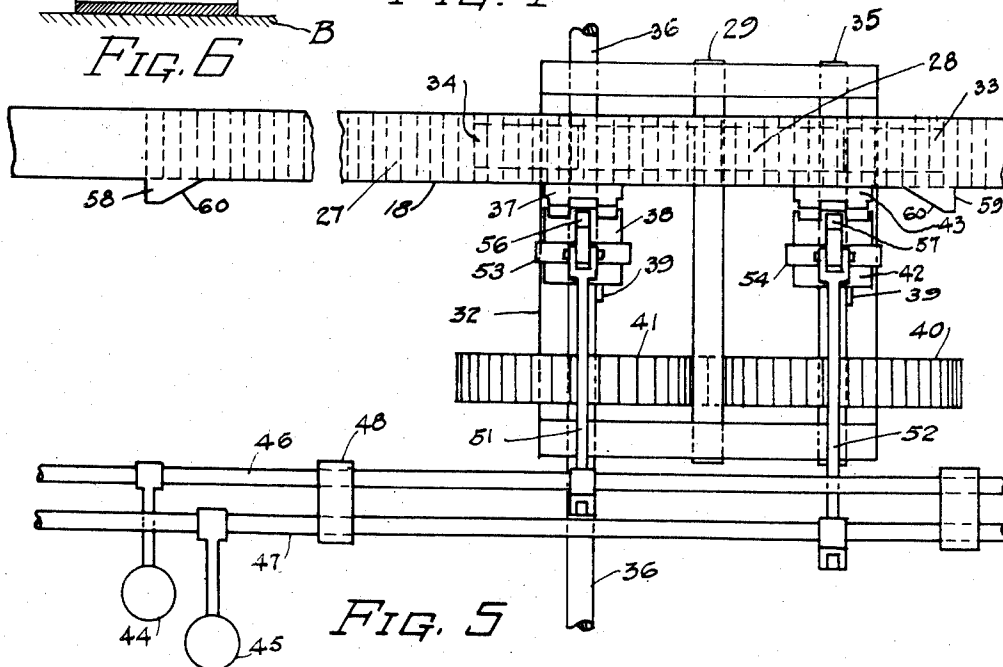


FIG. 5

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UNITED STATES PATENT OFFICE.

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GARAGE.

1,341,097.

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To all whom it may concern:

Be it known that I, GEORGE H. YOUNG, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Garages, of which the following is a specification.

The primary object of this invention is to provide improvements which will facilitate the storing and handling of automobiles and other wheeled vehicles within a minimum of space. In congested districts and in large cities it is particularly advantageous to conserve space in buildings and to provide means for quickly removing and storing automobiles and also to provide means for removing an automobile without removing other automobiles which are stored in front of a particular machine, and it is also desirable to provide means whereby an automobile may be placed in its particular stall or position with the least amount of labor and in the shortest possible time. These objects also are attained by the use of my invention.

To these ends my invention comprises the features of construction and combination of parts hereinafter more particularly described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a diagrammatic floor plan of a garage equipped with my invention the walls of the building being in section; Fig. 2 is a section taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical section of a detail showing the means for connecting any one of the carriages to a drawbar for propelling the carriage so connected; Fig. 4 is an enlarged sectional view of a detail taken on the line 4—4 of Fig. 1; Fig. 5 is a plan of the propelling mechanism illustrated in Fig. 4 not any of the carriages or floor being illustrated, and Fig. 6 is a section of a detail taken on the line 6—6 of Fig. 4.

In Fig. 1 of the drawing is illustrated a typical floor plan of a garage equipped with my invention, it being understood that a building structure may have as many superimposed floors and rooms as desired and that its dimensions may be varied according to the number of automobiles it is desired to provide space for storing them. In the event more than one floor is provided a suitable elevator may be employed for lifting

and lowering the automobiles, the drawings not showing this feature as it will be readily understood without illustration. Referring to Fig. 1, A indicates the walls of the garage and B the floor. Across the front of the garage are suitable track rails 10 upon which, what I have chosen to term for convenience a loading carriage 11, is adapted to travel transversely of the building to receive an automobile through the doorway 12 and permit moving it into position at the front end of the building to connect with any lane between any longitudinal series of carriages C, it being understood that the surface of the carriage 11 lies substantially in the same horizontal plane as the upper surfaces of the platforms of carriages C.

