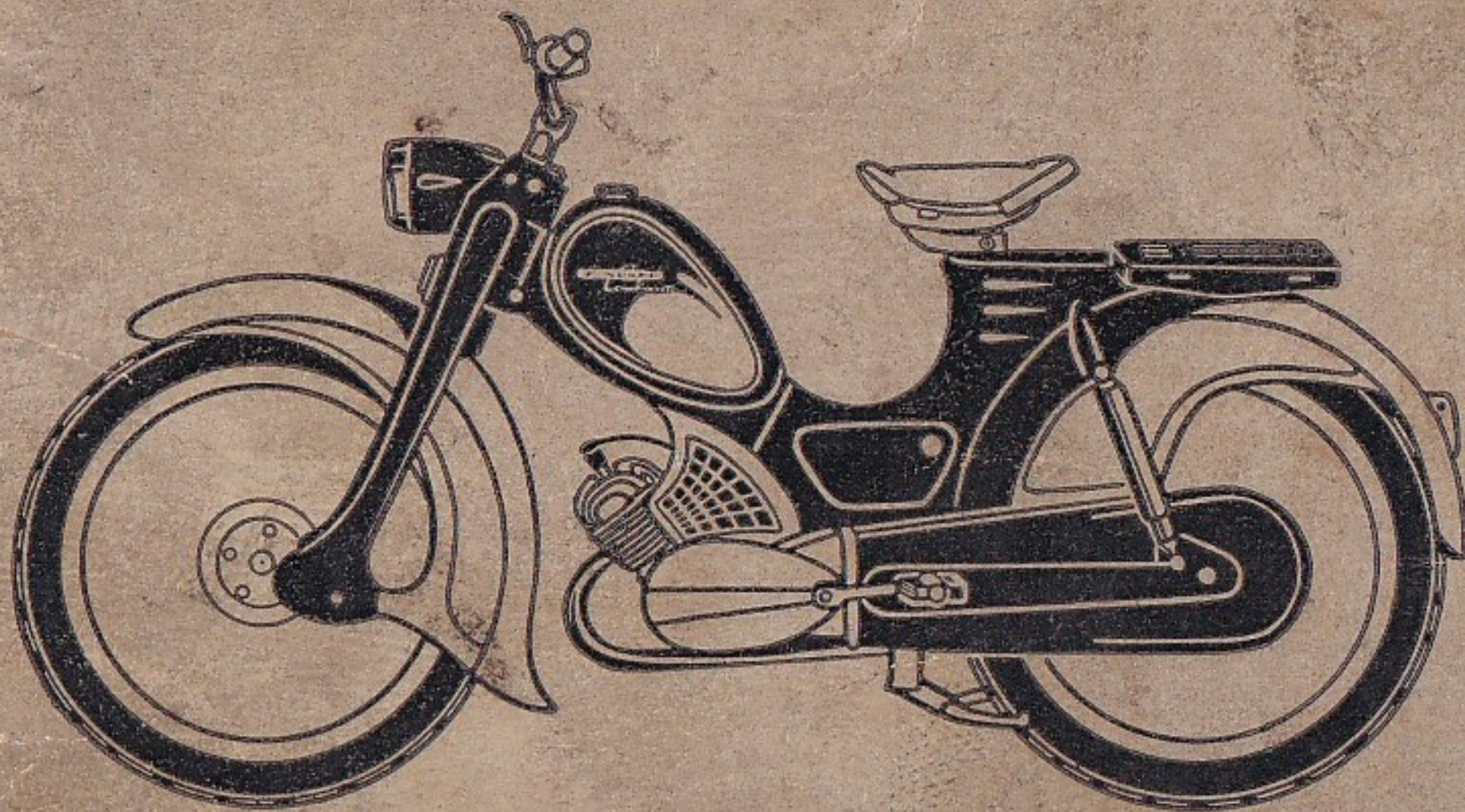


ZUNDAPP

Combinette

Type 428



OPERATING AND SERVICE MANUAL

ZÜNDAPP COMBINETTE

Recommended Lubricants

Mix Oil with Petrol in ratio of 1 : 25 unless otherwise shown.

	SHELL	BP	ESSO	WAKEFIELD	MOBIL
ENGINE	Shell 2T Mixture or Shell 2T Two Stroke Oil	BP-Zoom or Energol Two Stroke Oil	Esso Two Stroke Motor Oil (1 : 16) or Essolube 30	Castrol Two- Stroke Oil (1 : 16) or Castrol XL	MobilMix TT (1 : 16) or Mobiloil A
TRANSMISSION	Shell X-100 30	Energol SAE 30	Essolube 30	Castrol XL	Mobiloil A
WHEEL BEARINGS	Retinax A	Energrease L2	Esso Multi-Purpose Grease H	Castrolase LM	Mobilgrease MP
CHAIN	Retinax A	Energrease L2	Esso Fluid Grease	Castrolase Graphited	Mobilgrease Graphited No. 3
ALL OILING POINTS	Shell X-100 30	Energol SAE 30	Esso	Castrol XL	Mobiloil A

Concessionaires : Messrs. AMBASSADOR MOTOR CYCLES LTD.,
PONTIAC WORKS · FERNBANK ROAD · ASCOT · BERKS

Welcome to the Ranks of ZÜNDAPP Owners

Your ZÜNDAPP-Combinette, available in different models, is easy to ride and maintain. Your local distributor will have demonstrated all the special features of this high-class machine and shown you how to handle it. This manual gives you a summary of riding instructions, as well as hints on maintenance and fault-finding as a permanent record to which you can refer at your leisure.

Our advice is to study the manual carefully **before** you take your machine on the road for the first time.

Your ZÜNDAPP dealer and our works are at your disposal at all times for advice and information.

Happy motoring.

ZÜNDAPP-WERKE GMBH
Munich - Germany
Anzinger Strasse 1-3

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Technical Specifications

Engine:

Model Code	265
Cubic capacity	50 cc
Bore/Stroke in mm	39/41.8
Compression ratio	1 : 7
Rated capacity	
in h. p.	2.6 at 6.000 r. p. m.
Type	2-stroke
Gear lubrication	Branded gear oil of SAE 80 grade
Gear oil quantity	approx. 350 cc
Fuel	Petrol mixture, ratio 25 : 1
Type of oil in	
mixture	Branded 2-stroke oil or engine oil, SAE 30-40
Average fuel	
consumption	approx. 280 m. p. g.
Carburettor	Bing 1/14/56
Main jet	60
Needle jet	2.17
Needle setting	2 nd notch from top
Exhaust	side-mounted
Electrical	
Equipment:	Bosch flywheel magneto generator, 6 V, 17 W
Ignition timing	1.8 mm before top dead centre
Sparking plug	Bosch W 240 T 11 S Beru 240/14 u 3 S
Sparking plug gap	0.7 mm (0.03")
Headlight bulb	6 V, 15 W
Rear light bulb	6 V, 2 W
Clutch	3-disc oilbath type
Gears	Driving-key type gearing with 2 speeds and neutral
Drive	Link chain, 1/2" x 3/16"

Frame:

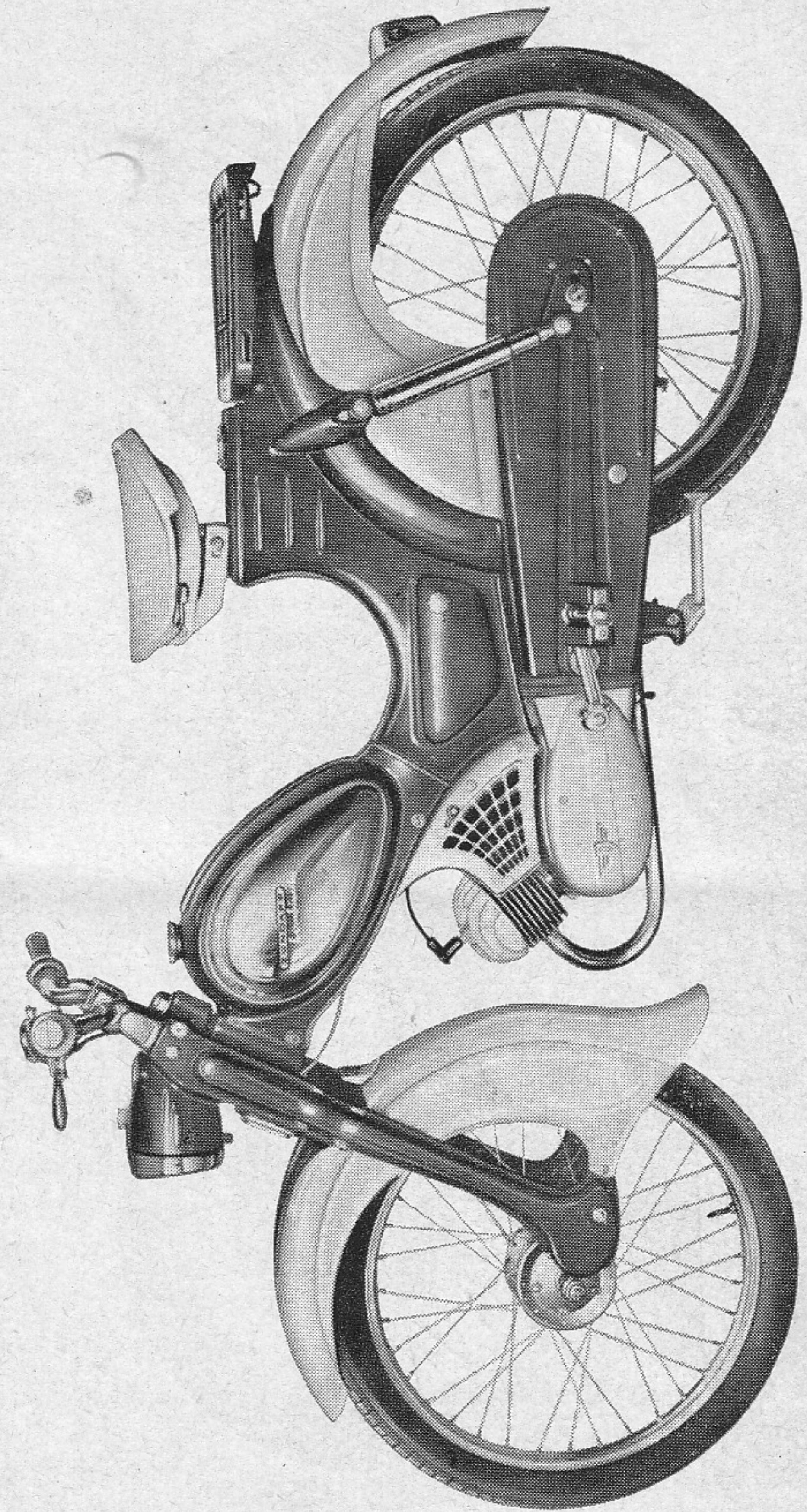
- Colour Golf blue — alabaster grey
Derby red — alabaster grey
Sahara yellow — alabaster grey
- Suspension Leading-link front fork employing coil springs, adjustable for load; Swinging rear suspension, controlled by twin telescopic dampers and elastic stops, one pair of fork legs
- Brakes Full-hub internal expanding, 3½" dia. on front and rear wheel 23"
- Tyres 23 x 2.25", with Schrader valves
- Tyre pressure 18 lb/sq. in. front 26.5 rear, for a load of approx 165 lb.
- Tank capacity approx. 1½ gal, of which 2 pints in reserve
- Controls Twist-grip throttle, clutch lever and gear change with adjustment screw, brake lever

Dimensions:

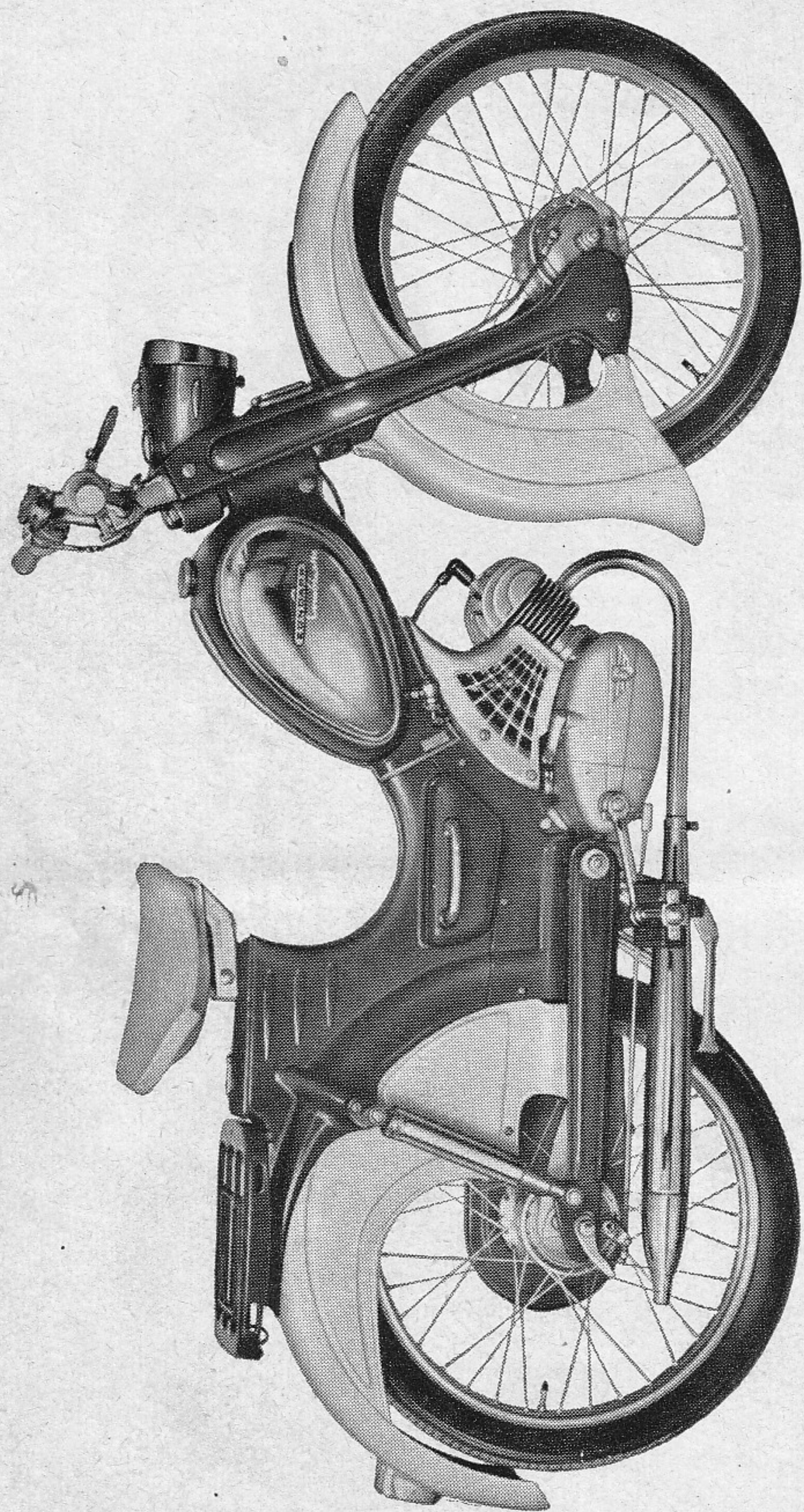
- Net weight approx. 118 lb.
- Wheel base 4"
- Length 6"1"
- Width 1"10"
- Height 3"2"
- Seat height, adjustable from 2"9" to
- Permissible all-up weight 320 lbs.

Designs, text and illustrations subject to change.

To comply with regulations in your country, the following data differ from those in the booklet:



Combinette, Modell 428, 2-speed



Combinette, Modell 428, 2-speed

Getting the Machine Ready: Description

A Combinette is very easy to ride, provided you observe the following hints:

- a) The engine uses a petrol mixture, the ratio of petrol to oil being 25 : 1. Mix the fuel well in a container, even when using one of the so-called "self-mixing" oils. Only by getting a thorough mixture of petrol and oil can you be sure of a trouble-free ride. Next, open filler cap 1 (fig. 1) by turning it anti-clockwise and fill the tank.
- b) The control position of the twin-arm, three-way **fuel tap** 2 are marked A (A for "Open", R for Reserve). When the letter A points up, the tap is open; in the vertical position, the tap is closed. If fuel fails to reach the carburettor when the tap is open (engine stops), the tank is nearly empty. Turn the fuel shut-off lever to the left (anti-clockwise) until the letter R marking shows. You now have a reserve in hand which will take you nearly another 20 miles, but you would do well to fill up before that.
- c) The correct oil level in the gearbox is shown by a mark on the dipstick which has a red screw cap. This becomes accessible after removing the left-hand carburettor cover 3 (fig. 2). The correct quantity is about 350 cc.
- d) **The handlebar** (fig. 5) of your Combinette is mounted in two brackets 4, each with a clip. By slackening the four hexagon screws 5, it can be moved forward or back to increase or reduce the distance from the seat. After adjustment, firmly tighten screws on alternate corners.



