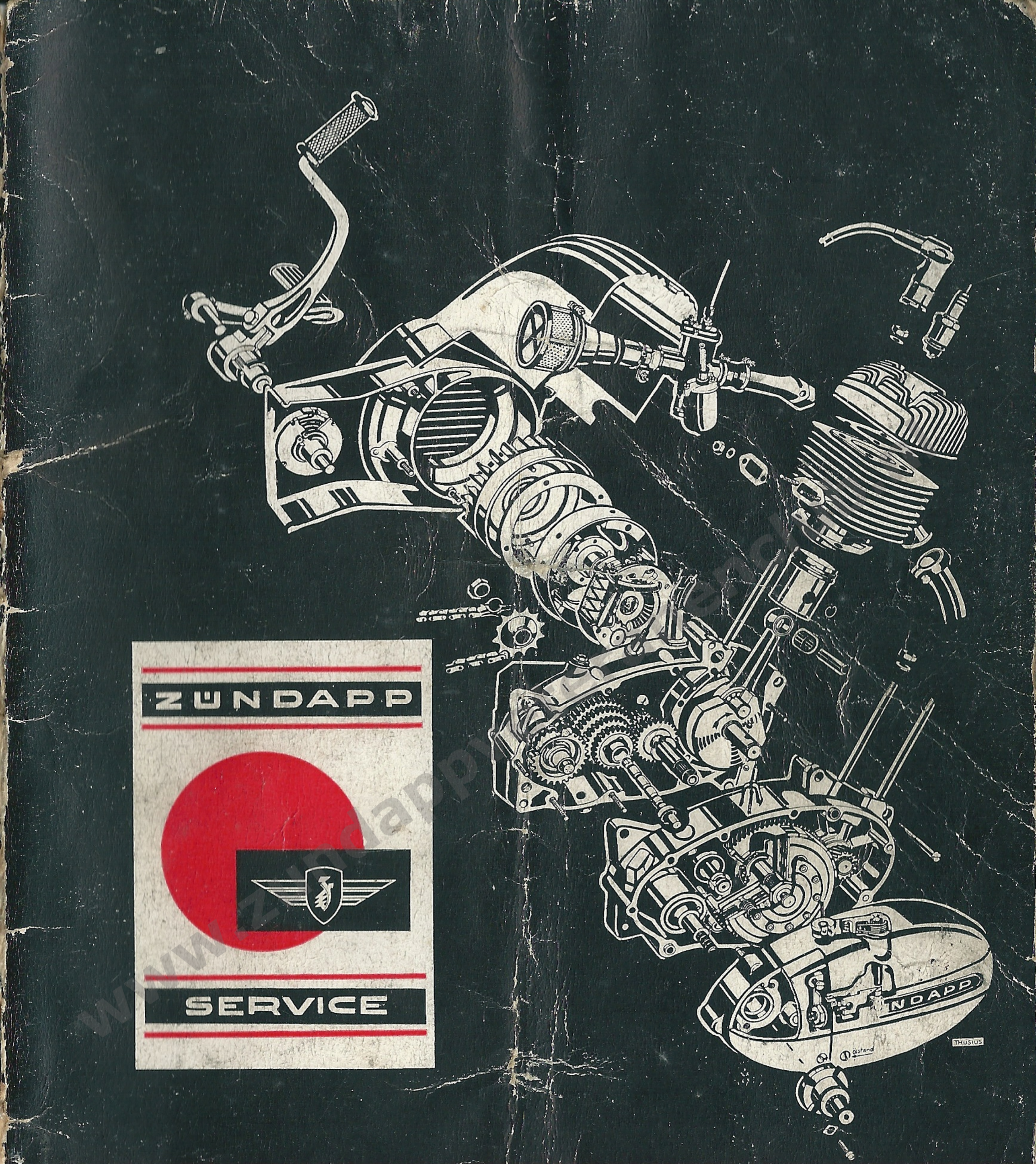


Repair-Work on the twostroke-engine up to 75 cc

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ZÜNDAPP

Repair-Work on the twostroke-engine up to 75 cc

with foot shift and kickstarter

for types

Sport-Combinette KS

Falconette KS 50

and KS 75

Edition of February 1961

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In the past years the development of motorised bicycles in general and of small engines with extreme power in particular has reached a tremendous extent. Beside this the riding comfort of these motorised bicycles has been increased. Regarding all these advantages, the advanced construction with its traditional design, our products are enjoying a high reputation all over the world.

All new ZÜNDAPP models more and more contribute to maintain this reputation and popularity and we trust that you will agree with us that a well functioning and dependable "After Sales Service" is of utmost importance in this respect. In order to achieve this it is our aim to supply you with all informations and to make you acquainted with all necessary and essential details. We are publishing this booklet with the wish to make our dealers and agents aquainted with the technical knowledge indispensable for an excellent service on our products.

As the described procedures of disassembling and assembling are indicated very clearly and above all shown by illustrations we are sure to be of service to those dealers which are not so familiar with our products.

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Reprinting of this booklet in its entirety or excepts thereof will require our approval.

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General

In the following we fully describe and illustrate the procedures of disassembling and assembling of engine type 276 (footshift). The described procedures may also be applied to all other ZÜNDAPP motorised cycles with three and four speed engines up to 75 cc capacity with footshift device beginning with 1961.

The disassembly of the complete engine is necessary when faults in the transmission and crankshaft occur or the clutch wheel is to be replaced.

In case of damages on the shifting device (not for securing the pull cotter)

in the clutch and
the drive pinion on the crankshaft

it will be sufficient to remove the clutch housing cover. Before dismantling the engine, the gear oil is to be drained off. This is done by loosening the oil drain plug if possible with hot engine.

Further it is possible to remove and replace

the footshift lever
the kickstarter lever with spring
the chain pinion
the flywheel magneto (flywheel and base plate)
cylinder with piston and
cylinder head
blower wheel and housing (only on engines with blower)

without dismantling the engine. When effecting repairs on the last mentioned parts it is not necessary to drain off the gear oil.

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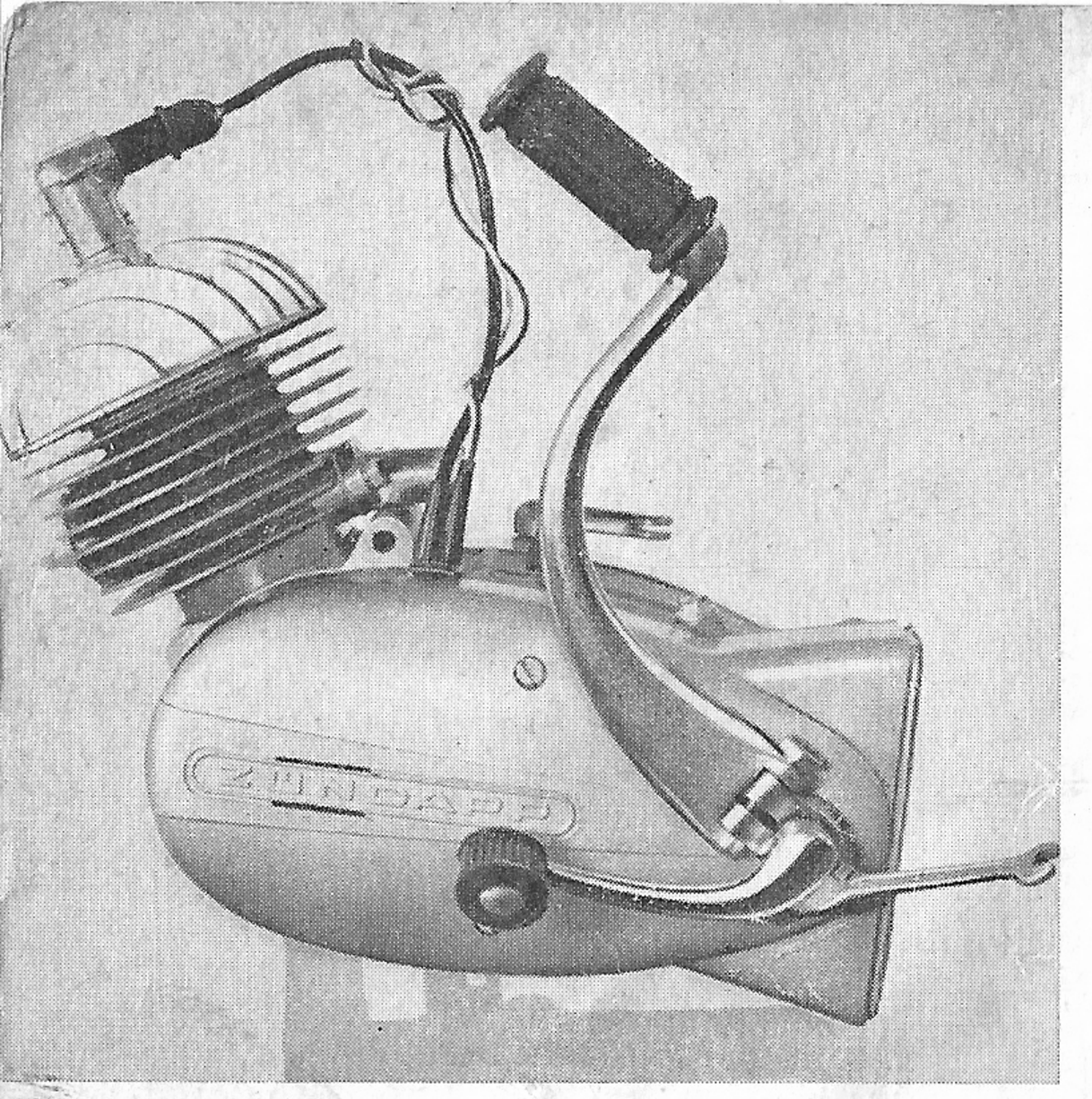


Fig. 1

1. Disassembly of engine type 276

a) Remove the left housing cover

Fix the engine in the mount bench SK-A-126 and clamp the bench in a vice (figure 1).

