

Aug. 26, 1930.

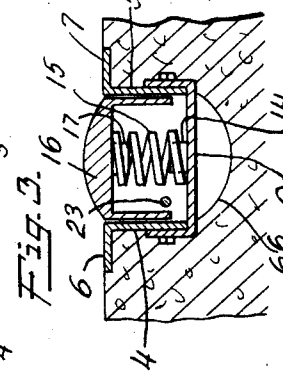
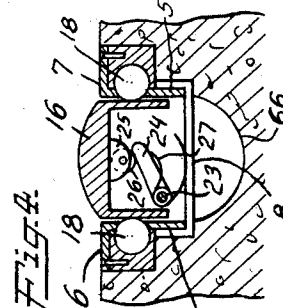
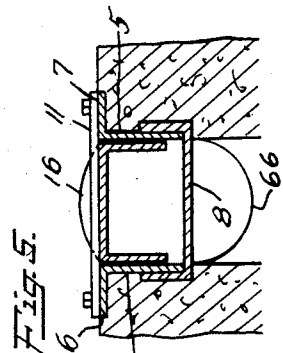
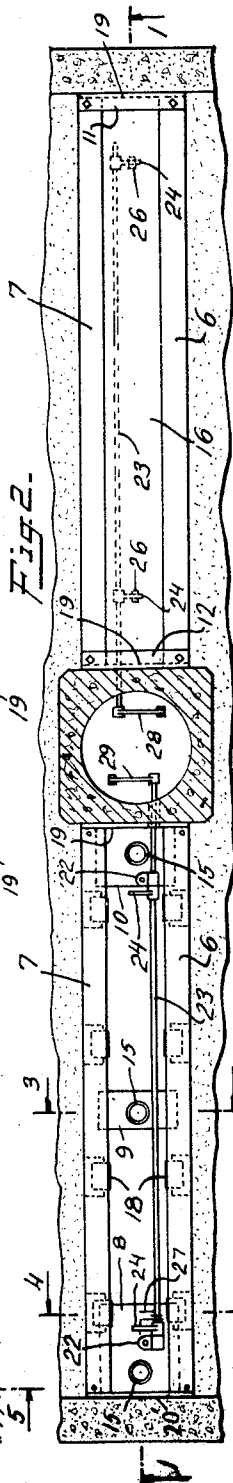
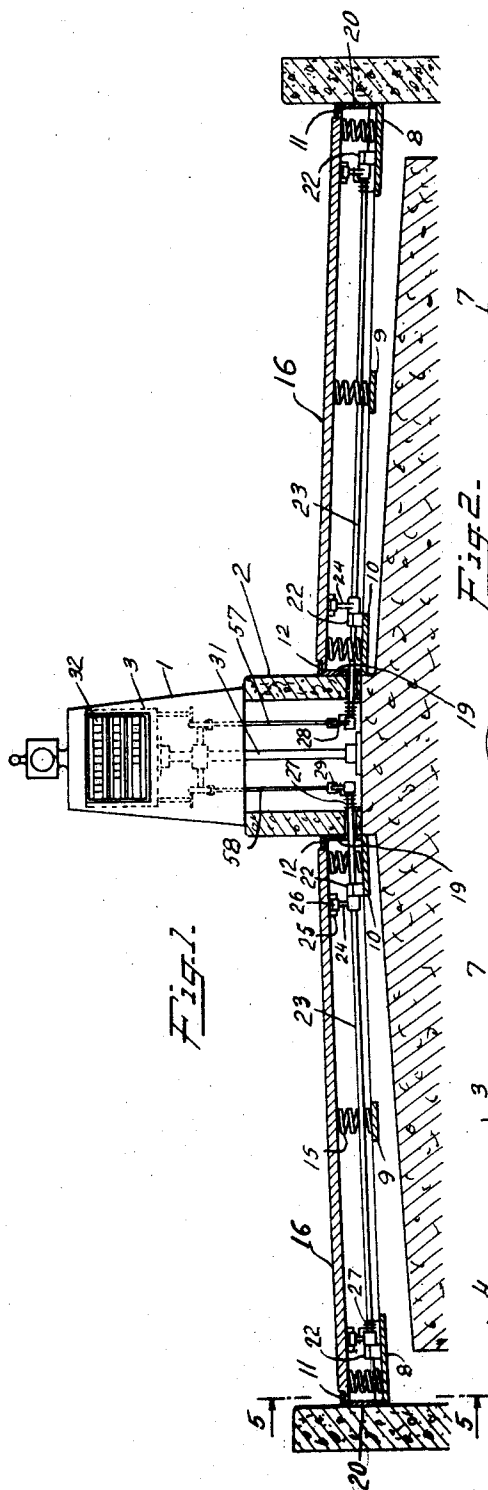
F. A. BARNEY

