

*A
Motoring
Necessity*

HADTFORD
T.B. ANDRE & CO. LTD.
SHOCK ABSORBERS

Make
All Roads
GOOD
ROADS



I may sound an almost impossible proposition to the experienced motorist who *knows* how really bad bad roads can be, but I can give my personal assurance, as a touring and racing motorist since the early days, that Hartford's Shock Absorbers *eliminate jolts and jars*—even on the worst roads. They make both driving and riding uniformly pleasant and safer under all conditions, increase average speed—especially on winding roads, and reduce depreciation and tyre wear and tear to a minimum. In other words, Hartfords have solved the suspension problem.

Geo. B. Andrews

SOME REASONS FOR THE
WONDERFUL POPULARITY OF

HARTFORD

T.B. ANDRE & CO. LTD.

SHOCK ABSORBERS

THEIR PRINCIPAL FEATURES AND ADVANTAGES ARE:

HARTFORDS

- (1) Control the action of the springs by friction.
- (2) Soften the initial shock and prevent excessive deflection of the springs.
- (3) Counteract the shock due to inertia of unsprung weight of the axles.
- (4) Check the reaction of the springs as the wheels drop down into a depression in the road.
- (5) Dampen out the rebound of the springs after the wheels hit a bump on the road.
- (6) Prevent spring oscillation and counteract side sway.
- (7) Increase the mileage and decrease petrol consumption.
- (8) Reduce running and repair expenses and danger from spring breaking.
- (9) Improve the "roadability" of the car and add to the comfort of driving.
- (10) Protect the car and passenger under every changing condition of the load, road and speed.
- (11) Can be fitted to any car, are easy to adjust, and no lubrication is needed.
- (12) Are light in weight, simple in construction, cannot get out of order and are fully guaranteed.

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HARTFORDS can be easily fitted to any Car by your local garage.

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HARTFORDS ARE FULLY GUARANTEED

A Motoring Necessity

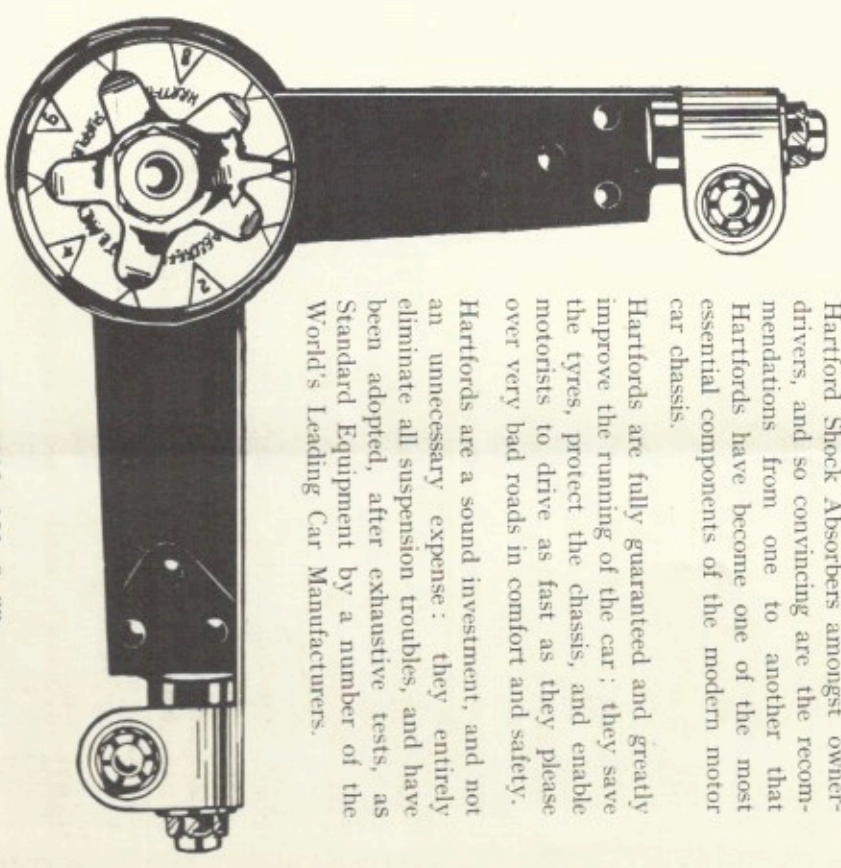
—Not An Accessory

JUST as the pneumatic tyre became instantly and *obviously* an absolute necessity to motoring, so has the Hartford Shock Absorber become essential to good driving and to the comfort of passengers. The riding qualities of a car fitted with Hartfords become *instantly* improved. Road shocks are "countered" in a really remarkable manner, and a smooth, gliding motion is imparted which makes motoring infinitely more pleasant, and decidedly safer.

