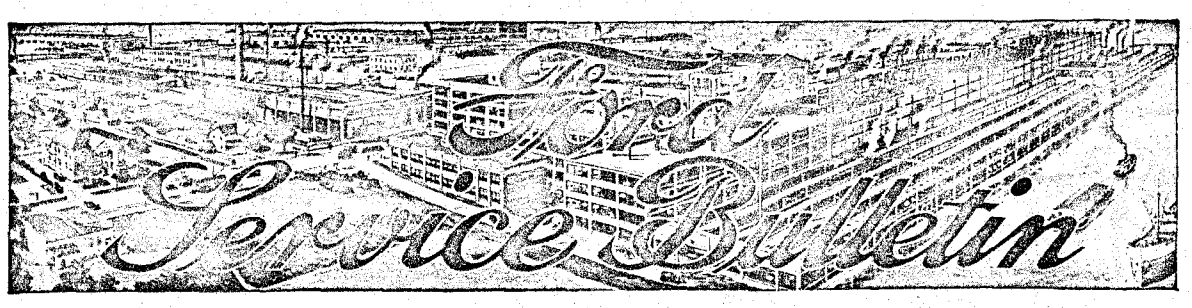

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No. 12 | MAY, 1923 | Vol. 4 | Page 89

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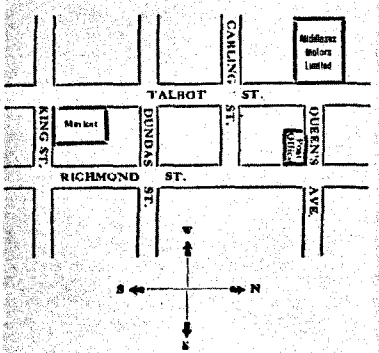

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14. Flush Crankcase
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Our responsible service guarantees all work to be free from defective workmanship and to be of the highest standard.

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The above is a reproduction of booklet mailed to prospects and present owners, by our London (Ont.) Dealer. This is a first-class business getter and could be used to advantage by every Ford Dealer.

CARBURETOR: Gasoline Inlet Elbow, Strainer and Strainer Body

There have been instances where the gasoline inlet elbow (A) of Fig. 70 has been screwed into the strainer body (D) at point (C) so far that the inner end of the elbow presses

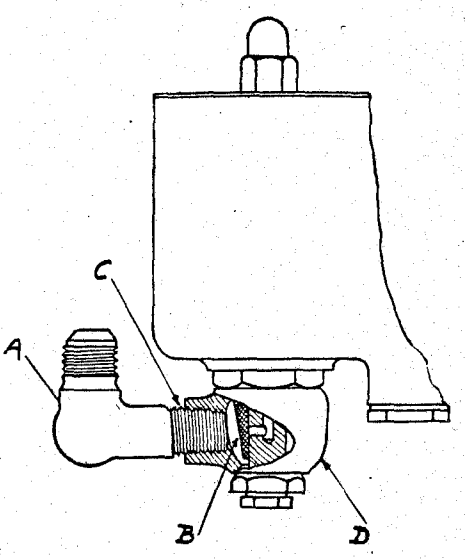


Fig. 70

against the strainer screen at (B). This results in restricting the flow of gasoline into the carburetor to such an extent as to be distinctly noticeable, especially at high speeds, or when the engine is using full power at lower speeds.

In cases where the engine seems to run short of fuel, it is advisable to inspect this elbow, as the result of above described condition may be mistaken for ignition trouble, it is always well in such cases to inspect the elbow condition before making extensive ignition adjustments.

In order to make a thorough inspection for trouble of this nature, it is necessary to remove the strainer body (D) and see if the end of elbow (A) projects into it, and if such condition exists, replace the strainer body securely on the carburetor (see "Note" below) and unscrew elbow (A) and cut off enough of the end so that it will not project into the cavity of the strainer body. Remove all burrs, wash elbow and replace in the strainer body.

NOTE. Owing to the accurately ground seats in the strainer body (D) which must assemble gasoline tight onto carburetor bowl it is extremely bad practice to attempt to unscrew the elbow (A) in any other manner than with the strainer body securely assembled onto the carburetor bowl as described before. Care must be exercised in replacing strainer body to replace the strainer in such a way as not to be clamped between the ground surfaces, thus causing a leak.