1,773,718

TRAFFIC REGISTER

Filed Nov. 12, 1927

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

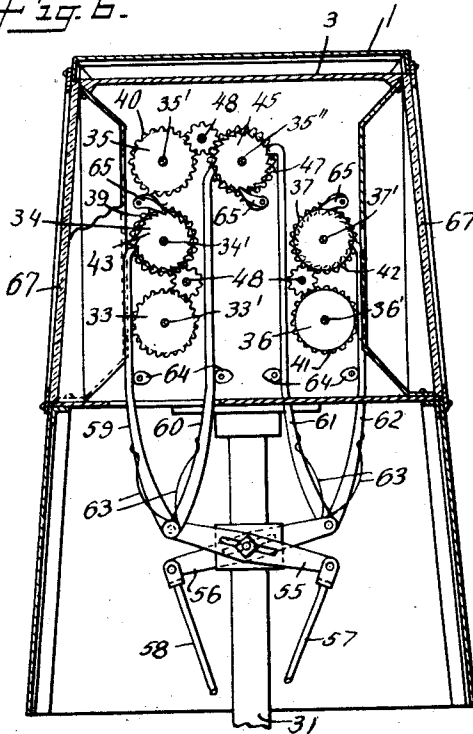


Fig. 7.

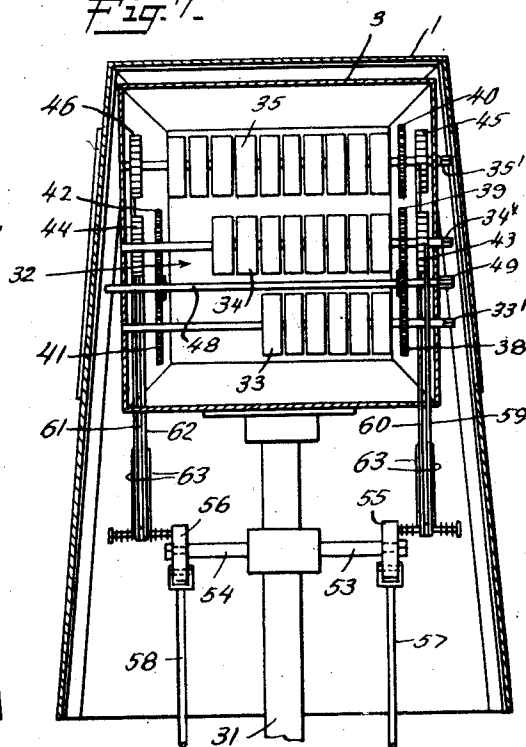


Fig. 8.

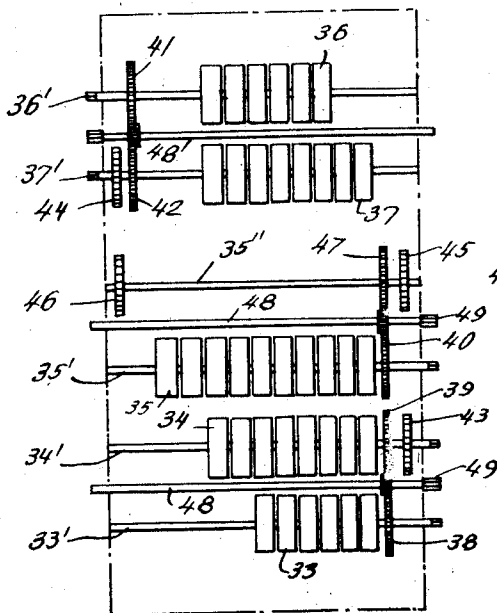
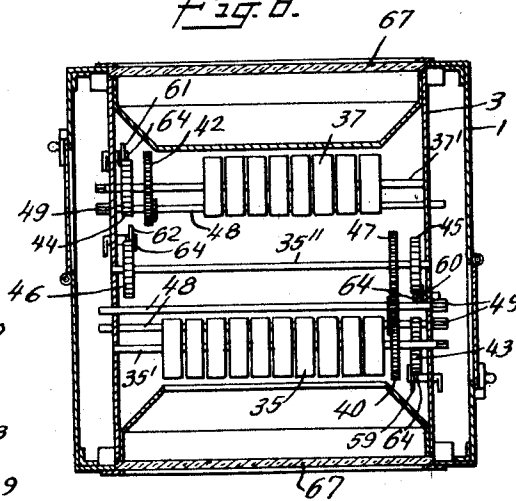


Fig. 9.