Arranged transversely of the building in its floor B, are pairs of transverse grooves 13 extending completely across the room, these grooves forming trackways in which the supporting rollers 14 are adapted to travel, said roller supports carrying carriage platforms 15 which are substantially of rectangular form and adapted to coincide transversely as well as longitudinally, there being a transverse series of carriages mounted in each pair of track grooves 13 and a longitudinal series of carriages arranged longitudinally of the building. These carriages in number substantially fill the space across the building excepting that one vacant space is left in which a carriage is not provided in each transverse series, whereby the carriages may be moved the width of a carriage in each pair of track grooves 13. Thus it is possible to move all or any portion of the transverse series of carriages the distance of the width of a single carriage and form a vacant lane between carriages so as to facilitate access to any particular carriage in any portion of the building from the loading carriage 11. The floors of the track grooves 13 are provided with wear plates 16 and each of the carriages C is provided with four carrier rollers 14, but it will be understood that any suitable number may be provided and that the platform of the carriage C may be of any suitable construction, that illustrated being a single piece of boiler plate.

Each carriage has a coupling pin 17 which is free to slide vertically through the platform of the carriage to engage or dis-

engage a drawbar 18 to be hereinafter described. This coupling pin is depressible against the tension of a helical spring 19 around its shank and below its head 20, into engagement with the drawbar, in which position its head 20 engages below the shoulder of a spring catch 21, mounted on the carriage platform and locks the coupling pin in engaging position as illustrated in Fig. 3. The catch 21 is formed with a foot engaging member 22 which when pushed down by the foot is adapted to disengage the catch from the head 20 and allow the coupling pin to spring upwardly through the engaging opening 23 in the drawbar and out of engaging position. The upward movement of the coupling pin is limited by the stop shoulder 24. The sides of the opening 23 taper downwardly to assist in guiding the pin into engagement with the drawbar. The floor at suitable intervals is provided with sloping releasing lugs 25 over which the lower end of pin 17 is adapted to sweep as the carriage and the drawbar travel to automatically release the coupling pin upwardly out of engagement with the spring catch 21, the guiding shoulder 26 on the spring catch being suitably shaped to permit this action to transpire automatically.

The coupling pins on each transverse series of carriages are arranged in alinement above a transverse drawbar 18, there being a series of coupling pins and a companion drawbar provided for each transverse series of carriages. The drawbar 18 of each series of carriages is slidably mounted to move longitudinally thereof in guides 61 in the floor B and is formed with rack teeth 27 facing downwardly. These rack teeth mesh with the teeth of a driving gear wheel 28 which is mounted on a shaft 29, said shaft being journaled in a suitable frame 32 which is mounted in the floor B of the garage. A main driving shaft 36 provided with a driving pulley 62 is journaled in the floor and extends through all of the frames 32, it being understood that there is a set of reversing gearing provided for each of the drawbars. The gear 28 is adapted to propel the drawbar with which it is connected forwardly or backwardly to propel any carriage which may be coupled thereto by its coupling pin. Stationed below the driving gear 28 with their teeth in mesh with the teeth of said gear, are two gears 33 and 34. The gear 33 being journaled upon a counter shaft 35 in the frame 32 and the gear 34 journaled upon the main driving shaft 36. The shaft 35 is continuously revolved by the shaft 36 through the interconnected gears 40 and 41. Each of the gears 34 and 33 is respectively provided with a driven clutch member 37 and 43 which are adapted to be driven respectively by the driving clutch members 38 and 42 which are slidably

mounted and connected with the shafts 36 and 35 by feathers 39. Thus when the driven member 37 is connected with the driving member 38 on shaft 36 the drawbar is moved in an opposite direction from that in which it is moved when the clutch member 43 is engaged by the clutch member 42. The driving clutch members 38 and 42 are actuated respectively by depressing the pedals 44 and 45 in the floor B, the pedals 44 and 45 being secured respectively to the parallel clutch shifting shafts 46 and 47 which are journaled in the supports 48 in the floor and extend across the floor below the carriages there being a pair of pedals arranged adjacent each space which is adapted to be occupied by a carriage and a pair of clutch shifting shafts for each transverse row of carriages. The carriage platforms project over the pedals. Thus there is always a pair of pedals exposed at the blank space to be occupied by a carriage. The lower arms 49 and 50 of the pedals are connected by links 51 and 52 to clutch shifts 53 and 54. To automatically release either of the clutches the upper ends of the clutch shifts are formed with release bars 56 and 57 which are stationed in the path of releasing lugs 58 and 59 on a side of the drawbar when the clutches are engaged. These releasing lugs have sloping shoulders 60 slanting inwardly toward each other and are spaced apart so that at the desired end of travel of the drawbar in either direction which is substantially the width of a carriage, either one or the other of the clutch members 37 and 43 is disengaged to stop the carriage at the end of its travel. This distance of travel is always equal to the width of the carriage so that whenever any of the coupling pins is depressed the corresponding carriage is coupled to the drawbar and the carriage so connected is moved forwardly the width of a carriage and automatically stopped it being assumed that one of the pedals 44 or 45 has been depressed to engage a clutch according to which direction it is desired to move the carriage. For instance, if it is desired to move a carriage to the left the pedal 44 might be depressed or if it is desired to move the carriage to the right the pedal 45 would be depressed a pair of the pedals being accessible for that purpose at the blank space in the corresponding transverse series of spaces provided for the carriages.