Such is the profound impression created by Hartford Shock Absorbers amongst owner-drivers, and so convincing are the recommendations from one to another that Hartfords have become one of the most essential components of the modern motor car chassis.

Hartfords are fully guaranteed and greatly improve the running of the car: they save the tyres, protect the chassis, and enable motorists to drive as fast as they please over very bad roads in comfort and safety.

Hartfords are a sound investment, and not an unnecessary expense: they entirely eliminate all suspension troubles, and have been adopted, after exhaustive tests, as Standard Equipment by a number of the World's Leading Car Manufacturers.



Illustrating Type 103, 101 & 99.

HARTFORDS ARE MADE IN ENGLAND

SKIDS—SIDESWAYS—JOLTS EXCESSIVE WEAR-AND-TEAR & DRIVING TENSION OVERCOME



HARTFORD Shock Absorbers control the action of the springs by friction and their efficiency is really remarkable. They add to the comfort of the passengers by absorbing the initial shock and preventing rebound, they help to keep the wheels to the road, thus increasing the life of the tyres, they minimize the wear and tear of the mechanism of your car, they reduce side-swaying and skidding and make it possible to drive fast over bad roads with comfort, safety and pleasure.

THE DRIVER'S POINT OF VIEW.

You doubtless recall driving over a wavy bit of road that changed your car's smooth, easy glide into a jerky gallop, that almost threw you into the ditch. Many a car has been smashed at just such a spot—but not when equipped with Hartfords.

Bad roads have no terrors for the driver who pins his faith to Hartfords. He is possessed of a sense of security and a serenity of mind that alone are worth more than the cost of Hartfords.

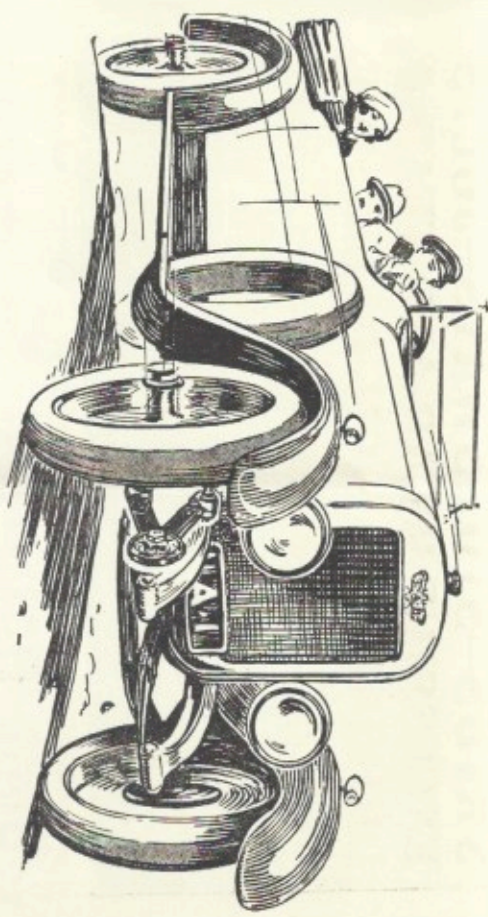
Perhaps, also, you will remember striking a bump that slapped your springs against the axles with a terrific thump. Possibly a spring was broken—perhaps not! It is at such times that Hartfords are worth their weight in gold. They take the bite out of the nearest road that ever shook your teeth or rattled the doors of your car.

INCREASED PASSENGER COMFORT.

You will never see passengers clinging nervously to their seats in a Hartford equipped car. They don't experience the tiring, nerve-racking jars that cause so much discomfort in a car whose action is not cushioned by Hartfords. They don't have to clench their teeth or stiffen their muscles, for obviously a mechanism that smoothes out the bumps also adds a lot to the riding comfort. Yes, you can relax when you are riding over Hartfords. Think of these things next time you are bumping jerkily along a bad road; when your car lurches into a rut with a bump; when your doors rattle, your windshield creaks, or the garage proprietor comes to you with a lengthy bill for overhauling.

These are the times to remember that Hartfords absorb all road shocks and "Make every road a good road."

4 HARTFORDS ARE FULLY GUARANTEED



HARTFORDS EASILY FITTED TO ANY MAKE OF CAR

HARTFORDS are fitted easily and quickly to any make of car—the various outfits being supplied with brackets and fittings to suit all existing types. The following explanation will enable the reader to understand the principle and to appreciate the ease of fixing:

