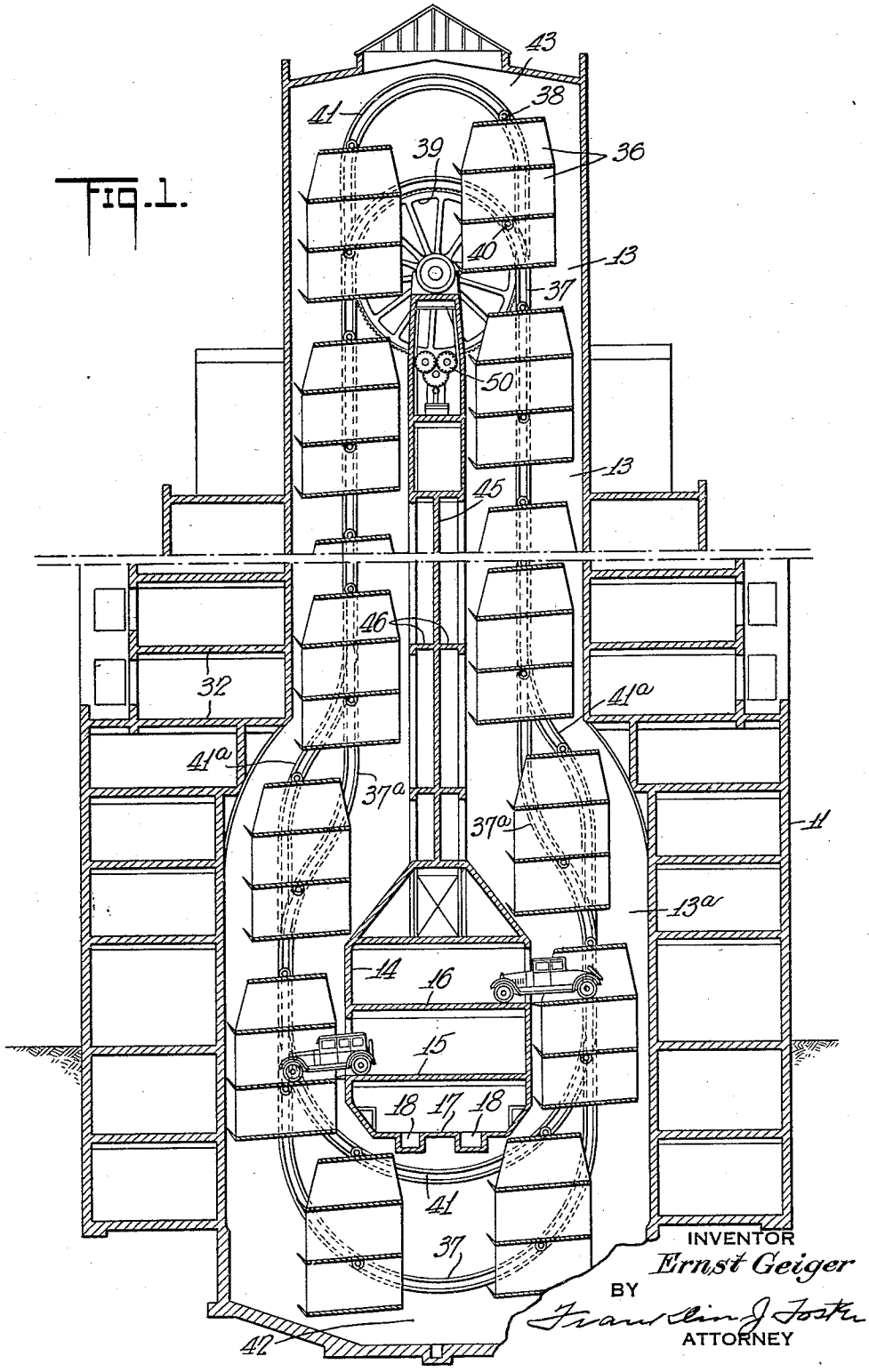
Jan. 19, 1932. E. GEIGER 1,841,530

COMBINATION TENEMENT AND STORAGE BUILDING

Filed March 21, 1929 3 Sheets-Sheet 1

Fig. 1.