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TRAFFIC REGISTER

Application filed November 12, 1927. Serial No. 232,782.

This invention relates broadly to registering devices and more particularly to a device for registering the number of vehicles which pass over a highway or street.

The relief of congested traffic and the better and more economical construction of highways and streets is a problem as to the solution of which anyone may well be proud to contribute his best efforts. This problem is thrust upon the officials of our State and municipal governments. In so far as I have been able to determine, the only way that the amount of vehicular traffic flowing over any particular highway or street for a given period could heretofore be properly determined, has been to station one or more men at the point in question and have them count the vehicles that passed. Obviously this is expensive, especially where it is desired to have a record of the traffic flow for an extended period.

Thus where officials desire to know whether any particular street is overburdened or underladen with traffic, for the purpose of re-routing that traffic, or where they desire to know whether a highway is standing up under the traffic contemplated, it is merely necessary to install my traffic register to determine this question. My invention is also useful where it is desired to know the number of vehicles attending any public gathering such as fairs and races and finds a useful purpose at filling stations and the like for determining total patronage over any given period.

My invention includes a pressure bar which, when properly installed in a highway, may be actuated by the passage of a vehicle thereover. The depression of this pressure bar operates mechanism, preferably shaft and lever mechanism, communicating each actuation to a register or counting device causing each depression to be registered. The entire mechanism is of course suitably housed.

From the description and drawings, forming a part hereof, the nature and objects of the invention will be more thoroughly understood. In the drawings, in which like reference characters refer to like parts,

Fig. 1 is a longitudinal sectional elevation of my invention,

Fig. 2 is a plan view thereof with the left hand pressure bar removed and the base of the traffic tower in section,

Figs. 3, 4 and 5 are sectional views of the pressure bar and housing assembly taken on the lines 3—3, 4—4 and 5—5 respectively of Fig. 2, each showing the parts cut by the section but none behind,

Fig. 6 is an end elevation of the register mechanism, the register walls being shown in section,

Fig. 7 is a front elevation thereof,

Fig. 8 is a plan view thereof, and

Fig. 9 is a developed diagrammatic plan view of the register gearing.

Altho I shall describe my invention as comprising a traffic tower together with both right and left hand pressure bars and accompanying assembly, it should be quite obvious that I do not intend to be limited to this complete embodiment of my invention as it may be expedient under certain circumstances to install only one pressure bar of a length substantially equal to the width of the highway with the register at the side of the road rather than in the approximate center thereof.

In the drawings, reference character 1 designates, generally, a traffic tower having a hollow base 2 of concrete or other suitable material and a register housing 3 which may be of wood or metal. The traffic tower 1 normally is placed in the center of the highway in connection with which my invention is installed, the base 2 being set into the road bed a suitable distance, if desired, as shown in Fig. 1. Extending to the right and left from the base 2 are right and left hand pressure bar assemblies each of which may comprise housing members 4 and 5 having upper flanges 6 and 7. The housing members 4 and 5 are coupled together by U-shaped spans or couples 8, 9 and 10 as well as by cross bars 11 and 12 which, incidentally serve another purpose to be hereinafter related. The housing members 4 and 5 are so disposed that the inner faces thereof are vertical and parallel and the upper faces of the flanges 6 and 7 are parallel and in the same plane.

Midway between the ends of the couples 8, 9 and 10 on the upper side thereof are circular

bosses 14, centered upon which are like compression springs 15 for supporting the right and left hand pressure bars 16 which are each U-shaped in cross section and inverted. Upon the underside of the pressure bars 16 are circular bosses 17 for fitting into the upper ends of the springs 15. The couples 8, 9 and 10, and the bosses 17 are all similarly and equally spaced. The right and left hand pressure bars 16, therefore, rest upon their respective sets of springs 15, the bosses 17 and 14 fitting into the upper and lower ends, respectively, of said springs.

The pressure bars 16 fit loosely into their respective housings so as to allow for roller bearings and so that they can move freely in a vertical plane. The upper face of each pressure bar is bulged or convex shaped and the springs 15 are of such a length that the bulged portion of the pressure bar for its entire length extends above the upper faces of the flanges 6 and 7.