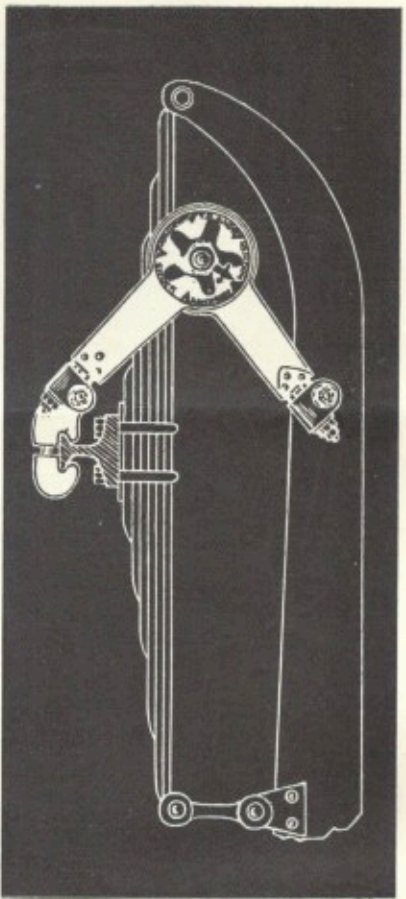
The Hartford Shock Absorber consists of two steel arms pivoted together at one end, where they are enlarged so as to form a circular box within which is a series of friction discs of specially treated Arguto wood held against one another by the pressure of a spring. This pressure can be adjusted by means of a nut to which is attached a pointer indicating the relative pressure on a dial.

The other ends of the arms are provided with swivel connections or universal joints, one end for attaching to the car frame and the other to the axle, so that the arrangement adjusts itself, without strain or binding, to all the movements of the frame and axles.

In operation the two arms work together like the blades of a pair of shears which causes the friction discs to slide over one another. The friction between these discs is what takes up the shock, absorbs the excess energy, opposes spring vibration and controls spring movement.

The remarkable efficiency of this simple device is fully endorsed by the majority of the great Road and Track Racing Experts and over 500,000 satisfied users.