INVENTOR
Ernst Geiger
BY
Franklin J. Foster
ATTORNEY

Jan. 19, 1932. E. GEIGER 1,841,530

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FIG. 2.

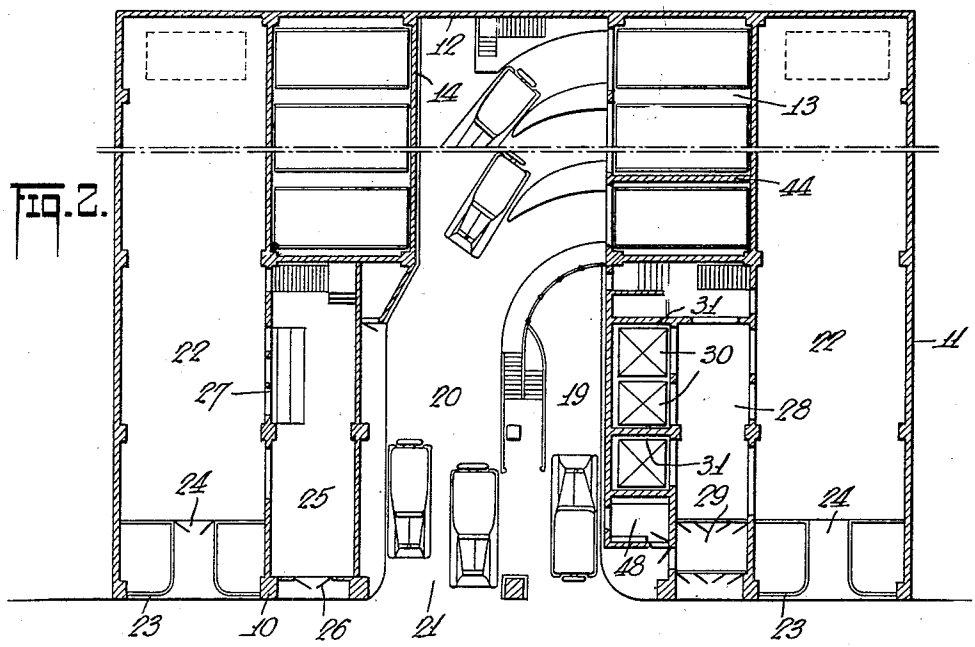
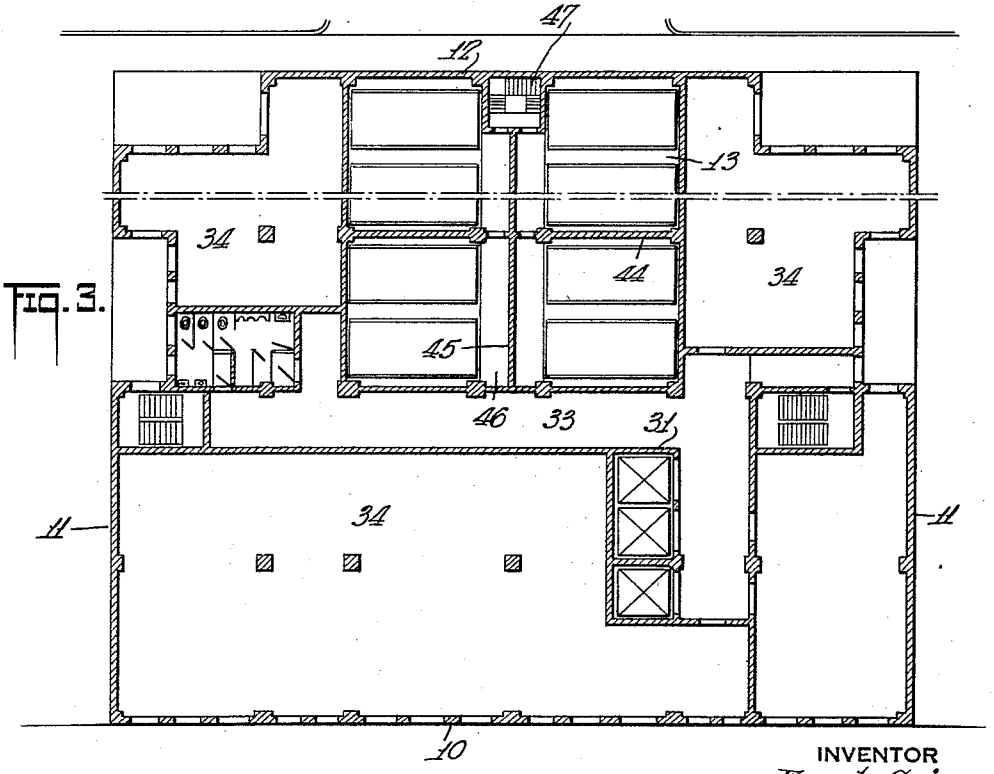


FIG. 3.