Fig. 1

- 1 Tank filler cap
- 2 Fuel tap
- 6 Headlight housing
- 27 On/off switch for electrical system
- 45 Sparking plug socket
- 46 Oil holes for Bowden cables

A safety lock which locks the steering is fitted to the left-hand side of the headlight housing 6. Turn the handlebar to the right before locking.

- e) The **tool box** 8 (fig. 3) is mounted in the centre of the machine. To take off the cover, first remove the knurled nut 9. A handle for lifting the machine is fitted to the right-hand side. Fig. 3 shows the tool box with cover taken off.
- f) **Tyre pressure** for a load of approx. 165 lb should be approx. 17.5 lb/sq. in. on the front wheel and approx. 26.5 lb/sq. in. on the rear wheel. Tyres can be pumped up either from the tyre pump at the filling station or by means of the air pump 53 supplied with the machine (fig. 3). The pump is protected by a cover 11 which swivels on mounting plate 12. Swing the cover aside to take out the pump.

Where a bench-type seat is fitted in place of the saddle, the tyre pump is fitted to the inside, right, of the seat, where it is held by two clips fixed to the left-hand side of the luggage carrier. To take off the pump, compress it slightly and it will come away easily.

The valve of the tyre pump is protected by a rubber cap. Remember to replace the cap after use.

g) **Seats**

The Combinette is available with various seating arrangements. It can be supplied with one saddle,

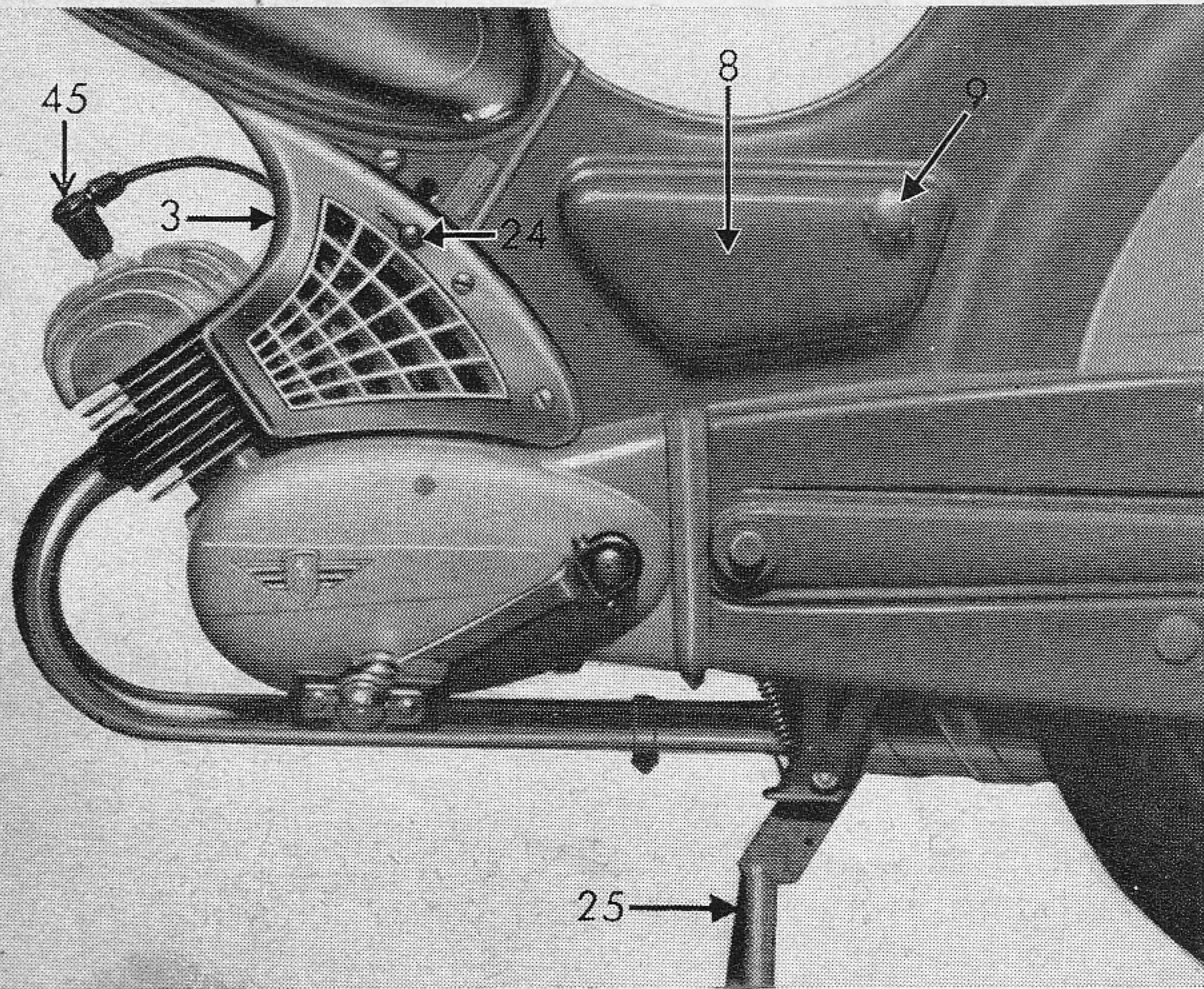


Fig. 2

- 3. Left-hand carburettor cover
- 8 Tool box
- 9 Knurled nut
- 24 Choke lever
- 25 Stand
- 45 Sparking plug socket

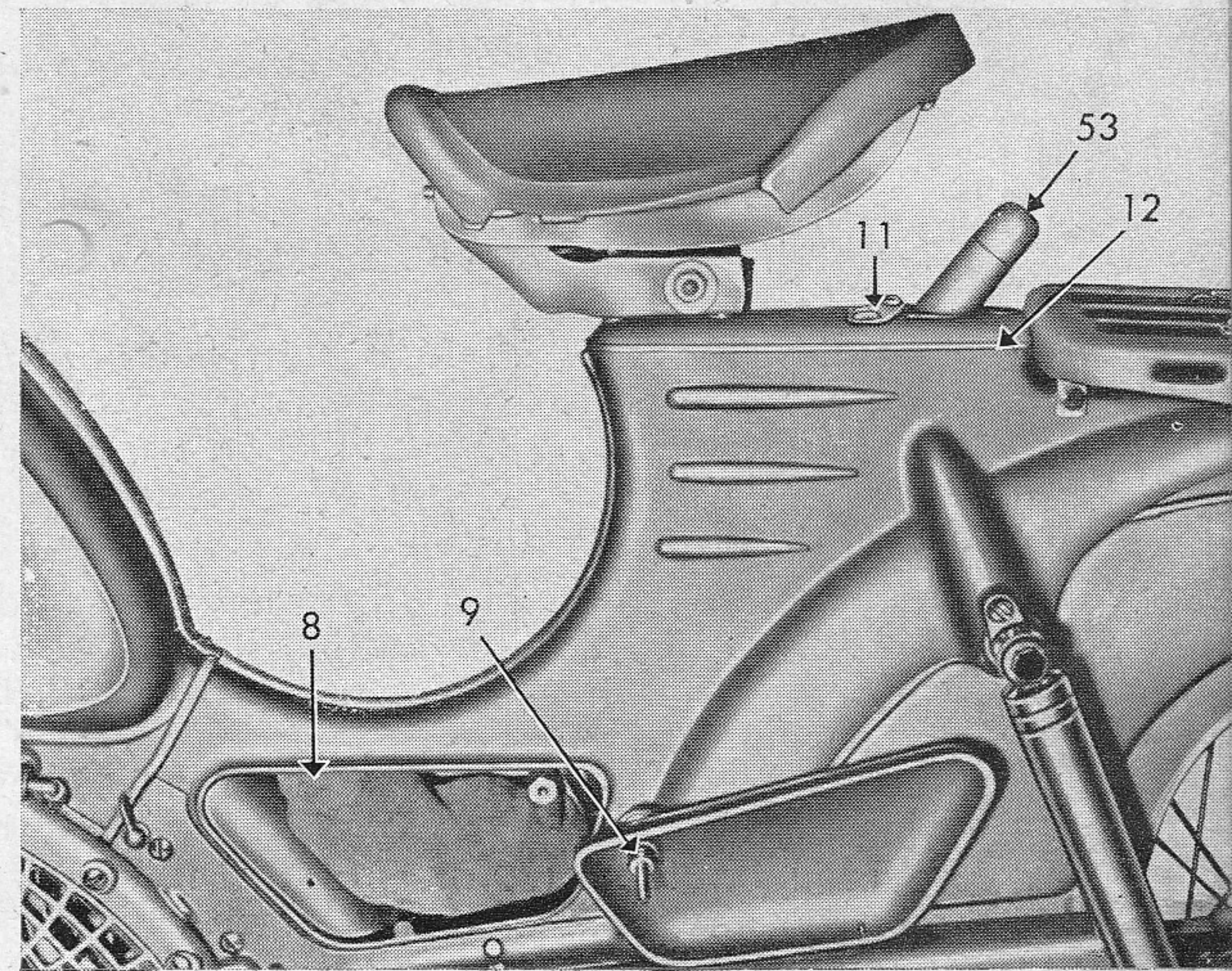


Fig. 3

- 8 Tool box
- 9 Knurled nut (for fixing cover to tool box)
- 12 Saddle mounting plate
- 11 Swivelling cover
- 53 Air pump

single, upholstered or three-quarter length bench-type solo seat. Saddles are adjustable.