Loose the nut on foot shift lever, remove the fixing bolt and disassemble these parts. Now the foot shift lever may be taken away without difficulty.

Watch the washers and seal ring!



Fig. 2

Loosen the fixing screw on kick-starter lever (fig. 2).

Attention. The fixing sleeve of the starter lever is fixed by means of a Seeger ring to the inside of the housing cover and may only be removed together with this ring.

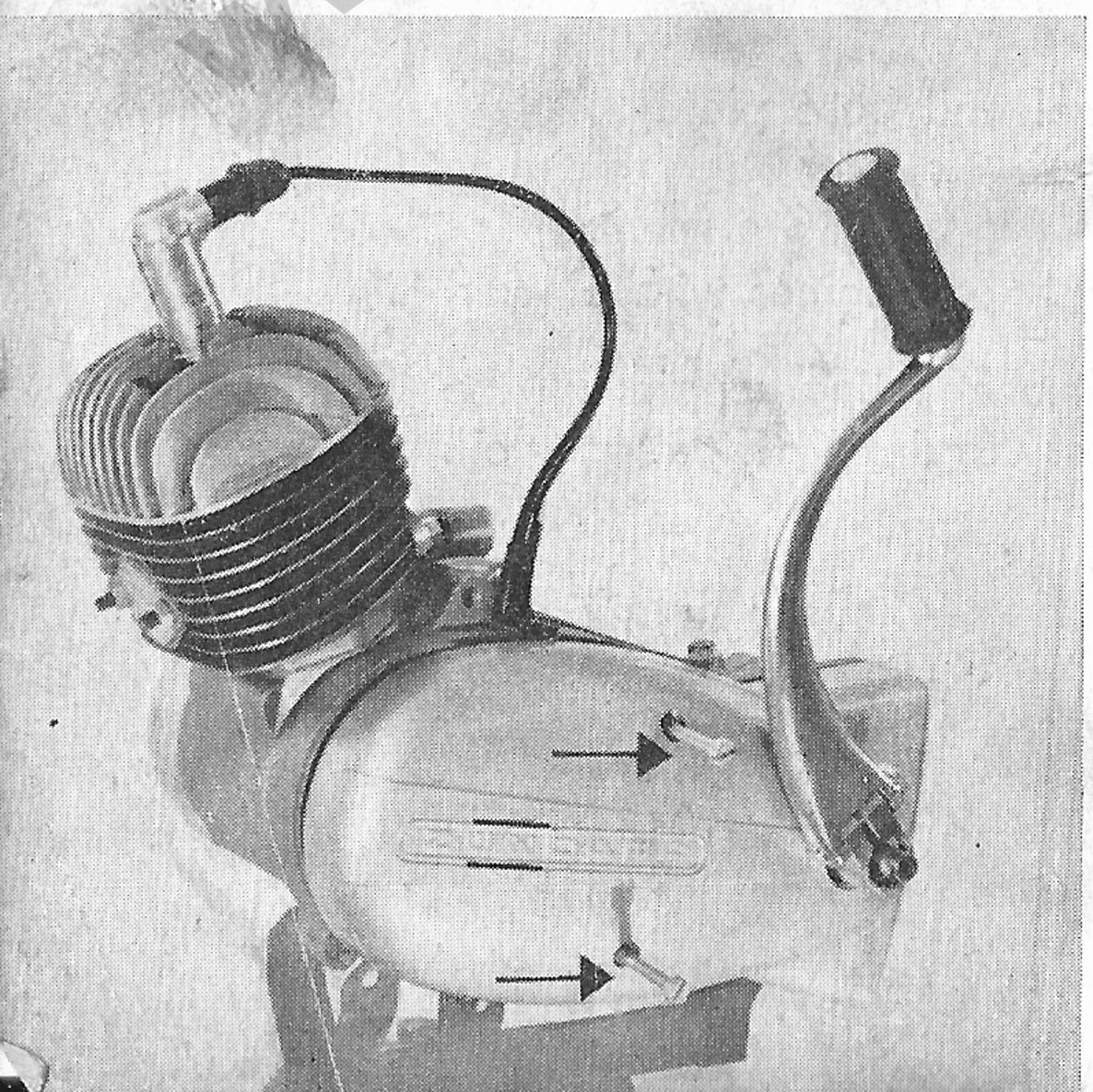


Fig. 3

Loosen the two cylinder bolts M 6 x 55 (fig. 3).

Then take off the left housing cover by holding the kickstarter lever in its position. Release the tension of the starter spring.

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b) Disassembly of the flywheel magneto

Hold flywheel by means of counter hold key (SK-A-251, former No. MV6-106) and loosen the fixing nut with socket wrench (SW 14 mm) and remove it with the washer. (fig. 4)

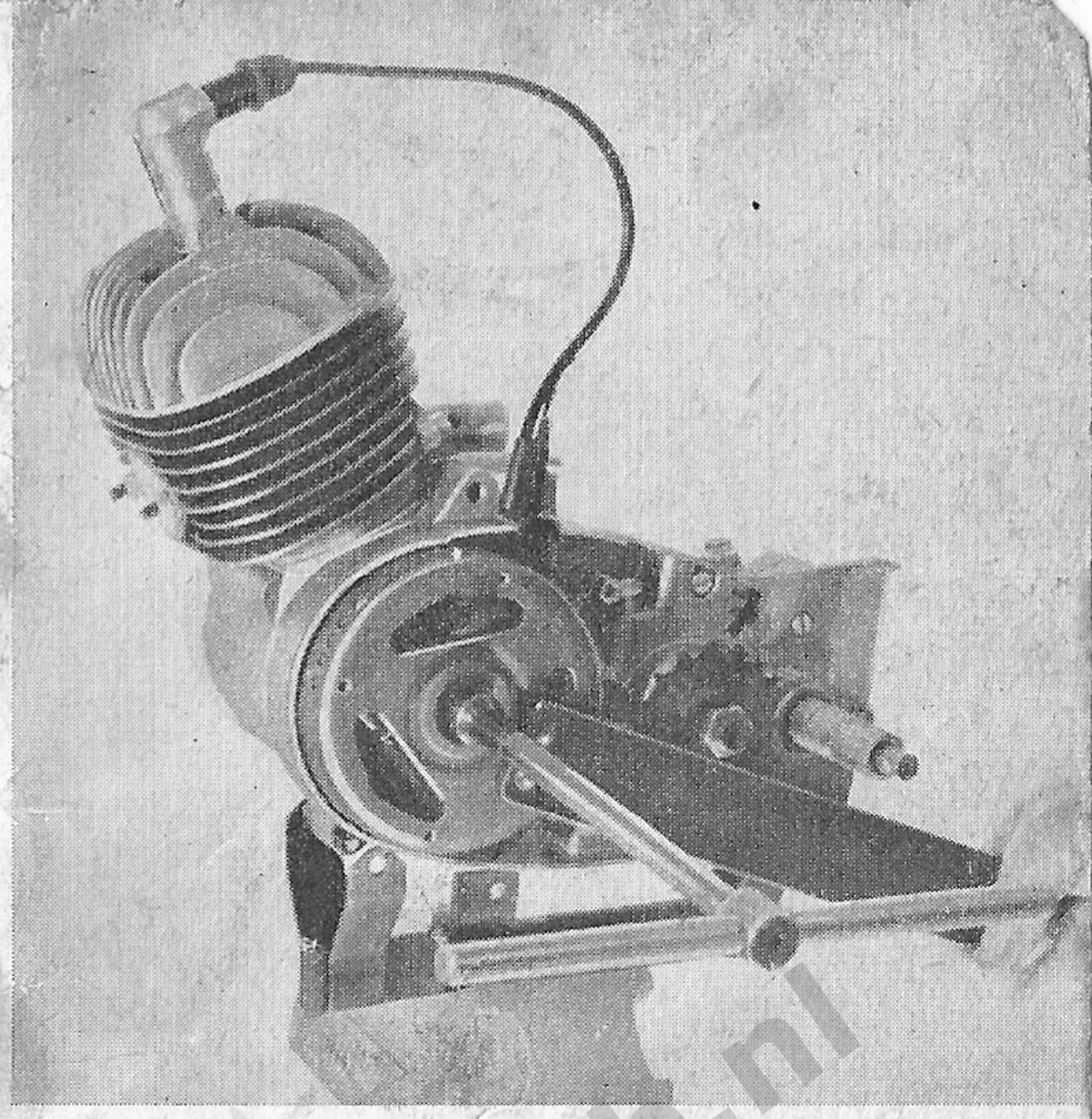


Fig. 4

Fix the extracting device SK-A-263 to the flywheel and turn the extracting screw. (fig. 5)

Take off the flywheel but be careful no to loose the key.