HARTFORDS ARE MADE IN ENGLAND 5

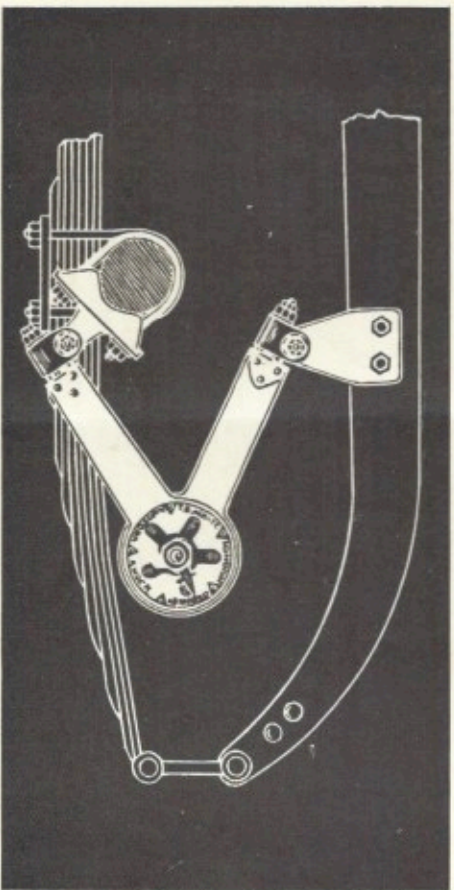


WHERE HARTFORDS ARE FITTED

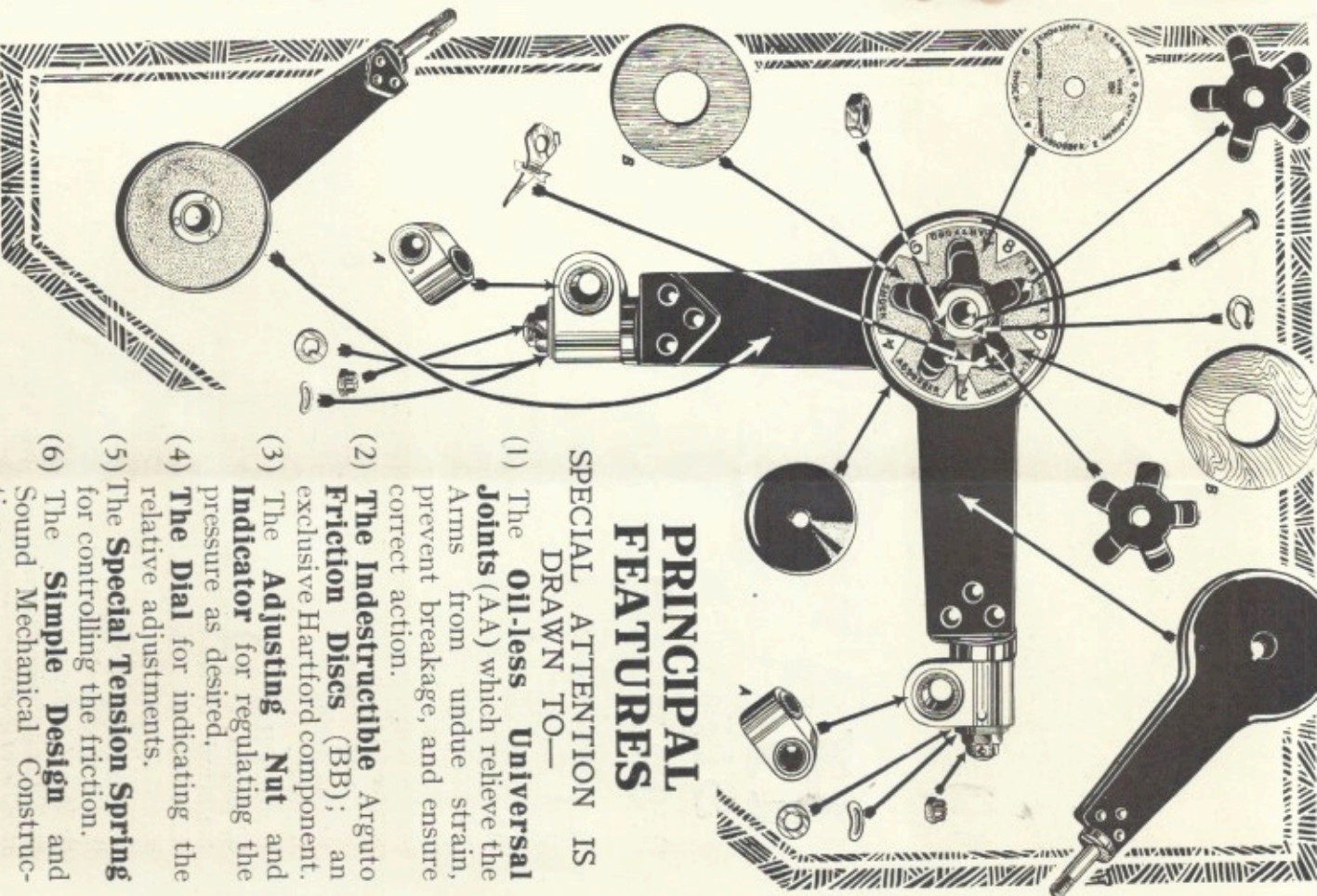
FTER reading the description of Hartford construction on the previous page, the diagrams shown here will be clear to all. The illustration above shows how Hartfords are fitted to the front springs. The lower picture shows the attachment of the "arms" of the Hartford to the rear springs.

Full instructions as to fitting are included with each set of Hartfords—the only attention needed being the first adjustment of tension, easily accomplished by turning the nut to the desired pressure.

Once Hartfords are thus adjusted to the strength of the springs they need no further attention for months—and then it is only necessary to tighten up a trifle to allow for the slightly increased spring flexibility which naturally comes with added mileage.



6 HARTFORDS ARE FULLY GUARANTEED



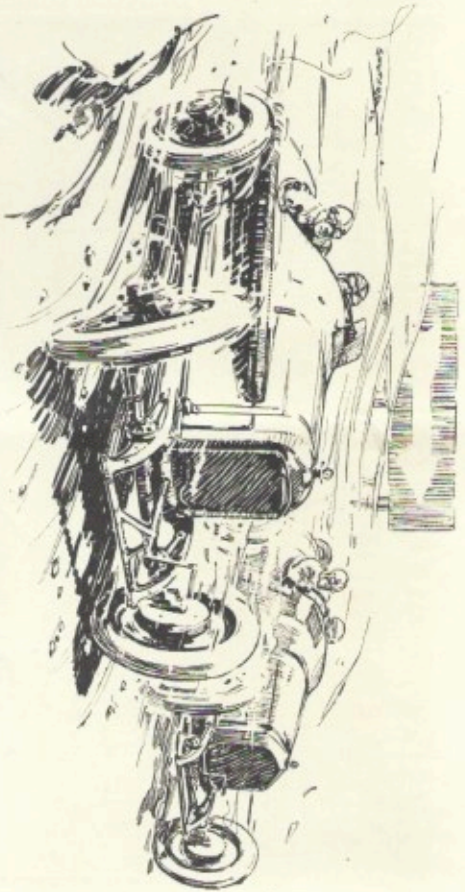
PRINCIPAL FEATURES

SPECIAL ATTENTION IS DRAWN TO—

- (1) The **Oil-less Universal Joints (AA)** which relieve the Arms from undue strain, prevent breakage, and ensure correct action.
- (2) The **Indestructible Arguto Friction Discs (BB)**; an exclusive Hartford component.
- (3) The **Adjusting Nut and Indicator** for regulating the pressure as desired.
- (4) The **Dial** for indicating the relative adjustments.
- (5) The **Special Tension Spring** for controlling the friction.
- (6) The **Simple Design** and **Sound Mechanical Construction**.

