

51

ZÜNDAPP

2015

OPERATION AND
MAINTENANCE

in pe

www.zuendappveteranenclub.nl

ACHTUNG!

Diese Gabel ist **ohne** Ölfüllung. Vor
Ingebrauchnahme sind je Holm 35 ccm
Öl SAE 20 aufzufüllen.

Z Ü N D A P P - W E R K E G M B H

www.zundappveteranenclub.nl

ZÜNDAPP-MOTORCYCLE

201 S

Operation and Maintenance



Published in January 1958

We are much pleased that you made up your mind to choose a "Zündapp" as your machine. Our long years of experience in the construction of motorcycles guarantees a vehicle made of top quality material and built with utmost precision. The wide-spun net of Zündapp-dealers offers you a first-class service for your "201 S".

Before your first ride you should not fail to make yourself acquainted with the operation of your vehicle. Each model has its characteristics so that even an experienced motorcyclist will do well to read carefully the chapter "The First Ride".

You will undoubtedly be desirous of retaining the value and reliability of your machine as long as possible. For this purpose the 2nd part of this handbook will help you, containing all that is necessary to know in that respect.

Moreover, we have also thought of the cyclists more interested in technicalities and added for them the chapters "Description" and "Remedies".

Thanking you for your confidence in our product, we wish you a happy ride and lots of joy with your "201 S".

Z Ü N D A P P - W E R K E G . M . B . H . N Ü R N B E R G - M Ü N C H E N
W E R K N Ü R N B E R G

Printed in Germany

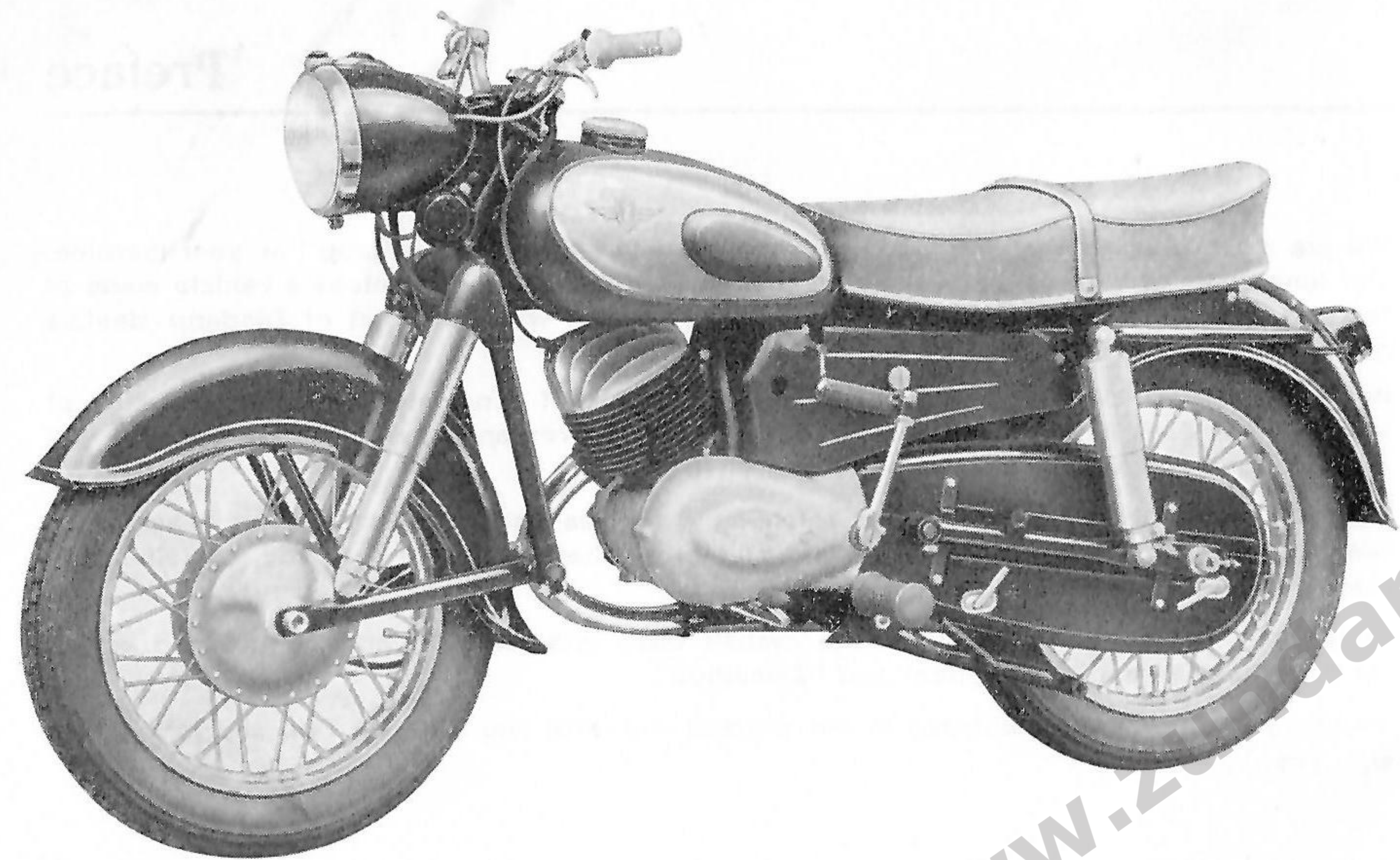


Fig. 1

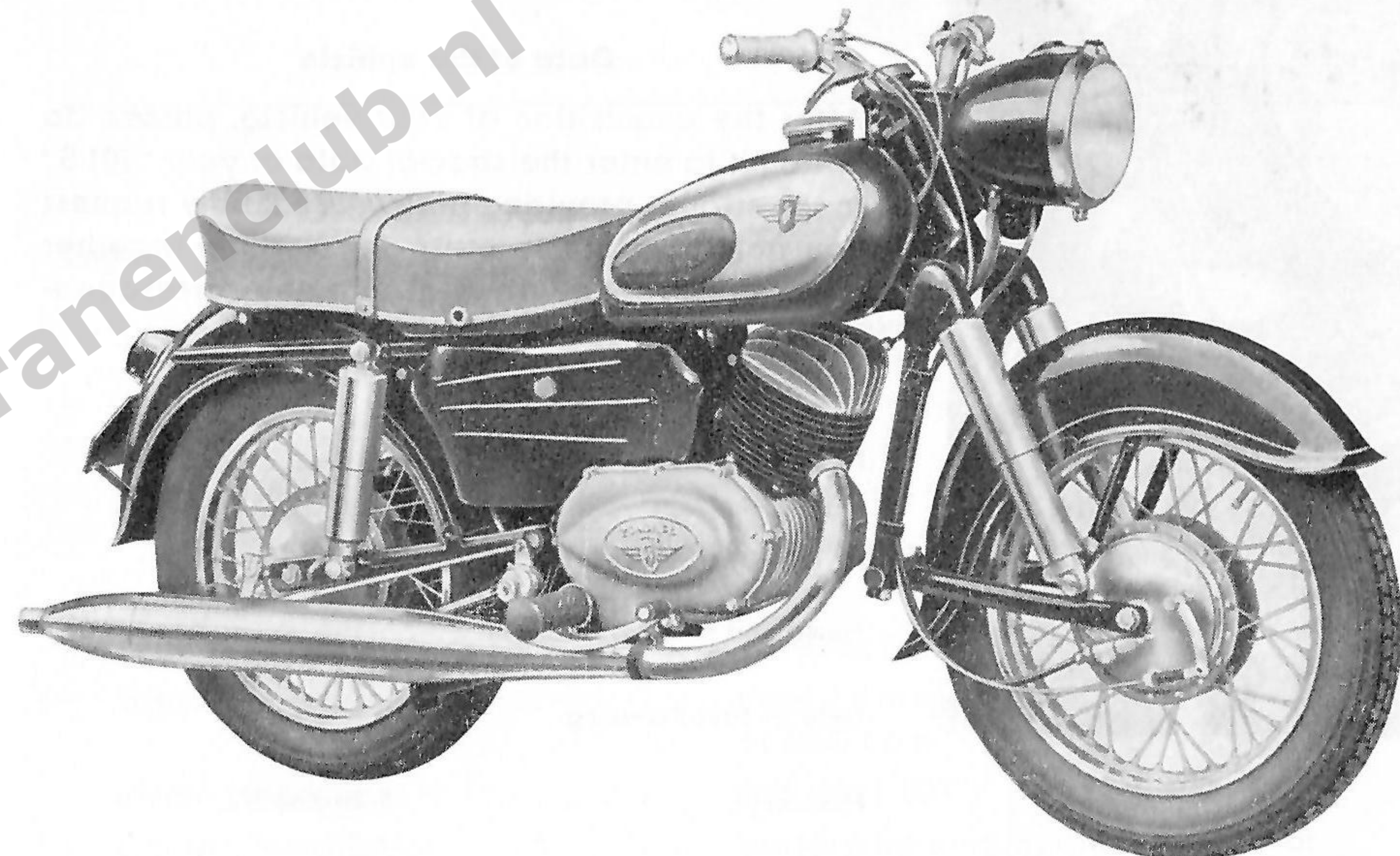


Fig. 2

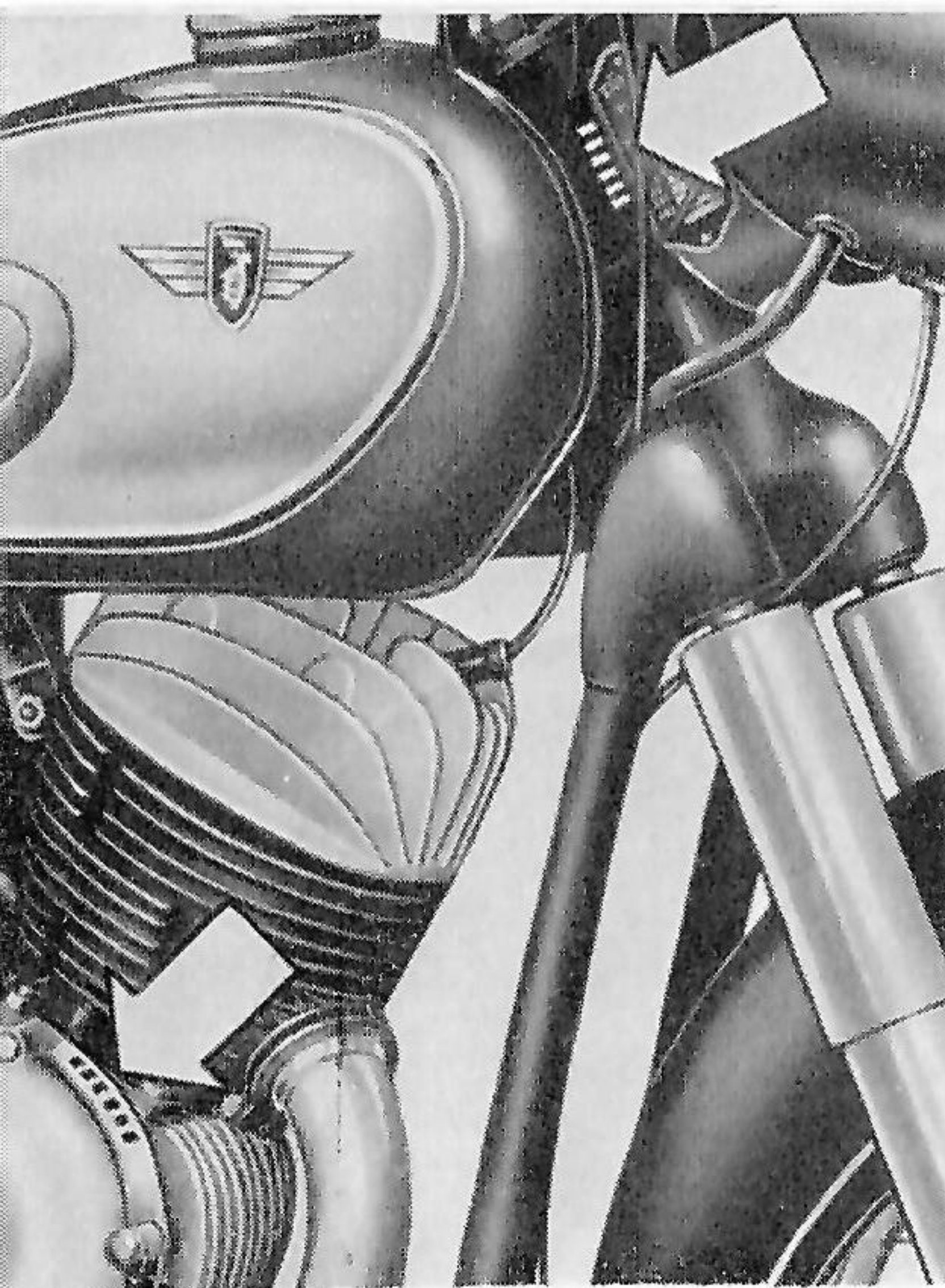


Fig. 3

Data of the vehicle

After the acquisition of your vehicle, please do not omit to enter the special data of your "201 S" in the spaces provided below. We kindly request you not to forget to state these data together with the current mileage also in any correspondence with the Works.

.....
Name of owner

.....
Address of owner

.....
Name and address of dealer

.....
Date of first licensing

.....
Frame No.

.....
Engine No.

.....
Changes made on vehicle

Technical Data

Engine

Type of operation	two-stroke
Number of cylinders	1
Stroke	62 mm
Bore	64 mm
Cubic capacity	197 c.c. (according to tax rating)
Compression ratio	1 : 6.5
Output	12 HP at 5400 r.p.m.
Torque	max. 2.0 mkg (= 14.4 ft/lbs.) at 3600 r.p.m.
Piston clearance	0.06 mm (.002")
Electric installation	battery-lighting-ignition generator (automatic voltage control) model Noris MLZn 60/6/1600 R

Ignition timing	advanced ignition 3.6 mm (.141") before t.d.c. = 25° before t.d.c.
Spark plug	Bosch W 240 P 11 S or Beru 240/14 U 2 or Lodge H/4
Gap of plug electrodes	0.7 mm (.027")
Battery	6 volt 8 a.h.
Cooling system	air cooling
Engine lubrication	by 1 : 25 oil/petrol mixture
Twin-slide carburettor	model Bing 2/24/46 port dia 24 mm (.945") main jet No. 110 needle setting 2nd notch from top needle jet No. 2.70 idle jet No. 45 mixing chamber insert No. 5 air adjusting screw 1-1½ turns open
Clutch	multiple slab clutch in oil
Gearbox	Zündapp change-speed gear
Number of speeds	4

Internal gear ratios:

1st speed	1 : 3.14
2nd speed	1 : 1.964
3rd speed	1 : 1.405
4th speed	1 : 1

Power transmission agent from gear unit to rear wheel roller chain, enclosed (½" x 5/16", 116 links)

Gear ratio from gear unit to rear wheel 1 : 2.75

Chassis

Frame	central tube frame
Steering head bearing	ball bearing
Front fork	pivoted fork with spring legs
Rear wheel	pivot arm suspension with 2 hydraulic shock absorbers

Brakes:

Foot brake rod-type brake acting on rear wheel
hand brake cable-type brake acting on front wheel

Wheels:

Size of rims 1.85 B x 16
Size of tyres 3.25 - 16

Vehicle

Length 1900 mm (= 74.86")
Width 620 mm (= 24.42")
Height 960 mm (= 37.82")
Height of saddle 750 mm (= 29.55")
Wheel base 1260 mm (= 49.64")
Turning circle 4000 mm (= 157.6")
Weight with full tank 133 kg (= 293 lbs.)
Peak load (vehicle and loading combined) 283 kg (= 624 lbs.)
Top speed up to 100 km/h (= approx. 63 mph)

Quantities of fuel and oil

Power fuel:

Fuel tank 13.5 liters
(Imp. galls 2.97 = U.S. galls. 3.56),
including 2 liters (Imp. galls. 0.44 = U.S.
galls. 0.53) reserve

Lubricants:

Engine Mobil Mix TT self-mixing for two-stroke engines, added to the fuel in a ratio of 1 : 25, or any other self-mixing quality oil for two-strokers or a similar equivalent commercial type of oil SAE 30 - SAE 50

Gearbox 650 c.c. (approx. 1 pint) at ambient temperatures above + 15° C (= 60° F) motor oil SAE 50
at ambient temperatures below + 15° C (= 60° F) motor oil SAE 20

Important points at the delivery of the vehicle

After having carried out the tasks mentioned below, your Zündapp-dealer will hand over your "201 S" in a brand-new state. Will you please, convince yourself of the good condition of your machine, for only on these conditions can eventual claims be acknowledged.

1. Check headlight
2. Check slackness of chain and wheel alignment
3. Check hand and foot brakes as well as clutch adjustment
4. Lubricate vehicle
5. Check level of oil in gearbox
6. Check tyre pressures
7. Charge battery (at your expenses)
8. Check if tools are complete in the tool-box.

The execution of the prescribed maintenance works is the basis for the Guarantee granted by us, extending to the exchange - free of charge - of those parts actually showing defects in material or workmanship within six months after first licensing or until a total mileage covered of 10 000 km (= 6000 miles) within this period.

The data and figures in this handbook are in no way binding; only the details contained in the sales contract are decisive for the extent of the delivery. Alterations and modifications made by us to the model under our product improvement policy cannot be accepted as a basis for any claims against the manufacturer.