In operation the shaft 36 is continuously revolved. The carriages can be operated to most conveniently make accessible any particular carriage by depressing the reversing pedals according to which direction it is desired to move any of the carriages in the way in any of the transverse rows and by depressing the coupling pins in the carriages to be moved, it being understood that in stationary position the drawbars are automati-

cally stopped in position so that their coupling openings 23 are in substantial registration with the coupling pins of the carriages above. Thus it is desirable first to depress the coupling pins of the carriages to be moved before depressing the pedals which operate the connecting and disconnecting clutches. As soon as all of the carriages have been arranged to provide a clear longitudinal lane either on the floor or over the carriages not occupied by automobiles, the automobile to be moved can be driven down the lane so provided on to the loading carriage and the loading carriage moved into registering position with the doorway 12. This operation can be performed quickly and by the movement of a minimum number of carriages without molesting any automobiles in the garage which are being stored except by the movement of the carriages.

In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to be the best embodiment thereof but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim is new and desire to secure by Letters Patent, is:

1. A storage structure, comprising, in combination with its floor, a plurality of carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely a distance equal to the width of one of said carriages to facilitate distributing the carriages and providing a longitudinal lane down which a storage load may be moved.

2. A storage structure, comprising, in combination with its floor, a plurality of carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely and occupying less than the width of said structure to facilitate distributing the carriages and providing a longitudinal lane at any place between the sides of the structure down which a storage load may be moved.

3. A storage structure, comprising, in combination with its floor, a plurality of power driven carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely and occupying less than the width of said structure to facilitate distributing the carriages and providing a longitudinal lane at any place between the sides of the structure down which a storage load may be moved.

4. A storage structure, comprising, in combination with its floor, transverse tracks on

said floor, a plurality of power driven carriages mounted for movement on said tracks and arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable on said tracks and occupying less than the width of said structure to facilitate distributing the carriages and providing a longitudinal lane down the space in front of any particular carriage located at the back of the front transverse row of carriages down which a storage load may be moved.

5. A storage structure, comprising, in combination with its floor, transverse tracks on said floor, a plurality of carriages mounted for movement on said tracks and arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable on said tracks and occupying less than the width of said structure to facilitate distributing the carriages and providing a longitudinal lane down the space in front of any particular carriage located at the back of the front transverse row of carriages down which a storage load may be moved, external power means for moving the carriages on said rails and means for connecting said carriages to and disconnecting them from said power means.

6. A storage structure, comprising, in combination with its floor, a plurality of carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely a distance equal to the width of one of said carriages to facilitate distributing the carriages and providing a longitudinal lane between carriages down which a storage load may be moved, and means in said floor for propelling said carriages transversely.

7. A storage structure, comprising, in combination with its floor, a plurality of carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely and occupying less than the width of the garage to facilitate distributing the carriages and providing a longitudinal lane at any place between the sides of the structure down which a storage load may be moved, tracks below each transverse row of carriages upon which the carriages are mounted for movement, power driving means arranged to propel the carriages forwardly or backwardly on said tracks and means for reversing said propelling means.

8. A storage structure, comprising, in combination with its floor, transverse tracks on said floor, a plurality of carriages mounted for movement on said tracks and arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable on said tracks and occupying less than the width of the garage to facilitate distributing the carriages and providing a longitudinal

itudinal lane down the space in front of any particular carriage located at the back of the front transverse row of carriages down which a storage load may be moved, external power means for moving the carriages on said rails and means for connecting said carriages to and disconnecting them from said power means.

9. A storage structure, comprising, in combination with its floor, a plurality of carriages on said floor arranged in transverse and longitudinal rows, the carriages of said transverse rows being movable transversely a distance equal to the width of one of said carriages to facilitate distributing the car-

riages and providing a longitudinal lane between carriages down which a storage load may be moved, reversible carriage propelling means in said floor, means for connecting each of the carriages to said propelling means and means for automatically disconnecting said carriages from said propelling means at a predetermined position after a connected carriage has been propelled transversely a distance substantially equal to its width.

Signed at St. Paul, in the county of Ramsey and State of Minnesota, this 26th day of June, 1919.

GEORGE H. YOUNG.