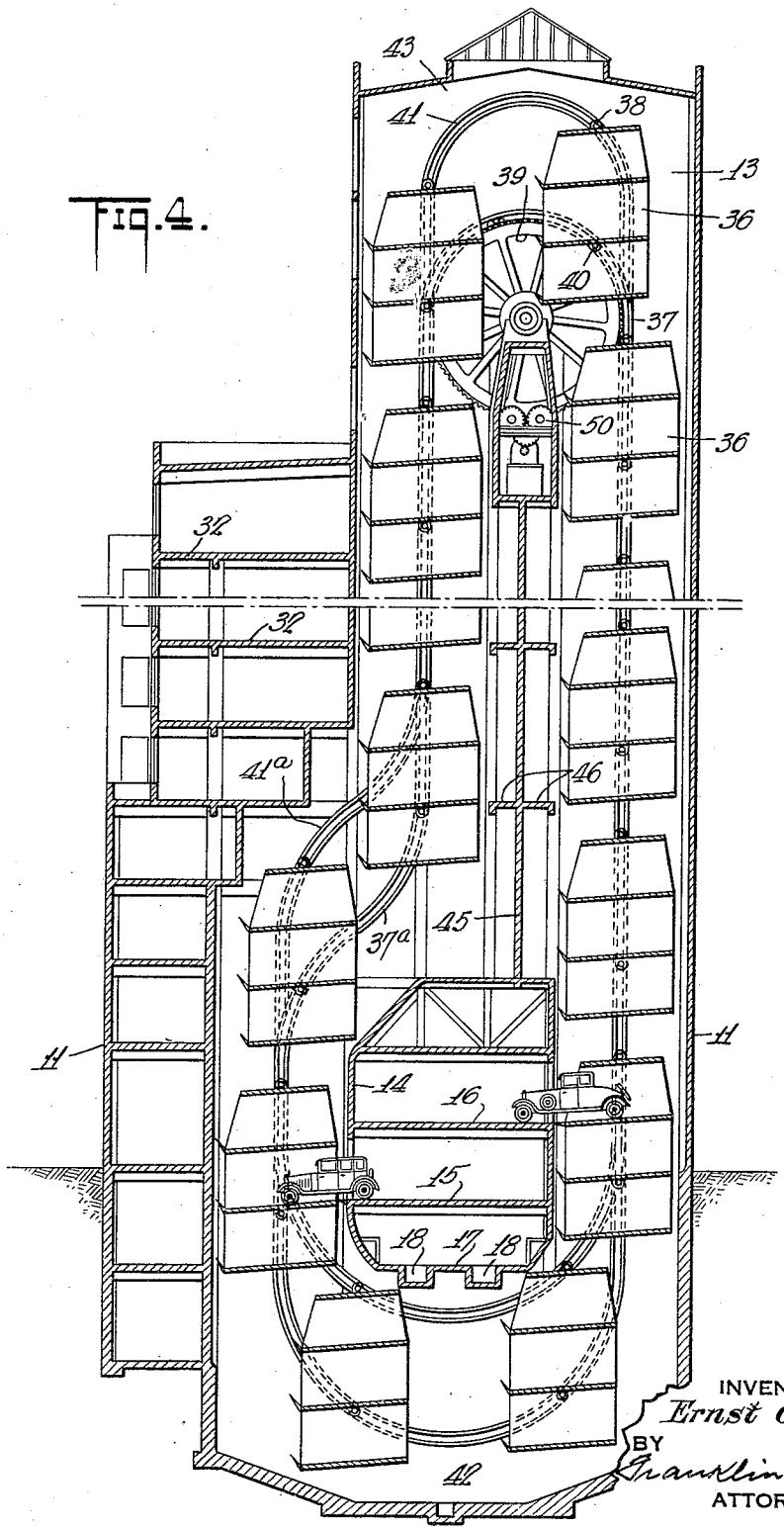
INVENTOR
Ernst Geiger.
BY
Franklin J. Foster
ATTORNEY

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Fig. 4.