List of Maintenance Works

1st Survey after 1000 km (600 miles)

is to be carried out at 1 month after delivery,
or at the latest after a total mileage covered of 1200 km (720 miles)

1. Clean carburettor and fuel pipes
2. Check ignition and lighting set, adjust contact breakers, refill distilled water
3. Check and re-adjust slackness of chain and wheel alignment
4. Check steering
5. Check and re-adjust hand and foot brakes as well as clutch
6. Lubricate vehicle

2nd Survey after 2000 km (1200 miles)

is to be carried out at 3 months after delivery,
or at the latest after a total mileage covered of 2200 km (1320 miles)

1. Clean carburettor and fuel pipes
2. Check ignition and lighting set, adjust contact breakers, refill distilled water
3. Retighten nuts of the cylinder flange
4. Check and re-adjust slackness of chain and wheel alignment

5. Check and re-adjust steering
6. Check air pressure of tyres
7. Check and re-adjust hand and foot brakes as well as clutch
8. Lubricate vehicle

3rd Survey after 5000 km (3000 miles)

is to be carried out at 5 months after delivery,
or at the latest after a total mileage covered of 5500 km (3300 miles)

1. Check ignition and lighting set, adjust contact breakers, refill distilled water
2. Take off cylinder head, remove soot from head, cylinder, and bottom of piston
3. Clean exhaust set
4. Check steering
5. Retighten essential nuts and screws

The First Ride

This first ride ought to be made - even if you are an experienced motorcyclist - in a place where you can acquaint yourself with the operation of your vehicle without any hindrance. That is to say: no streets with busy traffic, no through-roads for fast traffic or motorcars.

As your Zündapp dealer has handed over the machine in perfect order, the only thing you still have to do is fill the tank.

The fuel tank has a capacity of 13.5 liters (Imp. galls. 2.97 = U.S. galls. 3.56). You can only use oil-fuel mixture in a ratio of 1 : 25. **At the first filling, however, the mixing ratio is to be 1 : 20.**

As to fuels, all standard petrols, available in the trade, are qualified. Also the oils for two-stroke engines, generally traded by the dealers, are appropriate for the preparation of the mixture. We would recommend the use of an oil with anti-corrosion addition or the admixture of an anti-corrosion preservative. However, we cannot recommend an admixture to the fuel of all other additions which are said to increase the output or to reduce the consumption.

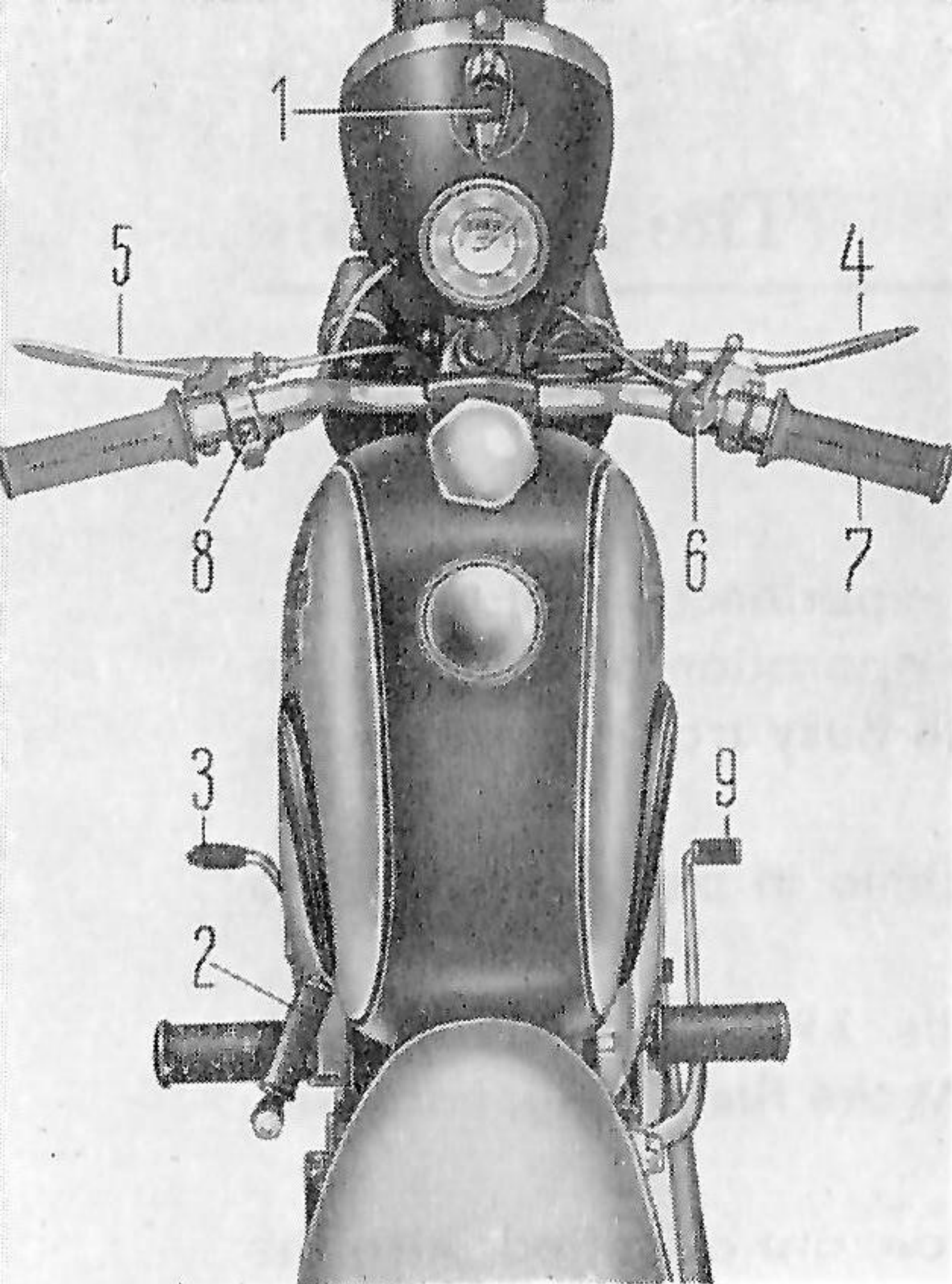


Fig. 4

Starting up

is no trouble at all to the experienced motorcyclist. However, you will have to make yourself acquainted with all operation levers. The illustration at the side will show you under number

1. Electro Switch
2. Kickstarter
3. Foot-change lever
4. Hand-brake lever
5. Clutch lever
6. Air lever
7. Throttle twist grip
8. Dipper with Horn Button
9. Foot-brake pedal

Under normal circumstances you will never have any difficulties in starting if you proceed in the following order:

1. Open fuel tap
2. Move foot-change pedal into position "neutral", close air lever
3. Flood carburettor by pressing tickler up and down (until fuel floods between float chamber and its cap)
4. Open throttle twist grip abt. one quarter, depressing kickstarter
5. Switch on ignition (red lamp lights up) and kickstart the engine.

After starting up the engine close throttle twist grip to some extent, for high speed in position "neutral" is extremely harmful to the engine. Then, open air-lever more and more in accordance with the increased temperature of the engine. It is not advisable to have the engine warmed up by running it idle - i.e. without any load. It should rather reach its most adequate running temperature as quickly as possible, the best way being by taking off immediately after starting up.

Starting off

is by no means complicated. After mounting the machine with the foot-change pedal in normal position, i.e. in the position "neutral" between the 1st and 2nd

speed gear, the only thing you need to do is pull the clutch lever, and with clutch pulled-in move into 1st gear by depressing the foot-change pedal and then release clutch lever gradually, opening the throttle to the same extent as you release the clutch lever. Beginners are often inclined to declutch too quickly or to open the throttle twist grip not enough. In the first case the motorcycle will start off with jumps, in the second case with jerks. If you hold the clutch lever too long, you will cause excessive wear of the linings of the clutch discs.

Gearshifting

In accordance with increasing speed by opening the throttle wider, you may move into the 2nd, 3rd, and 4th gear (called "changing up"). On even roads do not, as far as possible, move

from 1st into 2nd speed gear, unless you are riding at least 20 km/h (= 12½ mph)

from 2nd into 3rd speed gear, unless you are riding at least 40 km/h (= 25 mph)

from 3rd into 4th speed gear, unless you are riding at least 60 km/h (= 37 mph)

For changing up close throttle rapidly, pull-in clutch lever, and by drawing up the foot-change pedal with the toe until the stop, move into the next higher speed gear; now release clutch lever and open throttle again.

For changing down close throttle quickly, and without declutching at all, press slightly the footchange pedal (but do not tread through until the stop) so that the respective neutral position - one of which is between each of the speed gears - is engaged. When running in "neutral", open throttle twist grip according to the speed (at high speeds much, at low speeds accordingly less). Now by pulling-in the clutch lever and by depressing the foot-change pedal until the stop, move into the next lower speed, then release clutch lever again.

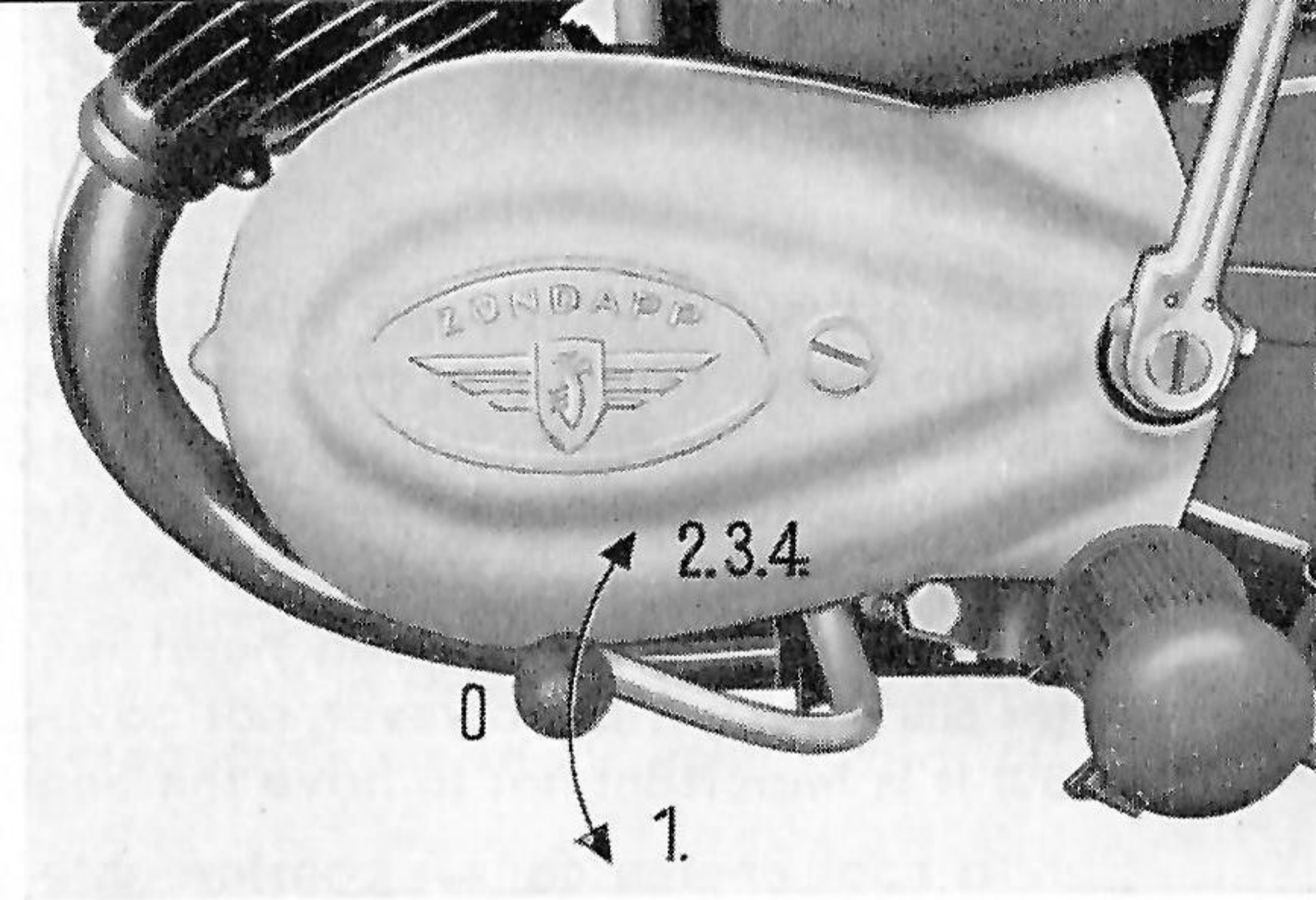


Fig. 5

Driving

For the first 500 km (= 300 miles) we would recommend you not to make use of the total capacity of the engine i.e. not to drive with full acceleration or excessive load. In the following 500 km (= 300 miles) the capacity of the engine may be exploited more and more. After having covered a mileage of 1000 km (= 600 miles), there is no longer any reason to avoid using the total power of the engine. Limits of speed need not be observed during the first 1000 km (= 600 miles); it is, however, not advisable to drive a long time at top speed. But it is important not to have the engine run at too low speed, for

a cool engine causes considerable wear (reduced lubricating facilities of the oil- fuel mixture as well as increased tendency towards corrosion), it also increases carbon deposits, both resulting in reduced performance and shorter life of the engine.

When climbing a hill, change in time, always driving with higher revolutions. When going downhill, use the same speed gear you would use climbing it. Always open throttle twist grip to some extent so that the engine will get sufficient lubrication. When approaching **dangerous places and curves**, decelerate in time, eventually by changing down into the next lower gear. Take care when riding on wet or slippery roads (danger of skidding!) Apply your brakes with special care and intelligence in those cases.

Fuel Consumption

This kind of engine is not yet available, the fuel consumption of which is diminishing when working with higher performance. Yet, to some extent, it is in your own power to determine the fuel consumption of your "201 S".

However, it would be quite wrong in order to save fuel to drive too long in the lower gears i.d. with a relatively too low number of revolutions because the insufficient warming up of the engine would result in reducing the lubricating activities of the oil-petrol mixture and consequently cause increased wear of the parts of the engine.

If it should be necessary to change the adjustment of the carburettor as determined by our works after a long period of experiments, we would advise you to do that with special caution and prudence. For, as you will surely know, the two-stroke engine is not only cooled by the blast of air that results from the vehicle's movement, but the fuel-air mixture taken in by the carburettor also contributes towards a suitable working temperature. If this so-called "internal cooling" will be reduced by using smaller jets of carburettor or by changing the needle position, there is the risk that the engine will get overheated resulting in pinking, auto-ignition etc. or even piston seizing.

Fuel consumption will **inevitably** increase if you

drive in low gears
change speeds frequently (driving in the city or in mountainous areas)
drive against the wind.

The following reasons may be responsible for high fuel consumption

(avoidable):

letting the engine run in "neutral"
accelerating too abruptly
driving in low gears too long
incorrect carburettor adjustment and ignition timing
carbon deposits in engine or excessive piston clearance
clutch slippage
additional load
mounting a windshield or
a large trunk or suitcase across the luggage carrier
insufficient tyre pressure.

You will notice that, after having attained a certain speed, you can turn the twist grip back a considerable degree without losing speed. Doing this every time will also keep fuel consumption low.

Coming to a stop

is effected in case of emergency by closing throttle twist grip, pulling-in the clutch lever, and applying the full braking power simultaneously and steadily. Generally you will move into the position "neutral" - preferably between 1st and 2nd gear because when taking off again you may move immediately into 1st gear - and slow down the vehicle by applying both brakes.

When stopping, do not apply the brakes too abruptly, for skidding wheels will soon wear out your tyres and will impair the efficiency of your brakes!

Stopping the engine

If the engine is only to be stopped for a short time, it will suffice to close the throttle, take out the ignition key, and close the fuel tap. In case of a longer period of standing idle or after a long, strenuous run, stop the engine in the following manner:

1. rev-up the engine, at the same time
2. close air lever and
3. take out ignition key;
4. close throttle twist grip and
5. fuel tap.

By this method the engine is given an additional so-called "internal cooling", besides that, all essential parts of the engine are being covered with a protective corrosion-resisting oil-film.

Engine

Type of operation

The Zündapp two-stroke engine works according to the well-proved reverse scavenging principle. The fuel-air mixture sucked up by the carburettor when the piston moves upward, is compressed in the crankcase when the piston moves downward. Then, the compressed mixture flows over two by-pass ports into the compression chamber, is further compressed by the following upward movement of the piston, and explodes there by effect of the ignition spark. After the piston has moved down again (stroke of operation), the burnt gases escape through exhaust opening, exhaust pipe, and silencer into the open air.

