What You Should Know About Your Watson Stabilators

JOHN WARREN WATSON COMPANY
PHILADELPHIA, U. S. A.

FRANKLIN

CAUTION

In certain specific points these instructions apply only to Stabilators for the Franklin Car.

ADJUSTMENTS
Front Stabilators 26/28 Pounds
Rear Stabilators 22/25 Pounds
SEE PAGE SIX

Therefore do not follow these instructions in handling Stabilators designed for any other make of car.

What You Should Know About Your Watson Stabilators

Stabilators are nothing more or less than brakes—brakes to hold in check the recoil force stored in your car springs when they have been compressed by the hitting of a bump. These brakes prevent this recoil force from violently tossing you and the car body upward and also prevent this force from dashing the wheels and axles downward which would cause them to bounce and chatter over the road.

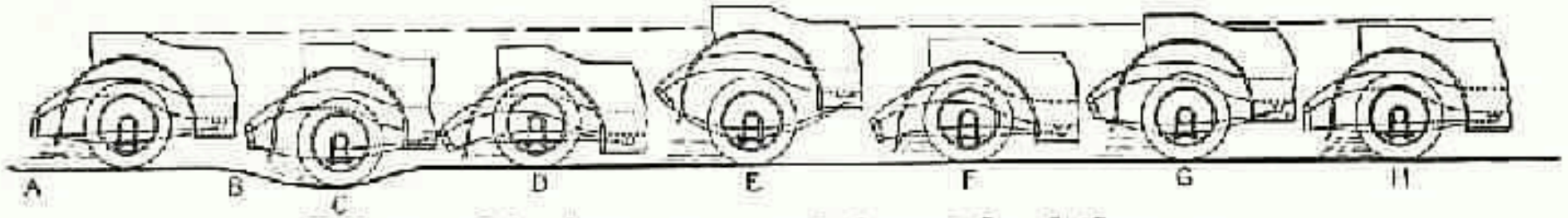
A Stabilator is not a mere snubbing device. In principle, a Stabilator is exactly the *opposite* of a snubbing device. Instead of checking the flight of the body after the body has *been* tossed into the air, Stabilators oppose the recoil force from the very *beginning* of the recoil movement and thus the body is never *permitted* to be tossed.

Never Oil or Grease Stabilators

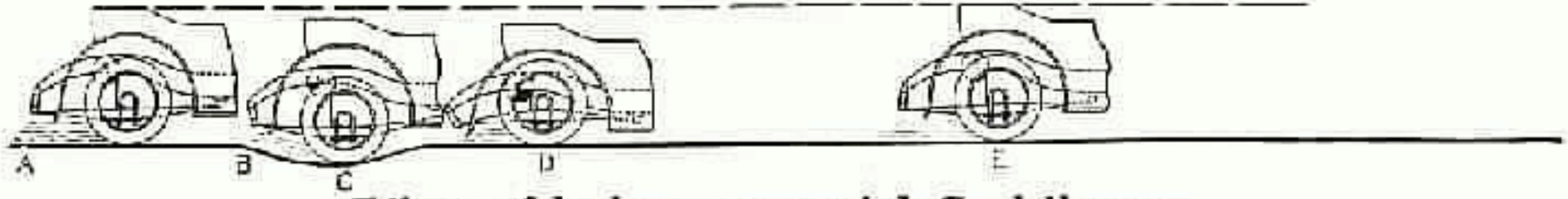
Stabilators should never be lubricated—they do not require lubrication. To lubricate Stabilators would be just as fatal as to lubricate your wheel brakes—they would cease to hold.

Removing a Stabilator From Car

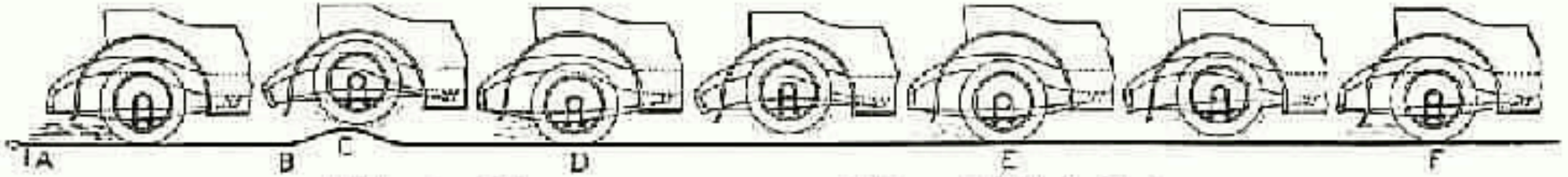
If, due to collision or for any other reason, it should be necessary to remove a Stabilator, proceed as follows:



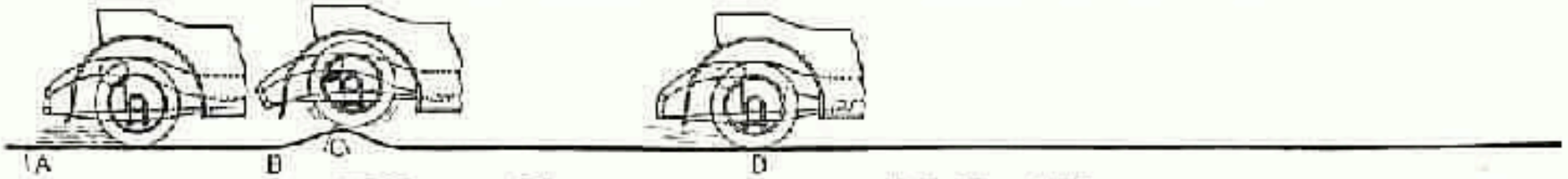
Effect of hole on car *without* Stabilators.



Effect of hole on car *with* Stabilators.



Effect of bump on car *without* Stabilators.



Effect of bump on car *with* Stabilators.

1st—Remove the steel cap and the rubber gasket which prevent water from entering the Stabilator around the adjusting nut.

2nd—Scratch a mark on the Stabilator cover alongside the locking pin which is held in the adjusting nut (this mark will then tell you just how far to wind up the nut after you have again installed the Stabilator).

3rd—Insert little screw in locking pin (see page 4).

4th—With the special Stabilator adjusting wrench (furnished) turn the adjusting nut very slightly in the direction indicated by the arrow stamped on the adjusting nut. (See page 8.) This slight movement will enable you to pull out the locking pin far enough to allow the nut to turn back to the next notch into which the pin will fit (there are six of these notches in one revolution of the nut). With the pin holding the nut in this new and weaker position, take a new hold with the wrench and in the same manner allow the nut to go back one more notch and so on until the adjustment is all off or "dead." (In fitting the wrench on the adjusting nut make certain, each time, that the wrench fits into the grooves provided for it around the edge of the nut.)

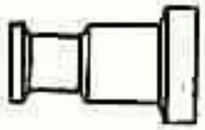
STABILATOR ADJUSTING WRENCH

5th—Undo the clamp which holds strap around axle bracket.

6th—Remove the Stabilator from the car frame by undoing the cap screws which hold it.

To Remove Locking Pin

Locking pins are drilled and tapped to accommodate one of the little screws which hold the Stabilator cover to its base. This drilled and tapped hole has been filled with wax, but this wax may be quickly removed and the screw inserted. The screw then acts as a handle with which to pull out the locking pin after the adjusting nut is turned very slightly in the direction indicated by the arrow stamped on it.



Locking Pin

Reinstalling Stabilator on Car

1st Fasten Stabilator to car frame.

2nd—Clamp the strap around axle bracket in the exact position on the strap originally employed. (This should bring the strap eyelet on the horizontal center line of the Stabilator. See illustration page 8.)

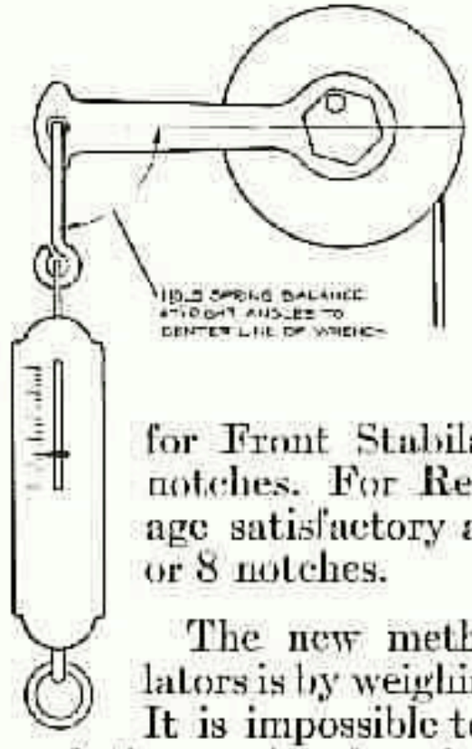
3rd—With the special Stabilator adjusting wrench, turn the adjusting nut in the direction of the arrow, one notch at a time, until the locking pin is in the notch alongside the scratch mark which you made before starting to remove the Stabilator.

4th—Replace the rubber gasket and steel cap tightly on adjusting nut, making sure that gasket fits flat in position against Stabilator cover. This is vital.

A Word on Stabilator Adjustments

The more notches you give the nut—the tighter you wind the Stabilator spring—the more firmly Stabilators will "hold you down."

You are particularly cautioned, however, *not* to get Stabilators *too tight*. Stabilators are very powerful brakes and if adjusted too tight they will not permit proper recovery of your car springs. This will cause hard and jerky riding at the slower car speeds over apparently smooth roads such as asphalt pavements.