Check Oil Pressure

Investigation shows that Lincoln cars are frequently operated under excessive oil pressure. This not only increases oil consumption but causes carbon deposit, sticky valves, and excessive smoking from the exhaust, which affects the efficient and economical operation of the car.

Fig. 71 illustrates the oil regulator valve located on the left side of the crankcase.

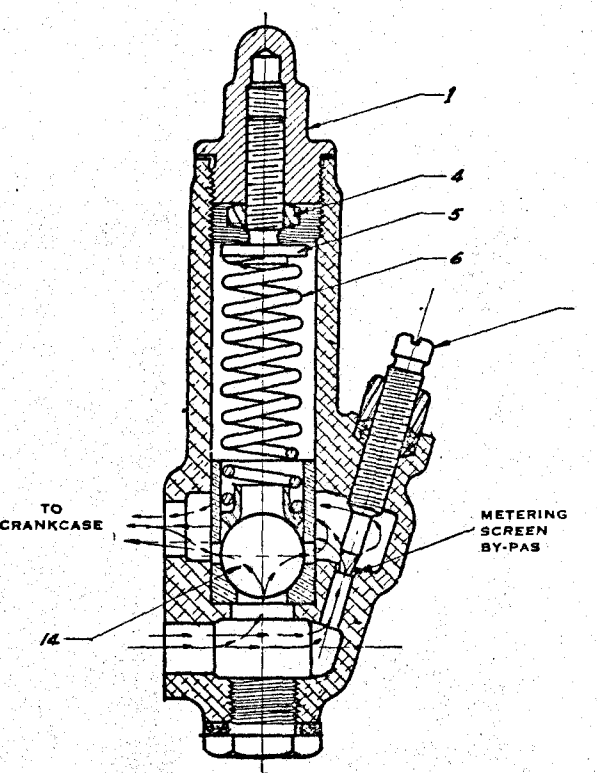


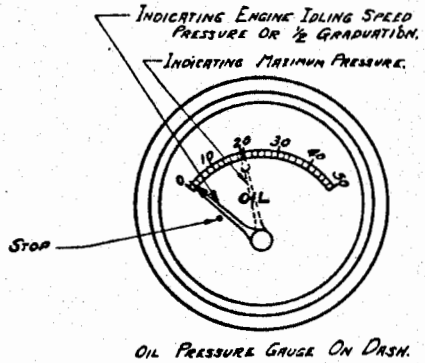
Fig. 71

The function of this valve is to control the pressure on the oil in circulation. The regulator valve has two adjustments, namely,

screw (7) for engine idling speeds, and screw (5) for maximum engine speeds.

When cars are shipped, screw (5) will be set so that the oil will be automatically by-passed back into the oil reservoir when the pressure gauge on the dash shows 18 to 20 pounds pressure.

The metering screw (7) will be set so that a pressure of about one-half graduation will be indicated on the pressure gauge at engine idling speed, as shown in Fig. 72.



Oil Pressure Gauge On Dash.

Fig. 72

In order to make the proper adjustments to the oil regulator valve on cars in service, it will be necessary to run the engine slowly until the radiator shutters are wide open, then the metering screw (7) should be adjusted so that the pressure gauge pointer will move away from its stop about one half graduation.

To make the maximum oil pressure adjustment it will be necessary to remove nut (1) from the regulator valve and back off the check nut (4) and turn in the screw (5) so that the compression on the coil spring (6) will be relieved to such an extent that the ball (14) will lift from its seat and by-pass the oil into the crank case at 18 to 20 pounds oil pressure on the gauge when the engine is judiciously speeded up to such a point that further increase in engine speed results in no further increase in oil pressure. This may not be accomplished with the first adjustment, however continued adjustment of screw (5) will produce the desired oil pressure.

The minimum oil pressure at engine idling speeds should be about one half graduation on the pressure gauge. The maximum pressure should not exceed 18 to 20 pounds on the pressure gauge at any time.

If the engine is not run until the radiator shutters are open, the oil in the reservoir is apt to be cold and this would indicate a false pressure reading on the gauge. Under no consideration should the car be driven if there is no indication of pressure at ten miles per hour.

Dealers should make it a point to check the oil pressure on any Lincoln cars that may be brought into their shops.