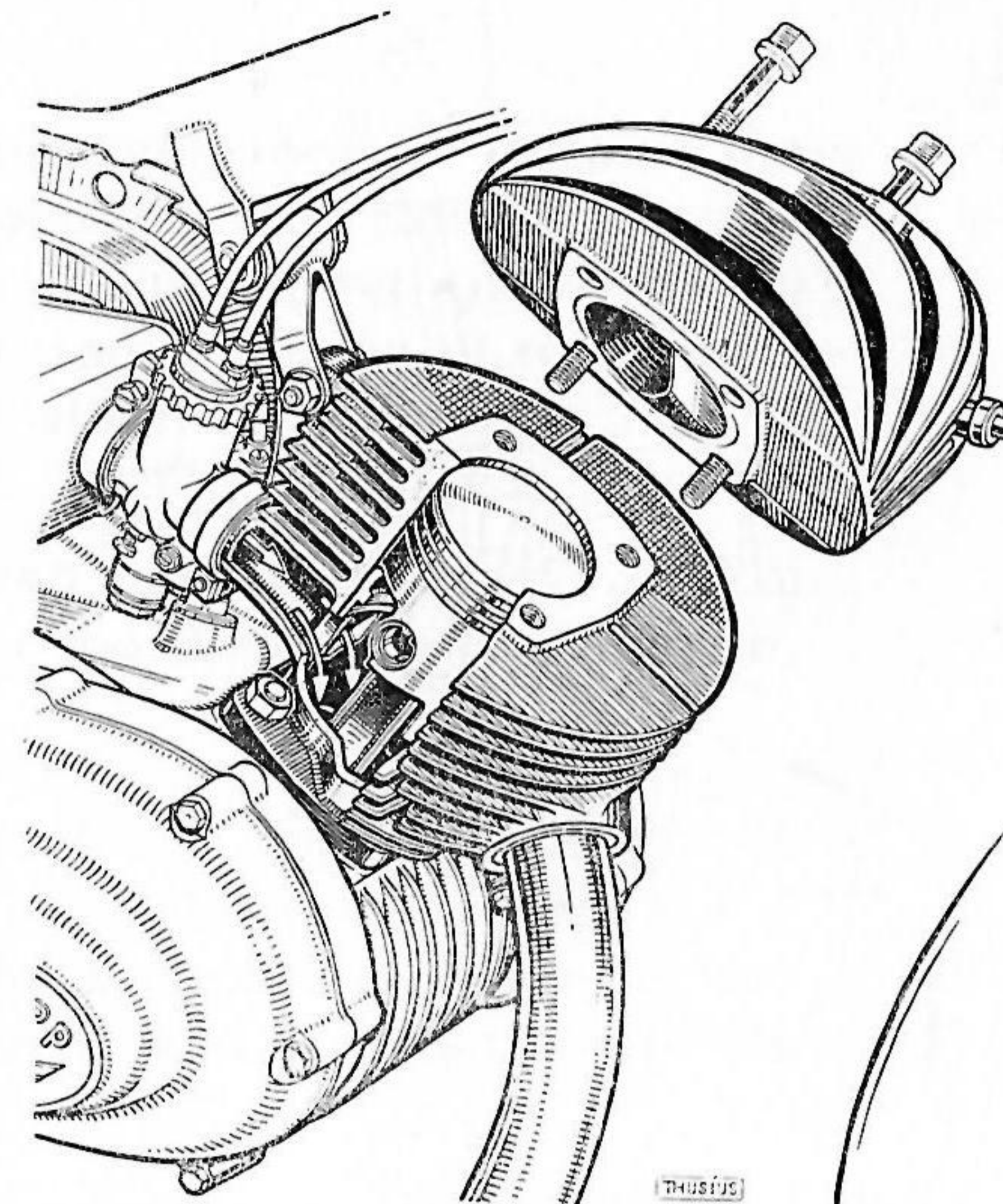


Fig. 6

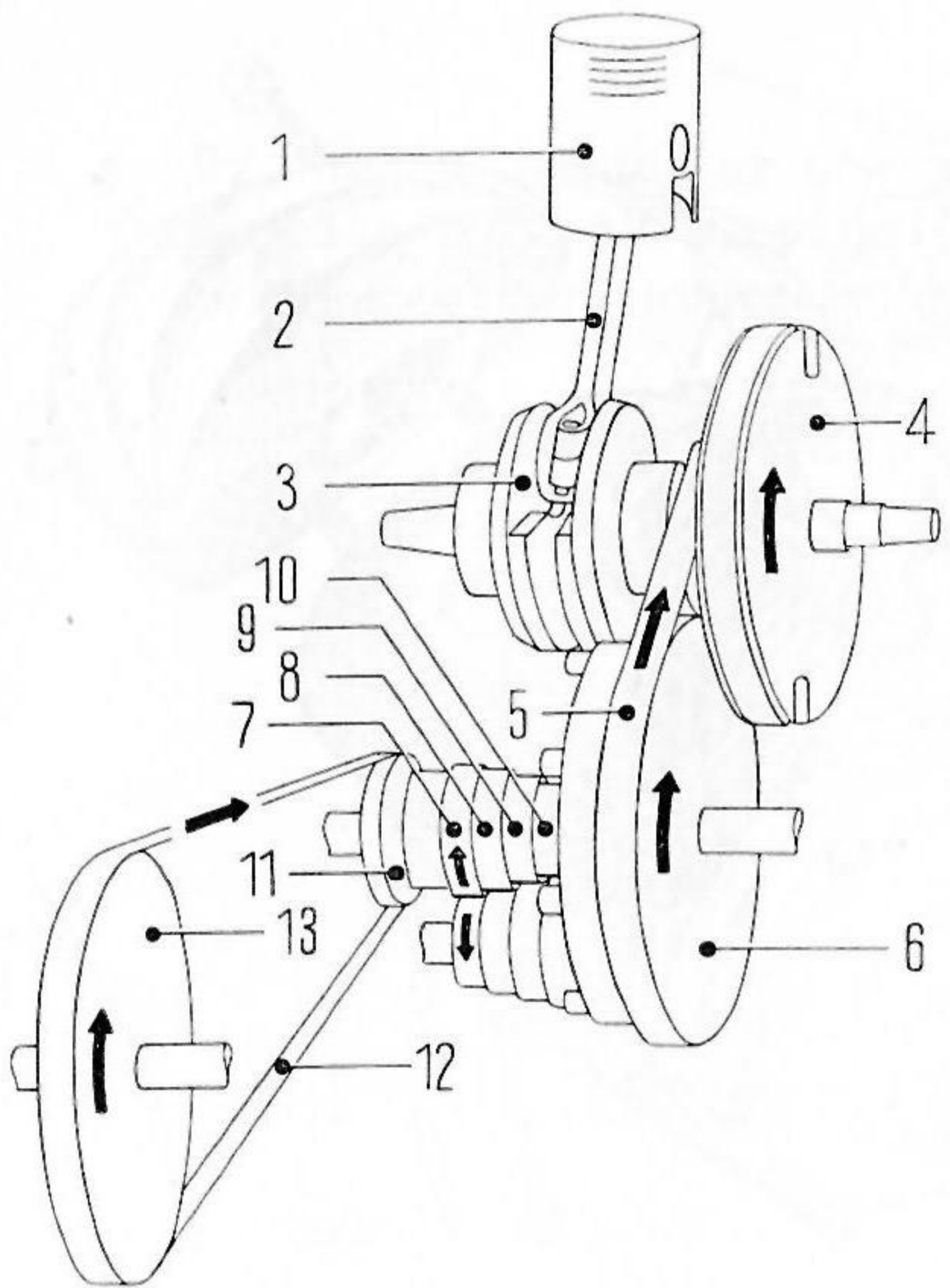


Fig. 7

Drive Mechanism

The pressure caused by the expansion of gas is transmitted over piston, gudgeon pin, and connecting rod to the crankshaft, being transformed into rotary power. The flywheel provides the uniformity of the rotatory movement.

1. Piston
2. Connecting rod
3. Crankshaft
4. Flywheel
5. Chain
6. Clutch
7. Pair of pinions for 1st speed
8. Pair of pinions for 2nd speed
9. Pair of pinions for 3rd speed
10. Pair of pinions for 4th speed
11. Front sprocket
12. Chain
13. Rear sprocket

From the crankshaft to the clutch a reduction of revolutions (= raise of the rotary power) is achieved by means of a corresponding gear ratio. By operating the clutch the transmission of power to the change speed gear may be interrupted. In the change speed gear a further transformation of revolutions and rotary power is taking place in accordance with the chosen gear (i.e. the gear you moved in).

Then, power is transmitted from the change speed gear to the front sprocket outside the gear box unit, and from there over the drive chain to the rear wheel.

Carburettor

serves in connection with the air cleaner for the preparation of the fuel-air mixture i.e. for the transformation of the liquid fuel into a mixture appropriate for combustion.

The Carburettor consists of two principal parts:

Float Chamber and
Mixing Chamber.

The float in the float chamber is connected with the float needle by means of a clamp. The float's task is to ensure that the fuel level in the carburettor is

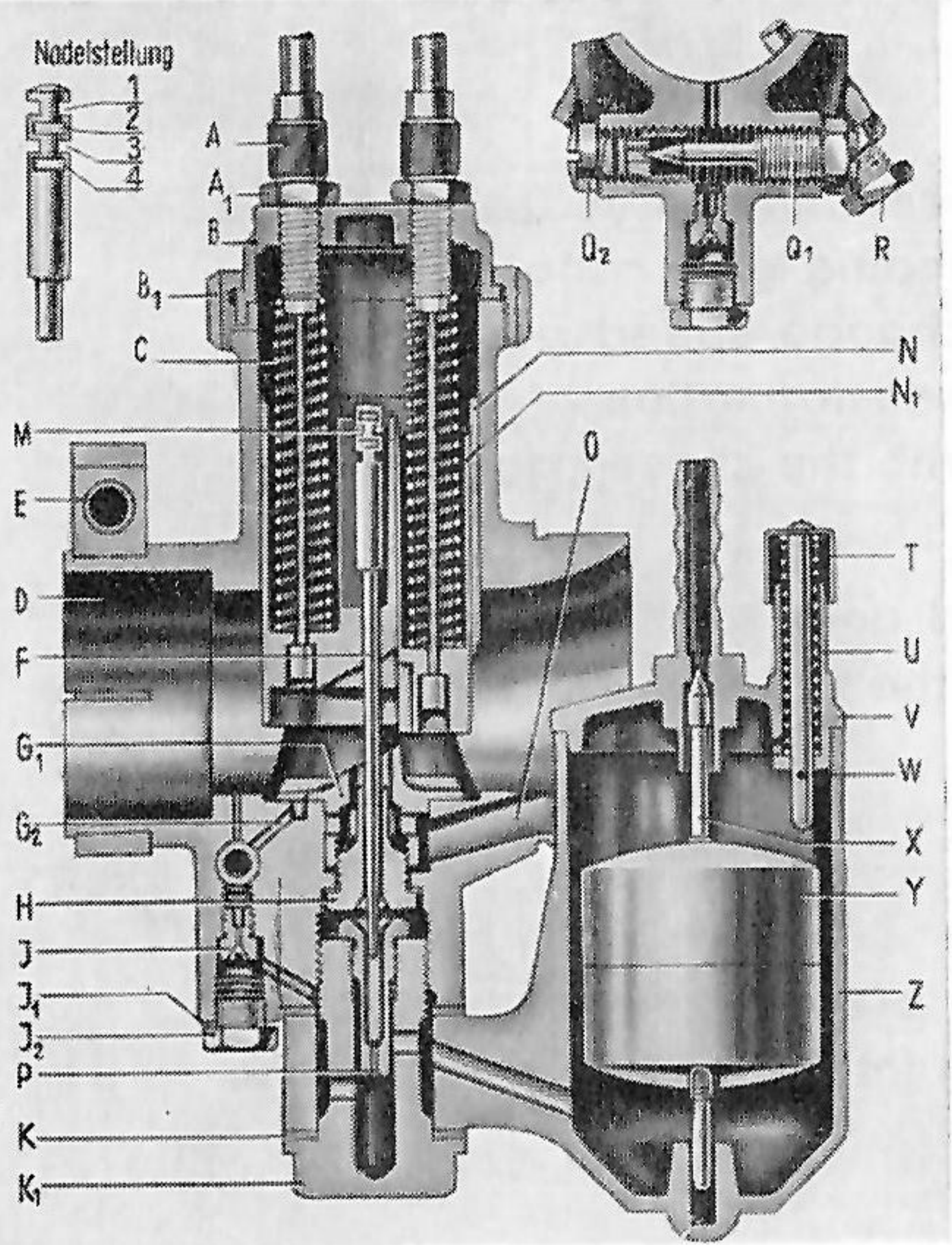


Fig. 8

always the same. When the fuel tap is opened, fuel flows to the float chamber, lifting the float with float needle. This needle is tapered at its upper end so that as soon as the required level is reached, it cuts off in connection with the float chamber cap the flow of fuel from the fuel tube. When the tickler is operated, the float presses the fuel above the normal level in the carburettor, the fuel passing through the opened needle valve. The carburettor's task is to provide the engine with an adequate and correctly measured fuel-air mixture at any range of speeds. For this purpose several jet systems are required, viz. the

Idle Jet System

consisting of Idle Jet J, Idle Air Jet Q2, and Idle Air Adjusting Screw Q1.

When running idle this system works alone, at higher speeds it goes slowly out of action as the other jet units come into use. As the speed increases further,

Mixing Chamber Insert (Sprayer) G1 together with Jet Needle F and Needle Jet H come into operation, followed by Jet Needle F and Needle Jet H which then take over alone. Main Jet P only comes into operation at relatively high speed.

The sizes of the jets as well as the adjustment of the carburettor have been determined by our works after a long period of experiments. For this reason, after the carburettor has been cleaned, only the idle running system and cables are to be re-adjusted.

1. Adjustment of Idle Running System

With the engine running idle, screw in Gas Slide Stop Screw R until the engine continues running with throttle twist grip closed; now screw in Air Adjusting Screw Q1 fully and then unscrew it again gradually until the engine runs at its highest speed. From this point screw in the regulation screw again about 1/4 turn. Now Slide Stop Screw R is to be unscrewed until the engine runs at the desired idling speed.

2. Bowden Cables

The adjusting screws for the Bowden cables should be regulated so that between the sheathing of the cable and the adjusting screw a play of abt. 1 mm (= 3/64") remains.

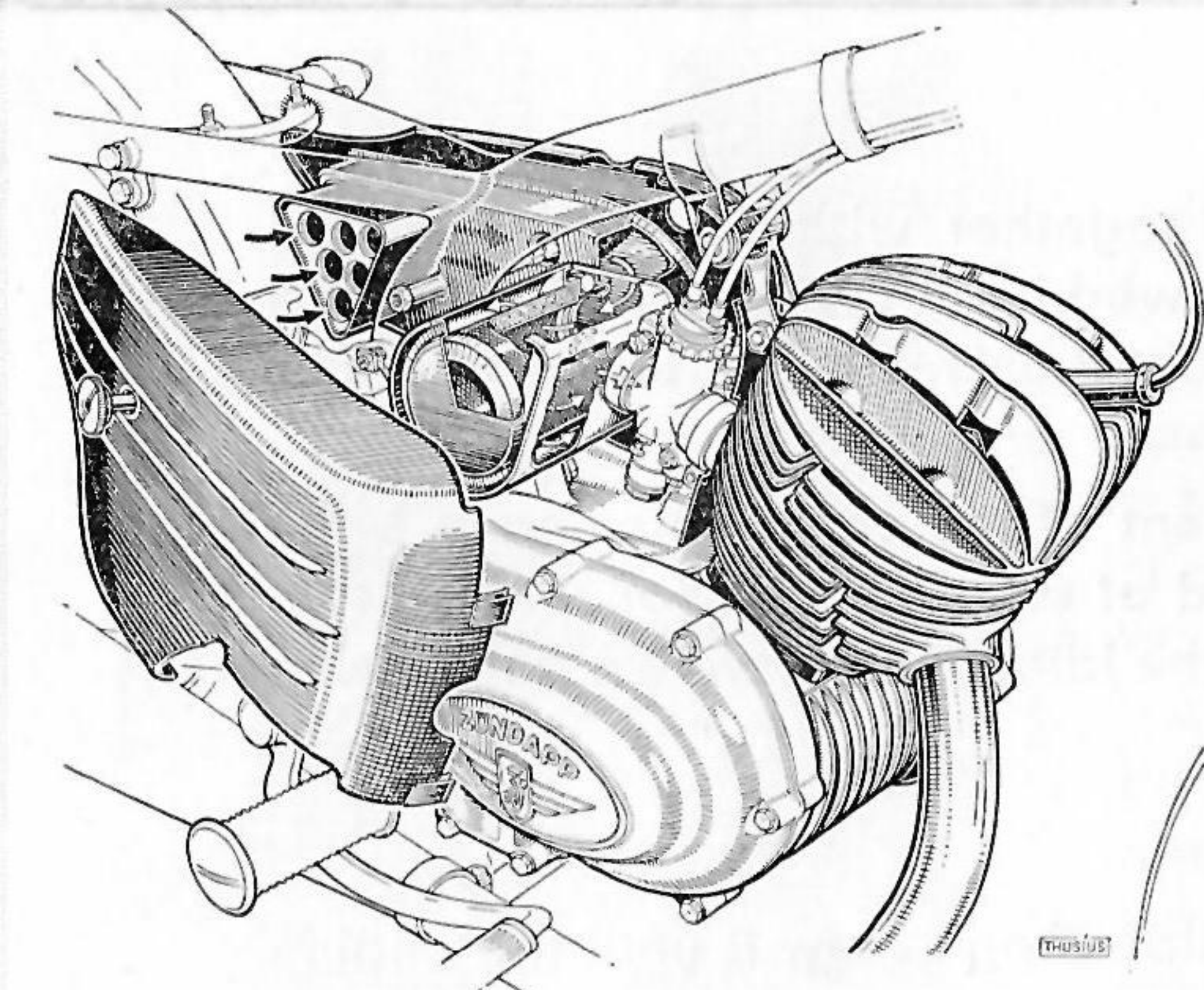


Fig. 9

Perhaps a smaller size of main jet or setting the jet needle into a lower notch may reduce the fuel consumption; however, because of lack of "inner cooling", the piston might be seized in this case.

A larger main jet or setting the needle into a higher notch will in no way result in increasing the power-output but only in increasing the consumption of fuel. Besides that the engine would 4-stroke due to the mixture being too rich.

Air Cleaner

The air cleaner's task is to clean the air required for the process of combustion. For the purpose of a better action of the filter the wire sponge is covered with an oil film. The better the effect of the filter, the less is the wear on the parts of the driving mechanism. — Therefore:

Clean Air Cleaner regularly, dipping it into motor oil.

The Cylinder Head

forms the end of the combustion chamber, being flanged to the cylinder by means of 4 screws. It is made of light alloy and is provided with cooling fins for dissipating the heat of combustion.

The Spark Plug

is screwed into the cylinder head by means of a thread 14 x 1.5 mm. As to the type of plug we would recommend

Beru 240/14 U2
or Bosch W/240 P 11 S
or Lodge H/4

or an equivalent plug of another brand.

The Cylinder

is flanged to the light-alloy crankcase by 4 staybolts. It is made of grey iron. In the cylinder there are cast: 1 intake port, 2 by-pass ports, and 1 exhaust port. The piston clearance is $\frac{6}{100}$ mm (= .002").

The Piston

is made of light-alloy and is provided with 3 piston rings for the purpose of sealing against the cylinder barrel and for deduction of heat to the piston. The pressure on the piston caused by combustion is transmitted to the

Gudgeon Pin

which is laterally held at each side by a circlip, and from this to the

Connecting Rod

into the small end of which the bronze bushing for the gudgeon pin is pressed. As big-end bearings in the crankpin there are used two-piece cage-guided needle bearings.