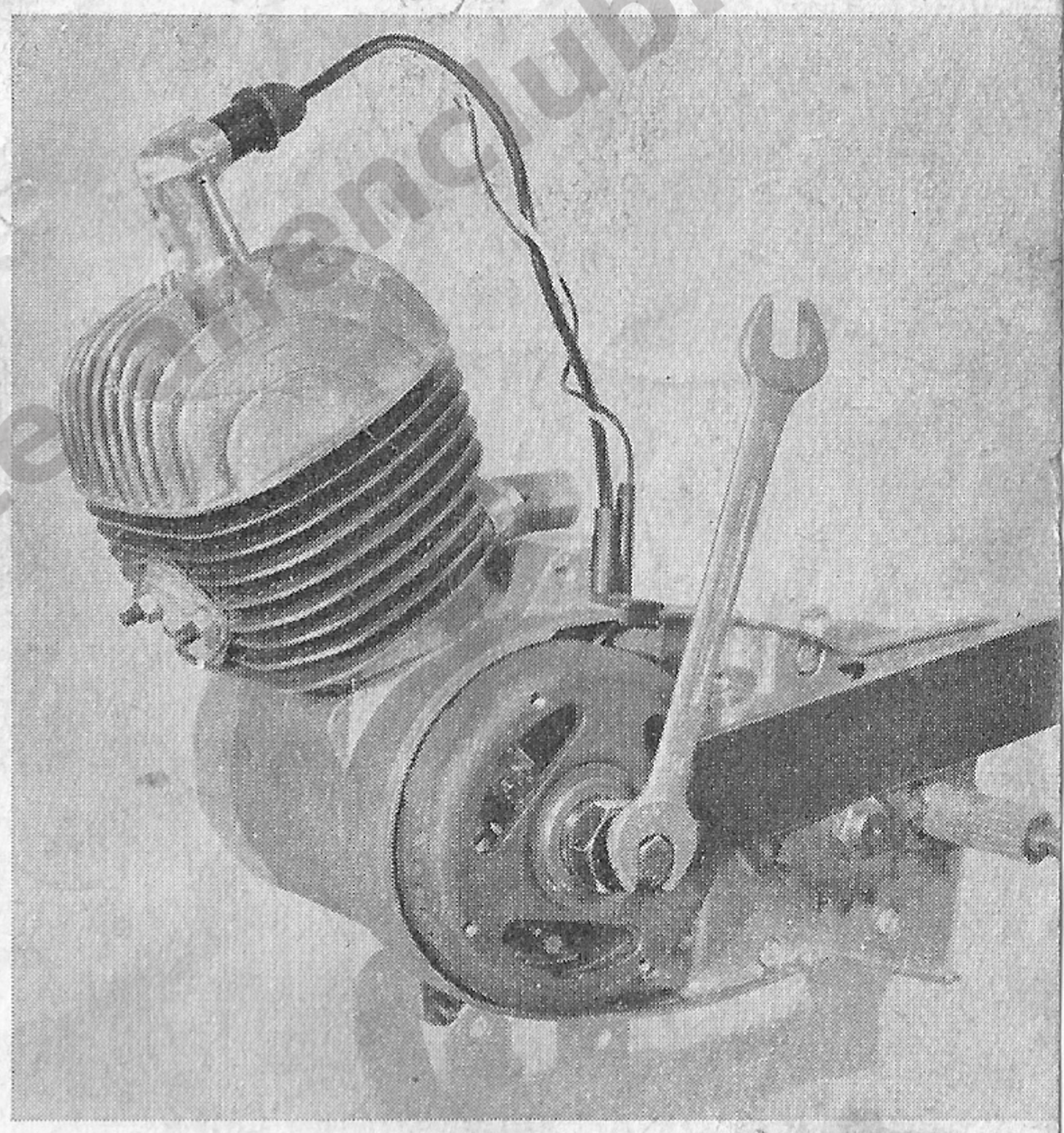


Fig. 5

Screw out the two cylinder bolts M 5 x 16 of the base plate and loosen the clip for the ignition cable. Then remove the rubber sleeve of the groove of the housing and then take away the plug socket and base plate. (fig. 6)