INVENTOR
Ernst Geiger
BY
Franklin J. Foster
ATTORNEY

Patented Jan. 19, 1932 1,841,530

UNITED STATES PATENT OFFICE

ERNST GEIGER, OF IRVINGTON, NEW JERSEY

COMBINATION TENEMENT AND STORAGE BUILDING

Application filed March 21, 1929. Serial No. 348,703.

The present invention relates to improvements in combination storage and tenement buildings. To properly understand the scope of the invention the word "tenement" must be considered in its broadest aspect as pertaining not only to apartments and dwelling houses in general but hotels, stores, schools, office buildings, theatres and other structures which may be tenanted either permanently or at stated intervals during the day. The word storage is similarly used here to cover not only storage or warehouse space but parking space for automobiles.

Thus the invention may be embodied in a combined department store and warehouse, combined hotel and parking garage, etc.

The invention is peculiarly adapted for embodiment in a combination garage and office building, the office and garage portions being so interrelated that no valuable office floor space is lost and all of the offices are assured adequate light and air. By combining the garage with an office building structure I actually enhance the value of the latter, since little or no decrease in office rentals or available office space is entailed and additional revenues are derived from the garage.

The invention considered from another standpoint is concerned with car parking garages of the "skyscraper" type per se. It represents an improvement on the garage disclosed in my prior Patent No. 1,636,600, dated July 19th, 1927, in that it avoids the use of "dead" storage space and insures the parking of every car in a movable storage cabin which may be quickly shifted to car receiving or car delivery position.

The present garage follows the patent in that endless trains of orbitally movable storage cabins are used. The advantageous landing and loading arrangement which permits cars to always move forward, whether entering or leaving the cabin or the building, is also utilized, but the economically wasteful central dead storage space has been eliminated and the car handling facilities consequently speeded up.

In accordance with the preferred embodiment of the invention, the entire parking equipment, consisting of one or more of the endless parking cabin trains are suspended in a well which is separated by fireproof walls from the remainder of the office building. This well occupies a space which would ordinarily be taken up by a courtyard or a dark airshaft, or which would be otherwise unsuitable for office purposes. A tunnel intersecting the lower enlarged portion of the well is encircled by the trains of storage cabins and is divided into the superimposed car receiving and delivery floors which communicate with the street and from which the cabin trains are loaded. This car handling arrangement permits cars to be always driven ahead into and out of the cabins and both the well and the entrance tunnel are so completely segregated from the rest of the office building that the danger of fire spreading from the garage to the office structure or vice versa is entirely eliminated.

With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claims.

The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein:

Fig. 1 is a diagrammatic broken transverse vertical sectional view through a combination garage and office building embodying the invention.

Fig. 2 is a sectional plan view taken approximately at street level on the line 2—2 of Fig. 1.

Fig. 3 is a typical diagrammatic sectional plan view taken through the upper floors of the building approximately on the line 3—3 of Fig. 1, and

Fig. 4 is a view similar to Fig. 1 but illustrating a slight modification.

The building includes a front wall 10, side walls 11 and rear wall 12, and at the rear central portion is provided with an enclosed space or well 13 in which the car parking equipment is accommodated. The lower portion of this well is laterally enlarged as at 13a

for a purpose which will be more fully hereinafter described.

Extending from front to rear of the building and passing centrally through the enlarged portion of the well adjacent the street level is a tunnel 14 horizontally subdivided into superimposed car delivery and receiving floors 15, 16 and a subjacent car parking floor 17 having washing or repair pits 18 over which the cars may be driven.

As best seen in Fig. 2, the delivery and receiving floors communicate by ramps 19 and 20, with a common driveway 21 entering the front of the building at the center thereof.