HARTFORDS ARE MADE IN ENGLAND

7



HARTFORD

T.B. ANDRE & CO. LTD

SHOCK ABSORBERS FOR ROAD AND TRACK RACING

HAVING an appreciation of the purpose and efficient operation of Hartford Shock Absorbers in enabling a practically unchecked *continuity of speed* to be achieved, while assisting the wheels to *hold* the road or track surface at high velocity, it will be readily understood why their use on racing cars has become universal.

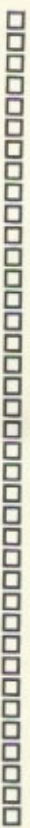
Certainly Hartfords, for this special purpose, have greatly reduced the margin of possible accident, while from the sporting point of view they have been such a pronounced and invariable success that they have absolutely "*swept the board*" in every road and track race of any importance since the opening of the 1922 season!

Even admitting that the racing motorist might not perhaps be attracted by considerations of mere personal safety, it is indisputable that no sporting driver would neglect an equipment *without which it would be practically impossible to win* any race against Hartford-equipped competitors of approximately equal power!

The special strains and stresses to which the springs of racing cars are subject has, of course, necessitated a special type of Hartford. The "Duplex" model, constructed for racing automobiles, is illustrated on page 10.

8 HARTFORDS ARE FULLY GUARANTEED

HARTFORDS REMARKABLE AND UNIQUE SUCCESSSES IN 1922 - 1923



The following are amongst some of the most important racing events in which cars equipped with Hartford Shock Absorbers have "*swept the board*."

Belgian Grand Prix	on Hartfords
Italian Grand Prix	on Hartfords
Grand Prix, Strasbourg	on Hartfords
Corsican Grand Prix	on Hartfords
Indianapolis	on Hartfords
Tourist Trophy	on Hartfords
200 Mile Race (Andre Cup and 1,100 c.c.)	on Hartfords
World's Speed Records— Brooklands	on Hartfords
Double-Twelve Records (Mr. S. F. Edge)	on Hartfords
Tour de France	on Hartfords
French Suspension Trials	on Hartfords



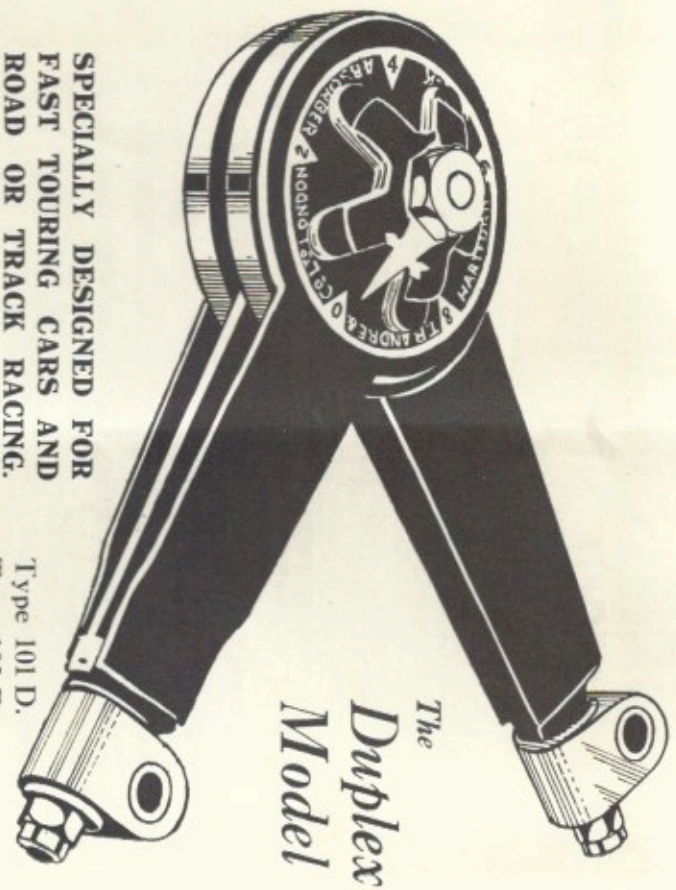
HARTFORD

T.B. ANDRE & CO. LTD

SHOCK ABSORBERS

THE SHOCK ABSORBER WITH
AN
INTERNATIONAL REPUTATION

HARTFORDS ARE MADE IN ENGLAND



**SPECIALLY DESIGNED FOR
FAST TOURING CARS AND
ROAD OR TRACK RACING.**

Type 101 D.
Type 103 D.

THE DUPLIX MODEL HARTFORD SHOCK ABSORBER essentially consists of two standard models combined as a single unit; it has four friction discs instead of two only, thus distributing the pressure over a large area and enabling any desired degree of frictional control to be obtained without subjecting the apparatus to excessive strain.

It will readily be understood that on cars which are capable of very high speeds a considerable pressure is required effectively to control the action of the springs, and the "Duplex" Hartfords have been thoroughly tested with excellent results on the most successful Racing Cars during 1922 and 1923.