The Crankshaft

is forged in one piece and mounted in three bearings. At the left side of the shaft the armature of the generator is located, at the right side the flywheel. Onto the

Flywheel

there is riveted the small sprocket for transmission of power to the clutch sprocket. — The transmission is effected through the

Primary Chain onto the

Clutch

Three lining covered clutch discs, always connected with the lining-covered clutch sprocket, are pressed by 6 tensioned springs against the adjacent

steel discs which are constantly connected with the gearbox. By operating the clutch lever the spring pressure is suspended with the result that the connection between clutch sprocket and gearbox is interrupted.

The Gearbox

consists of four gear train pairs. Whilst the gear-shift wheels are running free on the selector shaft, the opposing wheels of each pair are forged together to a so-called gear wheel-block fitted on the kickstarter shaft. When this shaft is turned by operating the starter, an engaging piece meshes with the teeth of the smallest gear wheel, thus setting the engine into motion. Gears are shifted by lateral sliding of the toothed selector shaft within the gear wheels which themselves are provided with internal splines. Between the gaps of the gear-shift wheels the selector shaft is always in the position "neutral". From the selector shaft the power is transmitted to the small front sprocket fitted outside the engine.

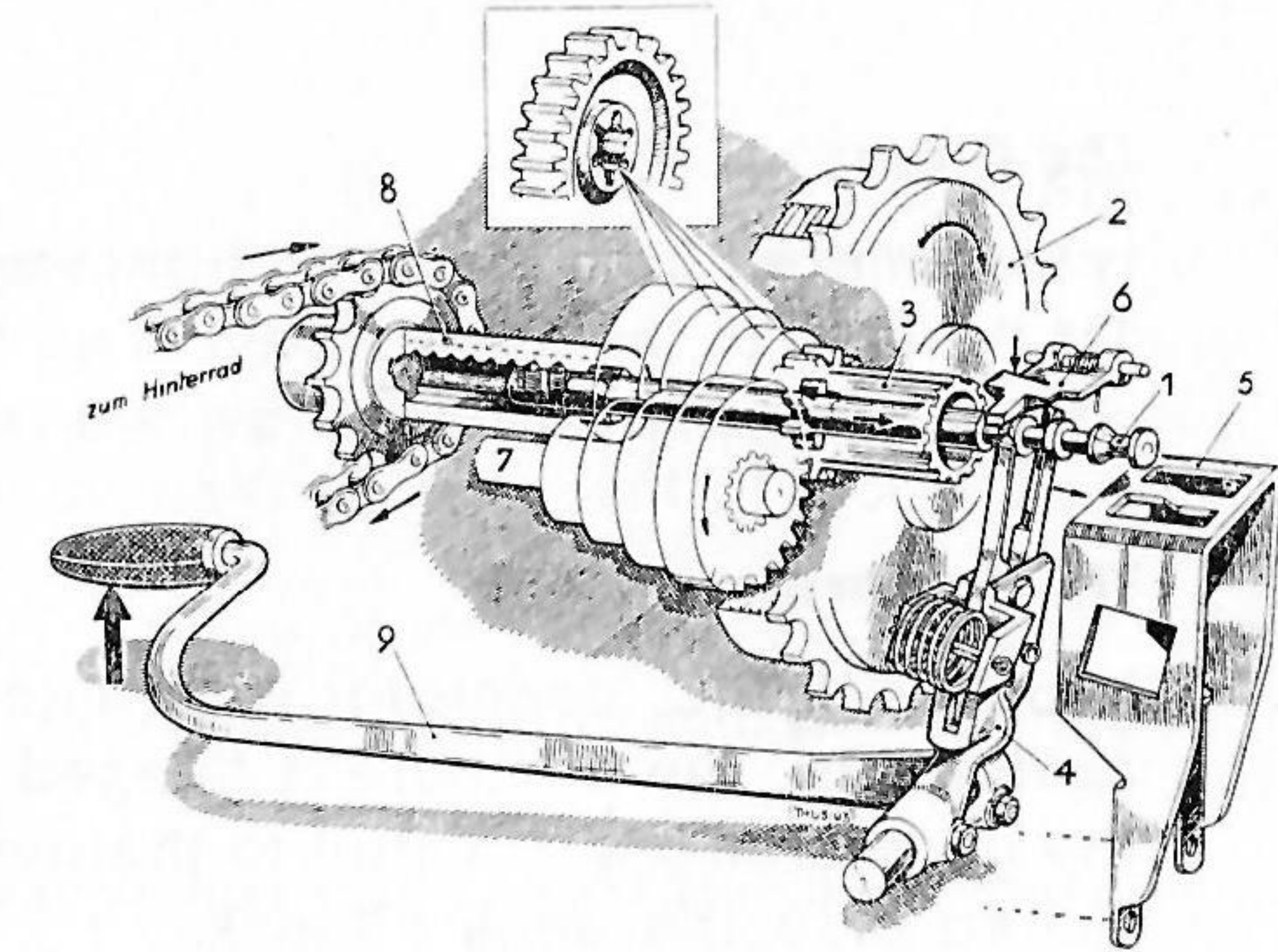


Fig. 10

The Drive

is transmitted from the small front sprocket-through the drive chain ($1/2'' \times 5/16''$, 116 links) — to the large sprocket on the rear wheel. When the machine is used solo, the large sprocket is provided with 44 teeth.

The Generator

is a NORIS D.C. generator with automatic voltage control and a capacity of 60/90 watts. The armature is flanged to the crankshaft. The remaining parts of the generator are mounted to the generator housing, the latter being securely bolted onto the engine block.

Chassis

The Frame Unit

is made of special manufactured material in the form of a central tube frame.

The Front Wheel Pivot Arm Suspension

The task of any vehicle suspension is to reduce the transmission of the unevenness of the roads to the driver.

For this purpose, the pivot arm suspension type has shown best success according to latest experiences. The front pivoted fork is mounted in ball bearings in the steering head of the frame. Two spring units (so called "spring legs"), each containing a pressure spring and a hydraulic shock absorber, iron out the bumps from the road. The spring legs are mounted in rubber bearings, at the bottom on the pivot arms and at the top in the pivoted fork. These parts do not require any maintenance.

The Suspension of the Rear Wheel

is also a pivot arm suspension. The rear fork with the wheel swings around a fulcrum in the frame. Bumps are cushioned by means of two springs and one hydraulic shock absorber on each side.

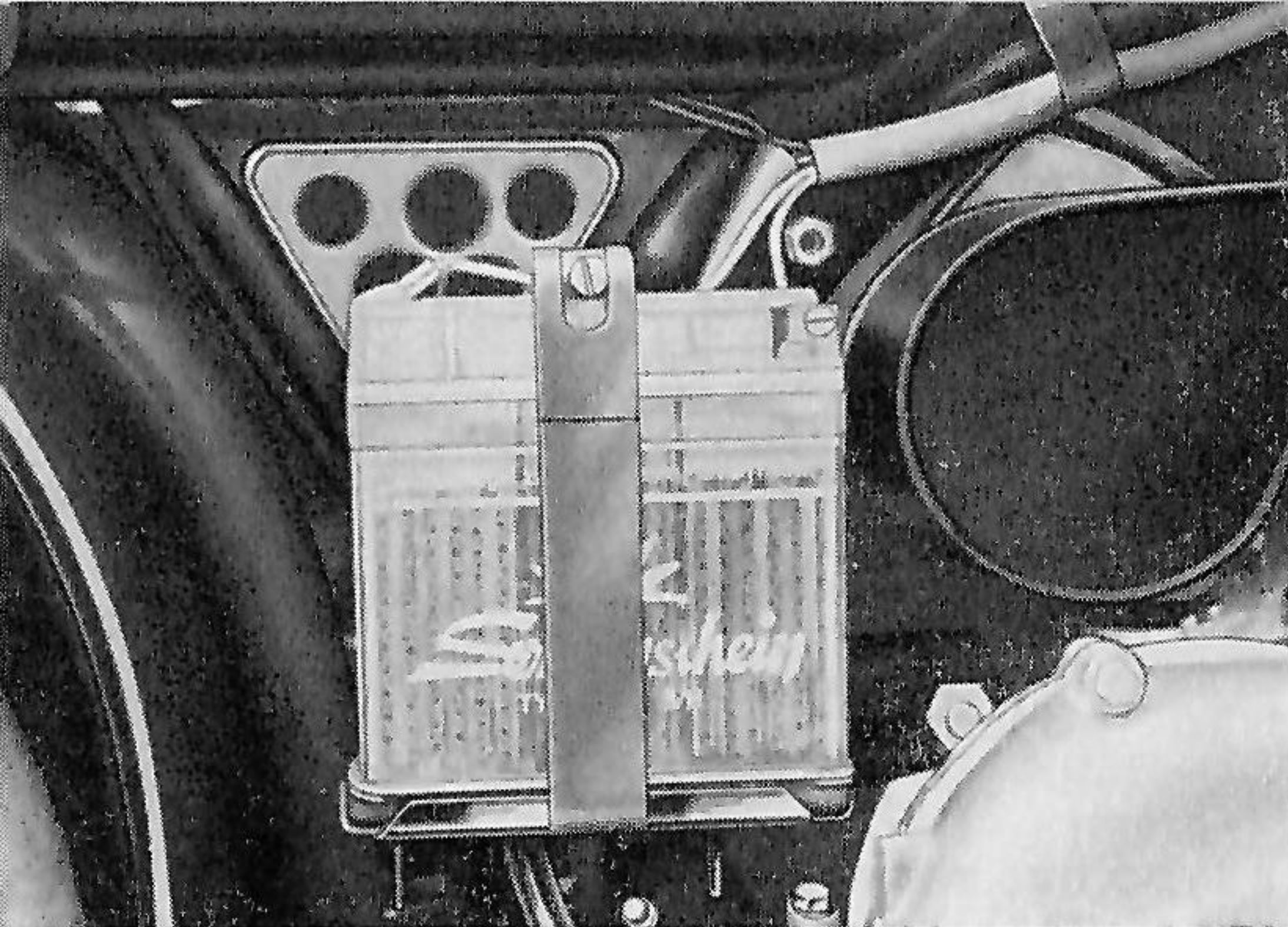


Fig. 11

= U.S. galls. 3.56). It is rubber-cushioned and is clamped tight at the same time when the tool box is fastened. The tank includes a fuel reserve of approx. 2 liters (Imp. galls. 0.44 = U.S. galls. 0.53).

The Battery

has a capacity of 8 a. h. It is mounted below the right-hand cover on a bracket welded to the frame, free of vibration.

The Wheels

are equipped with rims 1.85 B x 16. The tyres are steel wire reinforced low pressure tyres of sizes 3.25-16. The so-called "Full Width Hubs" are made of light-alloy; a ring of grey iron which is pressed in, acts as a surface for braking.

The Fuel Tank

contains 13.5 liters (Imp. galls. 2.97

The Headlight

has a diameter of 160 mm ($\approx 6\frac{5}{16}$ ""). It contains 4 bulbs:

- a BILUX bulb for full beam and dim light 6 V, 35 W
- a bulb for parking light 6 V, 2 W
- a bulb for charge control light 6 V, 2 W, and
- a bulb for speedometer light 6 V, 1.2 W.

The bulbs, the speedometer mounted within the headlight, as well as the electro switch, are accessible after removing the front part of the headlight (for this purpose loosen the slot screw in the lower front part). The headlight reflector may be adjusted according to police regulations by means of the adjusting screw situated before the electro switch.

Tools

are stowed locked up below the driver's seat. For opening, put the key delivered along with the vehicle, into the lock located at the right side of the seat. Then, by a slight turn to right and pushing in the lock, you may get it loose. Remove the key, before pulling up the seat.

Regular Maintenance

retains the value and the reliability of your "Zündapp".

Cleaning

Dirt of the roads contains some ingredients which exert a corrosive effect when acting on the artificial resin layer of a vehicle for a long time. We would recommend you frequent washings with clean cold water which is most favourable for the hardness of the surface of the enamel. However, please avoid a harsh jet of water under all circumstances, and when washing cover generator and carburettor with a piece of cloth.

The use of soap, shampoos or alkaline detergents may only be recommended when the enamel is really dirty or greasy. But you will have to observe the correct mixing ratio as given in the directions for use by the manufacturers. From our own experience a solution of washing soap (so-called "Kernseife") of 1-2% at 30° C (= approx. 85° F) — by no means higher — has proved most effective.

When washing with a detergent, it is also of utmost importance to rinse the sponge as often as possible because otherwise grains of dust will scratch the enamel surface, grinding it dull. After washing with the sponge, the enamel should be thoroughly rinsed with water in all circumstances in order to remove remaining residues of the detergent. Finally, polish the enamel with a soft chamois leather. Do not wash under the rays of the sun in order to avoid calcareous drops of water from drying onto the paint which would result in the appearance of spots.

Naturally, the fatty ingredients are deprived from the enamel by cleaning it with a detergent, so that, in the course of time, the enamel will become brittle and tend to crack. Therefore, it is advisable to give it new fats by means of a final polish containing wax or oil ingredients. For this purpose, however, only a polish especially recommended for artificial resin enamels should be used. Vehicles treated in that way may always be cleaned without any difficulty because the dirt is never as firmly attached to the wax or oil film as is the case with enamels affected by detergents or weather conditions.

Chromium-Plated Parts

you will clean best with water, finally rubbing them dry with a woollen cloth. If their brightness is getting dull by the time, it is advisable to treat the parts with some polish generally available in the trade.

The Tyres

Please check them regularly and carefully.

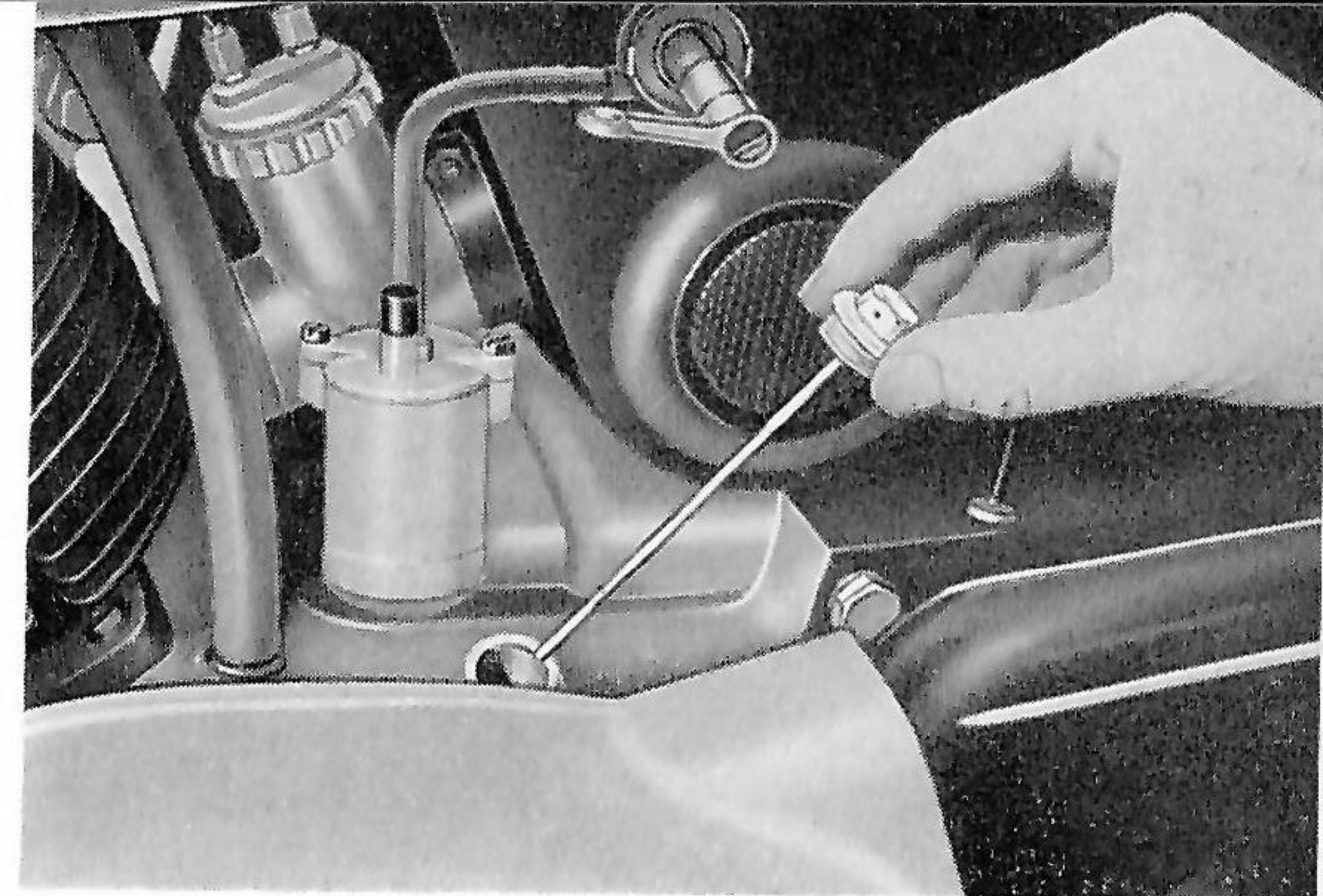
The air-pressure is to be

	solo	pillion
front wheel	1.5 atm. (21 p.s.i.)	1.5 atm. (21 p.s.i.)
rear wheel	1.8 atm. (25 p.s.i.)	2.2 atm. (31 p.s.i.)

Incorrect air-pressure results in

bad position of the vehicle on the road,
non-uniform and premature wearing out of the tyres
(getting cracked, etc.)

It is recommended to interchange the tyres about every 5000 kilometers (3.000 miles). Repaired tyres should only be fitted to the rear wheel. Rubber parts can easily be affected by oil, fat, and heat; therefore, keep tyres in a cool, humid place.



The Oil Filling in the Gearbox

Fig. 12

Please check the oil level in the gearbox regularly and fill when the level is low. For measuring the level, do not screw in the oil dip stick, just insert it. The correct oil level is reached when coinciding with the notch in the stick.

