To all whom it may concern:

Be it known that we, PAUL H. GARTNER and JOHN H. GARTNER, citizens of the United States, and residents of Lava Hot Springs, county of Bannock, and State of Idaho, have invented certain new and useful Improvements in Work and Display Stands, of which the following is a specification.

It is well appreciated that it is often desirable, in connection with the display and selling of automotive vehicles, to show a prospective purchaser of such vehicles certain details of construction which are only visible from the under side of the same.

In connection with having access to the majority of parts of the power unit, transmission shafts, etc., of an automotive vehicle for the purpose of repairing, it is necessary for a mechanic to conduct his work underneath the vehicle so that these parts may be accessible to him.

It is obviously impractical to ask the usual purchaser of an automotive vehicle to assume a reclining position to be enabled to view certain points of construction on the under side of the car and hence it must be left to the imagination of the purchaser and the descriptive powers of the salesman to permit the former to conceive the points brought out by the latter.

In connection with repair work it has heretofore been proposed that a mechanic recline upon what is known as a "walker;" in other words, a small platform upon casters, and by means of the latter to move the same and his body to positions under the vehicle from which the parts to be worked upon would be accessible. Where this mode of repairing has not been resorted to a pit has been provided in which the mechanic works, the vehicle being passed over the same. In view of the fact that the mechanic must always look upward and work with his hands over his head—an unnatural position—the work proceeds but slowly and the mechanic, in both cases, is subjected to great physical fatigue as well as discomfort.

From the foregoing it will be seen that the most practical method of overcoming the aforementioned difficulties would be to provide a stand upon which the vehicle might be placed, which stand would be capable of being operated so as to render the under side of the vehicle readily accessible.

With this end in view, stands have been proposed having this object in mind, but these stands have proven for the most part impractical in that they were not of sufficiently rugged construction to permit of their being subjected to the rough usage and strains which they would necessarily have to undergo, and where they have been sufficiently strong to withstand unlimited usage in this respect these stands have been, for the most part, inaccessible to the usual small car agent or garage owner in that their cost has been prohibitive.

With the above in mind we have constructed a stand which is capable of grasping and retaining any type of automotive vehicle and by means of which said vehicle may be moved readily to a position in which its under side will be easily accessible for repairing or display purposes, and which is so simple in construction and operation as to be capable of being manufactured at an extremely low price, permitting its purchase by virtually anyone having need of the same.

Reference is had to the attached sheet of drawings which illustrates one practical embodiment of our invention, and in which—Figure 1. is a rear view of our improved type of stand, showing an automotive vehicle, partly in section, positioned thereon; Fig. 2. is a partly sectional side view of the same, and Fig. 3. illustrates a detail of the operating mechanism.

In these views like reference numerals designate similar parts and the reference numeral 5 indicates base members of any suitable construction upon which are mounted opposed spaced angle irons 6, which run longitudinally with respect to the base portions 5.

At any desirable point in the length of the irons 6, pivot pins 7 are provided, which serve to retain and act as pivots for channel irons 8, forming bell cranks.

Further channel irons, or other suitable members 9, extend transversely to the members 8, and are secured thereto, such irons acting as rails for the vehicle 10, the same being held in position upon these rails by any desirable means such as turn buckles 11,
Any suitable number of these latter members are provided and have their lower ends engaging the channel iron 9, their opposite ends retaining the vehicle by virtue of the fact that these latter ends are forked, comprising a prong 12, adapted to lie flush against the face of the channel iron forming the frame of the vehicle, the second prong thereof being hook-shaped and having its end extending into the channel of said frame.

With a view of holding the straight and hooked prongs 12 and 13, respectively, of the turn buckles 11, in their proper position, any suitable means such as a bolt and nut construction 14, may be used.

Now to provide means permitting of a tilting on the part of the bell cranks, formed by the channel iron 8, around their respective pivoting pins 7, a rotatable shaft 15 is mounted adjacent to the ends of the angle iron 6, and drums 16 are secured to said shaft preferably at points between pairs of irons forming a unit.