The following list of Motor Numbers is a continuation from page 60 of January, 1923, Service Bulletin

11–27–22 371,000	1–27–23 381,000	3–26–23 391,000
11–22–22 371,500	2– 8–23 381,500	3–13–23 391,500
11–29–22 372,000	1–30–23 382,000	3–14–23 392,000
12–13–22 372,500	2– 3–23 382,500	3–15–23 392,500
12–29–22 373,000	2– 6–23 383,000	3–17–23 393,000
12– 5–22 373,500	2–10–23 383,500	3–21–23 393,500
12–13–22 374,000	2–12–23 384,000	3–22–23 394,000
12–18–22 374,500	2–12–23 384,500	3–22–23 394,500
12–22–22 375,000	2–13–23 385,000	4– 6–23 395,000
1– 3–23 375,500	2–17–23 385,500	3–24–23 395,500
12–29–22 376,000	2–17–23 386,000	3–28–23 396,000
1–10–23 376,500	2–21–23 386,500	3–29–23 396,500
1– 5–23 377,000	2–23–23 387,000	4– 2–23 397,000
1–10–23 377,500	2–28–23 387,500	4– 3–23 397,500
1–15–23 378,000	2–28–23 388,000	4– 5–23 398,000
1–16–23 378,500	3– 1–23 388,500	4– 6–23 398,500
1–16–23 379,000	3–13–23 389,000	4–10–23 399,000
1–20–23 379,500	3– 2–23 389,500	4–12–23 399,500
1–19–23 380,000	3– 6–23 390,000	4–12–23 400,001
1–24–23 380,500	3– 9–23 390,500	

THE FORD M

(Continued from P

The Rear Axle Assembly

Fig. 73 illustrates the rear axle assembly or the driven unit as it has been referred to previously.

It is fastened under the rear of the car to the rear spring and clips by No. 3843 Rear Spring Perch and to the drive shaft assembly by six No. 2584-B, D. S. R. B. Cap Screws. It is also supported and held squarely with the chassis by two rear radius rods which attach to the ends of each housing and are fastened to the front of the drive shaft as was illustrated under the drive shaft.

Its Purpose

First, to carry the rear end of the chassis and second to act as a driving medium for the car.

The weight of the car is carried on No. 3843 Rear Spring Perch which is a drop forging and fastened to the housing by No. 3845 size $\frac{11}{16}$ x 16 threaded nut. This perch has a bushing No. 3844 which can be replaced when worn as this part is subject to considerable action and dirt.

The weight of the car then passes to the roller bearing sleeves No. 2509 and 2509-B—sleeves are very hard and are held inside of the axle housing by spring tension, they may be removed and replaced when necessary—then to the Roller Bearing No. 2508. This bearing is a radial type only and of a flexible nature due to the construction of the rollers. This is necessary in order to take care of the heavy road strain. Then to the axle shafts No. 2505, which are of special alloy steel and heat treated to stand the heavy strain to which they are subjected. Then to the rear wheel