As shown more particularly in Fig. 4, roller bearings 18 are provided in each of the housing members 4 and 5 so that the pressure bars 16 will fit slidably but fairly snugly therein and have free movement in a vertical plane, but without undue side play. On the inside and outside ends of the housing members 4 and 5 are secured plates 19 and 20, respectively, which operate as end thrust members for the pressure bars 16 and serve to reinforce the housing members 4 and 5. The plates 19 are slotted for receiving a shaft.

The couples 8 and 10 near the ends of the housing members 4 and 5 are wide enough to receive, in addition to the springs 15 the bearing blocks 22 in which are mounted the shafts 23, these shafts being sufficiently longer than the pressure bars 16 to extend into the base 2 of the traffic tower 1. In order for the shafts 23 not to interfere with the springs 15 they are located, by means of their respective bearings, to one side of the centrally located springs 15 and parallel to and upon opposite sides of the center line of the respective right and left hand pressure bar assemblies. Upon the shafts 23, preferably just inside the bearings 22, are fixedly secured arms 24 pointing toward the center line of their respective pressure bar assemblies and also pointing, in their normal position, slightly above horizontal. Protruding from the underneath side of the pressure bars 16 substantially above the center line of their respective pressure bar assemblies and also above the arms 24 are ears 25 carrying thrust rolls 26 each of which is, therefore, directly above the end portion of its respective arm 24. Upon each of the shafts 23 may also be secured one or more helical torsion springs 27 for the purpose of causing the end portions of the arms 24 to continually contact with their respective thrust rolls 26.

Upon the inner ends of the right and left

hand shafts 23 are also fixedly mounted arms 28 and 29, respectively, pointing toward the center line of the pressure bar assemblies and in their normal positions, inclined slightly above horizontal. Up to this point in the description it will be observed that I have described right and left hand pressure bar assemblies each capable of operating independently of the other. From the description which follows, it will be observed that this same independence of action continues in connection with the registering of the depressions of the pressure bars but that at the same time the depressions of both said bars may, and in the preferred embodiment are, registered upon the same register.

In the traffic tower 1 may be located a standard 31 upon which is mounted a register 32 housed by the housing 3. Suitable windows 37 are, of course, located in said tower so that the register or the indices thereof can be observed. Said register 32 may be any one of a number of different types but in the preferred embodiment employed by me comprises five lines 33, 34, 35, 36 and 37 of index cylinders. The gearing of the index cylinders from right to left to obtain a count thereon in multiples of ten is well known to those skilled in the art and need not be here described. The lines 33, 34 and 35 are read from the front of the traffic tower while lines 36 and 37 are read from the back. The right hand index cylinder of each line (determining right from the position of reading) is fixedly secured to its respective cylinder shaft. The remaining cylinders upon each shaft are loosely mounted thereon as is common in such registers. Any of the lines of cylinders may be rotated back to zero reading at will for the purpose of obtaining a periodical count thereon as will be more fully hereinafter described. Upon the right hand ends of the cylinder shafts 33', 34', 35', 36' and 37' adjacent the right hand cylinder are fixedly secured spur gears 38, 39, 40, 41 and 42, respectively. These gears are of the same diameter and toothage but are of such diameter and the cylinder shafts are so spaced that the gears do not mesh. Upon the right hand ends of the cylinder shafts 34' and 37' adjacent the ends thereof are fixedly secured ratchet gears 43 and 44 respectively. The shaft 35'' is parallel with the cylinder shafts. Upon the right and left hand ends of the shaft 35'' are fixedly secured ratchet gears 45 and 46, respectively, each in the same vertical plane as ratchet gears 43 and 44 respectively. The teeth upon ratchet gears 43 and 45 incline similarly, namely, downwardly on the front side thereof whereas the teeth of ratchet gears 44 and 46 incline oppositely, namely, those of gear 44 incline downwardly on the back side and those of gear 46 incline upwardly on the back side thereof. Fixedly secured upon the

shaft 35'' in line with gears 38, 39, and 40 is a similar spur gear 47.

Since a normal index cylinder has ten indices located thereon equidistant apart and since each pressure bar 16 will be actuated or depressed twice by each vehicle which passes thereover, i. e. once by the front wheels and once by the back wheels of said vehicle, I have provided each of the ratchet gears 43, 44, 45 and 46 with twenty teeth so that a new indice will be brought into "sight" upon the right hand cylinder every time a vehicle passes over the pressure bar operatively connected to that particular ratchet gear.