The old method of adjusting Stabilators was to wind up the spring to a certain number of notches (there are 6 notches in one complete revolution of the adjusting nut). The average satisfactory adjustment for Front Stabilators is around 5 or 6 notches. For Rear Stabilators the average satisfactory adjustment is around 7, or 8 notches.

The new method of adjusting Stabilators is by weighing instead of by notches. It is impossible to manufacture hundreds of thousands of springs and have them all exactly uniform as to strength, and this method of adjusting by weight compensates for vari-

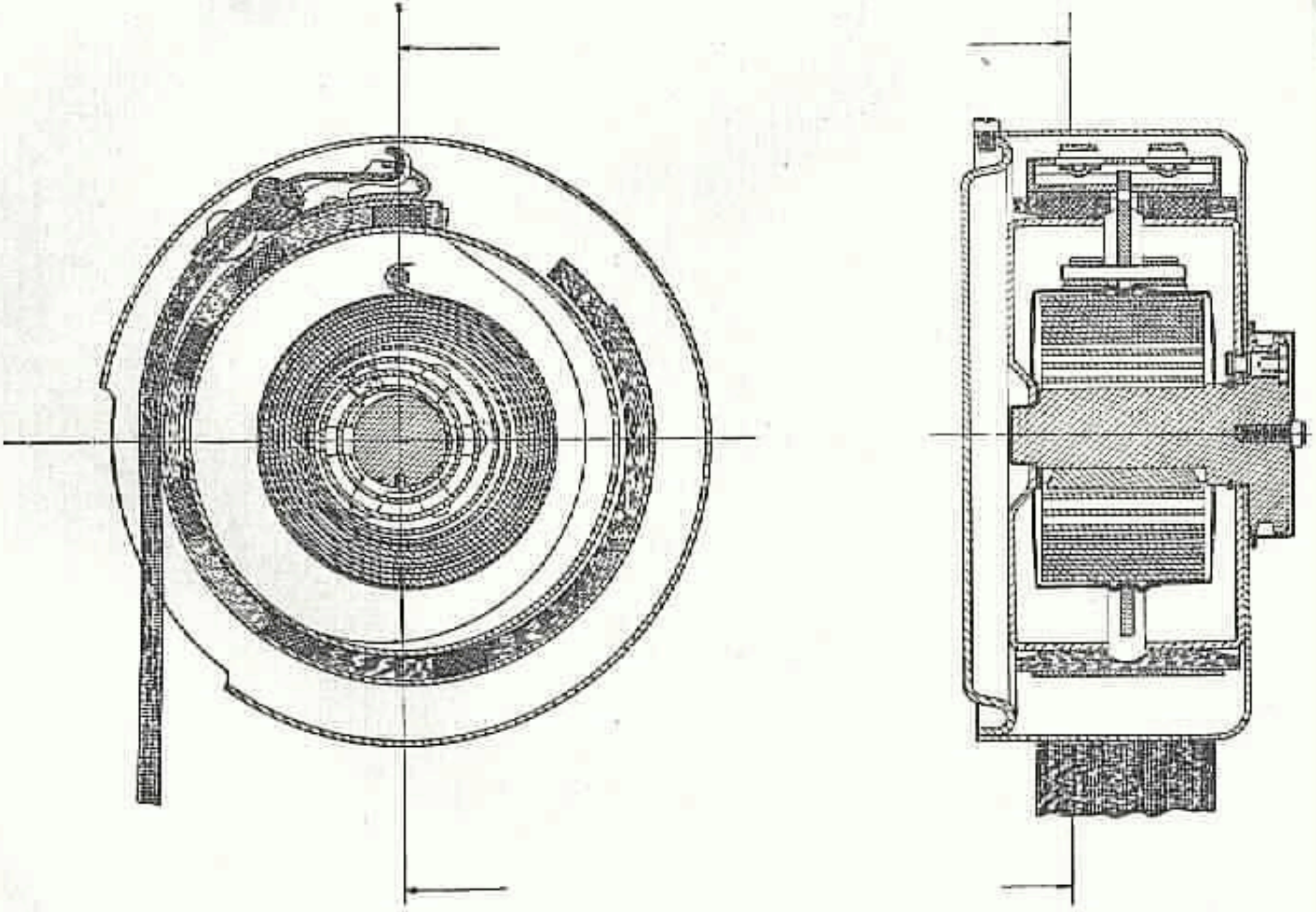
ations and hence will give better and more uniform results than the old notch-counting method.

Stabilator Wrenches are provided with a ¼" hole with its center ¾" from the handle end of the Wrench. By hooking a spring balance into this hole and weighing the adjustment you will be able to make your two front instruments almost exactly uniform with each other and your two rear instruments almost exactly uniform with each other. Depending upon your preference as to the nature of ride you want, Rear Stabilators should be adjusted from 22 to 25 pounds and Front Stabilators should be adjusted from 26 to 28 pounds.