Adjusting the saddle for a comfortable ride (fig. 3):

Slacken fixing nuts 15, and shift saddle forward or back, i. e. closer to or further away from the handlebar, without taking the saddle off its base.

Remember to tighten nuts 15 securely after adjustment. To adjust the saddle for **height**, it must be taken off. To do this, first unscrew mounting plate 12, then take off retaining nut and hexagon screw 16. Find the most suitable height, then fix the saddle in position by fitting screw 16 into the nearest of the three holes provided on tube 17, or into the lower of the two holes on the saddle tube sleeve which is part of mounting plate 12. Counting the original position, the saddle can therefore be fixed at five different heights to suit any rider.

Adjusting the saddle to suit your weight:

Turn slotted-head screw 18 below the nose of the saddle anticlockwise to get more "give", clockwise to make the springing harder. This adjustment, too, can be made without taking the saddle off.

Machines fitted with one saddle, are supplied with a spring-type **luggage carrier**. To take parcels etc., the clamping clip should be raised only at the end nearest the saddle. For machines equipped with dual seat or to accommodate a larger amount of luggage, an

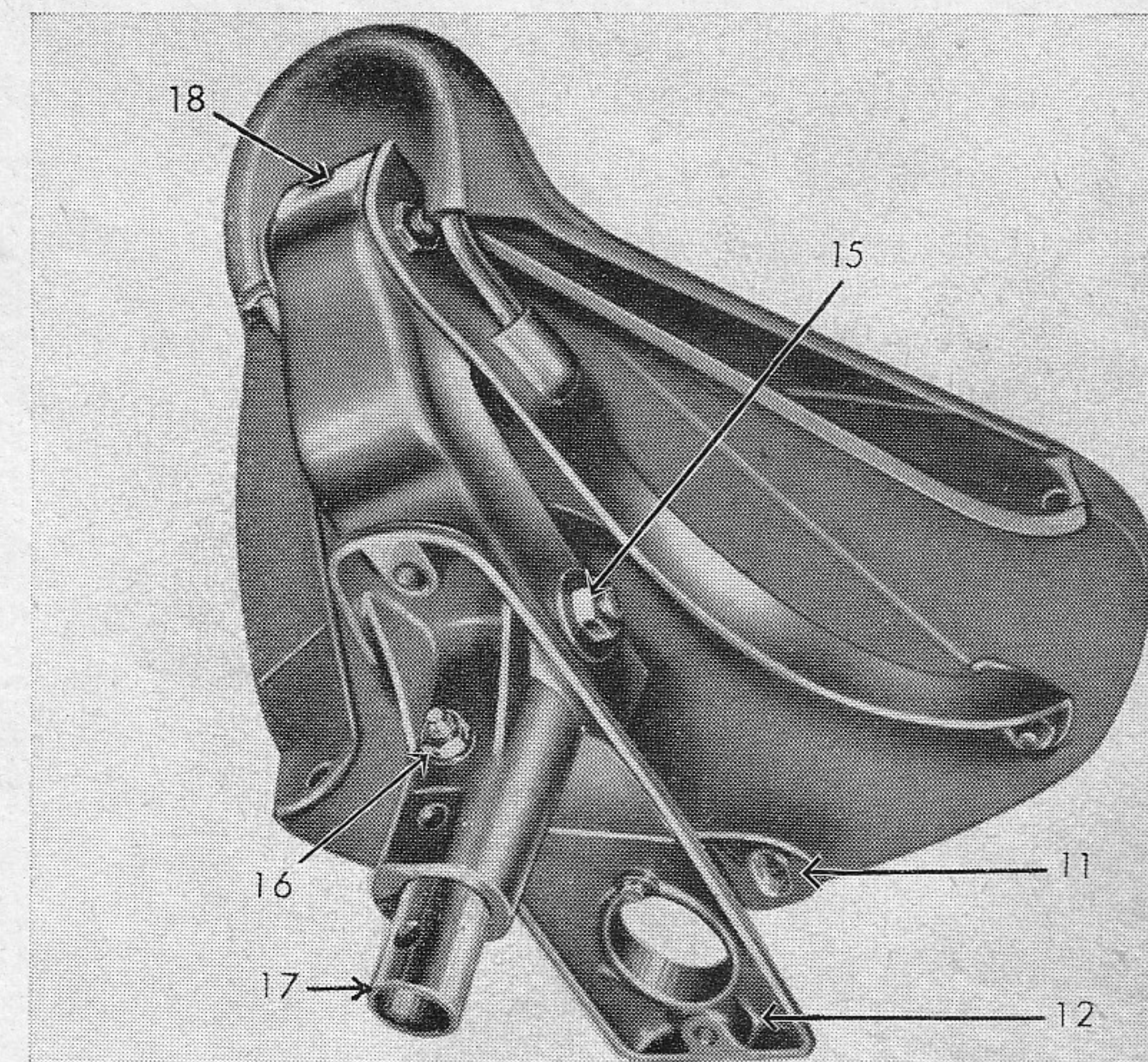


Fig. 4

- 11 Cover
- 12 Saddle mounting plate
- 15 Saddle fixing nuts
- 16 Hexagon screw on saddle tube sleeve
- 17 Saddle tube
- 18 Slotted-head screw below saddle nose

additional luggage carrier (available in different patterns) can be mounted quickly and easily.

h) **Rear Suspension** (fig. 7)

The rear suspension consists of one hydraulically damped fork leg on each side.

The Machine in Action (Figs. 1, 2 and 5)

1. Open fuel tap 2. When starting from cold, keep throttle twist gripp 23 closed and advance choke lever 24 on the left-hand carburettor cover 3 (fig. 2) to close the throttle slide in the carburettor. In warm weather or when the engine is already warm, this lever need not be used, since an enriched fuel mixture is only required for starting in cold weather.
2. Push the machine off stand 25 (fig. 2), then start engine as follows: Check that you are in neutral gear. Gear positions are marked on the gear-change (left-hand) twist grip 34.

Open throttle twist grip 23 by turning it towards you until you feel a slight resistance. Do not turn beyond this point, or you will open the throttle slide again and have to start from the beginning. Now, smartly step forward on the pedal; if the engine fails to start up immediately, step on the pedal again. Next, pull clutch lever 26, shift into 1st gear, open the throttle and slowly release the clutch.

Do not use undue force if the gears are not engaging easily — no matter if engine is running or not —, but move the vehicle a little forward and operate gear-shifting.

Once you have reached a speed of approx. 12 m. p. h., throttle down, declutch, shift into 2nd gear and slowly engage clutch while opening the throttle again at the same time. It is advisable to wait a moment after shifting into the next gear, but before releasing the clutch lever again, to give the gears a chance to mesh securely.

To cut down your fuel consumption when cruising, throttle down until the engine just comfortably maintains your speed.