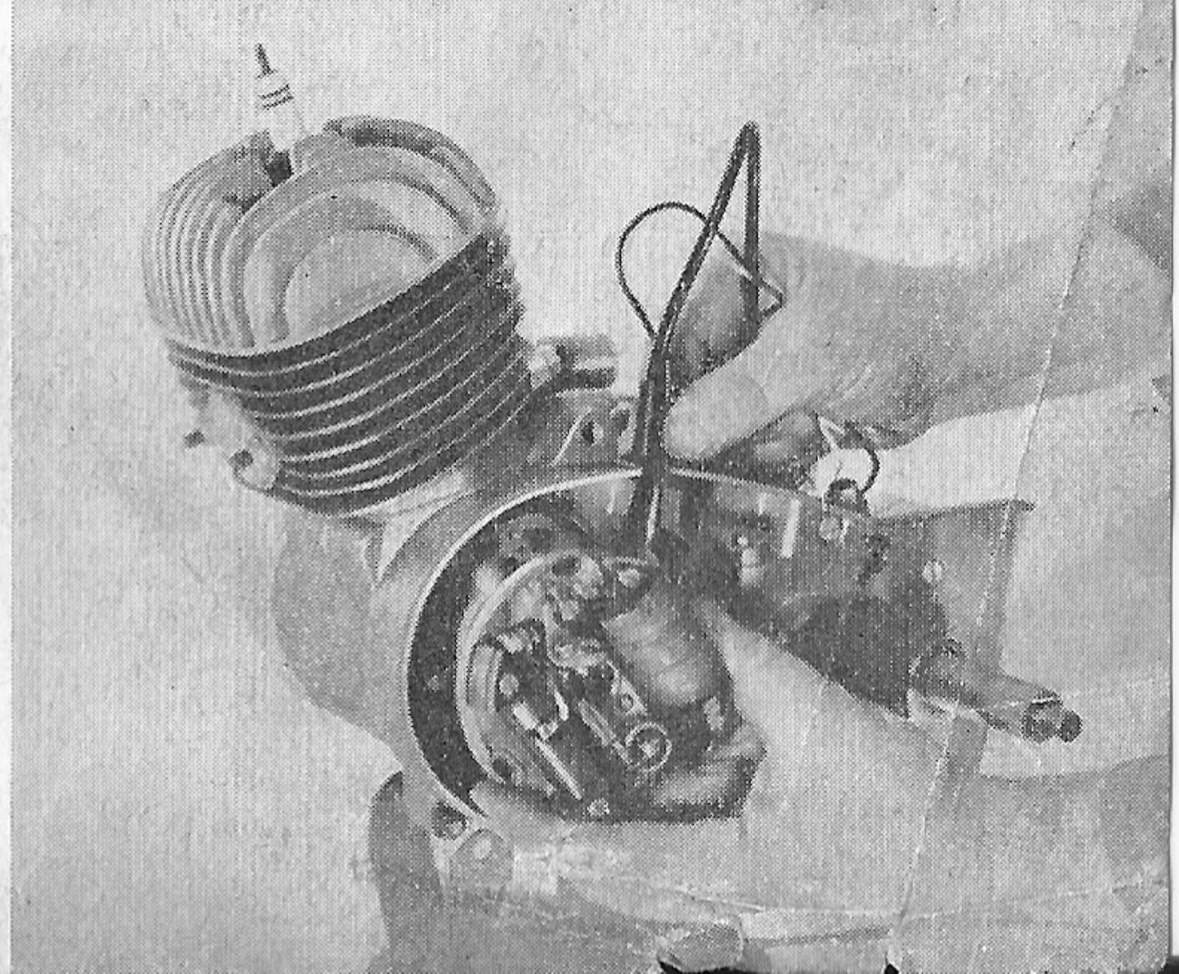


Fig. 6

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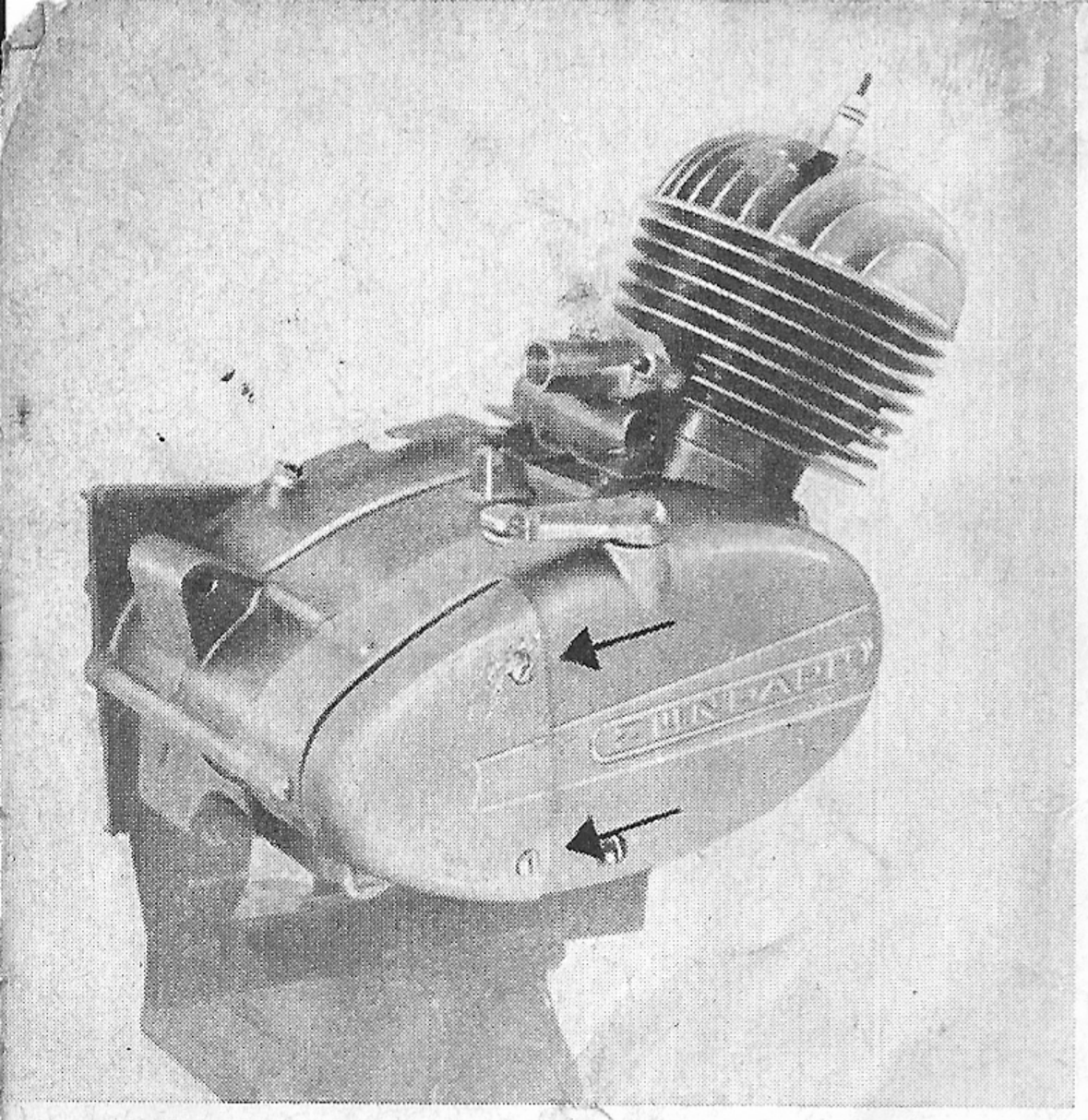


Fig. 7

c) **Removing the cover for clutch and selector device**

Place the engine in the mount. Loosen the two bolts M 5 x 18 and take off the cover. (fig. 7)

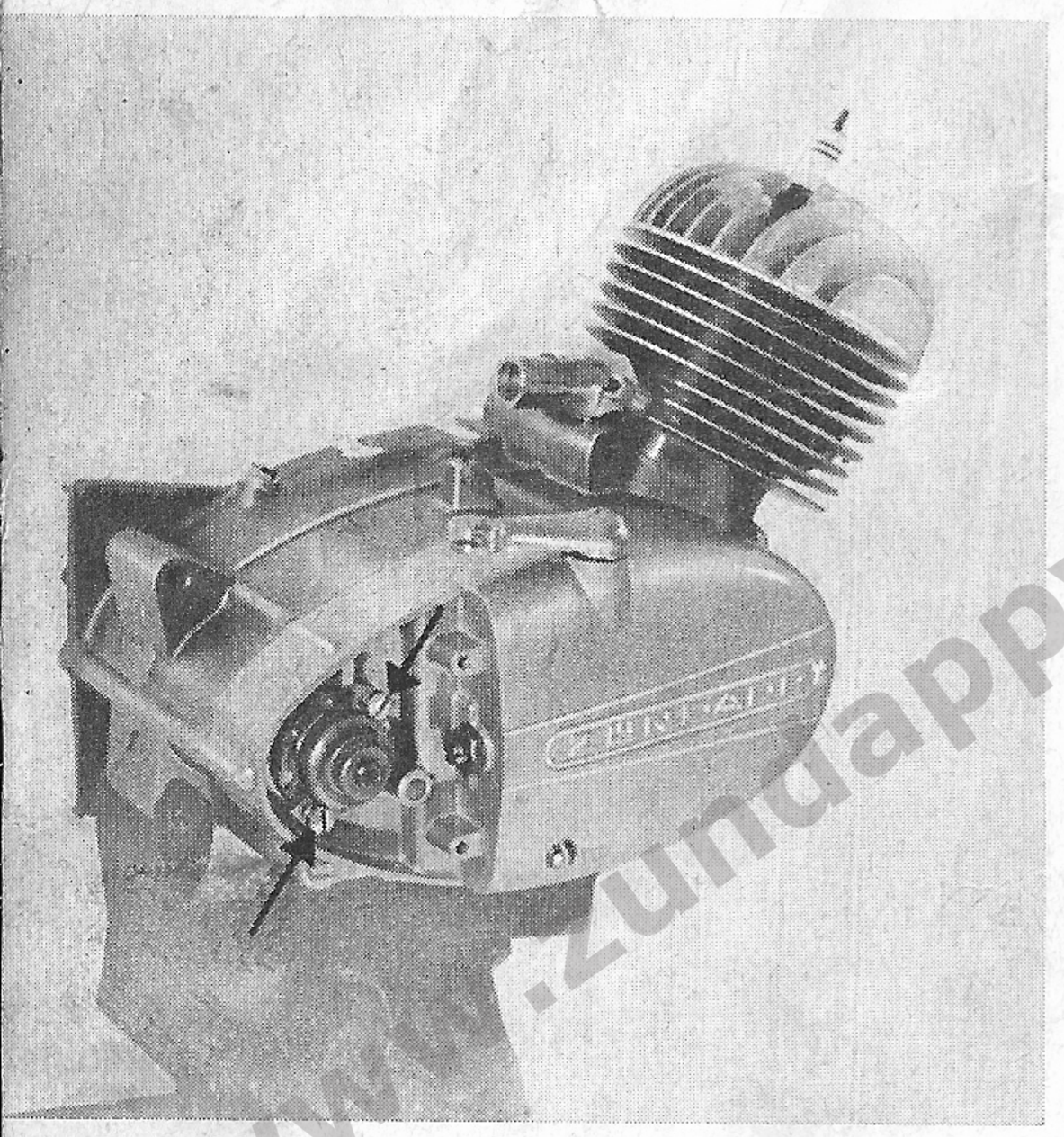


Fig. 8

d) **Removing the clutch cover**

For further disassembly and for taking off the clutch cover it is necessary to remove the adjustment bell. Screw out the two cylinder bolts M6 x 10. (fig. 8)

Watch for washers!