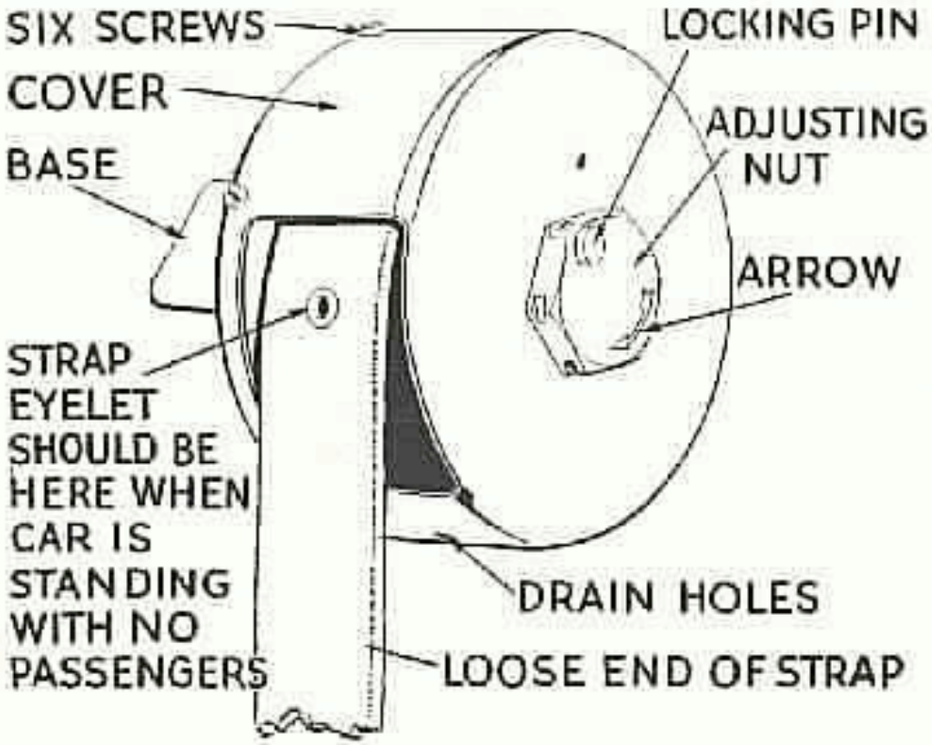
By means of this weight method of adjustment, the adjustment of any Stabilator may be checked without removing the locking pin. There is a certain amount of free motion in the locking pin and by pulling on the spring balance until this free spot is reached the spring weight may be accurately measured. Be sure you pull the spring balance at right angles to the Wrench as shown in the accompanying illustration.

Repainting Your Car

Should you have your car repainted, your painter should be cautioned to work *very* carefully around the Stabilators as any paint spattered inside the instruments or on the straps will ruin their operation.



Cross Sections showing details of Stabilator Construction



Taking Stabilator Apart

If it is desired, while the Stabilators are off the car, to take them apart, proceed as follows: (Caution—Take only one Stabilator apart at a time. Front and rear Stabilators are different and you must run no risk of getting the parts mixed. For example: The eyelet in a front Stabilator strap is five (5) inches from the nearest pair of rivets, while in a rear Stabilator strap the eyelet is four (4) inches from these rivets. Again, a front Stabilator spring is designated by the letter "D" or "Fronts only all cars" stamped on the spring retaining ring, while a rear Stabilator spring is designated by the letter "B" or "Rears only all cars." A front Stabilator spring is far more powerful than a rear spring.)

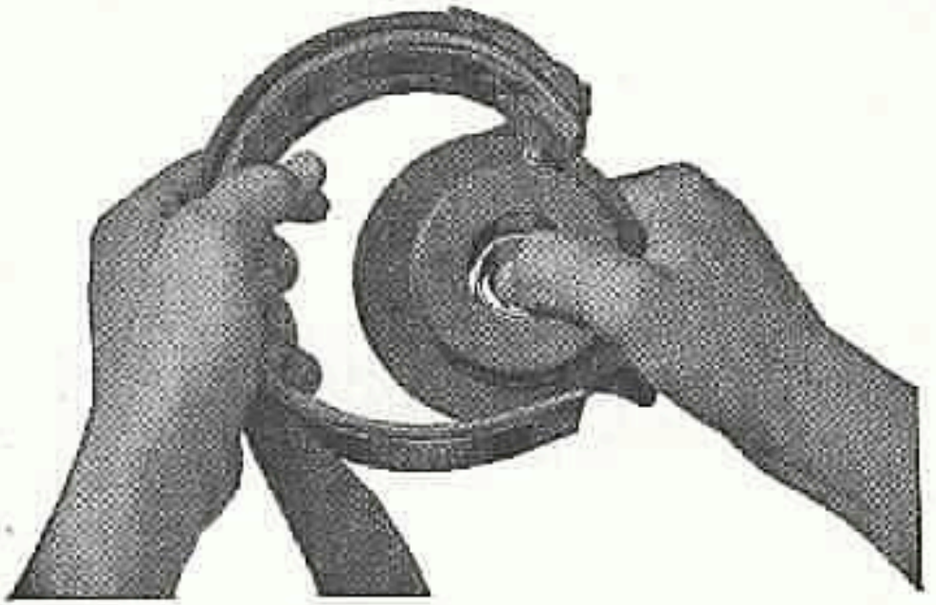
1st—Remove the six little screws holding the cover to the base.