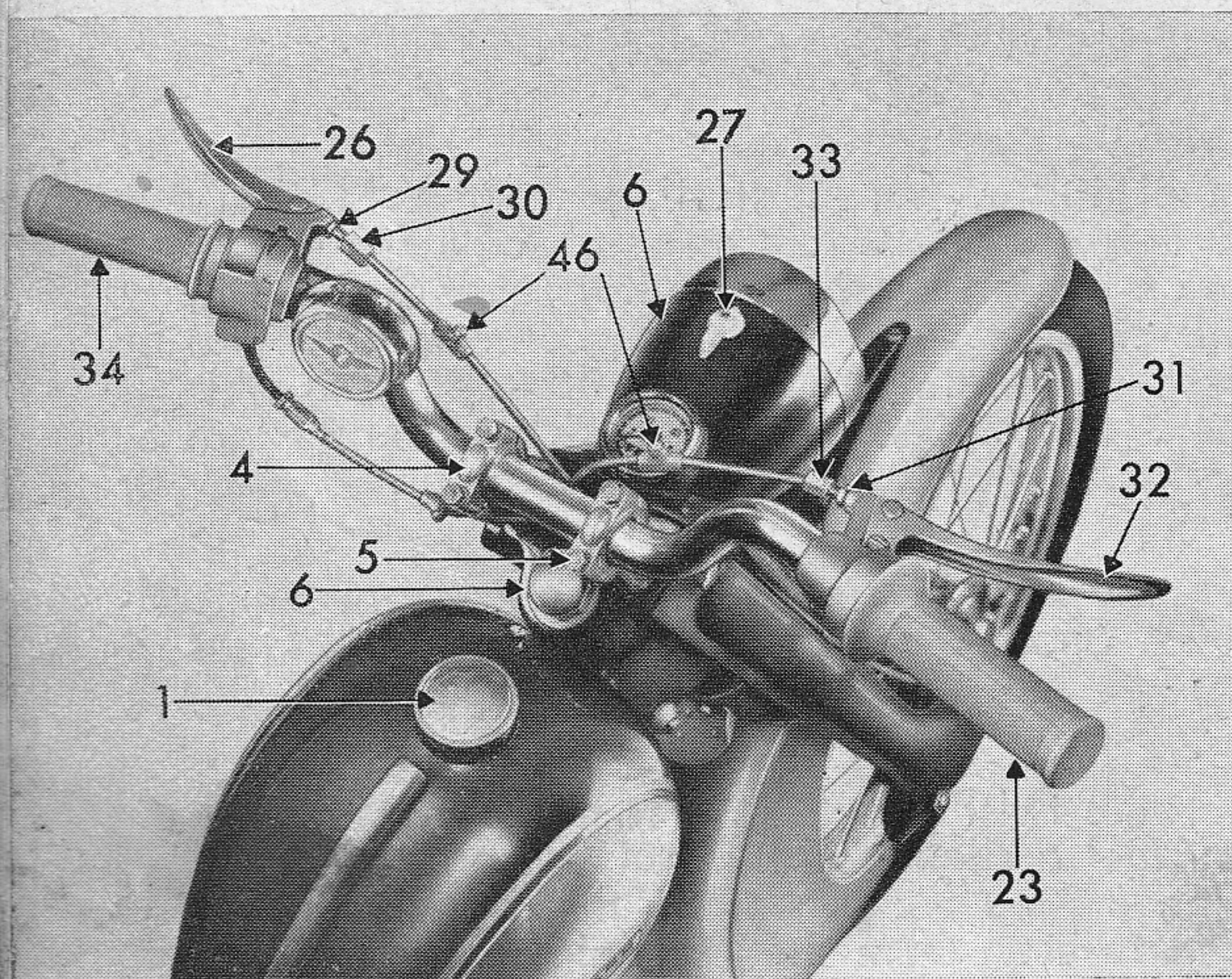


Fig. 5

- 1 Tank filler cap
- 4 Handlebar bracket
- 5 Hexagon screw
- 6 Headlight housing
- 23 Throttle twist grip
- 26 Clutch lever
- 27 On/off switch for electrical system
- 29 Hexagon nut on clutch lever
- 30 Hexagon screw on clutch lever
- 31 Hexagon nut on hand brake lever
- 32 Hand brake lever
- 33 Setscrew for hand brake lever
- 34 Gear shift twist grip
- 46 Oil holes for Bowden cables

On longer downhill runs, it is advisable to declutch and open the throttle briefly from time to time to ensure adequate lubrication of cylinder and piston.

During the running-in period, i. e. for the first 300 miles or so, you should avoid continuous runs at full throttle or extensive cruises in hilly country. After the first 300 miles, you can run the engine at full power. Avoid killing the engine by braking hard without declutching. Always first declutch, shift into neutral, then stop the engine. If you have braked and come to a stop with the machine still in gear, and you want to push the machine back before starting up again, first move one of the pedals forward a little way.

To shut off the engine, first throttle up, then switch off light switch 27 on the headlight housing while the engine is still revved up (turn light switch to the right, i. e. clockwise). The switch automatically returns to its initial position when released. Having shut down the engine, remember to turn the throttle twist grip forward again and to close fuel tap 2.

3. Lighting (fig. 5)

To switch on the headlight, turn switch 27 to the left. The rear light automatically lights up when you switch the headlight on. The lighting system works only when the engine is running.

General Maintenance

To comply with the terms of our works guarantee, the machine must be serviced as follows:

- 1st service after 185 miles,
- 2nd service after 750 miles,
- 3rd service after 1,500 miles.

After these initial three services, have the machine serviced and checked after every 1,250 miles.

When servicing the machine, the following points should be observed:

1. Cleaning Air Filter

To **clean the air filter** 28 (very important, see fig. 8), take off carburettor cover 3 (fig. 2) on left-hand side of machine by removing the two screws. Then take off the clamping rings, push back the plastic filter chamber (bending will not harm the chamber), and the filter will now easily come away from carburettor 42. The simplest way is to rinse the filter in a petrol mixture. Then replace carefully; carelessly assembled filters will reduce engine performance and service life.

2. The **clutch** must never be allowed to slip. Correctly set, the clutch lever 26 (fig. 5) should have an end play of approx. 0.4 in. at the outer lever tip when declutching (i. e. pulling the lever). Clutch cable play is adjusted by slackening hexagon nut 29 on clutch lever 26 and then tightening or slackening setscrew 30. To increase play, tighten the screw; to reduce play, slacken screw. After adjustment, re-tighten hexagon nut 29 against twist grip 34. If this adjustment proves insufficient, have the clutch reset at a **garage**.

3. Front Brake

Due to unavoidable brake lining wear, brakes must be reset from time to time.

This is done as follows (figs. 5 and 6):

Slacken hexagon nut 31 on hand brake lever 32 and slacken setscrew 33 until a play of 0.4 in. at the tip of the lever is obtained. Then, firmly grip the setscrew and tighten the hexagon nut against throttle twist grip 34, not against setscrew 33.

A second adjustment by setscrew is provided on the front wheel hub, as follows (fig. 6):

Slacken nut 35, slacken screw 36 until play of 0.4 in. on hand brake lever 32 is restored, then firmly grip screw 36 and tighten nut 35 against ring 37.

4. Rear Brake (fig. 7)

The rear brake is actuated by back-peddalling. This brake, too, should be tested to check that it grips properly. The rear brake can be reset by means of brake setting nut 38 on brake rod 39 (right-hand side of machine). To reduce play, turn nut 38 clockwise; to increase play, turn anti-clockwise.

When carrying the machine, or in transit, always take care not to bend the brake rod.

5. Front Suspension (fig. 7)

Neither front nor rear suspension requires any special maintenance.

The ends of the two fork legs of the rear suspension are fitted with ball oilers which should be lubricated with a little oil from time to time.

6. Chain (see fig. 8)

The chain is enclosed by a chainbox to protect it from dirt. It should be rinsed every 600 miles or so by