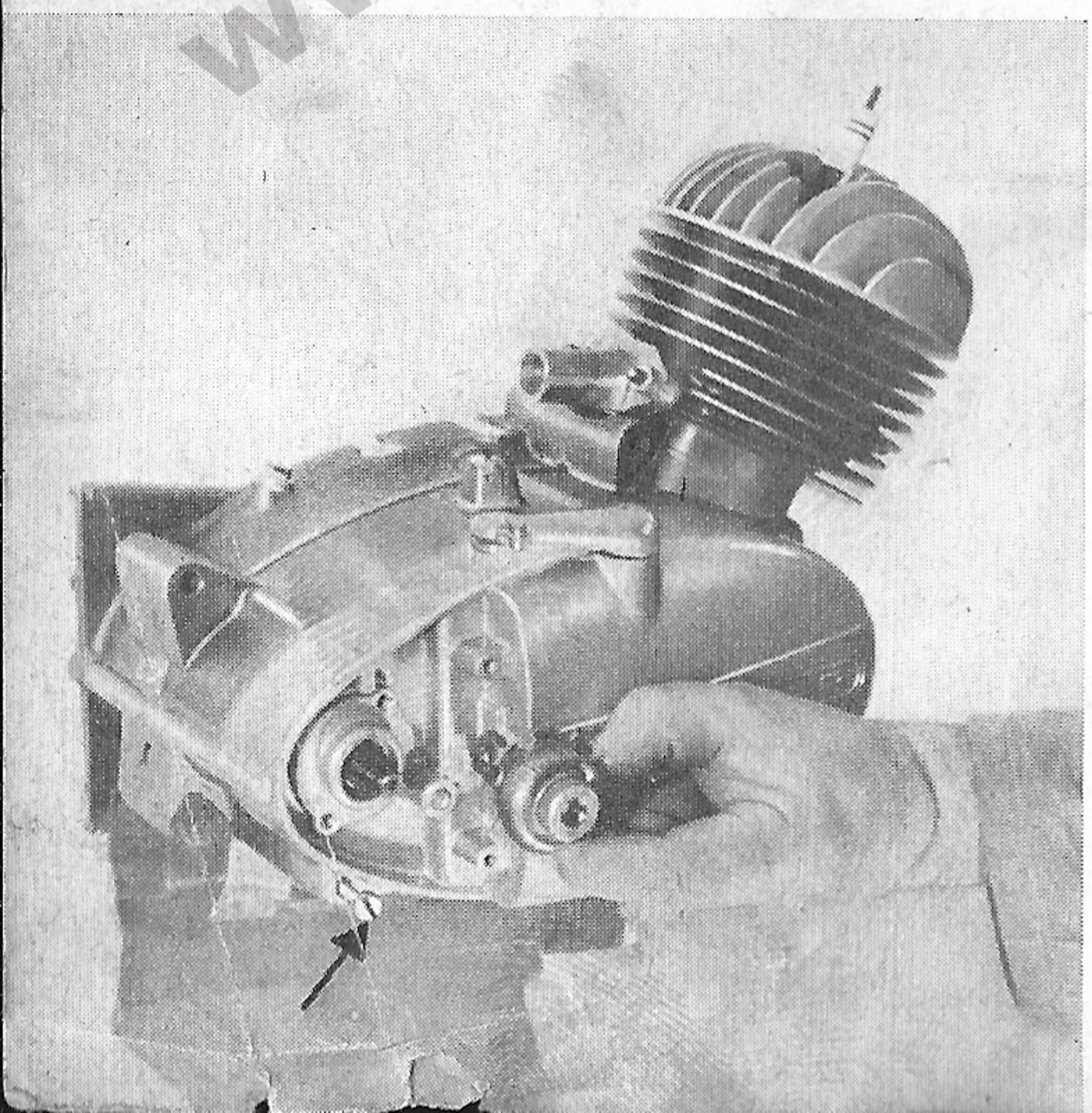


Fig. 9

Remove the adjustment bell by turning same anti-clockwise.

Take off the cylinder bolt M 6 x 45 (fig. 9).

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Turn the engine in the mount to the other side. Remove of the housing

1 bolt (a) M 6 x 92
4 bolts (b) M 6 x 98
4 bolts (c) M 6 x 120

(fig. 10).

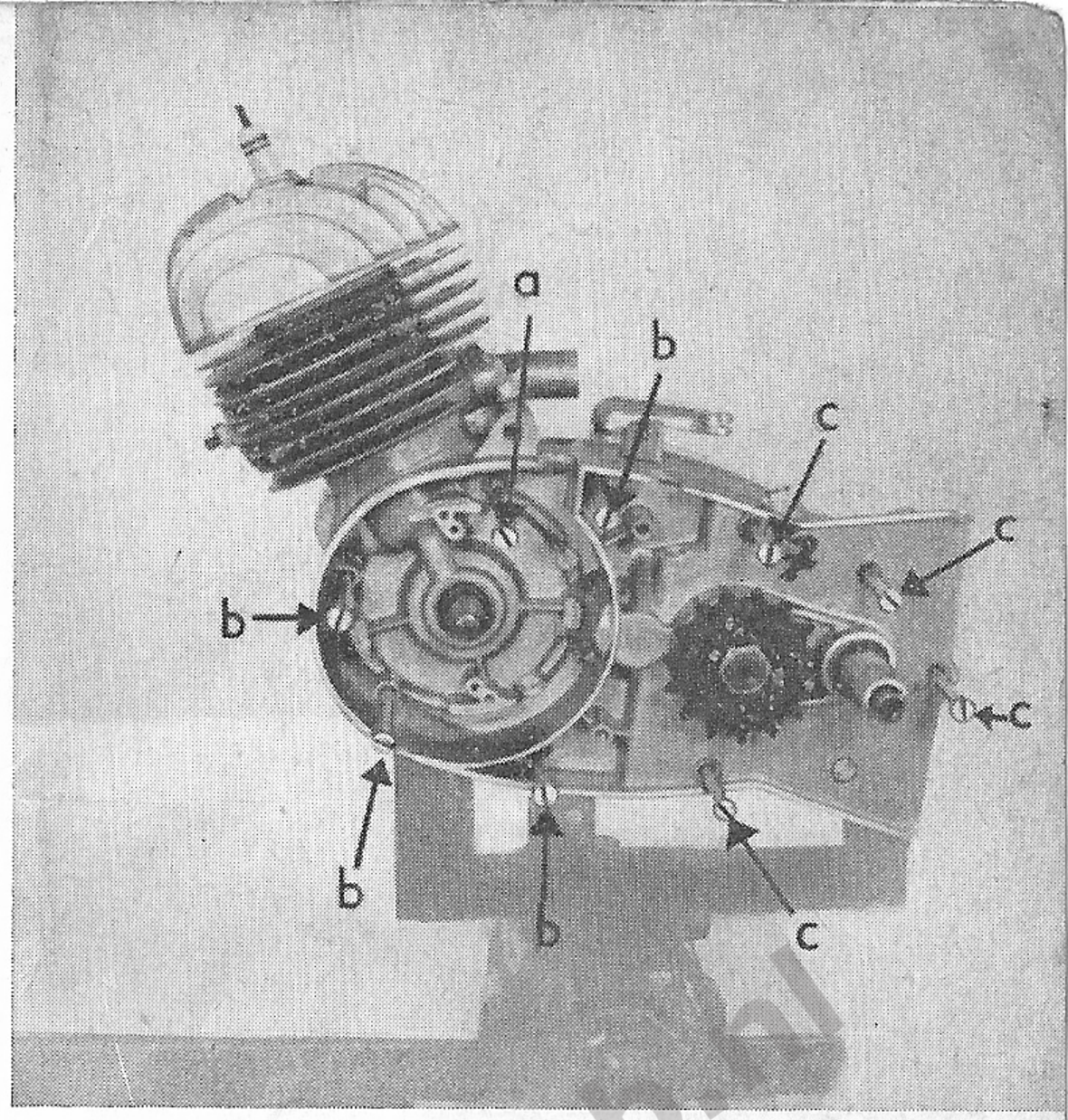


Fig. 10

Turn the engine in the mount. Then remove very carefully the clutch housing cover (right side) (fig. 11). It is recommended to support this procedure by a slide pressure on the clutch lever. In case a complete disassembly of the engine is necessary it is of utmost importance to remove the shift device with shift slide immediately (see fig. 19).