2nd—Pull cover from base.

3rd—Note that strap sticks out through the cover "window" with its loose end aiming in the direction of the drain holes in the bottom of the cover. (When reassembling, be sure that the strap is made to aim in this same direction.)

4th—Revolve brake shoe so that strap is drawn pretty well into cover. Then turn cover upside down and shake until brake shoe, strap and spring fall out together onto the bench.

5th—If it is desired to remove the spring from the shoe, hold the shoe in one hand and the spring in the other hand and pull the spring out through the split or gap in the shoe. (See illustration page 10.) In reassembling, the spring should be hooked back into its crotch in the shoe in just this same way. This reassembling of the spring into the shoe requires just a little knack. *Never* try to *force* the spring hook into its slot—no force is required and the job cannot be done by force. Furthermore any force will ruin the joint.



Notice

When the spring is properly assembled into the brake shoe, it will dangle loosely from its hook—there will be no sticking or binding. Make sure you have the spring properly assembled as above before replacing these two parts into the Stabilator cover. In reinstalling the spring and brake shoe into the Stabilator cover, make sure that the loose end of the strap sticks through the "window" aiming in the direction of the drain holes—see illustration page 8.

Caution

No attempt should be made to force additional grease into the spring. An overdose of grease would probably result in grease getting onto the brake shoe and drums and the Stabilator would then cease to give results.

Keeping Stabilators Prime

While the Stabilator is disassembled: (*a*) Clean the drums thoroughly by rubbing them with a clean gasoline rag. (*b*) Sand paper the surface of the brake shoe to remove any glaze that may have formed and then brush well to remove all sand dust. (Never use emery cloth.) (*c*) Don't touch inserts with the sand paper. (*d*) Keep oil and grease away from the brake shoe and drums.

To keep Stabilators in absolutely prime condition, it is good practice to renew the lubricating inserts about once in each 20,000 miles of travel (the exact mileage depends largely upon the general nature of roads traveled). These inserts may be had from any Stabilator Distributor or Stabilator Dealer or from your Car Dealer or from us direct. Box containing 60 inserts, $1.50 prepaid.

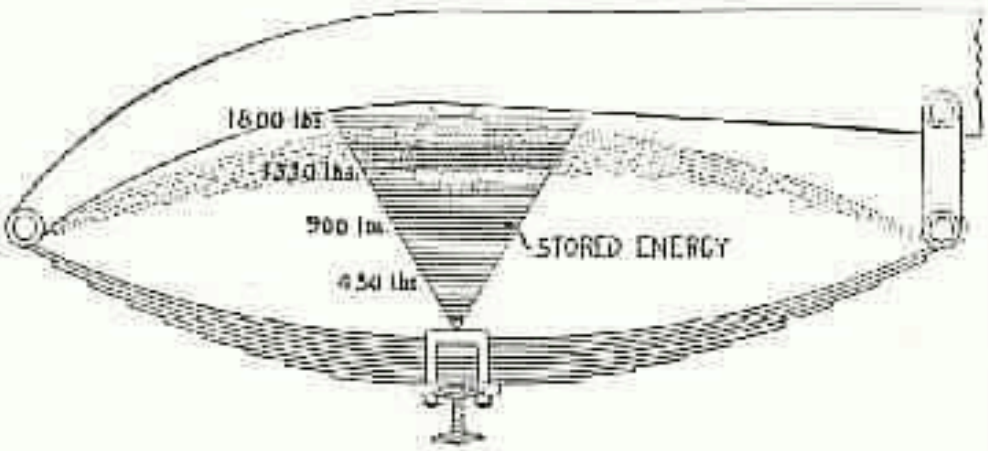
In putting cover and base together, make sure that the six holes in each exactly register before starting to put back the six little screws.

If ever in doubt, get in touch with the nearest Stabilator Distributor or Dealer

John Warren Watson Company

Philadelphia, U. S. A.