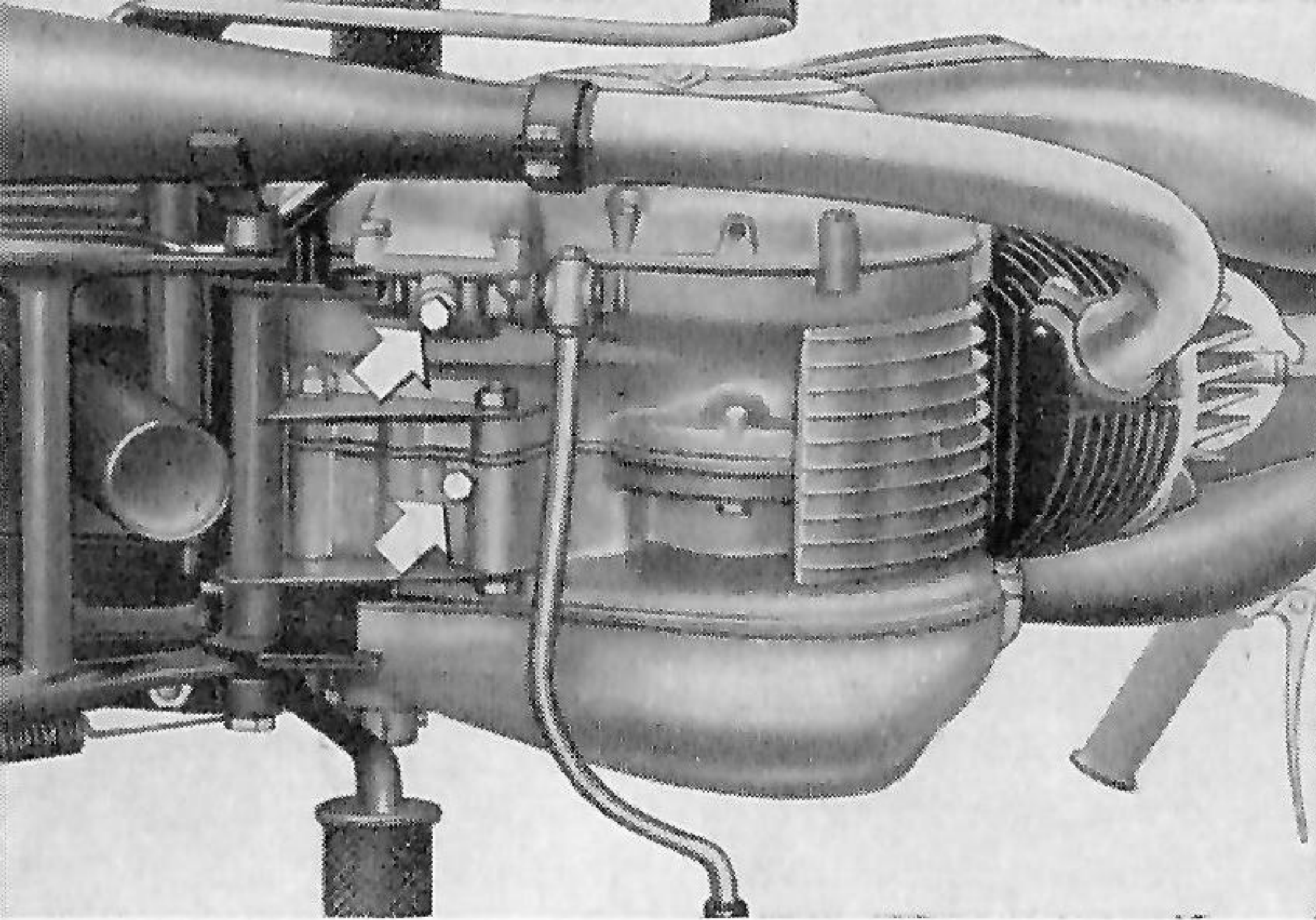


Fig. 13

Under normal conditions oil should be renewed every 10.000 kilometers (6000 miles). For draining off the old oil, remove the two drain plugs. The amount of filling is 650 c.c. (approx. 1 pint), the sort of oil should be adapted to prevailing climatic conditions.

We recommend

in warm weather	SAE 50 oil
in cool weather	SAE 20 oil.

Please remember that after renewing the oil, it has to spread out into the gearbox as well as into the clutch housing, so that the mark at the oil dip stick will show the correct level only after a short run. The two oil drain plugs may be seen from the illustration.

Maintenance of the Chain

should never be neglected. Contrary to the motorcycle with rigid frame and large wheels and a relatively low speed, the chain of a modern vehicle with

regard to the swinging movement and the considerably higher speeds, is subject to a much greater strain. It requires, therefore, not only a precise adjustment of alignment and slackness, but also a most careful observation of our lubricating instructions. The slackness of the chain ought to be with a load of one person of 2 cm ($= \frac{3}{4}$ "'). The alignment may be checked by laying a slat against the tyres.

For re-adjusting the chain, adjust the two chain tighteners uniformly. When the desired adjustment is achieved, tighten again lock nut at chain tightener and wheel axle nut.

The chain must also be regularly lubricated. For this, one of the special chain greases with good adhesive and adequate lubricating properties at relatively high temperatures, will answer the purpose best. (We recommend "Zündapp chain grease" obtainable from our dealers.) At least, every 5000 kilometers (3000 miles) the chain should be removed and washed in petrol or petroleum. After drying up in sawdust, it is to be laid into warm chain

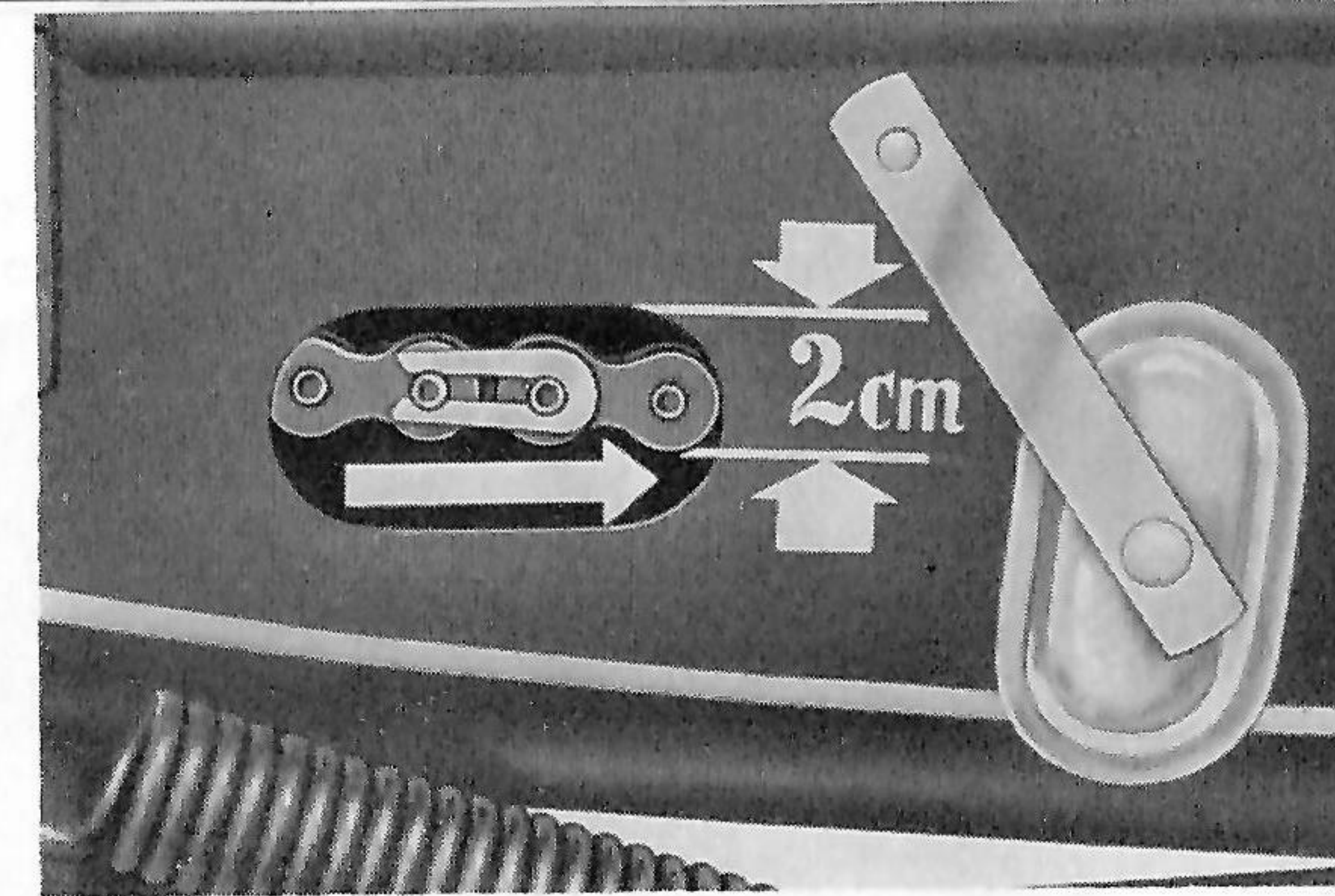


Fig. 14

grease until the grease has found its way between links, pins, and rollers. Before refitting the chain, do not forget to clean the chain sprockets thoroughly. When renewing the chain, the sprockets ought to be replaced at the same time, for worn-out sprockets will ruin the new drive chain in a very short time.

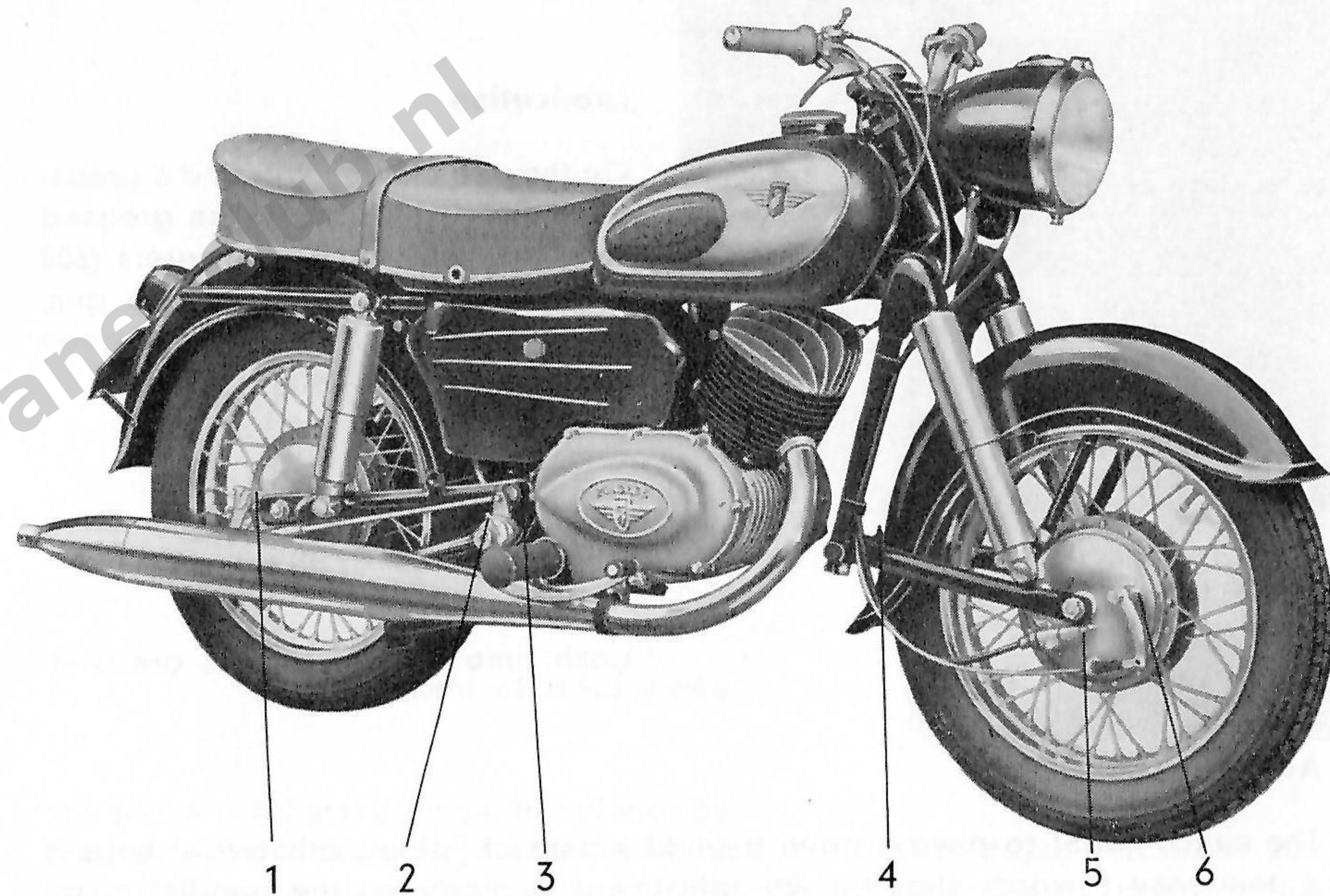


Fig. 15

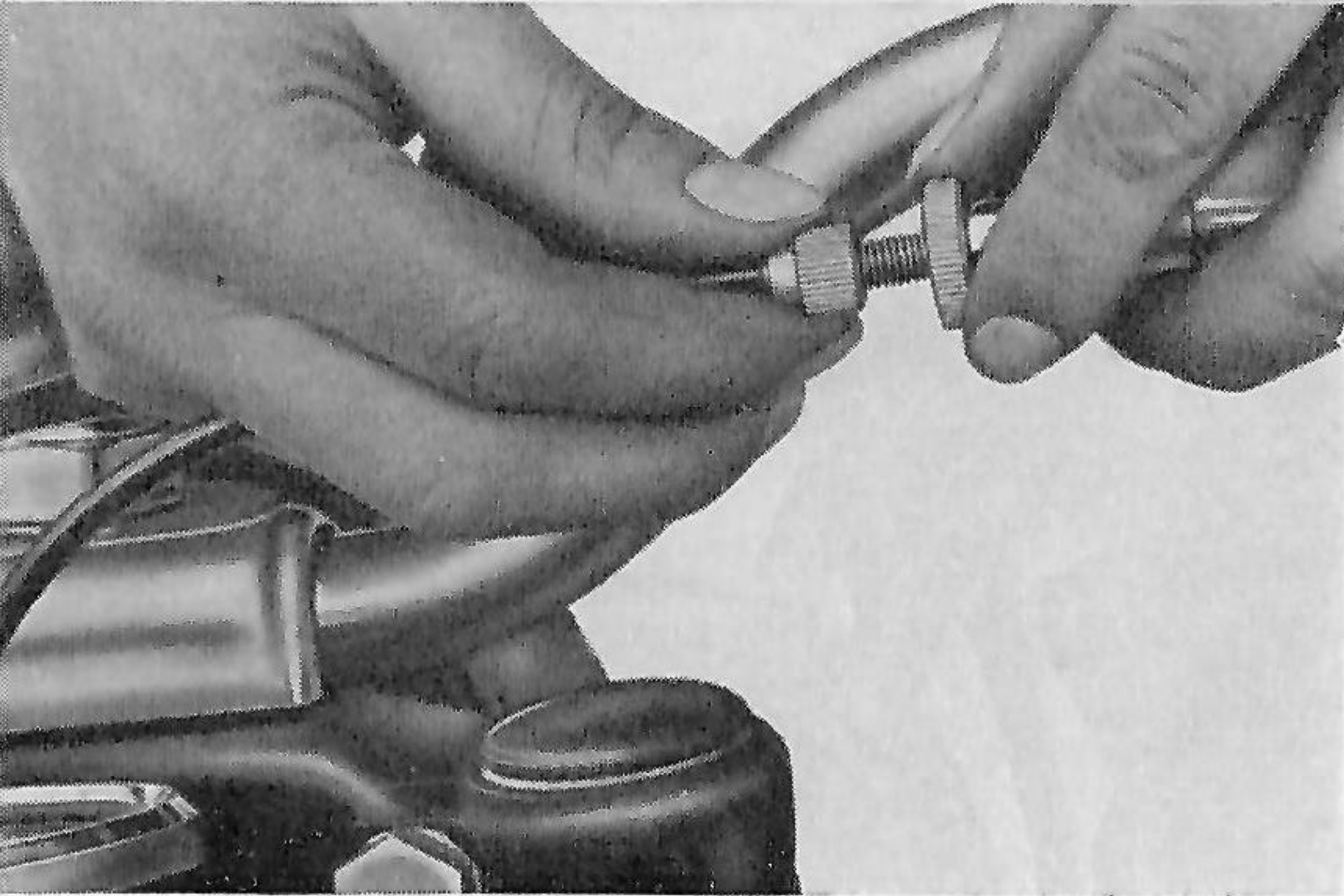


Fig. 16

Lubrication

On the vehicle you will find 6 greasing points which are to be greased regularly every 1000 kilometers (600 miles) by means of a grease gun, after the grease nipples have been cleaned thoroughly.

Do not omit to

Check tightness of all screws and nuts

each time the machine is greased.

Adjustment of Clutch

The clutch ought to always have a small extent of "play", otherwise there is a tendency towards slipping. Re-adjustment is made on the handlebar by means of the knurled-edge screw and the lock nut.