Any suitable means for rotating and holding such shaft may be provided such as a hand crank 17, which may be held by means of an interlocking pin 18. The hand crank 17 serves to rotate a small gear 19, meshing with a train of reduction gears or a single gear 20, coupled directly with shaft 15.

Secured adjacent the outer ends of the channel members 8 are one end of each of the cables 21, which extend thence to their respective drums 16, and after a suitable number of turns around the same, extend between the angle iron 6 to a point adjacent the ends of the same, at which point they pass over a pulley such as 22, their ends being secured as at 23, to the upper ends of the channel members 8.

From the foregoing it will be seen that it will be an extremely simple operation for a mechanic to move a vehicle upon the channel members 9 serving as rails, using any suitable means as an approach to such rails such as inclined channel members 25 having their outer ends in contact with the supporting medium, their upper ends connected with the channel members 9, thus permitting the vehicle to be readily moved to a desirable position upon the latter.

The turn buckles 11 are now actuated so that their lower ends firmly grip the channel members 9, their forked ends being applied and secured to the frame of the vehicle 10 in the manner afore-described, the turn buckles 11 then being actuated so as to permit of no movement between the vehicle 10 and the channel members 8.

The interlocking pin 18 is now removed and the crank 17 rotated, which will result in a pull being exerted upon the cables 21 causing a rocking of the channel members 8 around their pivots 7, but by virtue of the fact that the opposite ends of the cables 21 are secured to the outer ends of the channel members 8, a restraining influence will be exerted upon such irons and prevent a falling of the bell cranks carrying the vehicle 70 after the latter has been moved to a point beyond its center of gravity. By means of this construction the vehicle may be held at any desired angle upon the pin 18 being reinserted to prevent the turning of the crank 75 17, but the tilting operation is usually continued until the channel members 8 have swung through a 90° arc, at which latter point the under side of the vehicle is in a readily accessible position.

It will be noted from the construction embodied in the drawings in this application that we have provided a stand which shall be extremely simple in construction and economical in the manufacture of its parts 85 and assemblage of same. In this connection it is to be noted that the angle iron 6 serve as a bearing for the shaft of the hand crank 17, the drum carrying shaft 15 and act also as a support for the pins 7, and retain the 90 pulleys 22 in applied position.

From the foregoing description it will be seen that by means of our improved construction that the cable 21 extending between the angle iron 6, and longitudinally thereof, travels in as nearly a direct line as is possible, thus eliminating all undue friction and permitting of an easy operation of the parts.

Obviously modifications of structure might be resorted to without departing from the scope of our claims, which read:

1. A work stand including a plurality of rockingly mounted bell cranks, one of the arms of each of said bell cranks resting in a horizontally normal plane, means for engaging the opposite arms of said bell cranks for rocking the same, rails extending between said horizontally disposed arms, and means attached to said rails for retaining a vehicle and entirely supporting the same irrespective of the position of said arms.

2. A stand including separate arms, rails extending transversely of such separate arms, means for rocking said arms and turn buckles having one of their ends engaging such rails, their upper ends being forked, one of the prongs of such forked end being adapted to lie flush with the side of the channel arms of the frame of the vehicle placed upon such rails, the second prong being hooked in shape and projecting into the channel of the frame of such vehicle.

3. A stand including pairs of arm iron resting upon a supporting medium and being arranged opposed to and spaced from one another, a drum mounting shaft passing through openings in said angle irons and extending between the pairs of the same, drums mounted upon such shaft and posi-
tioned between the spaced irons, pivot pins extending between the pairs of angle irons, pulleys associated with such angle irons and adjacent the ends of the same opposite to the ends mounting the drum shaft, a pair of bell crank channel members secured to such pivot pins at their elbows, rails extending transversely across one of the arms of such bell cranks and between the same, and cables having their ends secured one each to the 10 outer ends of the arms of said bell cranks, the body of such cables passing around said drums and pulleys and means for rotating such drums.

PAUL HENRY GARTNER.

JOHN HERMAN GARTNER.