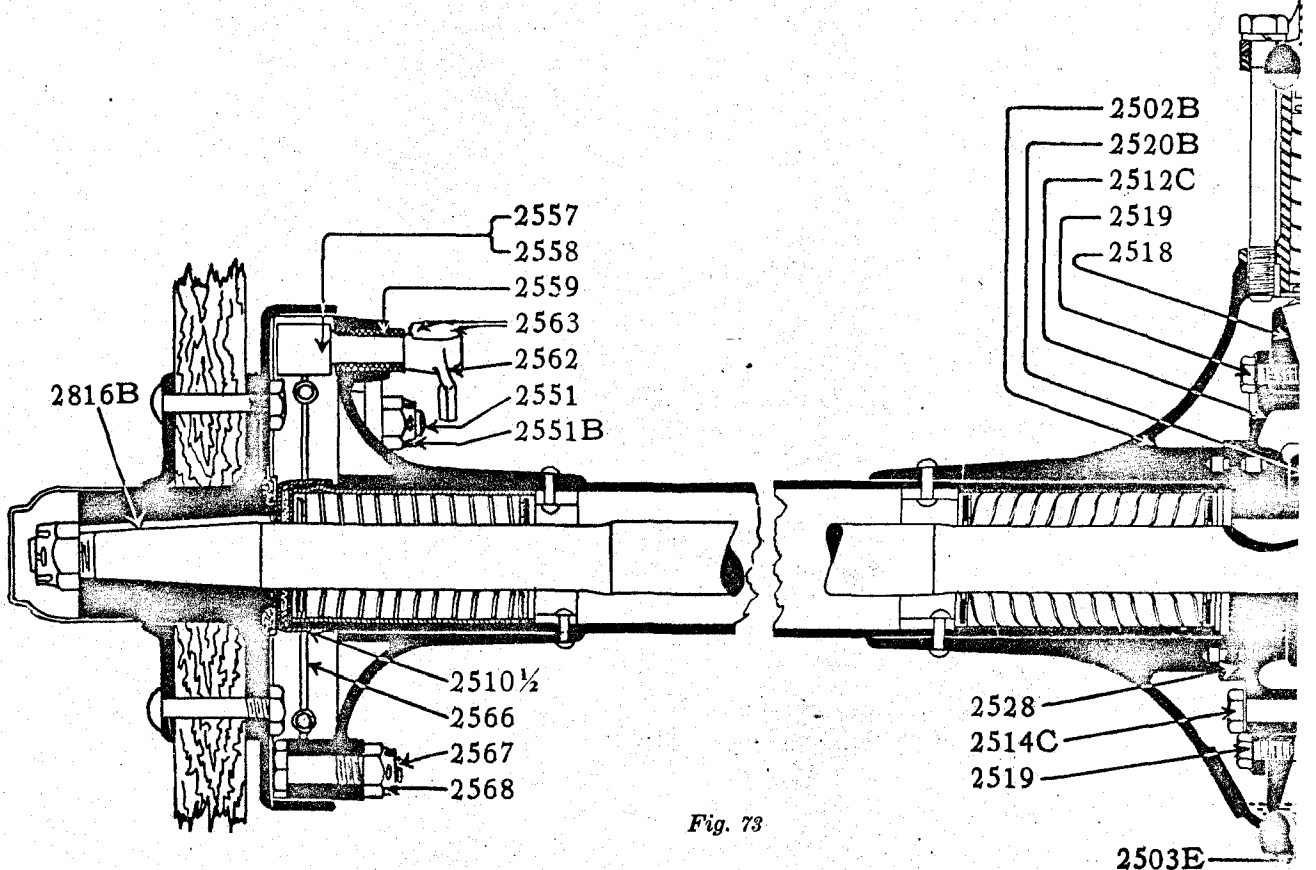


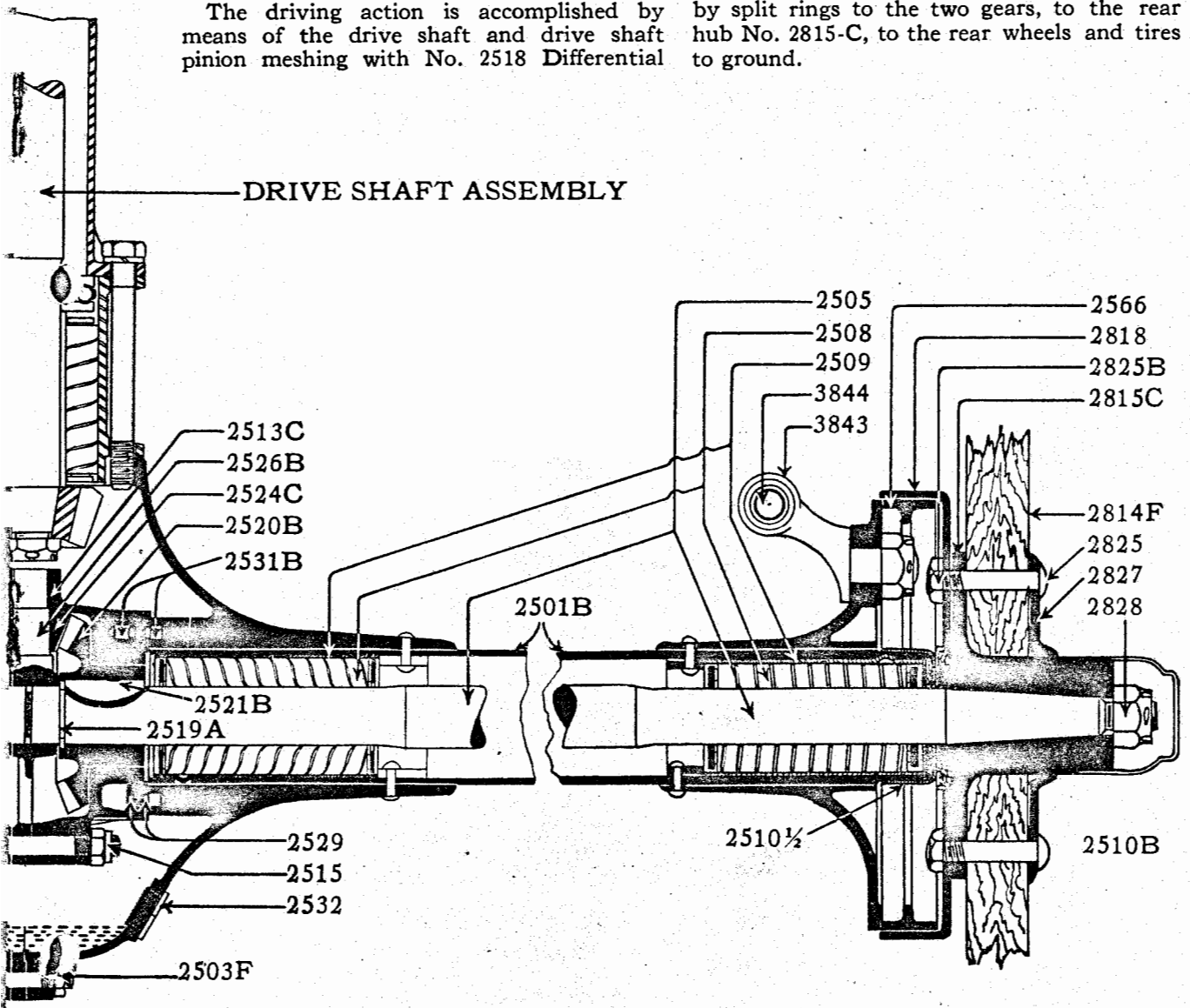
Fig. 73

HANICS' SECTION

(3, April Service Bulletin)

hub No. 2815-C which is fastened to the axle shaft by a key No. 2816-B and No. 2828 rear hub lock nut. Then to the wheel which is fastened to the hub No. 2815-C by six bolts No. 2825-⅜ x 2¼ x 16 thread and six nuts No. 2825-B ⅜ x 16 thread. After these nuts are drawn up the ends of the bolts are pieced down so that all danger of them coming loose is eliminated. The outer end of the bolts pass through a plate No. 2827 hub flange. This stiffens the whole assembly keeping the wheels tight and true. Then to the ground through the rim and tire.

The driving action is accomplished by means of the drive shaft and drive shaft pinion meshing with No. 2518 Differential drive gear which is of straight bevel type having 40 teeth and constructed of special alloy steel and heat-treated. This gear is fastened to No. 2512-C differential case left by 10 No. 2519 differential drive gear screws and locked by wire No. 2513-C. Differential case right is fastened to the left case by three No. 2514-C differential case bolts and ⅜ castle nuts. The power then passes to the differential spider No. 2526-B, to the three differential pinions 2524-C to the two differential gears No. 2520-B to the axle shafts No. 2505 which are keyed and locked by split rings to the two gears, to the rear hub No. 2815-C, to the rear wheels and tires to ground.



The Differential Assembly

The differential assembly is the meat and drink of the rear axle and while its action is very simple, it is rather difficult to understand.

Its purpose is to allow the one rear wheel to turn at a different speed from the other yet so distribution of the power from the drive shaft, so that each wheel is equalized in either forward or reverse motion.

Fig. 74 will give you a clear conception of how this is accomplished.

In explaining this action, let us begin at the inside and work.

First, we have two axle shafts which nearly meet in the center of the assembly and are held from touching each other by a fibre disc No. 2506. On the inside end of each shaft is attached by means of a key and split ring, a gear having 24 teeth. This gear is situated a small distance from the end of the shaft. This allows the two ends to have a bearing on the inside of the differential spider No. 2526-B. The differential spider holds three 12 toothed bevelled pinions No. 2524-C at an angle of 160° apart. These three pinions make contact with both gears on the ends of the axle shafts.

This assembly is held together by two cases No. 2512-C Differential case left and No. 2513-C Differential case right. The inside of these cases fit snug against the backs of the differential gear holding the assembly together and the ends of the differential spider shafts project through the cases at A. The cases are held together by three bolts No. 2514-C and nuts No. 2515.