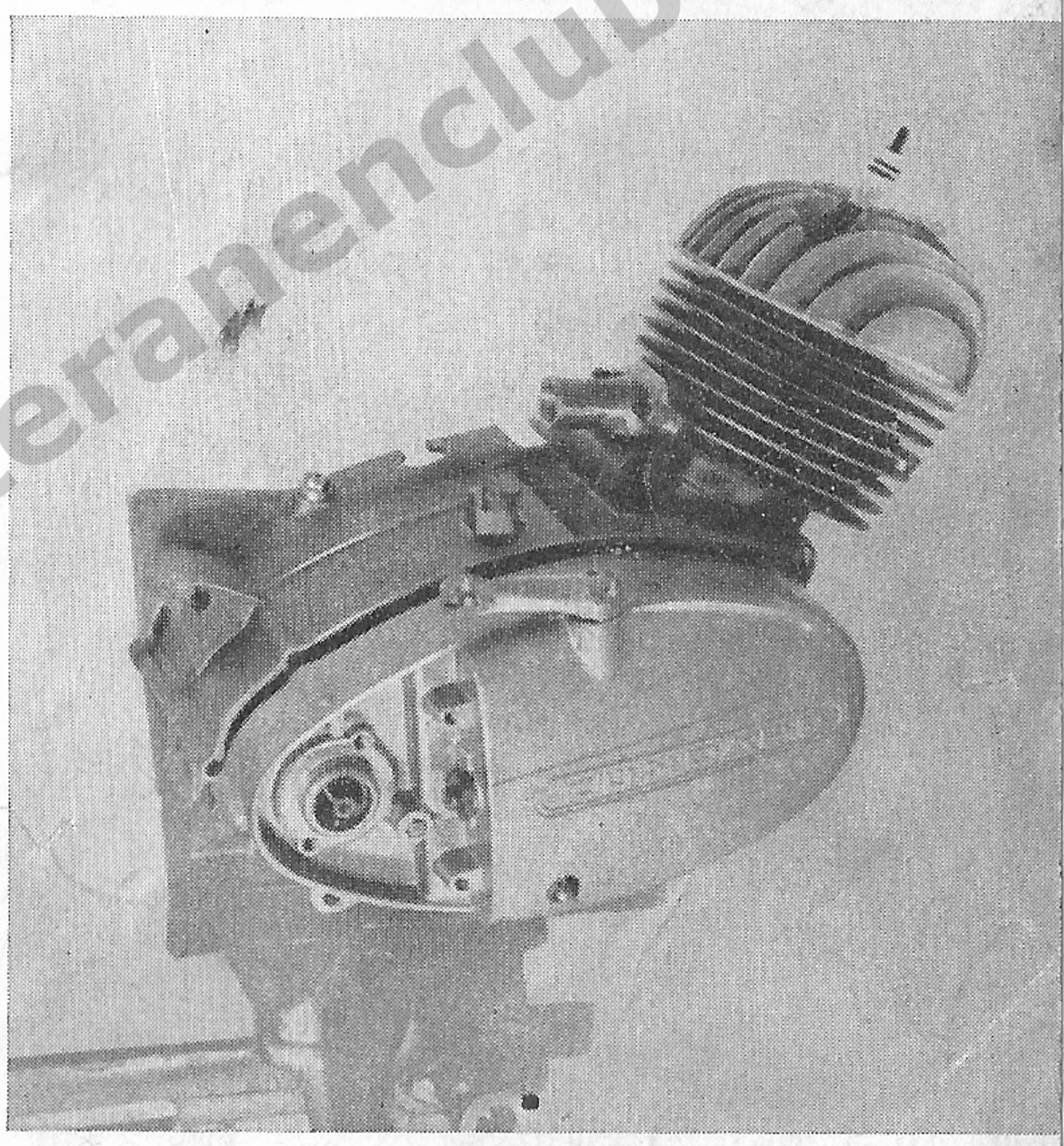


Fig. 11

e) Disassembly of the clutch

Remove the clutch pressure piece with spacer washers below out of the pressure disc. (fig. 12)

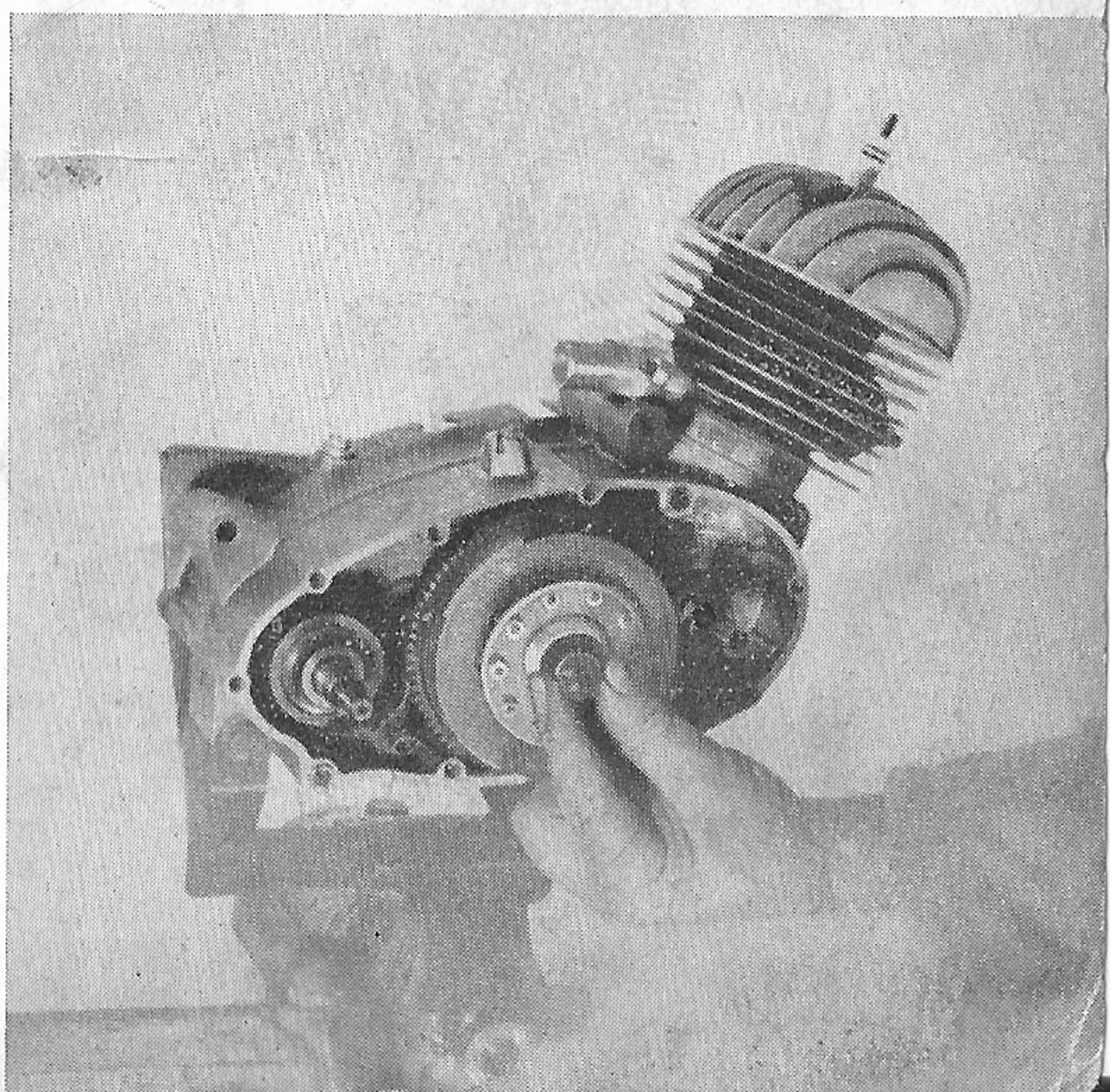


Fig. 12

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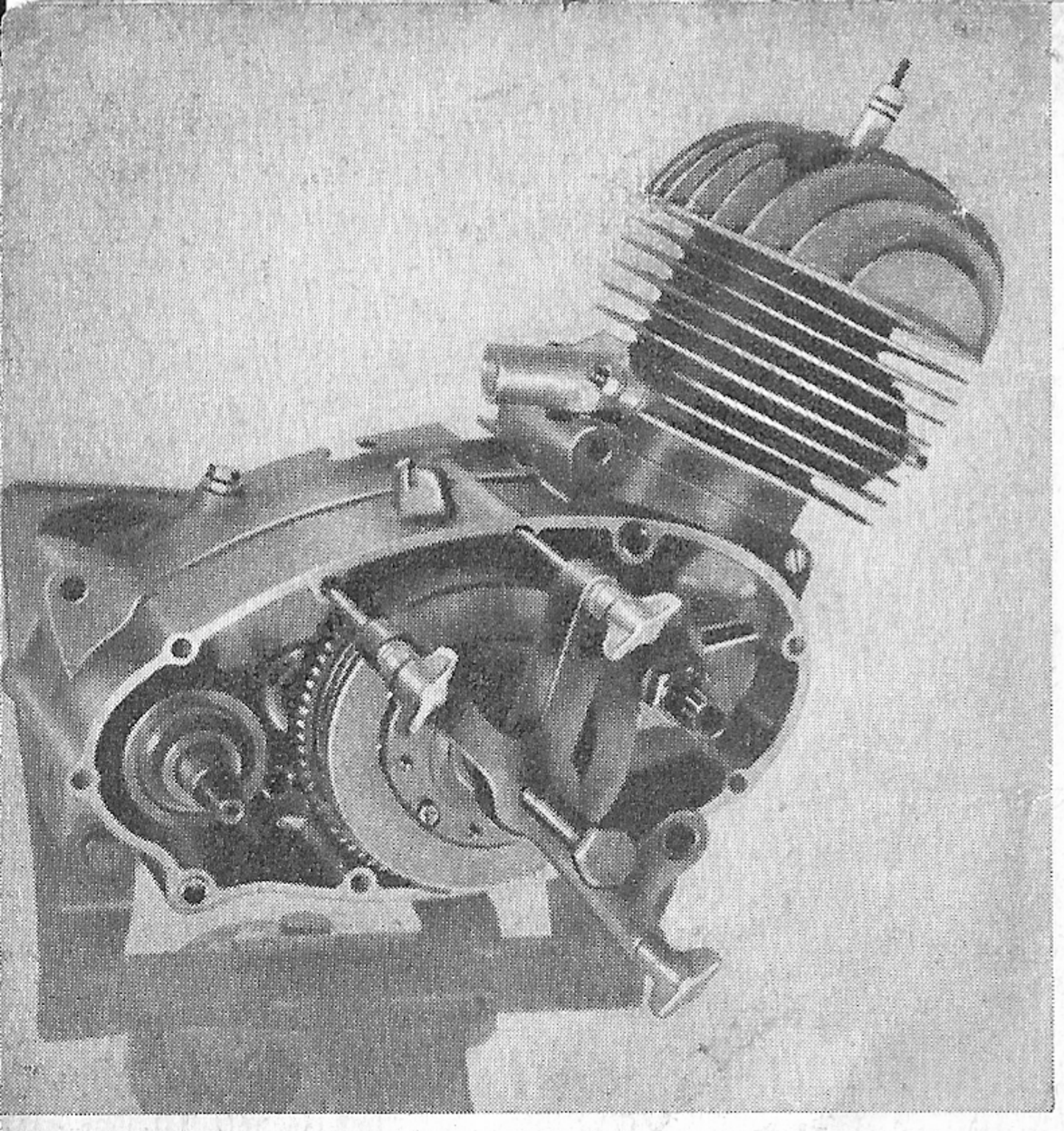


Fig. 13

Set in the tension device SK-A-234 with two bolts SK-A-237 and one bolt SK-A-266 and force the clutch.