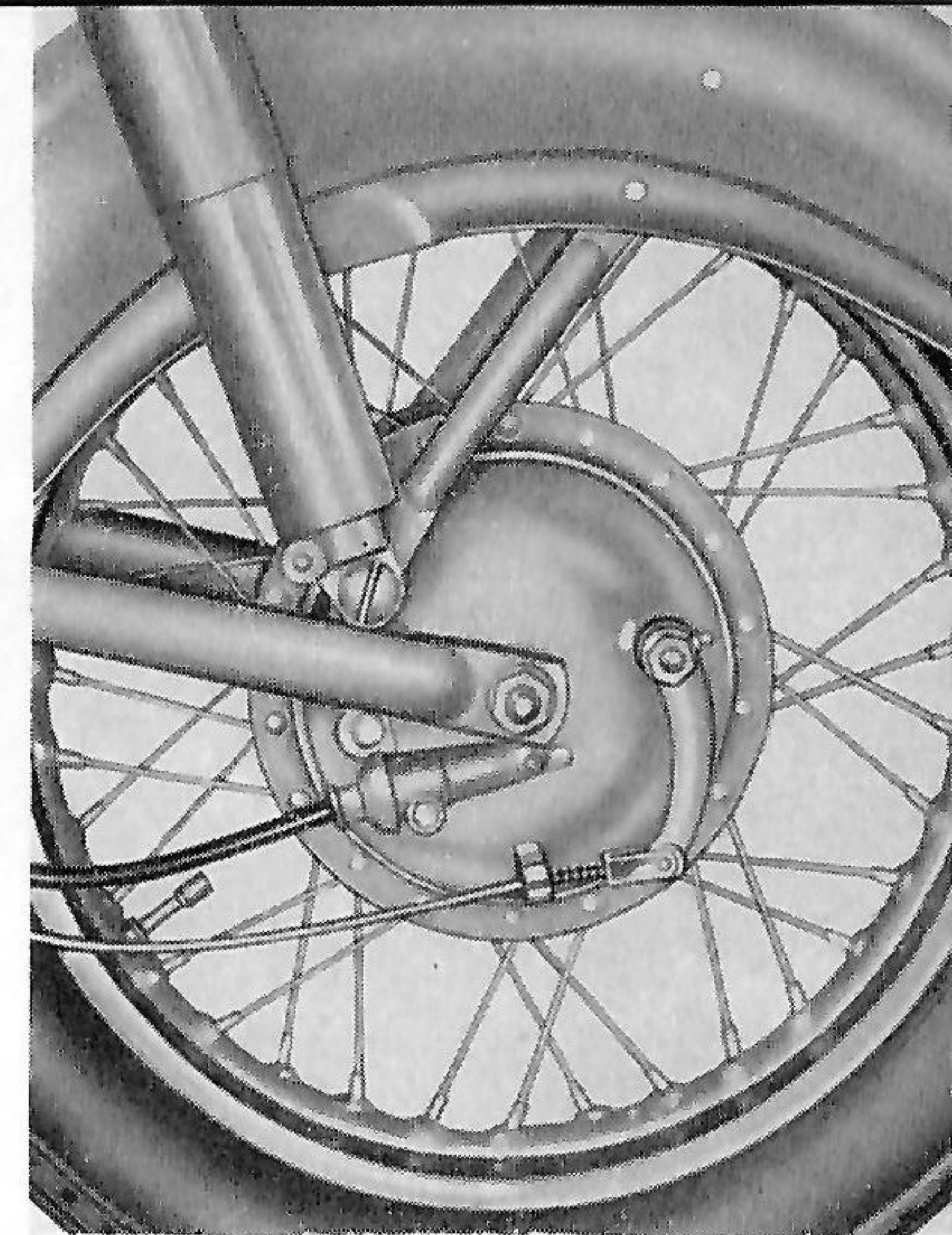


Fig. 17

Adjustment of Front Brake

The brake is adjusted on the handlebar by means of the knurled-edge screw and lock nut. Do not adjust the brake too tightly because otherwise the lining will bind during normal running which may result in locking the brake.

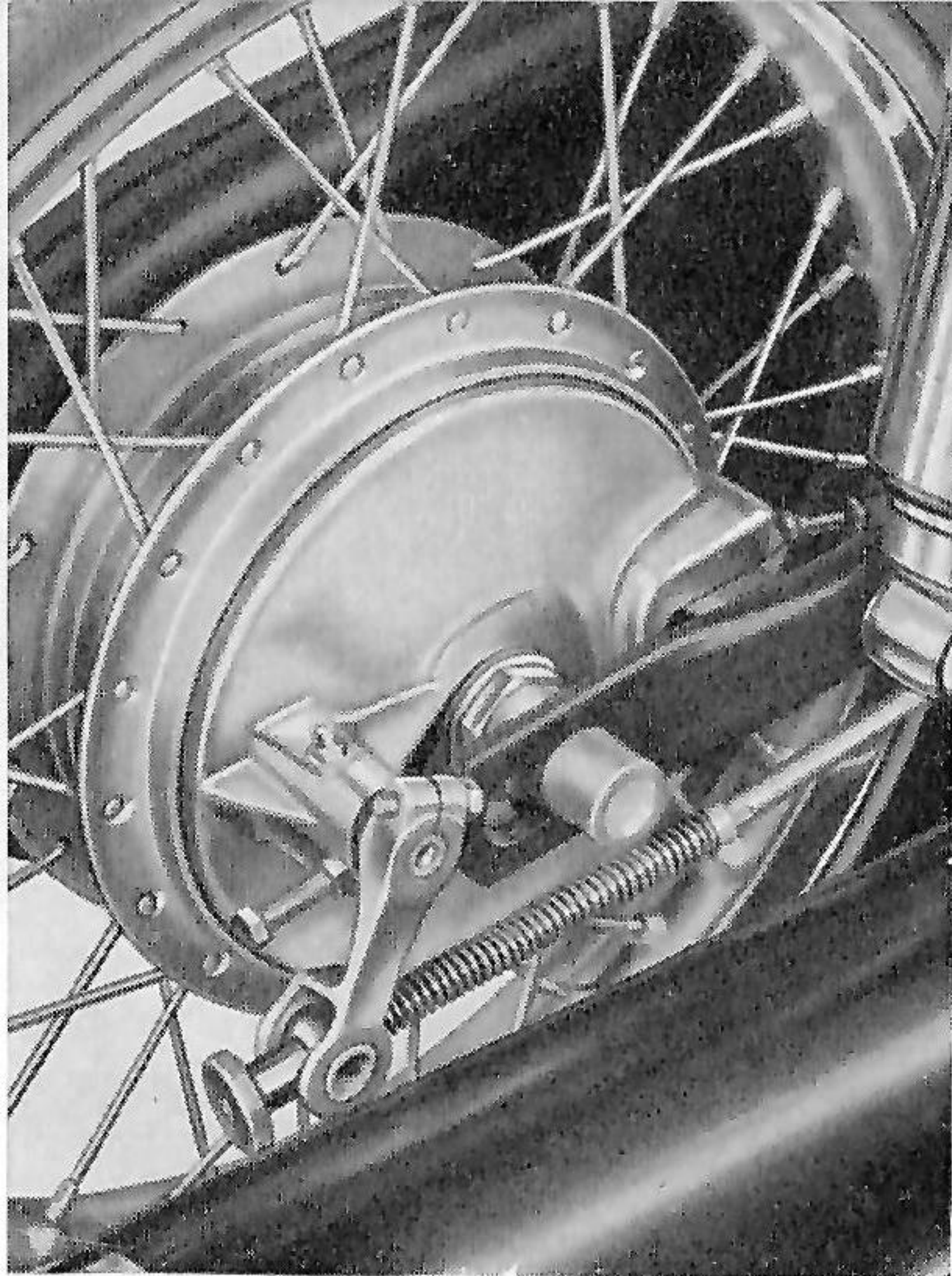


Fig. 18

may be corrected at the rear wheel by turning the knurled-edge nut accordingly. Do not adjust the brake too tightly.

Adjustment of Rear Brake

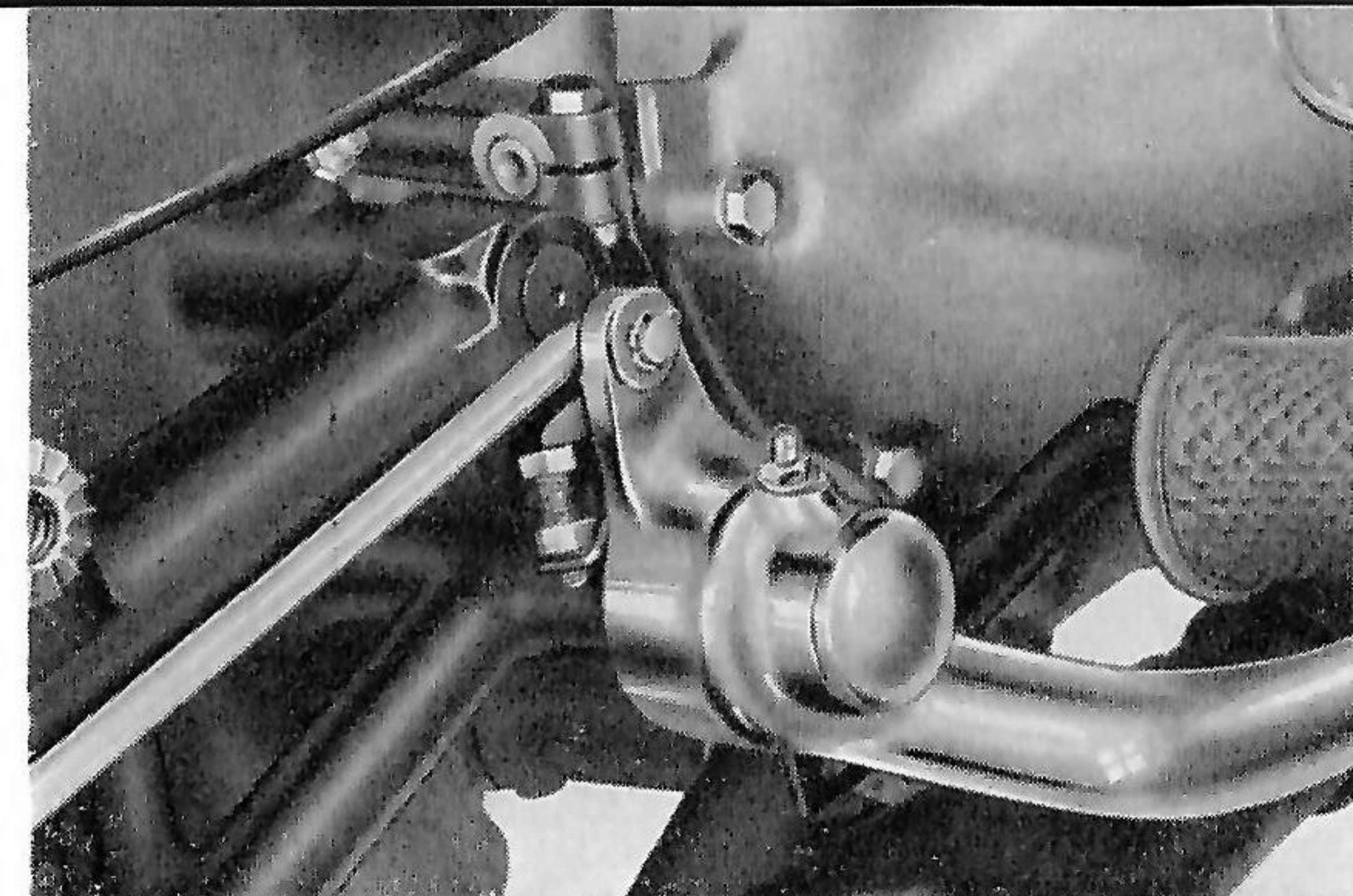


Fig. 19

The position of the foot-brake pedal may be adjusted to the driver's convenience by means of a regulating screw with lock nut.

Adjustment of Foot-Brake Pedal

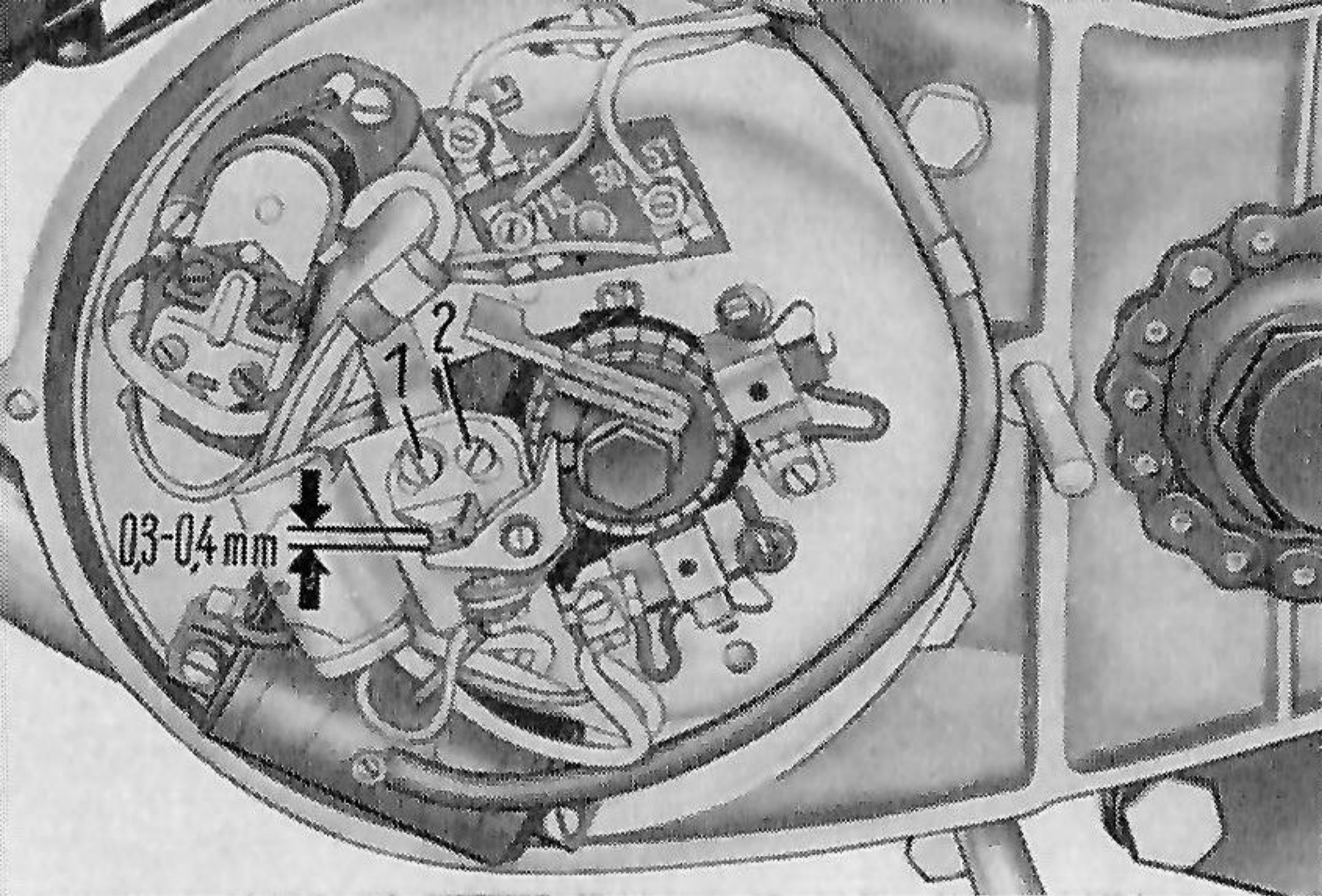


Fig. 20

be greased every 5000 kilometers (3000 miles). The remaining parts of the generator do not require a regular maintenance in that respect.

The Battery

Check the acid level every 1000 kilometers (600 miles). If this level is too low, add some distilled water — but on no account acid —. If the vehicle is left idle for a longer period, it is advisable to remove the battery and to send it for the attention of a specialised workshop every 4 weeks.

During the winter season please pay special attention to the care of the battery. A discharged battery will freeze at -8°C (abt. 15°F) whereas an

The Generator

Check the gap between the contact breaker points every 5000 kilometers (3000 miles). The gap can be adjusted by loosening the holding screw (1) and then turning the eccentric screw (2) until the gap between the two contacts is 0.3-0.4 mm (.011-.015"). Alteration of the gap of 0.1 mm (.004") = 10° difference of ignition timing.

The lubricating felt as well ought to

insufficiently charged battery will freeze at a correspondingly lower temperature.

The Spark Plug

The gap of the electrodes is to be 0.7 mm (.027"). A glance at the so-called "face of the plug" will give you an idea of the state of the engine and of its running condition.

A sooty plug shows: mixture is too rich or engine is not run sufficiently warm.

A burnt plug shows: mixture is too lean, or ignition timing is not correct, or engine needs decarbonising.