SPRING-STORED BUMP ENERGY



Diagrammatic representation of the *increasing* excess energy stored in a vehicle spring as the spring is *increasingly compressed.*

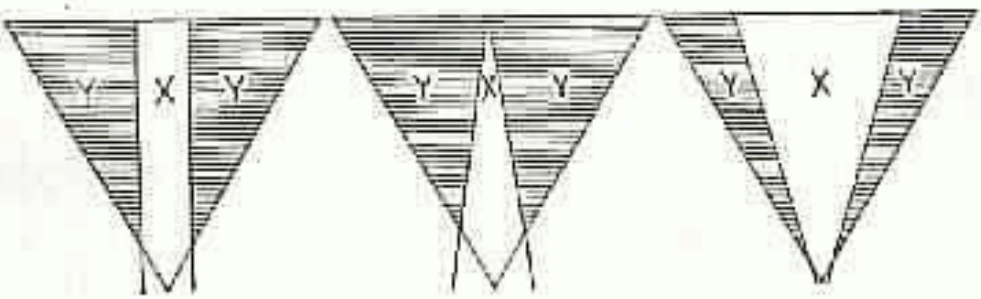
This energy is in *addition* to the energy required to support the sprung weight (body, etc.) and is the energy which, during spring *recoil,* causes the sprung weight to be hurled *upward* and the unsprung weight (axles, etc.) to be dashed *downward.*

Upward body hurling means discomfort and a reduction of traction-giving weight. Downward axle dashing is the producer of axle bouncing and axle "chattering."

Three Methods of Dissipating Stored Energy

X=Energy dissipated by recoil check

Y=Energy remaining to "dash" and "hurl"



Constant Type of Recoil Check

Dissipates same amount of energy regardless of amount stored.

Snubbing Type of Recoil Check

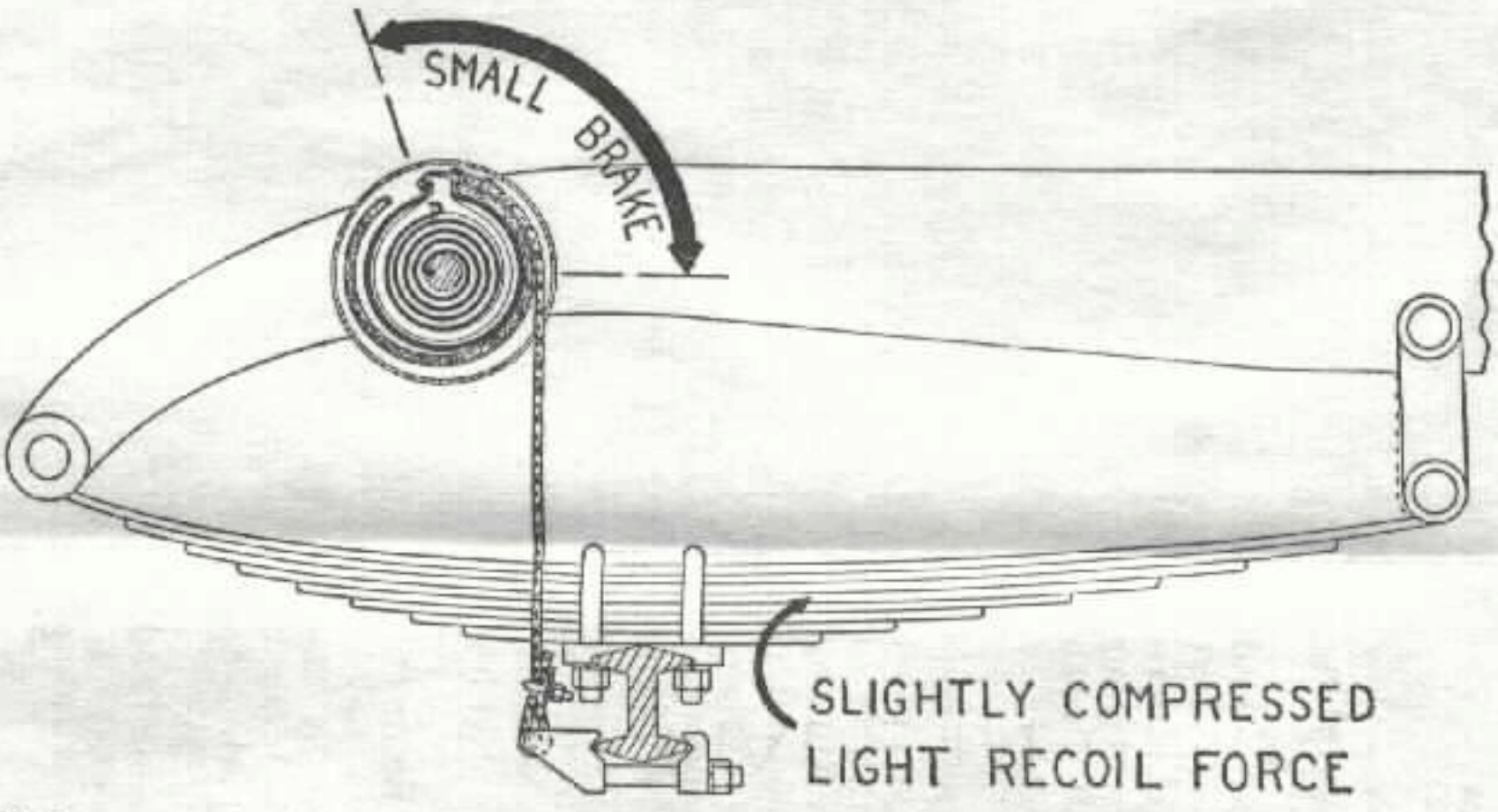
Dissipates energy in inverse ratio to amount stored.