Shafts 48 are slidably mounted in the register housing 3 and have handles 49 upon the right hand ends thereof adapted to contact with the wall of the register housing. There are three of these shafts all parallel to the cylinder shafts, one between shafts 33 and 34, another between shafts 35' and 35'' and a third between shafts 36' and 37'. Upon each of these shafts 48 is fixedly secured a small spur gear 50 at such distance from the right hand end of each shaft that when its handle 49 contacts with the side of the register housing 3 the gear 50 upon that shaft will mesh with its respective pair of gears 38 and 39, 40 and 47, or 41 and 42. Thus any motion given to the ratchet gears 43, 44, 45 or 46 will be transmitted to the cylinder lines 34 and 33, 35, or 36 and 37 respectively. If a shaft 48 is pulled to the right no motion will of course be transmitted through the gear 50 upon that shaft. By this arrangement, cylinder lines 33, 35 or 36 may be made inactive. Furthermore, by disengaging any gear 50 from any larger spur gear with which it is associated the cylinder line with which that larger spur gear is associated, may be turned back to zero reading by the use of a key upon the squared right hand end of that cylinder line shaft. The cylinder line may be made active again by pushing the handle 49 back into contact with the register housing remeshing the gear 50.

To the standard 31 are fixedly secured right and left hand stub shafts 53 and 54 upon which are pivotally mounted evener bars 55 and 56, respectively, having slots therein for adjustment purposes. Connecting one end of the bars 55 and 56 and the free ends of arms 28 and 29, respectively, are rods 57 and 58. To the opposite end of the bar 55 are pivotally secured the push pawls 59 and 60 and to the opposite end of bar 56 are pivotally secured hook pawl 61 and push pawl 62. These pawls 59, 60, 61 and 62 engage the teeth of ratchet gears 43, 45, 46 and 44, respectively, for the purpose of rotating said ratchet gears by the depression of their respective pressure bars. Springs 63 are provided for causing the normal engagement of the pawls with their respective ratchet gears and cams 64 are provided for selectively throwing out

of engagement any particular pawl. By means of shafts extending thru the register walls and to which these cams are secured they may be controlled. All of these movable parts are, of course, made suitably adjustable so as to provide for the proper placing and action thereof. Lag dogs 65 for the ratchet gears and operated by stub shafts to which they are secured may also be provided as shown. If it is desired to turn back to zero reading, any cylinder line having a ratchet gear, the pawls contacting therewith must of course be lifted before this can be done.

In the embodiment illustrated in Figs. 1 and 2 the base of the traffic tower 1 is, together with the pressure bar assemblies set into the roadway so that the flanges 6 and 7 of the pressure bar housings come flush with the surface of the roadway and, as must follow, so that the bulged portion of the pressure bars extend above the roadway for their entire length as shown more particularly in Fig. 3. Gutters 66 may be provided underneath the pressure bar assemblies, for drainage purposes.

As will be observed from Fig. 6 the front and back walls of the register housing 3 are dished to bring the portion of these walls adjacent the cylinder lines in close proximity thereto. These walls are slotted as shown so that the indices upon the cylinders may be read. In the side walls of the tower 1 opposite the right hand ends of the cylinder shafts are doors which permit access to the cylinder and cam shafts.

The operation of my invention is as follows: As a vehicle travels along the roadway it must pass over one or the other of the pressure bars 16 and must therefore depress said pressure bar twice as it passes thereover, once by the front wheels and once by the rear wheels. Assuming it is the right hand pressure bar 16 that is depressed, the thrust rolls 26 push the free ends of arms 24 downward, rotating the shaft 23 and causing the free end of arm 28 to move downward. This pulls the rod 57 downward which pushes the pawls 59 and 60 upward rotating the ratchet gears 43 and 45. Thus for each double actuation of the right hand pressure bar 16 the lines 33, 34 and 35 of the register register the passage of one vehicle. When the left hand pressure bar 16 is depressed, such actuation is similarly communicated to the pawls 61 and 62 which move upward, the pawl 62 rotating its ratchet gear on the upward motion and the pawl 61 rotating its ratchet gear when returning to normal position. Thus for each double actuation of the left hand pressure bar 16 the lines 36, 37 and 35 of the register will register the passage of one vehicle. The springs 27 on shafts 23 cause the levers and pawls to return to their normal position. Instead of torsional springs on the shafts 23, tension springs may be hooked to the free

ends of arms 28 and 29, for instance, to accomplish the same purpose.