The method of attaching these models to the chassis is exactly similar to that used for the standard models, and the same brackets and swivel studs can generally be used for the purpose.

For Prices, see page 15.

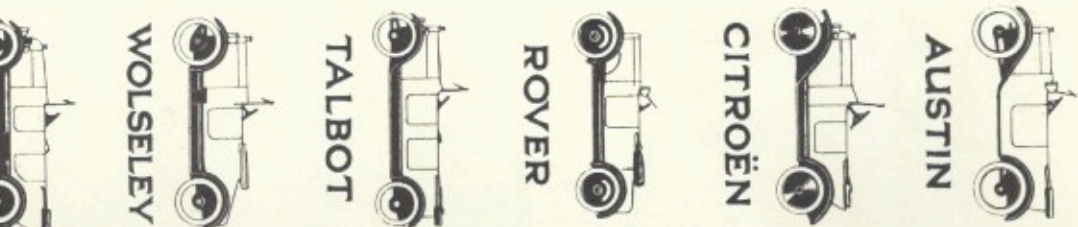
10 **HARTFORDS ARE FULLY GUARANTEED**



**HARTFORD
EQUIPMENTS FOR
POPULAR LIGHT CARS**

○ In some cars, owing to the design and construction of the chassis, the standard model Hartford Shock Absorber cannot be easily applied; it has, therefore, been necessary to design a special model, viz.: type 97, which is supplied in connection with some of these equipments as a single arm model, with either long or short arms, together with suitable attaching brackets and fittings.

All equipments are supplied complete, ready for fitting, together with full instructions and blue print showing method of attachment to the chassis; and amongst others, sets have been standardised for the following:—



AUSTIN

CITROËN

ROVER

TALBOT

WOLSELEY

MORRIS

AUSTIN.	RHODE.
AMTICAR.	ROVER.
BELIZE.	SALMONSON.
B.S.A.	SINGER.
CITROËN.	STANDARD.
JOWETT.	TALBOT.
MORRIS.	WOLSELEY, ETC., ETC.

For Prices, see Type 99 & 97, page 15.

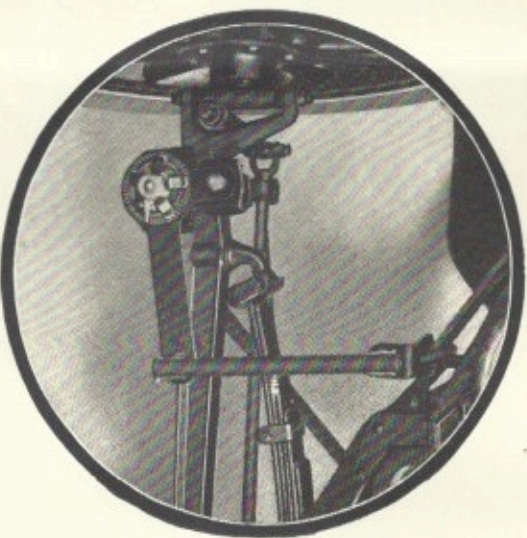
HARTFORDS ARE MADE IN ENGLAND

HARTFORD
THE HARTFORD CO. LTD.
SHOCK ABSORBERS
SPECIAL OUTFIT FOR FORD CARS

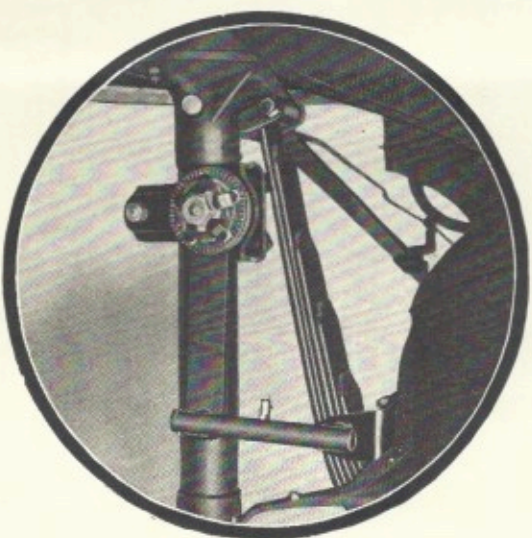
A **ANNOUNCEMENT** of a genuine Hartford Shock Absorber for use on Ford cars carries a world of good news to a multitude of Ford owners. Here, at last, is the famous Hartford Shock Absorber adapted so successfully to Ford springs that Ford owners can now enjoy the Hartford riding luxury that, up to the present, has been available only to owners of higher priced cars.

The Special Ford Model Type 106 is easily applied to the chassis with clamp-on brackets and fittings; there are no holes to drill and no changes in the construction of the car and can be fitted at any garage in a few hours. The illustrations on this page show the simple method of fitting the shock absorbers; they will fit any model Ford car and are only supplied in complete sets of 4 for front and rear axles, together with full instructions and blue print showing exact method of application.