WATSON STABILATOR

Dissipates energy in *proportion* to amount stored.

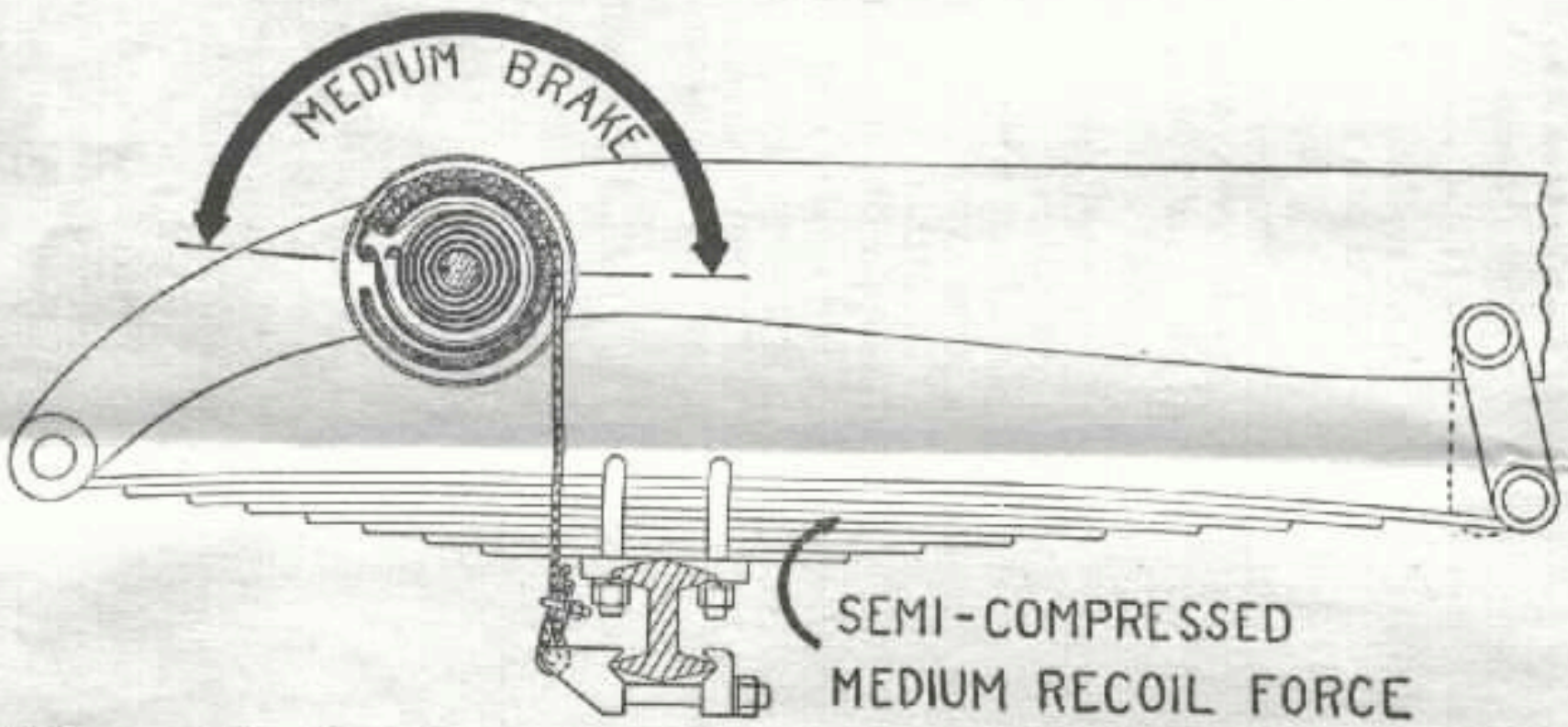
NOTICE that the *extent* to which a car spring has been compressed determines two factors:

(*a*) *The degree of violence of the recoil.*
(*b*) *The size of the Stabilator brake.*