Thus the lines 33 and 34 register the traffic upon the right hand side of the road way in one direction, the lines 36 and 37 register the traffic on the left hand side of the roadway in the other direction and the line 35 registers the total traffic in both directions. By means of the cams 64, any of the pawls may be selectively disengaged so that the registering of total traffic or either one way traffic may be selectively dispensed with if desired at any time. In this connection it may be stated that a simple single register for registering only total traffic may be employed or that separate simple single registers may be provided for each one way traffic.

As pointed out early in this description, I have described my invention in its preferred embodiment as adapted to register two way traffic. It would of course be a more economical installation to have only one pressure bar the entire width of the roadway and to have the registering mechanism at the side of the road. Such is more desirable for a narrow roadway and also would be the only embodiment that would logically be employed where there is one-way traffic only. It is intended that the claims hereto appended shall cover both or either embodiments, as appropriate.

Obviously various slight modifications to certain features or elements of my invention will occur to those skilled in the art. For instance, the shafts 23 may not be located directly under the pressure bar but could be positioned to either side thereof; the pressure bar may operate the shaft 23 thru a link and lever assembly or thru gears instead of the thrust rolls and arms shown; the shaft 23 or even the pressure bar, may operate the register thru suitable gearing and different types of registers may be used, such as that type operated by a lever arm instead of a ratchet gear. It is, therefore, intended that the claims appended hereto shall include such modifications or equivalents as said claims may reasonably be construed to include.

The pressure bars 16 are not of great width as the housing members 4 and 5 should not be spaced so far apart that a vehicle wheel will strike the edge of the forward housing element with any great force but will, so to speak, "skim over" or span the space between the housing elements with ease. The pressure bar and housing elements should of course be sufficiently rugged to withstand the shock of heavy and fast travelling traffic. To this end the springs 15 must be sufficiently strong and resilient to withstand traffic and return the pressure bar to normal position quickly. Cross bars 11 and 12 prevent the pressure bar from protruding above its normal position. Obviously, the pressure

bar or bars should be approximately cross-wise of the roadway.

It will be apparent that my invention has great utility for registering traffic at any point desired and that it will accomplish a great saving, not only in the mere recording of traffic, but in determining what highways or streets have the most or least traffic there-over so that a certain amount thereof may be rerouted and also so that it will be known whether that highway or street is standing up under traffic as it should and was intended and by that improve future roads accordingly.

I claim:

1. In a register actuating mechanism, in combination, a housing comprising spaced longitudinal members having vertically disposed walls, a depressible pressure bar disposed in said housing except for a bulged portion thereof which in normal position of said bar extends without the said housing, a rotatable shaft disposed in said housing and substantially parallel to said bar, means operatively connecting said bar and shaft for effecting the partial rotation of said shaft when the bar is depressed, and means operatively connecting said shaft and a register for registering the depressions of said bar.

2. In a register actuating mechanism, in combination, a housing comprising spaced longitudinal members having vertically disposed walls, an inverted U-shaped depressible pressure bar disposed in said housing except for a bulged portion thereof which in normal position of said bar extends without the said housing, a rotatable shaft disposed in said housing and substantially parallel with said bar, arms on said shaft having their free ends operatively connected with said bar and means operatively connecting said shaft and a register for registering the depressions of said bar.

3. In a register actuating mechanism, in combination, a housing comprising spaced longitudinal members having vertically disposed walls, an inverted U-shaped depressible pressure bar supported by a plurality of springs having their resistance force distributed throughout the length of said bar, said bar being disposed in said housing except for the bulged portion thereof which in its normal position extends without the said housing, a rotatable shaft disposed in said housing and substantially parallel with said bar, arms upon said shaft having their free ends operatively connected with said bar, another arm upon said shaft near one end thereof, and means operatively connecting the free end of the last named arm with a register for registering the depressions of said bar.

4. In a register actuating mechanism, in combination, a housing adapted to be positioned across a highway and comprising sub-

stantially parallel longitudinal members, the
upper faces of which lie in substantially the
same plane as that of the surface of said
highway, a depressible pressure bar disposed
in said housing except for a bulged portion
thereof which in normal position of said bar
extends beyond the upper face of said hous-
ing, and means operatively connecting said
pressure bar to a register for registering the
depressions of said bar.

In testimony whereof I affix my signature.
FRANK A. BARNEY.