The ground floor space of the building laterally beyond the well 13 may be subdivided into stores 22, these stores having show windows 23 fronting on the street and provided with entrances 24. As best seen in Fig. 2, the space between the left hand store 22 and the tunnel 14 forwardly of the well 13 provides a waiting room 25 for motorists, this waiting room having a door 26 on the street and if desired communicating through a door 27 with the adjacent store.

The corresponding space at the opposite side of the driveway 21 is subdivided to provide a foyer 28 for the office building communicating through a vestibule 29 with the street. Passenger elevators 30 which serve the upper floors of the office building are entered from the foyer 28, the elevator shaftways 31 being disposed forwardly of the well 13.

The upper floors of the building, all of which are designated at 32, may be conveniently subdivided into office space, a typical plan of one of the office floors being shown in Fig. 3 wherein it will be noted that the hallway 33 which communicates with the elevator shafts 31 occupies the central portion where the light is cut off by the well 13, and all of the offices 34 which are entered from the hallway 13 include one or more walls at the exterior of the building, providing adequate light and air for the offices. In other words, the well 13 only occupies space which would otherwise be utilized for a blind airshaft or court and its provision in the building detracts but little from the available office space and leaves only outside offices which are light and airy.

The garage equipment, which is mounted entirely within the well is quite similar to that disclosed in my prior application, Serial No. 319 510, filed November 15th, 1928, and may conveniently include a series of car parking cabins 36 hung between and carried by endless conveyor elements which travel in guideways 37 and over actuating drums or sprockets 39, in the top of the well. Each cabin preferably has a four-point guiding arrangement including guiding means at 40 which enter the guides 37 and engage the endless flexible devices and guide means 38 which travel in a secondary endless guideway designated generally at 41.

The guideways 37 and 41 overlie each other for the greater portion of their length. That is to say, the vertical runs of these guideways in the upper portion of the well overlie each other, and their vertical portions at opposite sides of the tunnel overlie each other. In passing from one vertical portion to the next the guideways are flared apart at 37*a*, 41*a* to maintain the cabins on an even keel. For a similar reason the guides separate in passing through the lower crossway 42 beneath the tunnel 14 and in passing through the upper crossway 43 at the top of the well.

Preferably a plurality of similar endless cabin train units are provided, the well being subdivided by vertical partition walls such as 44 (Fig. 2) if desired, so that each cabin train is segregated from the others.

If desired the two vertical runs of a single cabin train may also be subdivided from each other above the tunnel 14 by a central partition framework 45, preferably carrying at spaced intervals platforms 46 accessible from a stairway 47. These fore and aft extending platforms permit the convenient inspection of all the various storage cabins as they travel through their orbits. The top of framework 45 may mount the driving mechanism 50 for the sprockets 39.

When a car enters the garage it drives down the ramp 19 past the central control and toll station 48 on to the receiving floor 15 and is swung to the left and driven into a waiting storage cabin 36.

When the car is called for, the cabin containing it is shifted into alinement with the delivery floor 16, the car is driven out on to the delivery floor and down the ramp 20 to exit. My pending application, Serial No. 329,386 shows one form of automatic electrical control mechanism for shifting any desired cabin into registry with either the receiving or delivery floor.

From the foregoing description it will be noted that I have retained the advantageous loading and unloading arrangement of my prior patent in that cars are always driven ahead into and out of the storage cabins. I have at the same time completely obviated the use of any central dead storage space which has proven economically wasteful and have devised a garage and office building combination with very immaterial loss of office space and no loss of desirable outside office space.

It will of course be obvious that in adapting the present invention to various sizes and styles of office buildings and to the various locations and sizes of plots on which the building may be erected it may frequently prove desirable to shift the position of the well relatively to the position of the office

floors. If, for instance, the building had a complete blind side the well would naturally be disposed on this side and in such event the endless cabin trains instead of including a pair of vertical runs symmetrically bellied out to form a loop or bight might consist of one vertical run extending its full height and all of the flaring necessary to accommodate the tunnel could be properly effected by guiding the other run of the train.

Such an arrangement has been shown in Fig. 4, and since all essential parts of the apparatus are substantially similar to those described above, similar characters of reference have been employed.