The drive gear is attached to the left differential case by 10 screws.

It can be easily seen that if power is applied to the differential drive gear the two cases and spider assembly must turn with it and that if the same resistance is placed upon each axle shaft they must both turn also as the same amount of power is being applied to both sides of the differential pinions which are attached to the spider and makes contact with the two differential gears, so therefore the whole assembly must turn as a solid unit. However, another action can take place as each differential pinion can turn on its own shaft and each differential gear can turn in the case. Now suppose we hold the right shaft and turn the gear what happens? This causes the right differential gear to remain stationary. This will cause the differential pinions to rotate on their bearings which will drive the left axle shaft in an opposite direction at just twice the speed at which the differential drive gear is rotating because the differential pinions have just half as many teeth as the differential gears and also because the pinions are all revolving on a common

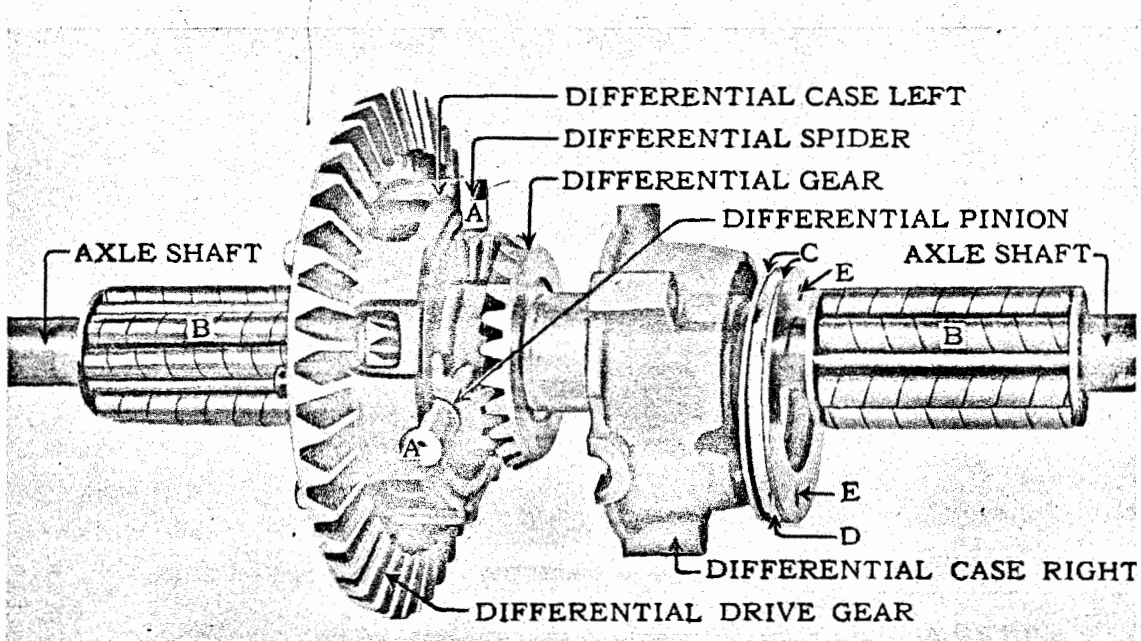


Fig. 74

New Design Drive Gear and Pinion

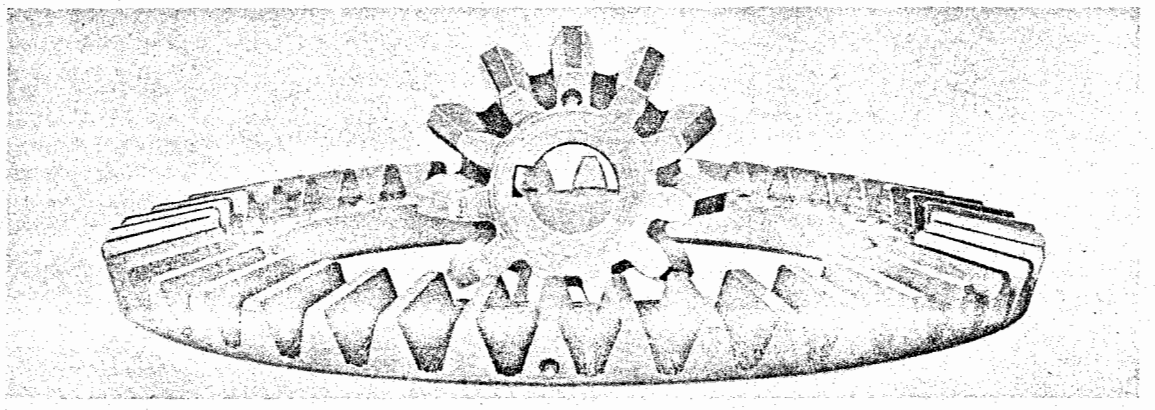


Fig. 75

We have recently slightly changed our Drive Gear and Pinion in the rolling of the teeth.