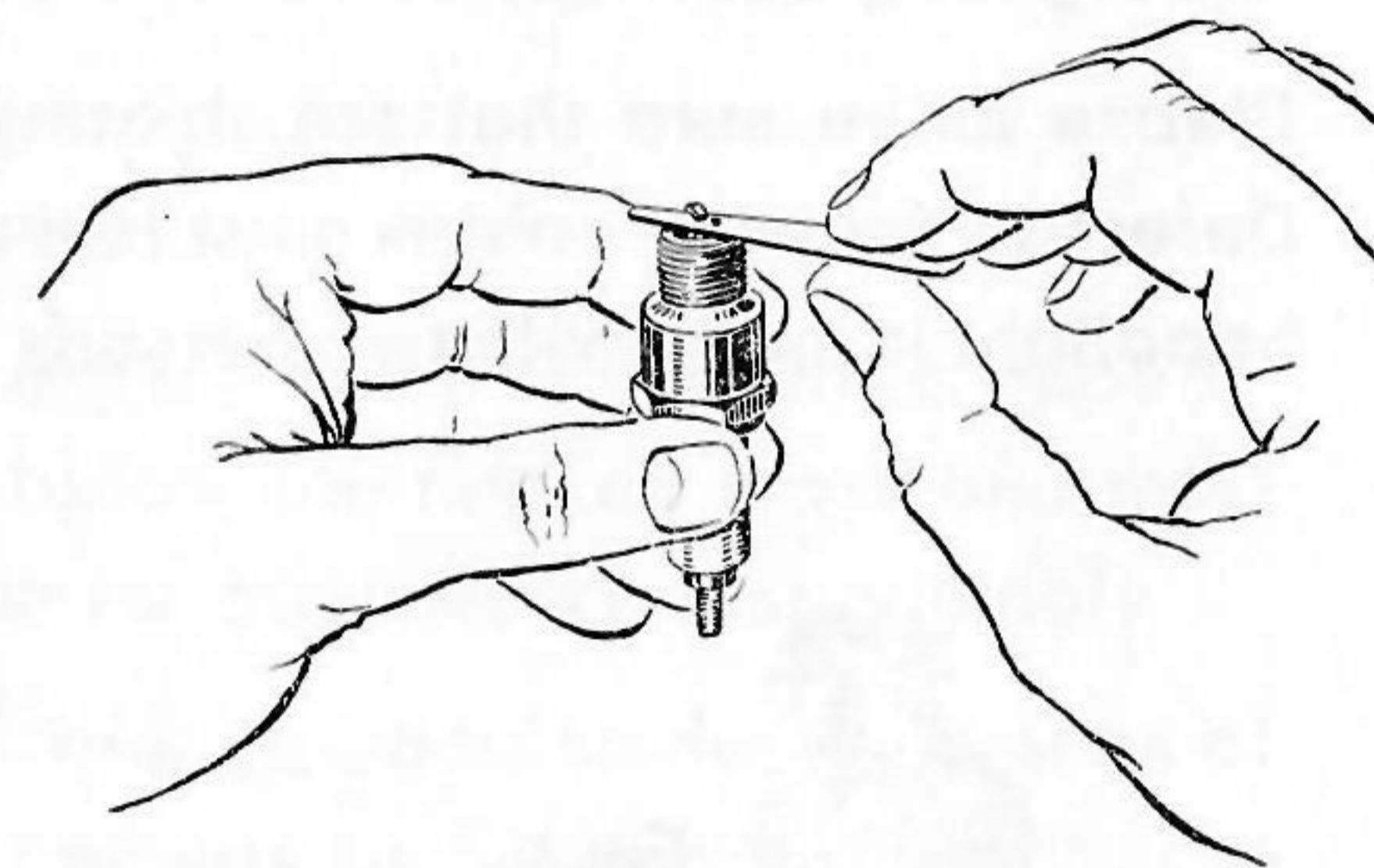


Fig. 21

The Lighting Set

Please make sure that the lighting set meets the regulations of the police. Defective bulbs or cables must immediately be replaced. The adjustment of the headlight is made with two persons on the machine.

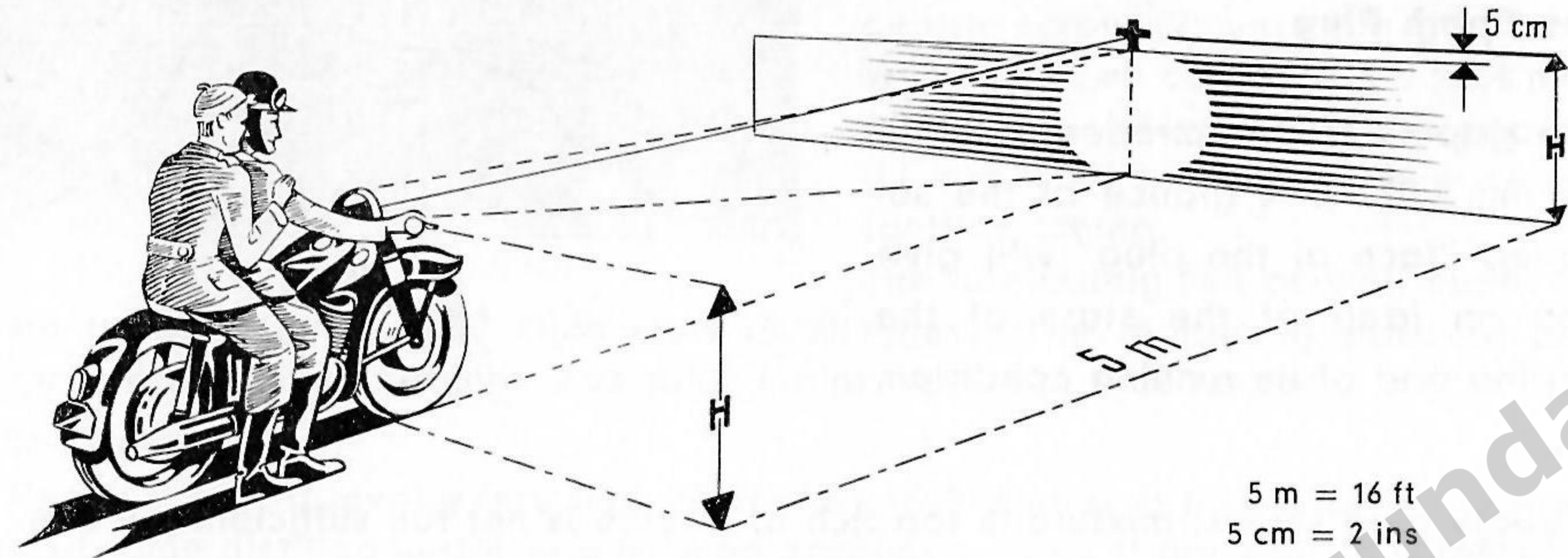


Fig. 22

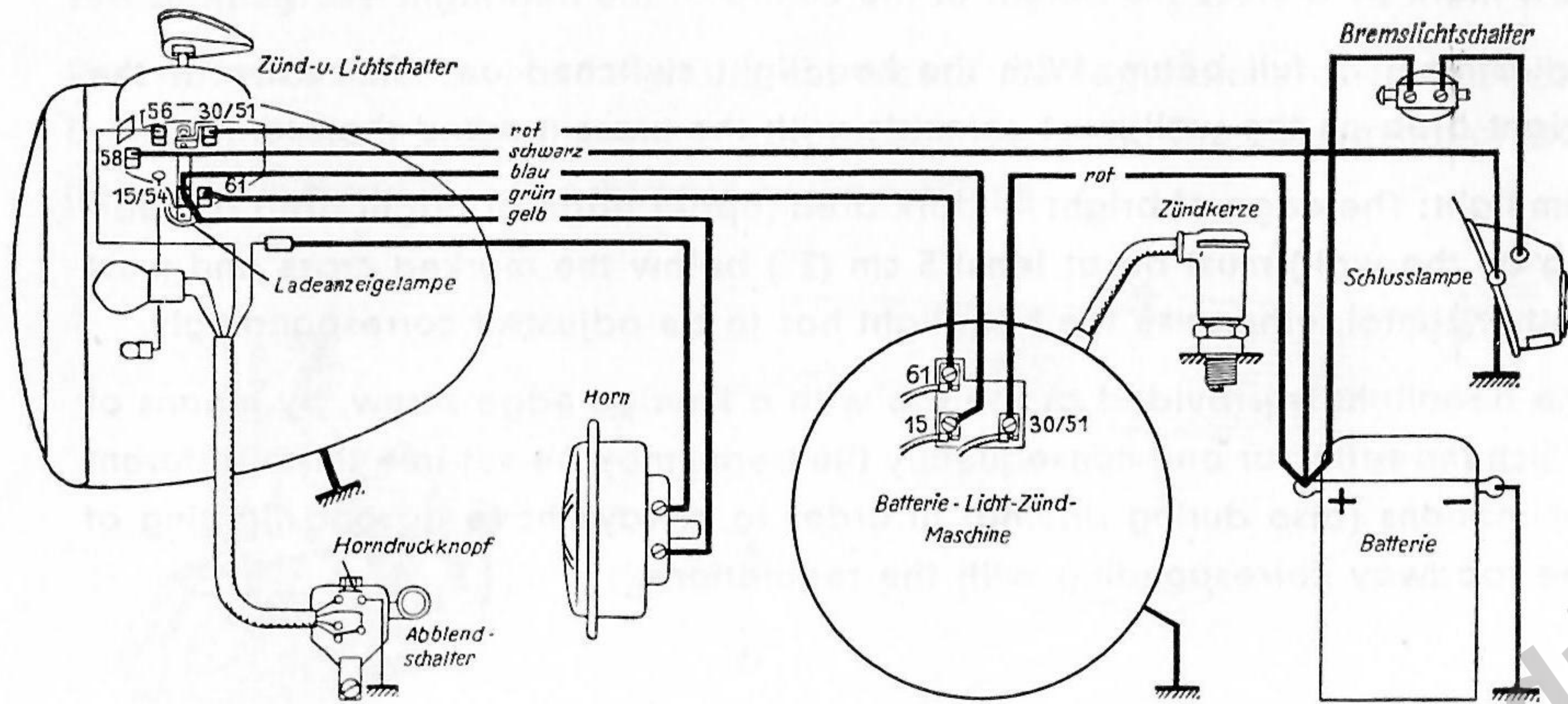
Locate your motorcycle on a level place vertical to a wall at 5 m (= 16 ft) distance. As remarked above, two persons are on the machine.

Now mark by a cross the height of the centre of the headlight — "H".

Adjustment of full beam: With the headlight switched on, the centre of the bright area on the wall must coincide with the cross marked thereto.

Dim light: The edge of bright — dark area (upper edge of bright area appearing on the wall) must be at least 5 cm (2") below the marked cross and must be horizontal, otherwise the headlight has to be adjusted correspondingly.

The headlight is provided at the top with a knurled-edge screw, by means of which the reflector and consequently the beam may be set into three different inclinations (also during driving) in order to always have a good lighting of the roadway corresponding with the regulations.



Wiring diagram of electrical set

Fig. 23

- Zündlichtschalter = ignition-lighting switch (electro switch)
 rot = red
 schwarz = black
 blau = blue
 grün = green
 gelb = yellow
 Horn = horn
 Horndruckknopf = horn button
 Abblendschalter = dim switch
 Ladeanzeigelampe = charge control light
 Bremslichtschalter = brakelight switch
 Schlußlampe = taillight
 Zündkerze = spark plug
 Batterie-Licht-Zünd-Maschine = battery-lighting-ignition generator
 Batterie = battery

**Measures to be taken to protect the machine and two-stroke engine
when not in use for a longer period:**

The following measures will protect the machine as well as the frame against corrosion and will guarantee your vehicle ready for use the moment you want it. It will answer the purpose to do this work in the following order:

1. Run the engine for some 15—25 km (10—15 miles), until the engine is really warm.
2. Remove the carburettor and whilst the starter is being depressed with the ignition switched off, let the engine suck in 50 c.c. of anticorrosion oil through the intake port.
3. Clean carburettor, air cleaner, and fuel pipes, and refit them. The throttle twist grip remains closed when the machine is not in use.
4. Change oil in gearbox.
5. Remove drive chain. In order to facilitate refitting, couple up a length of an old chain to the chain, let the former hang on the gear sprocket so that later on you may easily connect and draw into place the conserved chain. Do not forget to clean and grease the removed original chain in accordance with the Operations Instructions.

6. Dismount battery, store it in a dry place protected from frost and send it for the attention of a specialised workshop every 4-6 weeks (do not empty the battery).
7. Clean all parts of engine and frame stained with oil, using a brush and petroleum.
8. Wash frame and engine with some cleaning material (appropriate materials are available in the trade; please observe directions for use carefully), but do not squirt. Then dry with sponge and leather.
9. Remove generator cap and let it dry. Rub the interior of the generator in order to dry it as well.
10. Smear all chromed parts with acid-proof vaseline.
11. Spray the whole machine with an atomizer (appropriate spraying oils are available in the trade).
12. Lubricate all greasing points in accordance with the lubrication diagram.
13. Prop the machine on its stand in a dry place in the manner that the two tyres do not touch the ground.
14. Reduce air-pressure of tyres to 1 atm. (14 p.s.i.).
15. Cover the machine completely in order to protect it from dust.

Survey of Maintenance Works

Every	Maintenance Work	Remarks	Further Details see page
500 km (300 miles)	chain "small" maintenance work	"Zündapp" chain grease	44
1000 km (600 miles)	retighten all screws and nuts lubricate vehicle grease pivots of all foot and hand levers check battery	Mobilcompound No. 4	48
			48
		some drops of motor oil	—
			52
5000 km (3000 miles)	grease bearings of front and rear pivoted fork clean air filter dipping it with oil check contact breaker gap clean spark plug and check gap chain "large" maintenance work interchange tyres	Shell-Retinax G	—
			32
			52
			53
		"Zündapp" chain grease	44
			42
10 000 km (6000 miles)	change oil in gearbox	Mobil Oil SAE 20-50	43
20 000 km (12000 miles)	fill wheel hubs with grease	Mobilcompound No. 4	—

Maintenance work may be carried out by yourself if you like. The following works, however, should be done by an experienced Zündapp dealer and workshop:

All work on the engine

Repairs to the braking system,

front pivoted fork

frame and rear pivot arm suspension

Decarbonising the engine and cleaning the exhaust set

Repairing damages caused by accidents.

However, for repair works on the generator, NORIS dealers are competent.

A Number of Tips

have been compiled in order to help you to carry out the respective work in the easiest and quickest manner.

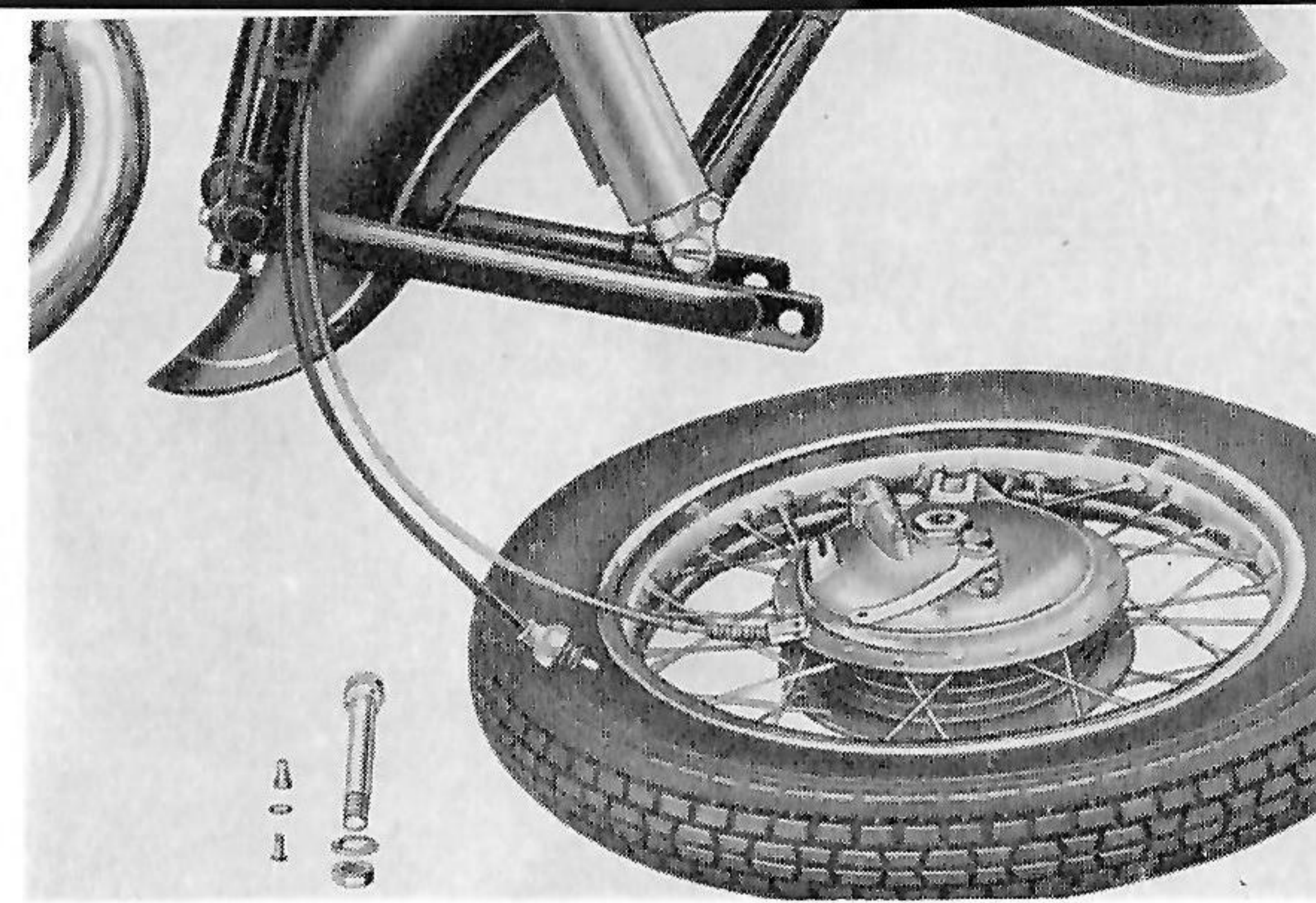


Fig. 24

Dismounting Front Wheel

1. Prop vehicle on its central stand
2. Disconnect brake cable
3. Loosen speedometer drive cable
4. Loosen axle nut, push out hub spindle, until the wheel falls out downwards.

Refitting is done in reversed order.