For Prices, see page 15.



FRONT.



REAR.

12 **HARTFORDS ARE FULLY GUARANTEED**

HARTFORD
T. B. ANDRE & CO. LTD.
SHOCK ABSORBERS

for
Motor Cycles and Combinations



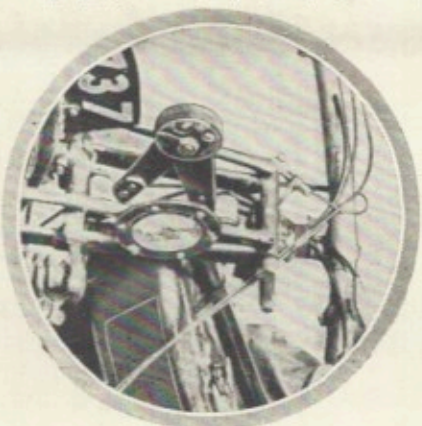
IN response to the very large number of enquiries for a Hartford Shock Absorber suitable for Motor Cycles and Sidecar Combinations, we have, after exhaustive experiments and rigorous tests, produced a special model which has already attained the same universal popularity among Motor Cycle owners as the standard Hartford has among Car owners.

Owing to the light weight and high speed of the modern Motor Cycle and Sidecar Combinations, an efficient Shock Absorber has been badly wanted to eliminate excessive road shocks and to prevent that condition of mental and physical fatigue which invariably results after a long ride over bad road surfaces—now the rule rather than the exception.

The Hartford Motor Cycle Model, as will be seen by the illustration (fitted to a Druid fork), is constructed on exactly the same lines as the car types, which are fitted as "standard" by most of the leading car manufacturers.

The Motor Cycle Model embodies the Arguto friction discs which are practically everlasting and do not need lubrication or attention of any kind. To experience real driving pleasure, and in order to use the maximum speed of your machine over any road surface, Hartfords are an absolute necessity! They are light in weight, and easy to fit.

A Motor Cycle requires one only on the front forks, and two additional in the case of a sidecar.



For Prices, see next page.

HARTFORDS ARE MADE IN ENGLAND

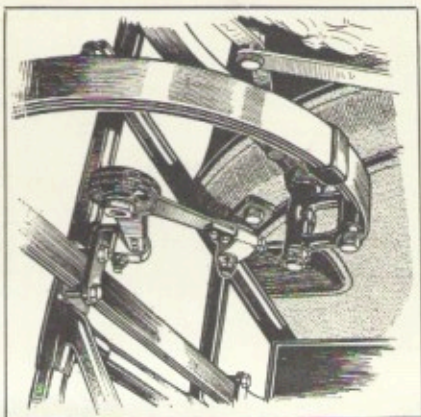
HOW HARTFORDS ARE FITTED TO MOTOR CYCLES & SIDE CARS

HARTFORDS can be easily fitted to the majority of Motor Cycles and Sidecars. The illustration on the previous page shows the fitting to Druid forks. It will be noted that the method of attachment is simple, neat and unobtrusive, and does not in any way detract from the general lines of the machine.

The top and bottom brackets are held in position by the spring bolt locking nuts, and this method applies to all machines fitted with Brampton forks.

Hartfords can be fitted to other types of spring forks in a similar manner; one arm is attached to the fixed or unsprung part of the front fork, and the other arm to the moving or sprung part by means of suitable brackets to which the swivel studs supplied with every Shock Absorber are attached.

The pressure between the friction surfaces is easily adjusted to suit the particular machines and conditions by simply turning the adjusting nut with a spanner in a right-handed direction to increase the pressure, and left-handed to reduce the pressure. A pointer indicates the degree of tension on a dial held in position by the spider tension spring.



SIDE CAR FITTING.

The application of Hartfords to sidecars is shown in this illustration, and it will be observed that again no difficulty is encountered in fitting the Shock Absorber, one arm of which is attached to the body of the sidecar by means of suitable bracket, and the other arm is attached to the frame or spring clips, as shown. Note the universal Swivel Joints, which relieve the Shock Absorber Arms and friction surfaces from all side stress and strain and eliminates any possibility of binding or breakage. Brackets and fittings can be supplied for all leading makes of machines, including Triumph, Norton, A.J.S., Brough, Raleigh, Harley Davidson, Douglas, Sunbeam, etc., etc. Write for prices and particulars.

When ordering, state clearly the make of machine and sidecar, the type of front fork fitted and year of manufacture.

PRICES OF HARTFORD SHOCK ABSORBERS.

Motor Cycles and Sidecars.	
Type "A" For side cars; with Universal Joints	55/- per pair.
Type "A1" For front forks	24/- each.
Type "A2" Duplex model for front forks, suitable for fast touring and racing machines	30/- each.