The garage and office building combination is notable in one respect, for the completeness with which office structure and garage structure are segregated from each other for fire prevention and noise prevention purposes. The car parking equipment is essentially quiet in operation, but if the walls of the tunnel and well are of fireproof and soundproof construction the noise of starting motors will be inaudible to the tenants of the office portion of the building and the undesirable aroma of exhaust gases, oil and gasoline cannot permeate the offices.

In conclusion it may be stated, that the office building and garage combination is merely one of many tenement and storage building combinations embodying the invention, as explained at the outset of the specification, and that the showing of both building and equipment are highly diagrammatic throughout, in order to avoid needless illustration of details which have been fully disclosed in my prior applications.

It will thus be seen that there is herein described a device in which the several features of this invention are embodied, and which device in its action attains the various objects of the invention and is well suited to meet the requirements of practical use.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:

1. A combination office and garage structure including a building horizontally subdivided into office floors, and having a relatively deep well therein intersecting the office floors and extending well below street level, a horizontal entrance and exit tunnel for automobiles disposed approximately at street level extending through the building and into the well, and vertically movable car parking equipment disposed in the well, receiving cars from and delivering cars to the tunnel, said parking equipment including an endless train of car parking conveyor elements supported within the well and encircling the tunnel, the lower portion of the well being laterally enlarged in the region of the tunnel and the endless train of conveyors including juxtaposed parallel vertical runs above the tunnel.

2. A combination office and garage structure including a building horizontally subdivided into office floors, and having a relatively deep well therein intersecting the office floors, a horizontal entrance and exit tunnel for automobiles disposed approximately at street level extending through the building and into the well, vertically movable car parking equipment disposed in the well, receiving cars from and delivering cars to the tunnel, said parking equipment including an endless train of car parking conveyor elements supported within the well and encircling the tunnel, the lower portion of the well being laterally enlarged in the region of the tunnel, the endless train of conveyors including closely adjacent vertical runs above the tunnel, and a partition framework supported on the tunnel extending upwardly into the well and dividing said runs.

3. A combination office and garage structure including a building horizontally subdivided into office floors, and having a well therein intersecting the office floors, a horizontal entrance and exit tunnel for automobiles extending into the well, vertically movable car parking equipment disposed in the well, receiving cars from and delivering cars to the inner end of the tunnel, said parking equipment including an endless train of car parking conveyor elements supported within the well and encircling the tunnel, the lower portion of the well being laterally enlarged to accommodate the tunnel within the orbit of the endless train, the latter including closely adjacent vertical runs above the tunnel, a partition framework above the tunnel extending upwardly into the well and separating said runs and means mounted upon the framework for supporting and actuating the conveyor train.

4. A combination garage and tenement structure including a building horizontally subdivided into tenement floors, and having a relatively deep well therein intersecting the floors and having no communication therewith, a horizontal entrance and exit tunnel for automobiles extending through the building and into the well, and vertically movable car parking equipment disposed in the well, said parking equipment including an endless train of car parking conveyor elements supported within the well encircling the tunnel and an arrangement to receive cars therefrom, the lower portion of the well being laterally enlarged in the region of the tunnel and the endless train of conveyors including

closely adjacent vertical runs above the tunnel, a partition framework supported on the tunnel extending upwardly into the well and dividing said runs, the partition frame including horizontally disposed inspection platforms arranged at different levels.

5. A combined garage and office structure including a building having a vertical well therein enlarged adjacent its lower end, a horizontal tunnel entering the enlarged lower end of the well and communicating with the exterior of the building, the tunnel being horizontally subdivided into superimposed car delivery and receiving floors, and an endless train of car parking conveyor elements movable vertically within the well encircling the tunnel and registrable for loading and unloading purposes with opposite sides of the car receiving and delivery floors.

6. In a storage structure an endless train of movable storage devices, means for supporting and actuating the train, a cargo-handling station, the train including a pair of closely juxtaposed parallel oppositely moving runs, said runs being flared apart at one point to encircle the cargo-handling station.

7. In a garage an endless train of car parking devices, means for mounting and actuating the train, a car receiving and car delivery station, the train including a pair of oppositely moving generally parallel runs normally closely juxtaposed and including portions spread apart to encircle the car receiving and delivery station.

Signed at New York, in the county of New York and State of New York this 19th day of March, A. D., 1929.

ERNST GEIGER.