Now the ten nuts M 4 (SW 7 mm) may be removed of the bolts on the supporting plate. (fig. 13)

Release the tension device and take it off. Now the pressure plate and clutch sleeves with springs may be taken away.

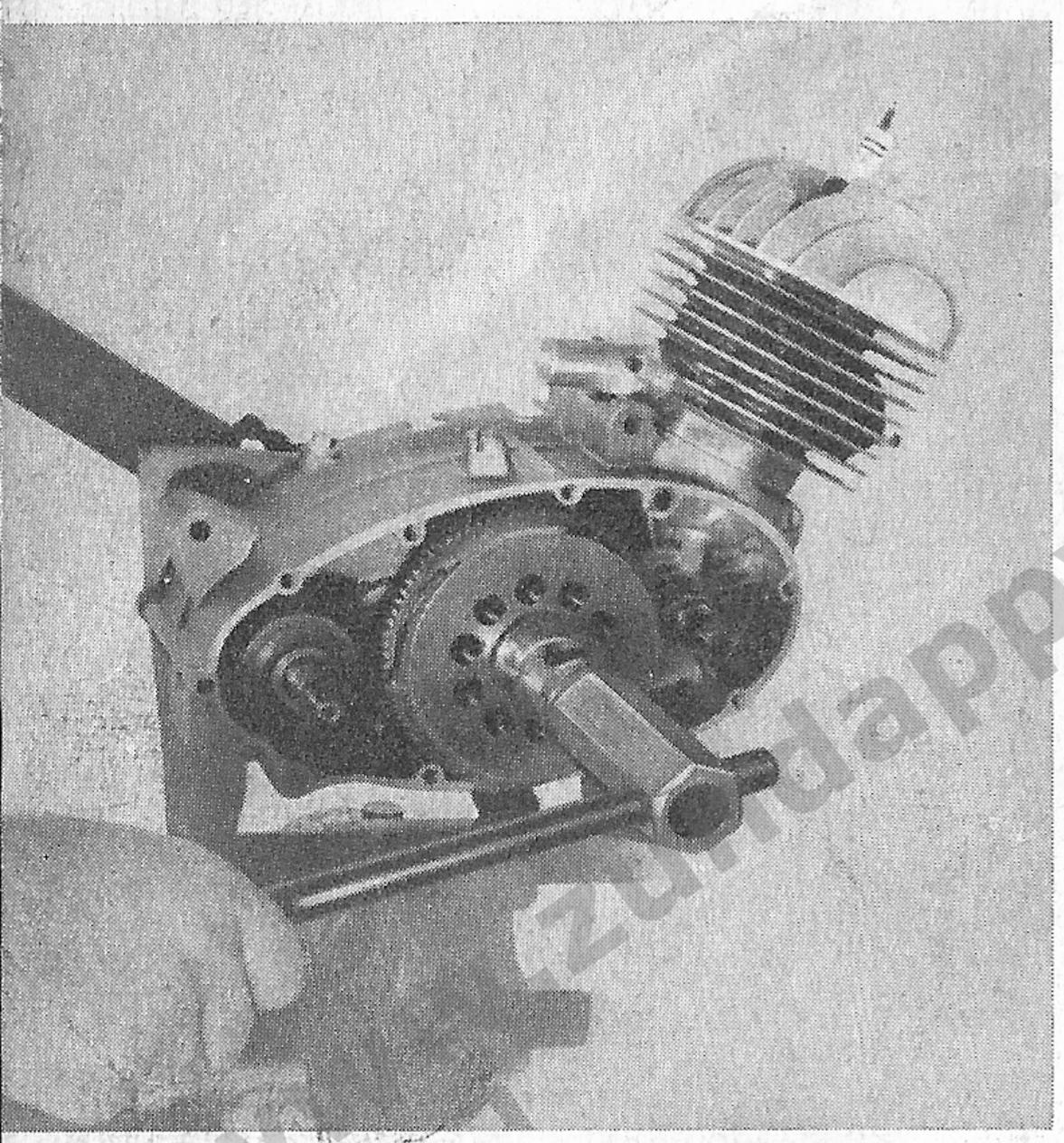


Fig. 14

Place gear 1st speed.

Loosen and take away the nut of the clutch (SW 27 clockwise thread) by means of the socket wrench. For a counter hold use the chain wheel holder on the drive pinion. (fig. 14)

Then take out the cover disc, three clutch linings, two clutch discs, the support plate and the clutch pinion. **Attention.** Watch for spacer washers behind the clutch pinion.

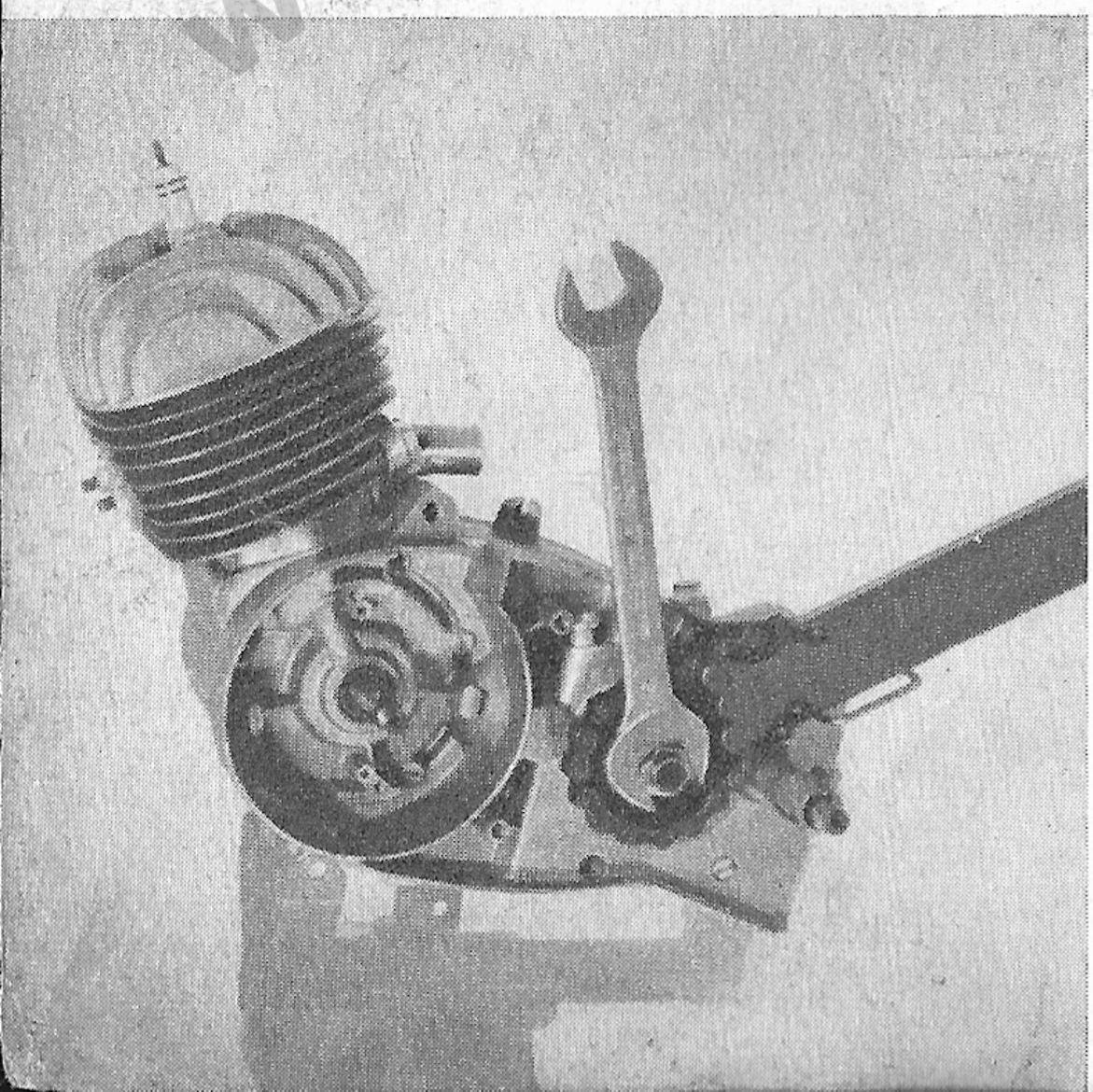


Fig. 15

f) Removing the drive chain sprocket

Turn the engine in the mount to the other side. Use for counter hold the chain wheel holder and loosen the nut (SW 19 clockwise thread) with a proper wrench. (fig. 15)

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g) **Removing the cylinder and piston**
Screw out with a socket wrench the 4 nuts M 5 on the cylinder head. Watch for washers.