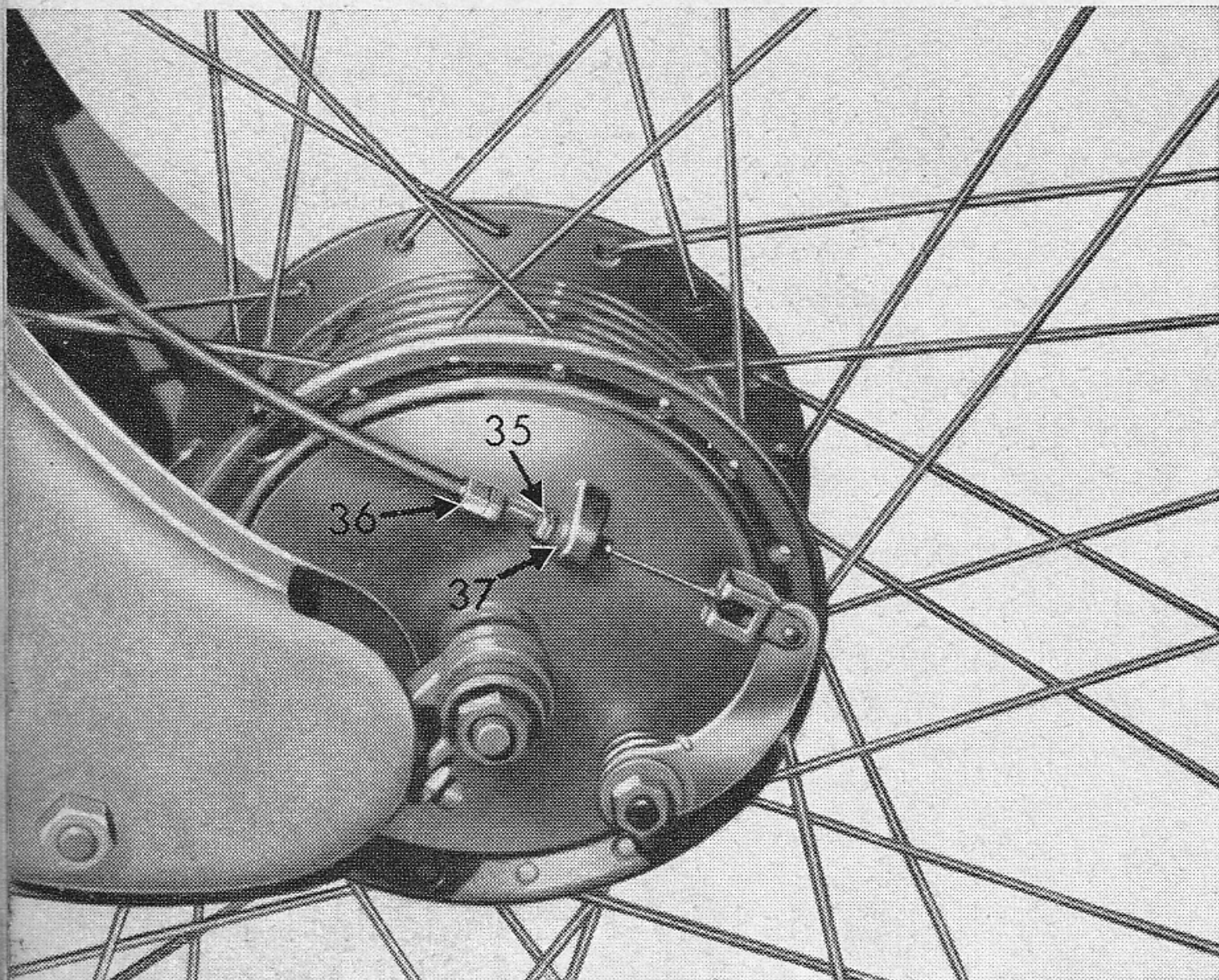


Fig. 6

- 35 Front wheel hub nut
- 36 Front wheel hub screw
- 37 Front wheel hub ring

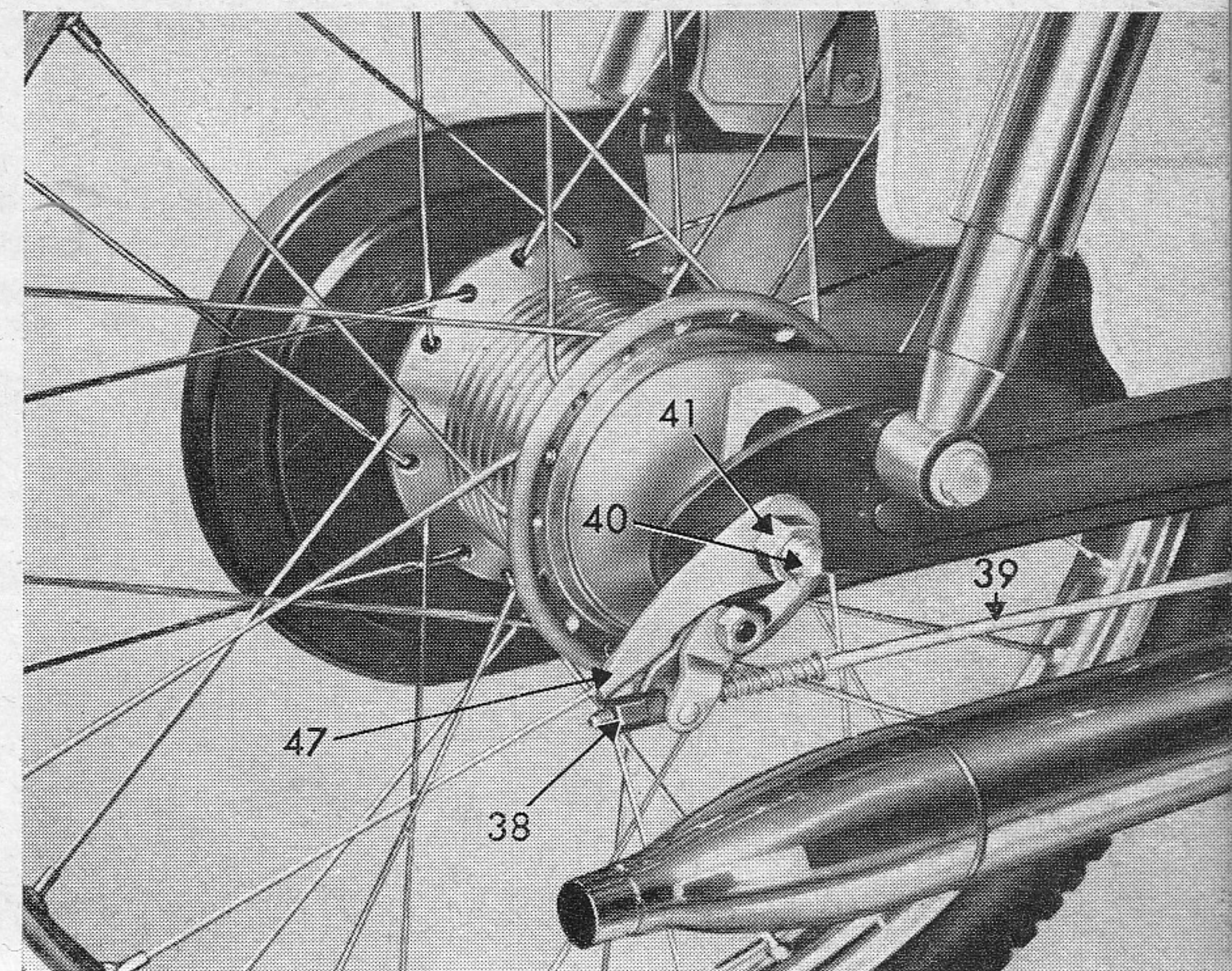


Fig. 7

- 38 Brake setting nut
- 39 Brake rod
- 40 Rear wheel axle
- 41 Nut for axle 40
- 47 Chain tensioning lever

immersion in cleaning fluid, diesel oil or similar, then lubricated with ZÜNDAPP chain grease (**this job should be left to the garage**).

To re-tension the chain, slacken nuts 41 on both sides of the rear axle 40, then turn lever 47 clockwise until the chain hangs just right (chain slack approx. 0.4"). Finally, tighten axle nuts 41 again firmly.

7. Oil Level in Gearbox

Check oil level every 600 miles or so and top up if necessary (see p.7). The sump cap is located on the underside of the crankcase.

8. Carburettor (fig. 8)

The carburettor 42 becomes accessible after unscrewing the left-hand carburettor cover 3. To clean the main jet 43, unscrew and **merely blow** through to clear it.

9. In **neutral**, the engine should tick over quietly. If it needs retuning, proceed as follows: With the engine still warm, turn screw 44 (fig. 8) into the carburettor housing as far as it will go, then start engine. Keep the throttle closed and slacken the screw until the engine just ticks over smoothly. Generally, three half-turns of the screw will be sufficient.

10. Sparking Plug (figs. 1 and 2)

Take off socket 45, unscrew the plug and thoroughly remove all carbon deposits with a wire brush or similar utensil. Sparking plug gap should be approx. $\frac{1}{4}$ ", and should be reset, if necessary, by bending the electrode.

Gauges to measure the electrode gap are obtainable from all usual suppliers.