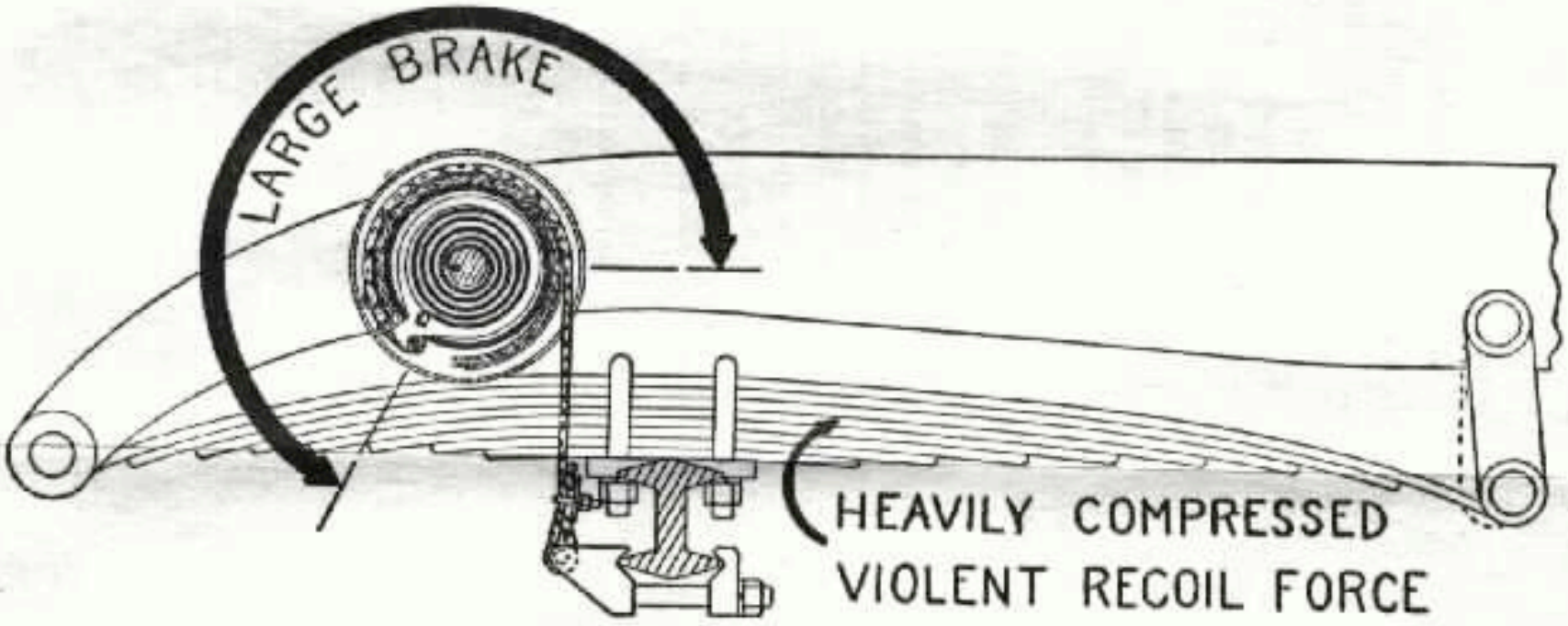
If the car spring has been only slightly compressed

(*a*) Its recoil will be mild.
(*b*) A small Stabilator brake has been set to resist this mild force.



If the car spring has been semi-compressed

(*a*) Its recoil will be fairly violent.
(*b*) A medium size Stabilator brake has been set to resist this fairly violent force.



If the car spring has been heavily compressed

(*a*) Its recoil will be very violent.
(*b*) A large Stabilator brake has been set to resist this very violent force.

Stabilators are the *only* devices which resist spring recoil in proportion to the recoil force.

If you want to truly appreciate what Stabilators are accomplishing for your motoring comfort and safety, take a ride in an *un*-Stabilated car of the same make and model as your own.

Stabilators Are Energy Dissipators —Not Shock Absorbers

Stabilators are not shock absorbers—they have nothing whatsoever to do with absorbing shocks and making your car ride "soft."

Soft riding is entirely up to your tires and springs—*they* are your shock absorbers. But your tires cannot properly yield to and absorb shocks if you keep them rock hard, and your springs cannot properly yield to and absorb shocks if you allow them to become rusty or even dry.

If you wish to get the full benefit from your tires (your primary shock absorbers) you must keep them inflated up to the point merely of supporting the load. This does not mean squashy but neither does it mean 70 pounds if 35 pounds is sufficient to keep the side walls up straight. Balloon tires should be kept always inflated to the pressure recommended by the maker of the tires.

To get the full benefit from your springs (your secondary shock absorbers) you must keep them well and constantly lubricated between the leaves.

The function of Stabilators is to dissipate the destructive energy which was stored in the car springs when they were compressed by the bump. With this energy thus dissipated by the Stabilators there is none left in the springs to violently toss the car body and passengers.

With tires and springs properly regulated and cared for as above, and with Stabilators properly adjusted, your car will give the best riding of which that particular make is capable.