In order that you may be able to distinguish between the present type and new style Gears, we are placing a small punch mark as shown in Fig. 75.

These Gears should always be used in pairs —i. e., a new style pinion should not be installed with an old style Drive Gear, or vice versa, therefore we will continue to manufacture old style Gears for Service.

These Gears are made of exactly the same material and receive the same Heat Treatment as the old style, but as above stated—the rolling of the teeth is changed slightly.

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axis. Therefore, the gears might be termed compensating gears because this makes the one shaft gain just as much as the other looses or in the case of a car turning a corner the outside wheel must turn or make up just what the inside wheel looses. This action applies to either forward or reverse direction.

Bearings

As before stated, the axle assembly is supported on four radial roller bearings, two of which are shown at B-B Fig. 74. However, wherever we have a bevelled gear working we also have an end thrust as well. This is taken care of by the ball bearing in the drive shaft assembly as illustrated in March Service Bulletin and by 6 thrust washers, 4 steel C-C and 2 composition washers D. The two outside steel washers on each side of the differential assembly are kept in a stationary position by small pins No. 2530 Fig. which are placed in the housings and through a hole E-E Fig. 74. The two inside steel washers or the washers next to the differential cases are fastened to the cases in a similar manner and the composition washers are allowed to turn freely between the steel.

The two housings No. 2501-R and 2502-L are fastened together by 7-2503E bolts and 2503-F nuts. This makes the assembly rigid, dust proof and easy to disassemble. The two outer ends of the housing are made dust proof by fitting two caps No. 2510½ which are filled with felts No. 2510-B and a steel washer No. 2510-A. This assembly is placed over the shaft and pressed over the end of the housing.

(To be continued)

Bow Socket Assemblies

On page 96 we illustrate the different bow sockets which have been used from time to time on the one man top which we manufacture. Fig. 1 represents socket manufactured by the Detroit Forging Company and used in our car in 1922. Figure 2 also represents a Detroit Forging socket used in the latter part of the year 1922, and is still being used at the present time. Fig. 3 represents a Detroit Forging socket used in the years 1920-21. Fig. 4 represents a Brewer-Tichener Steel Co. socket used in 1920-21-22-23.

We are showing the illustrations of these sockets in a folded condition and also in a partially unfolded condition so that you will be able to examine these and intelligently order the socket which you know to correspond to the undamaged one you may have in case one socket becomes damaged.

Fig. 1

DETROIT FORGING SOCKET USED IN 1922

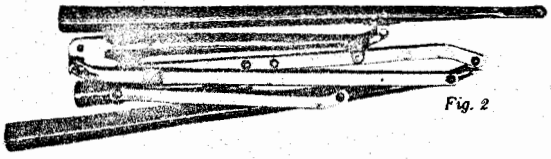
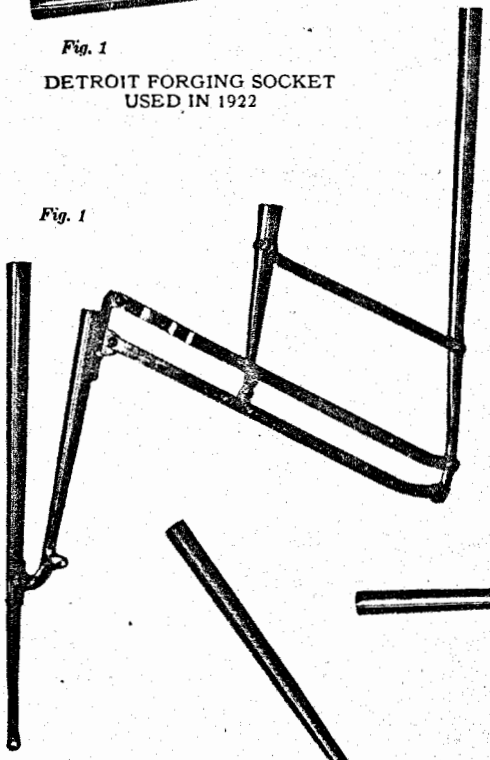