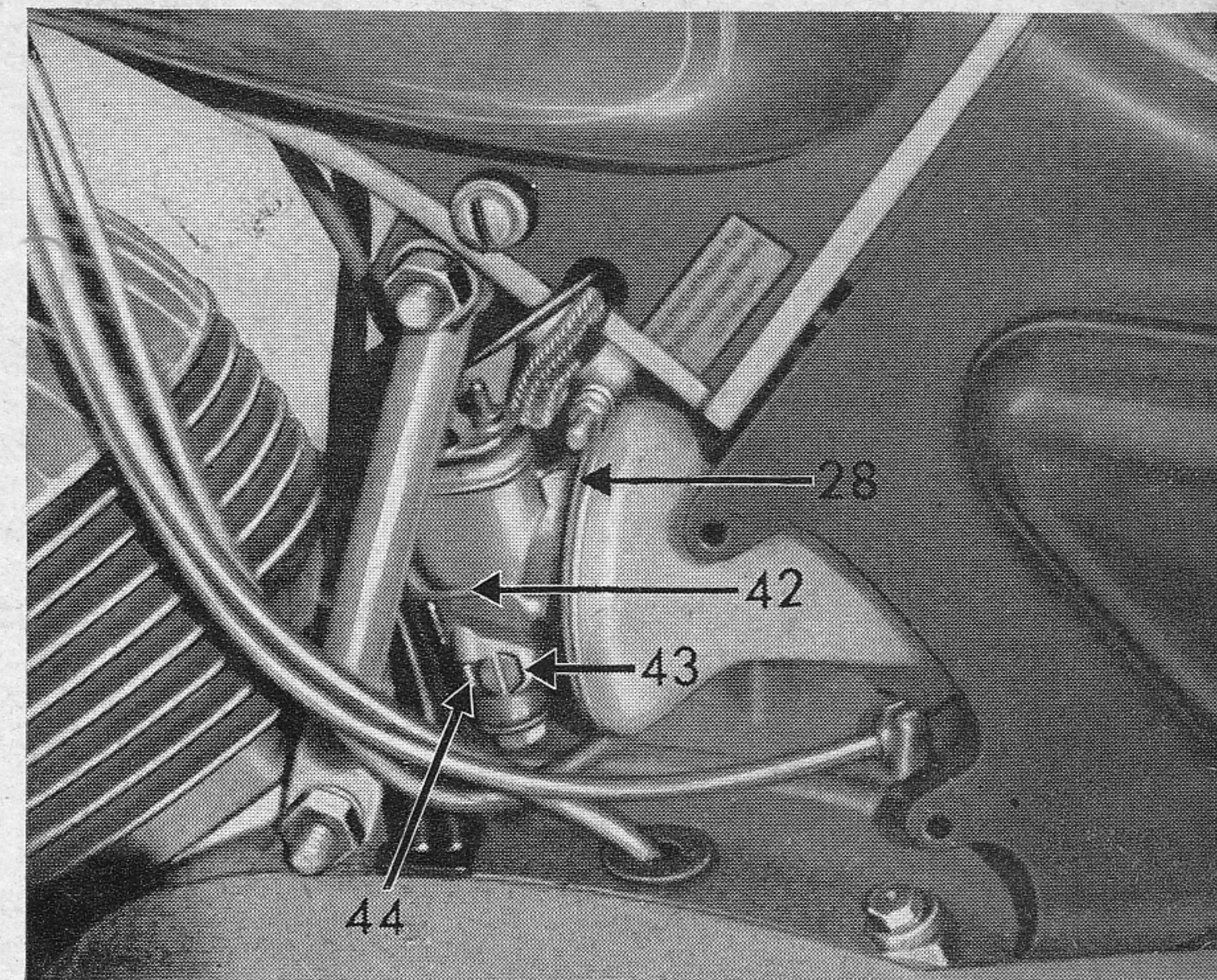


Fig. 8

- 28 Air filter
- 42 Carburettor
- 43 Main jet
- 44 Screw for engine tuning

11. **All Bowden cables** (fig. 5) should move freely in their outer casings. After the first three regulation services, they should be regularly lubricated. To do this, take off the small caps on the lubricating holes 46, then inject a little thin-flowing oil (such as grade SAE 40). Remember to replace the caps after lubrication.

12. **The Exhaust**

should be cleaned from carbon deposits every 2,000 miles or so (garage job).

Engine Troubles and their Causes

1. Failure to start

Possible Cause:

Fuel tank empty.
Fuel tap closed.
Fuel tap strainer clogged.
Float needle sticks.
Carburettor jet clogged.
Choke lever not operated when starting from cold.
Sparking plug dirty.
Sparking plug gap too large (correct setting: 0.03 in.).
Ignition cable defective.
Short-circuit in contact breaker on headlight.
Contact breaker contacts oily or burnt.

2. Engine starts up, then cuts out

Possible Cause:

Fuel tap closed.

3. Engine starts up, but cuts out when throttle is opened

Possible Cause:

Engine still cold.

4. Engine starts up, but carburettor "spits back" when throttle is opened

Possible Cause:

Engine too cold.
Jet clogged.
Suction line seal not tight.
Ignition timing set too late.
Condenser or ignition coil defective.

5. Engine runs erratically

Possible Cause:

Air filter dirty.
Sparking plug dirty.
Ignition system defective.
Ignition cable loose.
Sparking plug loose in socket.
Carburettor clogged.

6. Engine knocks

Possible Cause:

Carbon deposit on piston head.
Low-grade fuel.

7. Engine runs hot

Possible Cause:

Unsuitable oil.
Too little oil in fuel mixture.
Exhaust port, exhaust pipe and silencer clogged and narrowed by carbon deposits.
Cooling fins too dirty.

8. Engine alternatively races and idles

Possible Cause:

Clutch slips, due to absence of play on clutch lever or due to excessive wear of clutch discs.

9. Engine develops insufficient power

Possible Cause:

Air filter dirty.
Exhaust port, exhaust tube and silencer clogged and narrowed by carbon deposits.
Piston rings stick.
Cylinder head seal defective.
Cylinder head, exhaust flange or air inlet flange loose.
Rubber connecting piece on carburettor leaky or slipped off.

10. Engine four-stroking

Possible Cause:

Wrong fuel mixture (too much oil).
Carburettor jet too large.
Jet needle wedged.
Float or seat of float needle not tight.
Air filter dirty.
Ignition timing wrongly set.

11. Excessive fuel consumption

Possible Cause:

Leak in fuel tank or pipelines.
Carburettor jet too large.
Ignition timing set too late.
Exhaust system narrowed by deposits.



ZÜNDAPP

MUNICH DIVISION

The hall mark of all ZÜNDAPP products is up-to-date, efficient design, attractive styling, unexcelled quality and first-class finish. You can recognise a ZÜNDAPP product at a glance. They have reached their present high level of development not by hit-and-miss methods, but by an integrated manufacturing process, comprising an intricate network of special production plant, inspection and quality controls. We at ZÜNDAPP know that we have to live up to our good name, a name which is your guarantee of a quality product. When you buy a ZÜNDAPP product you know have had your money's worth and that it will give satisfactory service for many years.

At ZÜNDAPP, we do not hold with the ordinary standards of mass production. If we have to choose between mass output and quality, we plump for quality every time. The ZÜNDAPP production programme can be summed up in one maxim: unexcelled quality.

Our Range of Sewing Machines

ZUNDAPP - Elcona 1 B

Electric, straight-stitching portable sewing machine, can be converted to zig-zag stitching and automatic operation

ZUNDAPP - Elcona 2 B

Electric, zig-zag portable sewing machine, can be converted to automatic operation

ZUNDAPP - Elcona 3 B

Electric, automatic portable sewing machine



ZUNDAPP - ZR 18 B

Domestic straight-stitching sewing machine, can be converted to zig-zag and automatic operation