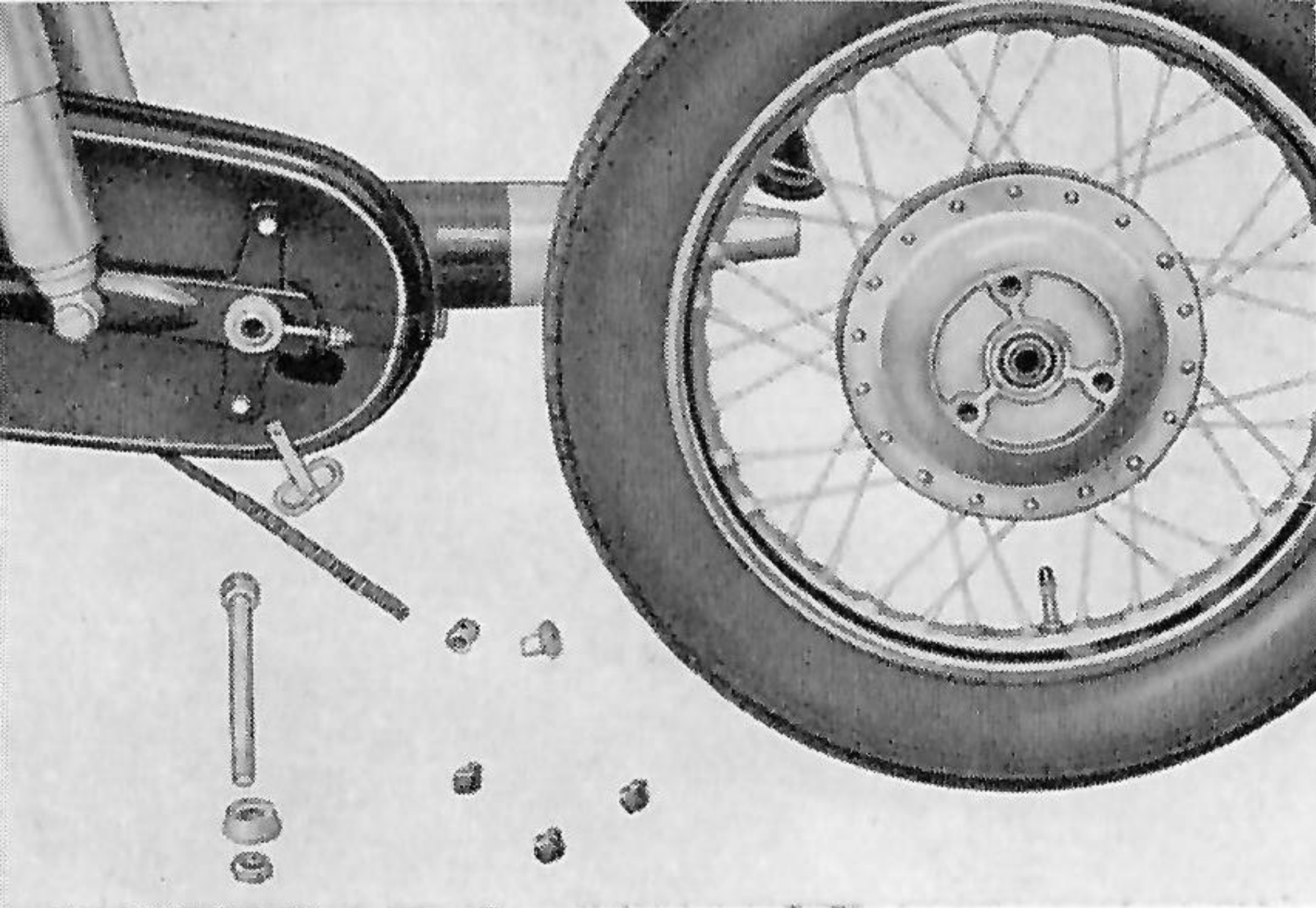


Fig. 25

1. Prop vehicle on its center stand
2. Remove 3 wheel fixing bolts
3. Loosen axle nut as well as connecting piece between brake lever and linkage
4. Push out hub spindle.

Refitting is done in reversed order.

Dismounting Rear Wheel

Dismounting Tyres

is really easy and may be carried out without using force if you proceed as follows:

1. If there is any air still left in the tyre, let it out by removing the valve cap, then
2. take out the valve
3. detach valve retaining nut
4. press the tyre with your feet at one side into the rim-bed, whilst taking it out at the opposite side by means of tyre levers.



Fig. 26

Tyres must not be taken off by using force or sharp tools as otherwise the wire or the tube may be damaged.

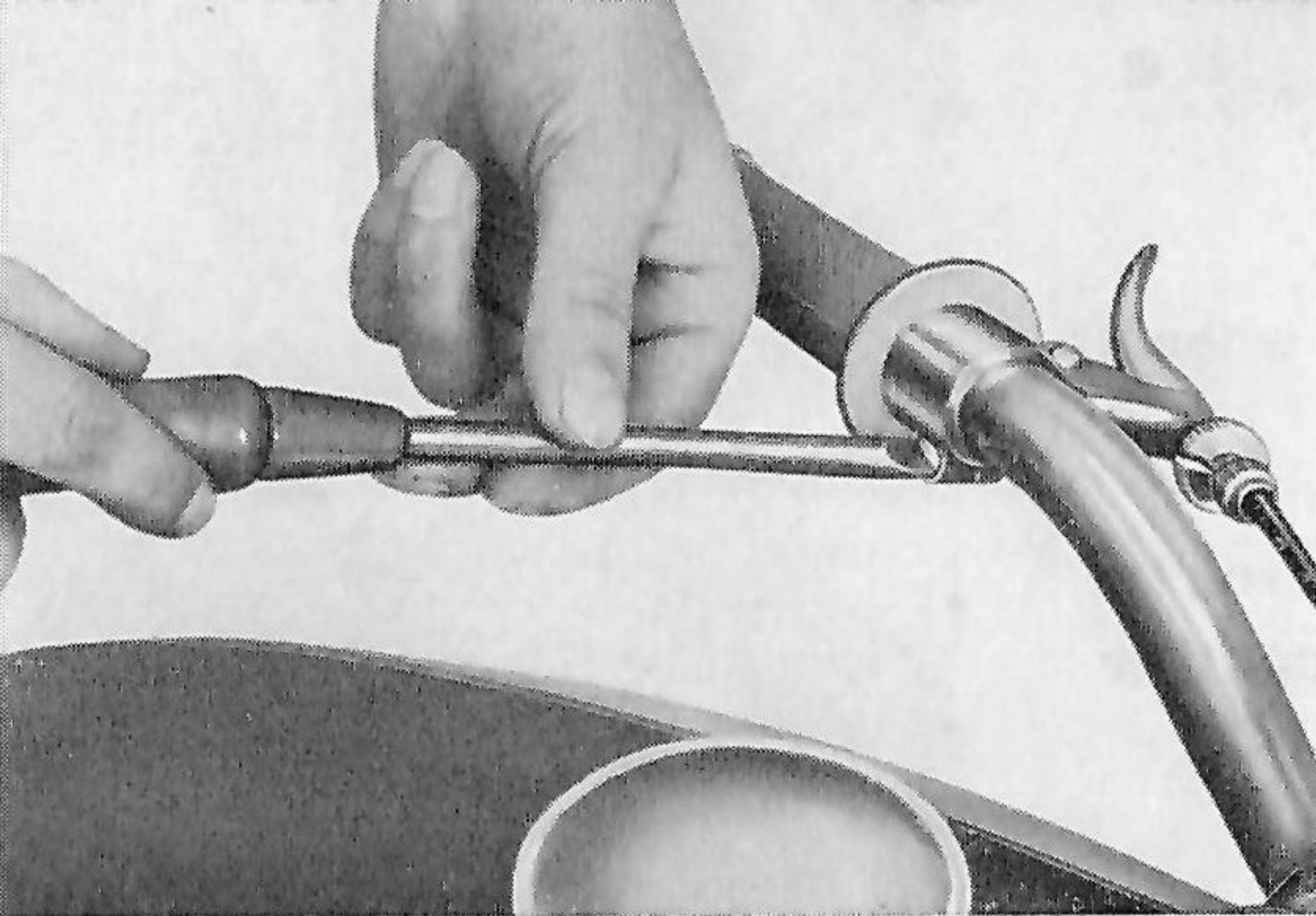


Fig. 27

Hand Control Adjustment

The position of the hand controls for operation (clutch and hand-brake levers) may also be adapted to your own requirements. For this purpose you only need loosen the fixing screw, turn the lever into the desired position, and tighten the screw again.

Adjustment of Throttle Twist Grip

By loosening or tightening the small screw at the grip, the pressure of a laminated spring may be regulated to the effect that the throttle twist grip will turn either easier or harder.

These Small Parts

you should always carry with you in addition to the usual tools:

- spare spark plug
- spare bulbs
- insulating tape
- chain grease.

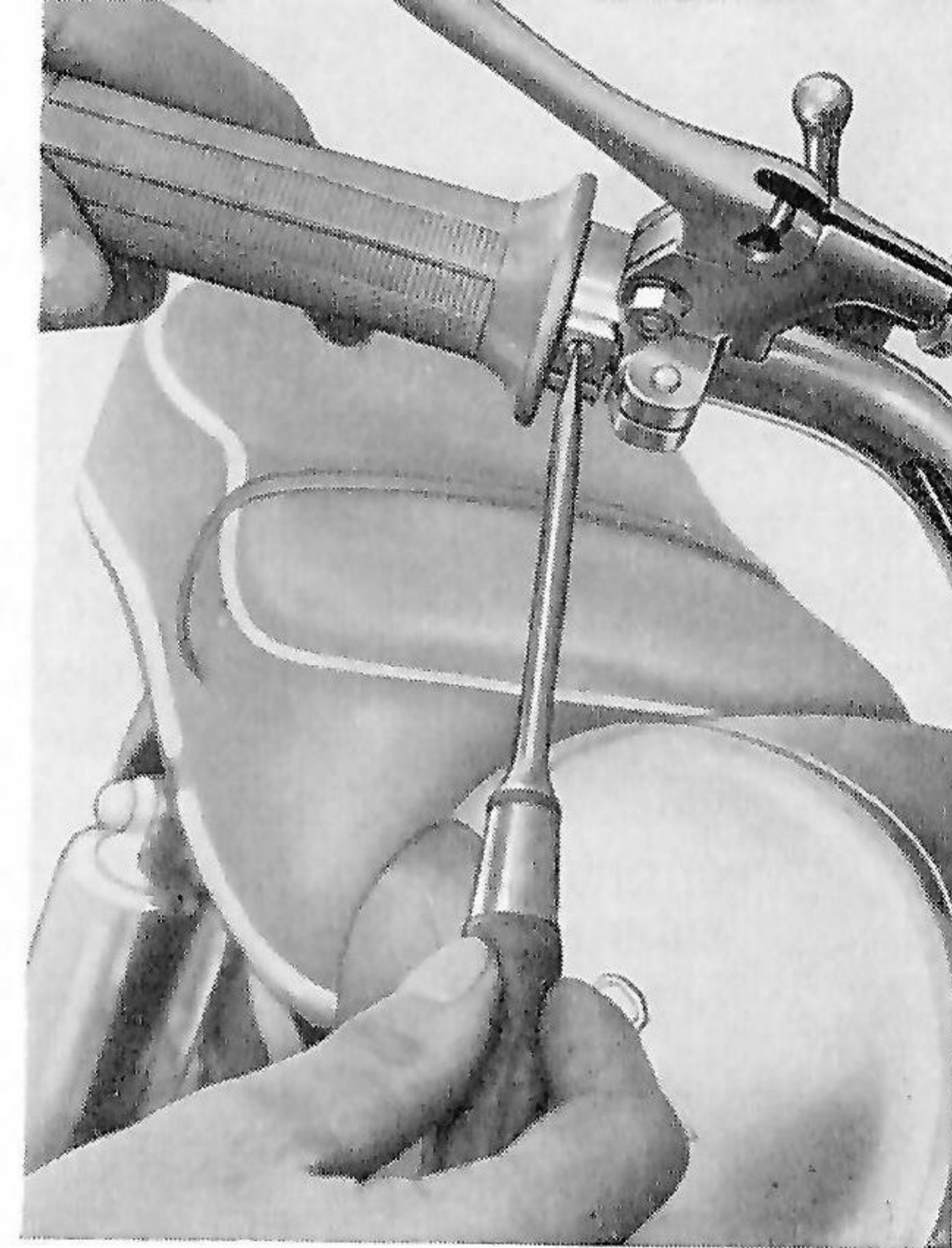


Fig. 28

For larger tours abroad we would recommend you to take with you additionally the most important spare parts (chain, ignition coil, etc.) according to the conditions existing in the country of your travel.

Obviously the engine of your "201 S" cannot be expected to start if you have forgotten to insert the ignition key or to open the fuel tap. More than once really experienced motorcyclists dismantled half of the machine because they only omitted to put the fuel tap to reserve. Perhaps you may drive your motorcycle thousands of kilometers (or miles) without having any trouble. Then, suddenly something is wrong with the engine or the frame. In this case the first thing to do is to light a cigarette a few paces distant from your vehicle — then think over what it might be — and proceed systematically, more or less in the following order:

If the trouble is in the engine, first determine whether the defect is in the ignition set or in the fuel set. That is to say:

Screw out the sparking plug. Lay another plug known to be in a perfect state on a part of the machine affording a good earth (e.g. cylinder fin, etc.). Now switch on the ignition, depressing the kickstarter. If sparks keep jumping, the trouble is to be found, in all probability, in the fuel feed system.

Troubles in the Fuel Feed System

The tank breather is blocked, so that petrol cannot flow to the carburettor.

Remedy: exchange cap or drill a small hole in the old cap (max. dia. 2 mm = .078").

Fuel tap blocked

Remedy: Clean — when removing the tap place some vessel underneath so that petrol cannot be lost.

Fuel pipes dirty

Remedy: Clean — do not forget to close fuel tap first.

Carburettor fails to work properly

Remedy: remove and dismount, wash out with petrol, blow out with compressed air (air-pump if nothing else available). Now assemble again, adjusting the carburettor according to the instructions (see technical details).

It may happen that in spite of the perfect condition of the ignition and fuel systems, the engine fails to start because of excessive pressing of the tickler or by excessive operating of the kickstarter; the engine is over-choked.

Remedy: Remove sparking plug, close throttle twist grip, open air-lever, switch off the ignition — then kick the engine several times. After that, start engine as usual, (In exceptionally bad cases it is necessary to loosen the hexagonal nut of the stud in the crankcase under the crankshaft in order that the fuel collected in the crankcase can escape into the open air).

Troubles in the Ignition System

Battery is not charged sufficiently, control light burns only weakly and flickers at starting

Remedy: Start machine by pushing it in 2nd speed gear. Check battery as soon as possible and have it charged up with a charging plant.

Starting the engine without battery

A battery almost discharged or defective, will make starting difficult. In this case it is best to shut off the battery by disconnecting the wire from the negative pole of the battery to the earth terminal on the machine. When the battery is missing or disconnected, the motorcycle has to be started by pushing it. Pushing can be made easier if the terminals No. 30 and No. 61 of the generator are

connected by means of a piece of copper wire. The cables already connected to these terminals must, however, be left in place. After replacing the battery, the piece of wire has naturally to be removed.

Cables to the battery are not making perfect contact (control light does not appear).

Remedy: Clean the battery poles and cable shoes, check the earth connection from battery to engine.

Electro switch defective (control light does not appear). Only your Zündapp-dealer should carry out repairs on the electro switch.

Generator defective. Only your Zündapp-dealer resp. a NORIS agent should carry out repairs on a generator.

Other Troubles

Engine does not start easily

With cold engine:

Turn idle air adjusting screw further in (in winter as well). The engine is getting extra air, your Zündapp dealer will remedy this trouble.

With warm engine:

Turn idle air adjusting screw further out (in summer more air is required for idling).

Seat of float needle is not tight; clean and if necessary fit new needle and cover.

Engine runs irregularly

Spark plug defective, check plug gap; engine not warm enough, run a short distance with maximum revolutions. Mixture too rich of oil, empty tank and refill with 1:25 oil-fuel mixture. Carburettor adjusted to give not sufficient air, turn idle air adjusting screw further outwards.

Performance of engine drops

Engine not adjusted in accordance with the instructions. Have ignition and carburettor adjusted by the dealer. Engine and exhaust system carboned up, have it decarbonised. Engine leaky, have it sealed in your workshop. Piston rings sticking, have your dealer put this right. Piston and cylinder worn out, have cylinder rebored and new piston fitted.

Engine "pinks"

Machine not driven in the correct manner, change down to a lower speed gear in time; ignition adjusted too advanced and carburettor to give too lean mixture. Incorrect sparking plug, mind that plug has correct thermal value. Unsuitable petrol (octane rating too low). Compression chamber has got too small due to carbon deposits. Engine running too hot due to obstructed ports.

Effect of brakes insufficient

Brake linings covered with grease, wash with petrol, check sealing, if necessary renew them. If brake linings worn out, renew them.

Excessive wear of chain

Not correctly adjusted, insufficiently maintained. Adjust and maintain it in accordance with the instructions.

Tyre wear one-sided

Incorrect air-pressure. When the centre of the tyre tread is excessively worn, this shows that the air-pressure is too high. On the other hand, excessive wear on both outside edges of the tyre shows that the air-pressure is too low.

Poor road holding qualities

Check and correct tyre-pressures.

Motorcycle has a sideward trend

Adjust wheel alignment using a testing slat.

Preface	3
Data of the vehicle	6
Technical data	7
Engine	7
Chassis	9
Vehicle	10
Quantities of fuel and oil	11
Important points at the delivery of the vehicle	13
List of maintenance works	15
The first ride	17
Starting up	18
Starting off	19
Gearshifting	20
Driving	22
Fuel consumption	23

www.zundappveteranenclub.nl

Coming to a stop	25
Stopping the engine	25
Engine	27
Type of operation	27
Drive mechanism	28
Carburettor	29
Air cleaner	32
The cylinder head	33
The spark plug	33
The cylinder	33
The piston	33
Gudgeon pin	34
Connecting Rod	34
Crankshaft	34
Flywheel	34
Primary chain	34
Clutch	34
The gearbox	35
The drive	36
The generator	36

Chassis	37
The frame unit	37
Front pivoted fork	37
Rear wheel suspension	37
The wheels	38
The fuel tank	38
The battery	38
The headlight	39
Tools	39
Regular maintenance	40
Cleaning	40
Chromium-plated parts	41
The tyres	42
The oil filling in the gearbox	43
Maintenance of the chain	44
Lubrication	48
Check tightness of all screws and nuts	48
Adjustment of clutch	48
Adjustment of front brake	49
Adjustment of rear brake	50

Adjustment of foot-brake pedal	51
The generator	52
The battery	52
The spark plug	53
The lighting set	54
Measures to be taken to protect the machine and two-stroke engine, when not in use for a longer period	58
Survey of maintenance works	60
A number of tips	63
Dismounting front wheel	63
Dismounting rear wheel	64
Dismounting tyres	65
Hand control adjustment	65
Adjustment of throttle twist grip	67
These small parts	67
Troubles and remedies	69
Troubles in the fuel feed system	70
Troubles in the ignition system	71
Other troubles	72

www.zundappveteranenclub.nl

ZÜNDAPP



www.zundappveteranenclub.nl