Brackets and Fittings Extra according to type.

HARTFORDS ARE FULLY GUARANTEED

PARTICULARS AND PRICES

OF

HARTFORD T.B. ANDRE & CO. LTD. SHOCK ABSORBERS

FOR CARS

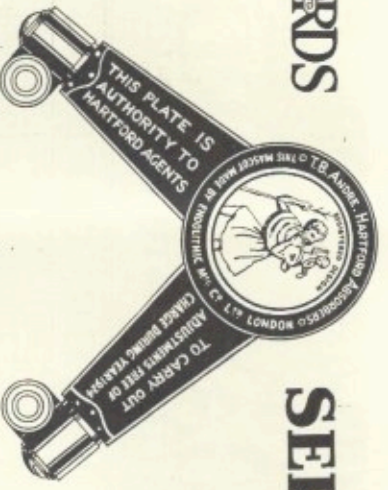
CARS. MODEL.	PARTICULARS.	Set of 4 for front and rear axles.	Pair only for front or rear axles.
Duplex Type 103	Special model for large fast Touring Cars and Road and Track racing	£21 0 0	£10 10 0
Duplex Type 101	Special model for fast medium Touring Cars and Road and Track racing	£17 10 0	£8 15 0
Class A Type 103	Standard model for large Cars from 20 cwt. upwards and over 16 h.p.	£15 0 0	£7 10 0
Class B Type 101	Standard model for medium Cars over 12 cwt. and up to 15 h.p.	£12 10 0	£6 5 0
Class C Type 99	Standard model for light Cars up to 12 cwt. and about 10 h.p.	£9 0 0	£4 10 0
Class C Type 97	Special single-arm model for Light Cars and Cycle Cars.	£9 0 0	£4 10 0
Type 104	Special single-arm model, suitable for a number of American cars, including: Buick, Dodge, Essex, Hupmobile, King, etc.	£15 0 0	Supplied only in complete sets of 4 for front and rear axles.
Type 106	Special Ford model	£10 0 0	Supplied only in complete sets of 4 for front and rear axles.

NOTE.—Prices quoted include all necessary Brackets, and Fittings for attaching to car.

HARTFORDS ARE MADE IN ENGLAND

HARTFORDS
THE HARTFORD ASSURANCE CO. LTD.

SERVICE



IN order to give full effect to our Comprehensive Guarantee, Hartford Service Agents have been appointed all over the country, and customers are advised of the nearest Special Agent in their district.

Hartford Service Agents keep spares in stock and are authorised to give Free Service and attention to customers displaying the Hartford Service Badge on their cars. These Badges are small and neat and beautifully finished, and are issued free to all users on application, and must be attached to the dash of the car.

Customers applying for a Service Badge should state the type of Shock Absorber fitted to their car, and particulars of the car.

When sending an enquiry or order, the following particulars should be given:

Make of Car, Year, H.P., Model, Type of Body, Method of Suspension.



**UNANIMOUS TESTIMONY
TO
HARTFORD EFFICIENCY
ON EVERY MAKE OF CAR**

Studebaker.

In reference to the set of Hartford Shock Absorbers you supplied for my Studebaker car, I wish to inform you how extremely pleased I am with the results—in fact, they have exceeded my expectations.

(Sgd.) G.B.B.

Sunbeam.

The Hartford Shock Absorbers I have had fitted at the Sunbeam Motor Car Co., and find they are a great improvement, there is no comparison with regards riding in a car with them and one without them.

(Sgd.) S.C.

I may mention that these are for a client who has just taken delivery of a 24 h.p. Sunbeam car with these absorbers fitted, and he is delighted with them.

(Sgd.) E.A.

8 h.p. Talbot.

Impressed as I have always been with the delightful springing of the Talbot, the addition of Hartfords has proved a revelation of comfort over really rough roads, which could not possibly have been achieved otherwise.

(Sgd.) G.R.M.

They work exceedingly well and are a very great improvement indeed to the running of the car (8 Talbot), especially at fast speeds over wavy roads, and they increase the riding comfort immeasurably.

(Sgd.) C.J.O.

10 h.p. Wolseley.

The Hartford Shock Absorbers you fitted to my 10 h.p. 4-seater Wolseley are exceedingly satisfactory. Owing to the special type of springing of the car, I anticipated there would be considerable difficulty in fitting them. The brackets you have supplied have, however, overcome the difficulties neatly and efficiently.

I found the Shock Absorbers you supplied very good. I have tried various shock absorbers on various types of cars, but have not found any to approach the Hartfords in efficiency. I must congratulate you on them.

(Sgd.) J.A.B.

15 h.p. Wolseley.

We might say that our customer is highly delighted with the effect of the Shock Absorbers recently supplied.

(Sgd.) C.P.