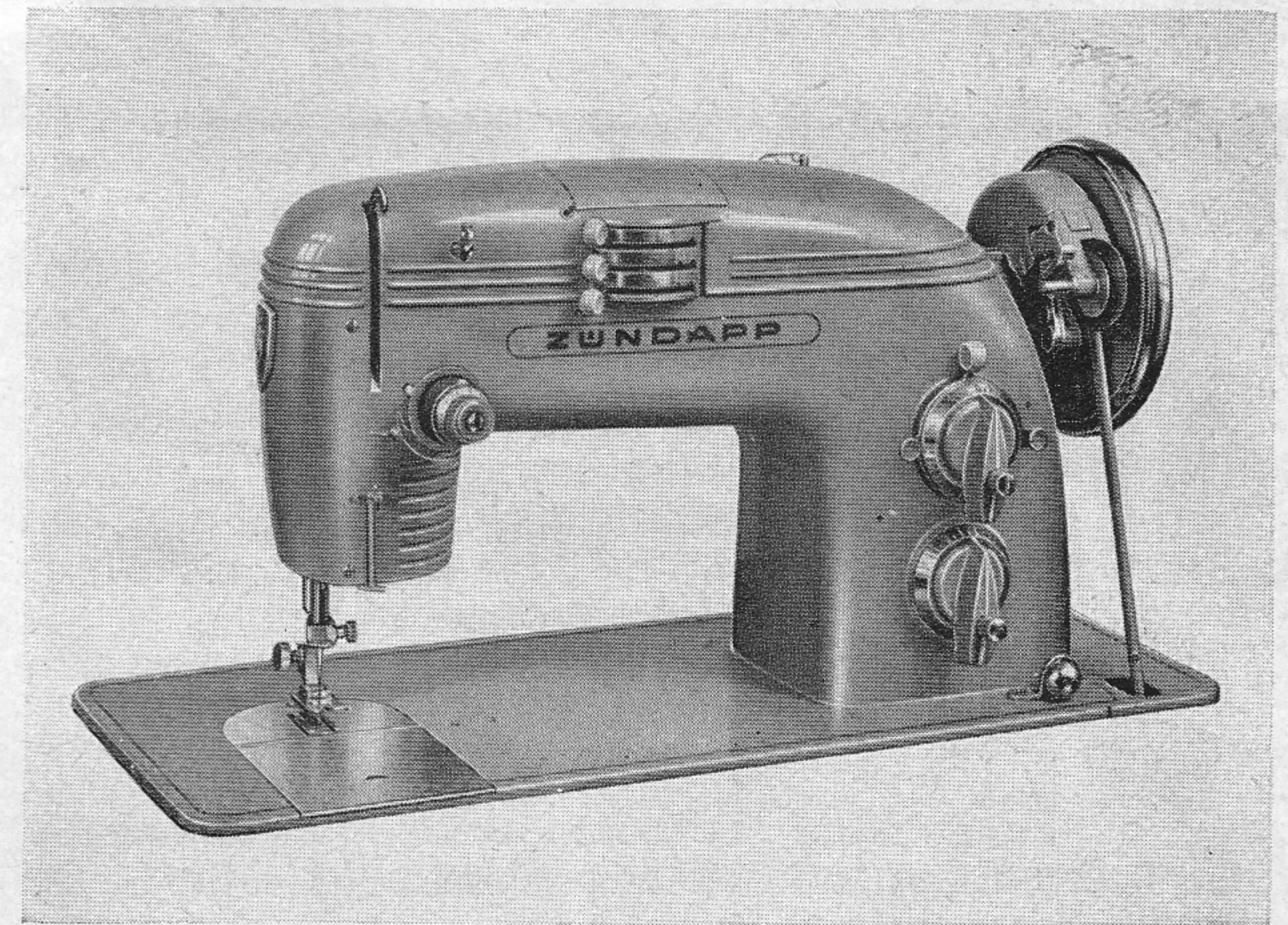
ZUNDAPP - ZR 118 B

Domestic zig-zag sewing machine, can be converted to automatic operation.

ZUNDAPP - ZR 128 B

Domestic automatic sewing machine

To complement this range, ZUNDAPP offer a large variety of sewing tables and cabinets, from the simplest, space-saving table to the elaborate period-style cabinet. All are made of first-class quality woods and veneers by highly skilled craftsmen.



Technical Specifications

ZÜNDAPP Sewing Machines

Basic Equipment: Precision adjustment of stitch length (forward and back, adjustable while machine is running), up to 4.5 mm or $\frac{3}{16}$ ". Repeat setting of selected stitch width. Fine upper thread tension adjustment. Retractable feed dog. Automatic spool winding (only on Elcona models). Tried and tested double-rotating rotary hook with or without non-snarl guard (at right angle to bar). Thanks to transverse position of rotary hook, piping seams can be sewn with basic equipment alone. Rotary hook with non-snarl guard prevents entangled threads. Sewing speeds up to 1,200 stitches per minute. Needle system 705. Divided presser foot guides permit sewing of materials up to 8 mm or $\frac{5}{16}$ " thick. Built-in sewing light with swivelling reflector, will not overheat. Clear space for passage of material 190 x 110 mm or $7\frac{1}{2}$ x $4\frac{1}{2}$ ". Wide range of accessories. Finish: Light-green, restful to the eyes.

Zig-Zag: Robust zig-zag mechanism. Oscillating needle bar, mounted between centres. Large, overlap zig-zag stitch, 4.5 mm or $\frac{3}{16}$ " long. Directional stitch control for offsetting stitching direction to left or right (shifting seam centre axis). Width of zig-zag controlled on both sides.

Automatic: Automatic setting by 3 centrally located levers, giving fully automatic control of all sewing operations with hand levers disengaged. All patterns can be produced with either 36 or 72 stitches and with half or full stitching width.

All cam discs interchangeable. Automatically sews pattern impossible to produce by hand.

Additional Accessories: Special-purpose presser feet. Low-cost piping and eyelet stitching attachments for automatic models. Each ZÜNDAPP machine comes to you with detailed instruction manual, covering straight-stitching, zig-zag and automatic operation, and a colourful pattern book.

The ZÜNDAPP Step-by-Step System of Integrated Units

You will find the ZÜNDAPP system of unit construction an invaluable advantage. The availability of extension units makes it possible to progress by stages, from the simplest to the fully automatic model. This system effectively meets the needs of housewives who may not wish to purchase a zig-zag or automatic model straight away.

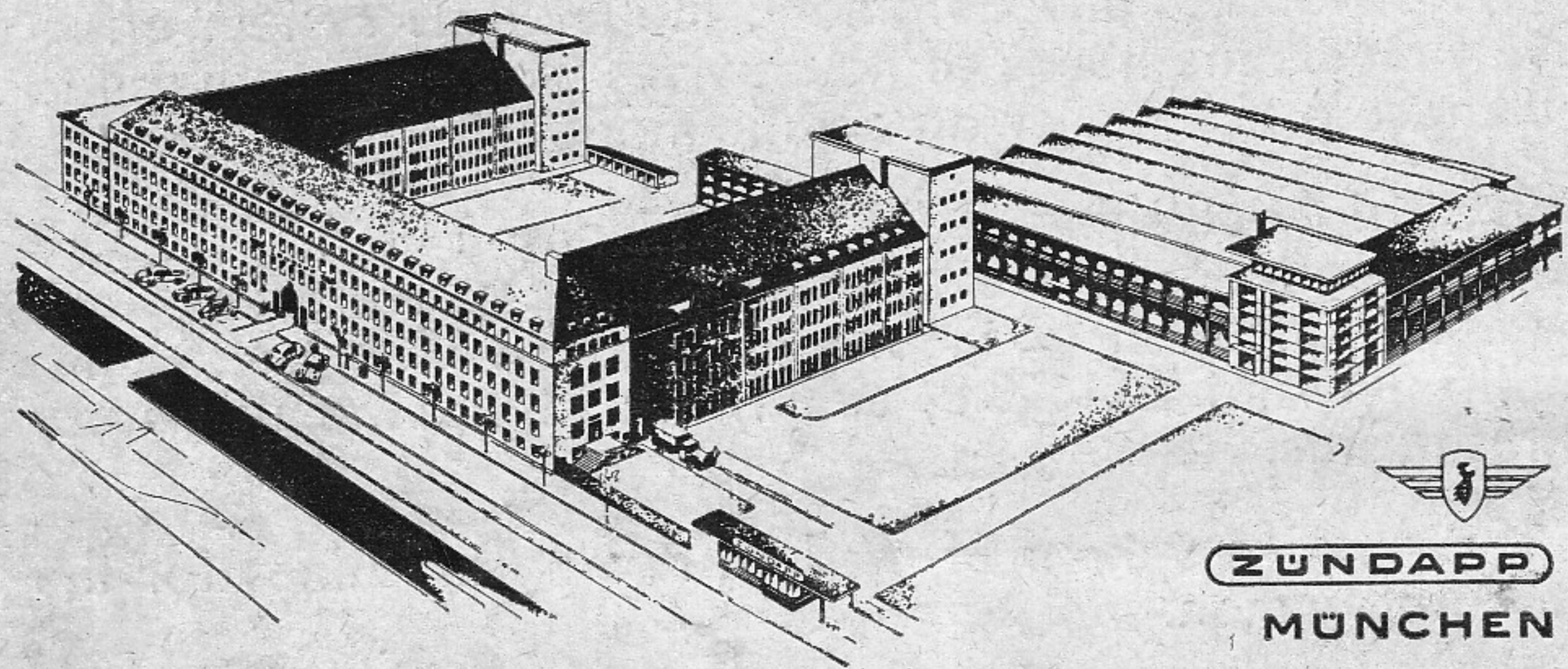
The straight-stitching ZÜNDAPP Elcona 1 B and ZR 18 B can be converted at a later stage into universal zig-zag or automatic models, Elcona 2 B and ZR 118 B or Elconomatic 3 B and ZR 128 B, simply by fitting the necessary attachments.

A progressive system of modern sewing machines for the modern woman.

Please ask for our detailed literature without any obligation.

ZÜNDAPP-WERKE GMBH., MUNICH – GERMANY

Postal Address: München 8, Anzinger Str. 1–3




ZUNDAPP
MÜNCHEN

ZÜNDAPP - WERKE GMBH MÜNCHEN