Fig. 2

DETROIT FORGING SOCKET USED IN LATER PART OF 1922 AND AT THE PRESENT TIME

Fig. 1



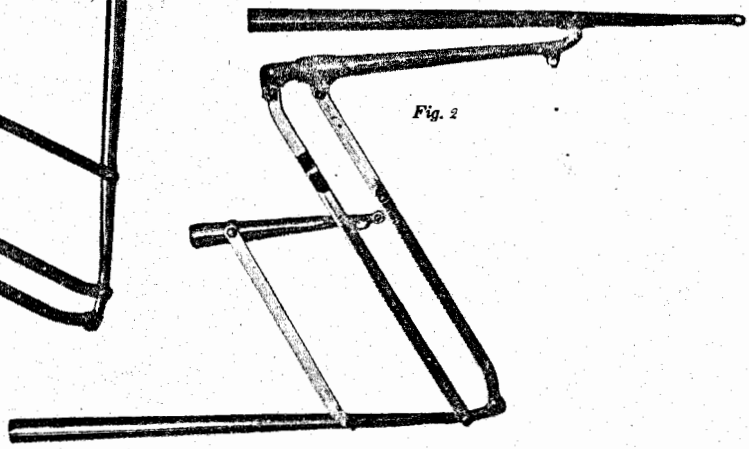


Fig. 2

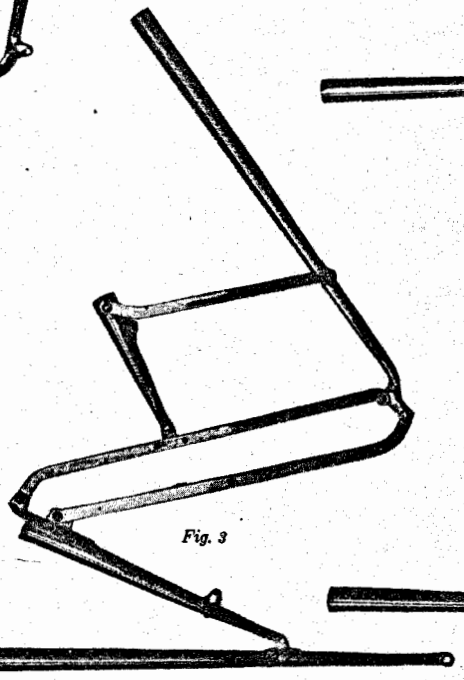


Fig. 3

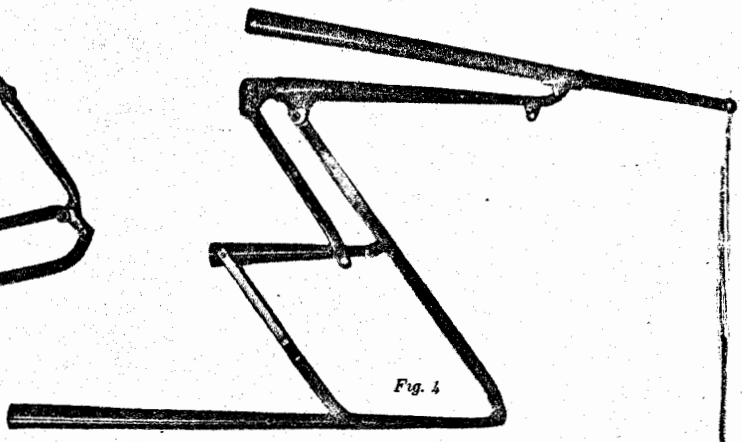


Fig. 4

DETROIT FORGING SOCKET USED IN 1920-21

BREWER-TITCHENER & STEEL CO SOCKET USED IN 1920-21-22-23

Fig. 3

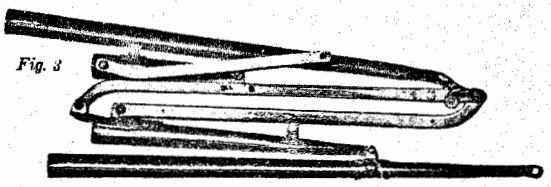


Fig. 4