Now take off the cylinder head, the cylinder and gaskets. (fig. 16)

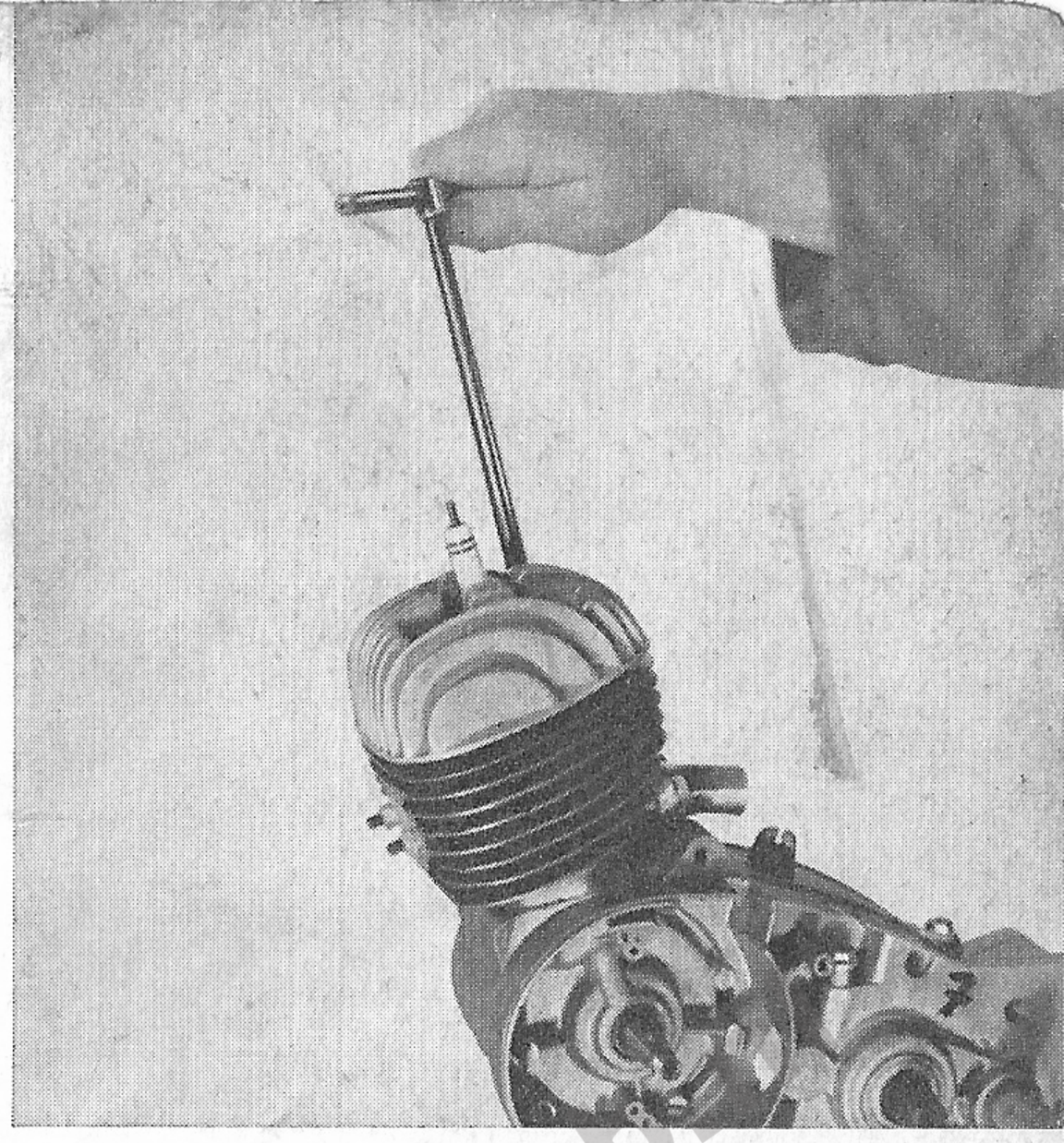


Fig. 16

Now take away the two circlips securing the piston pin.

After having removed the cylinder it is advisable to place a clean rag between piston and crankhousing. This is done to avoid damages of some parts and above all to prevent dirt from falling into the crankcase. (fig. 17)

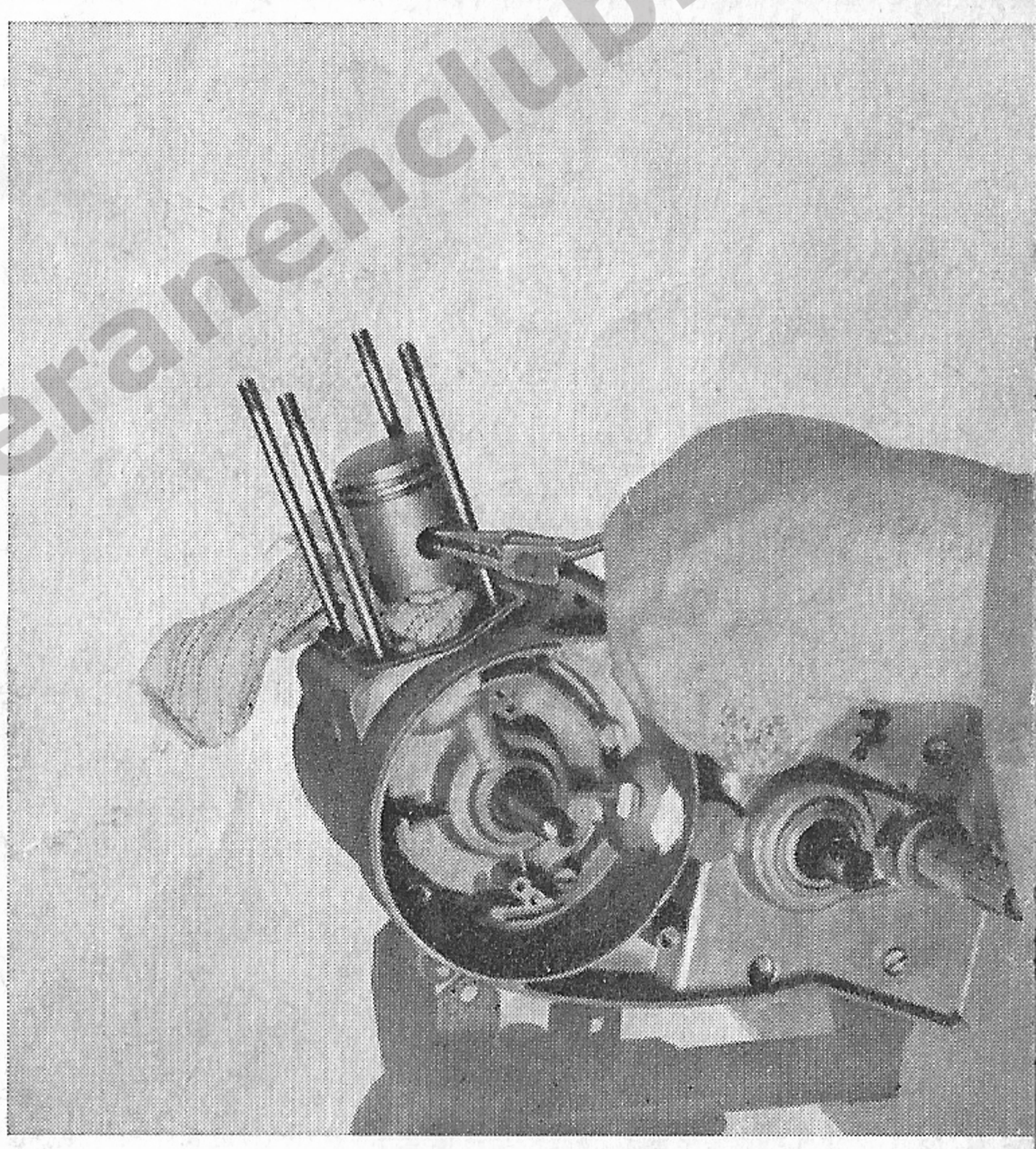


Fig. 17

Then force out the piston pin by forcing tool SK-A-64 and take off the piston. (fig. 18)

Attention. Take out the needle bearing for piston pin of the connecting rod and keep it protected from dust.

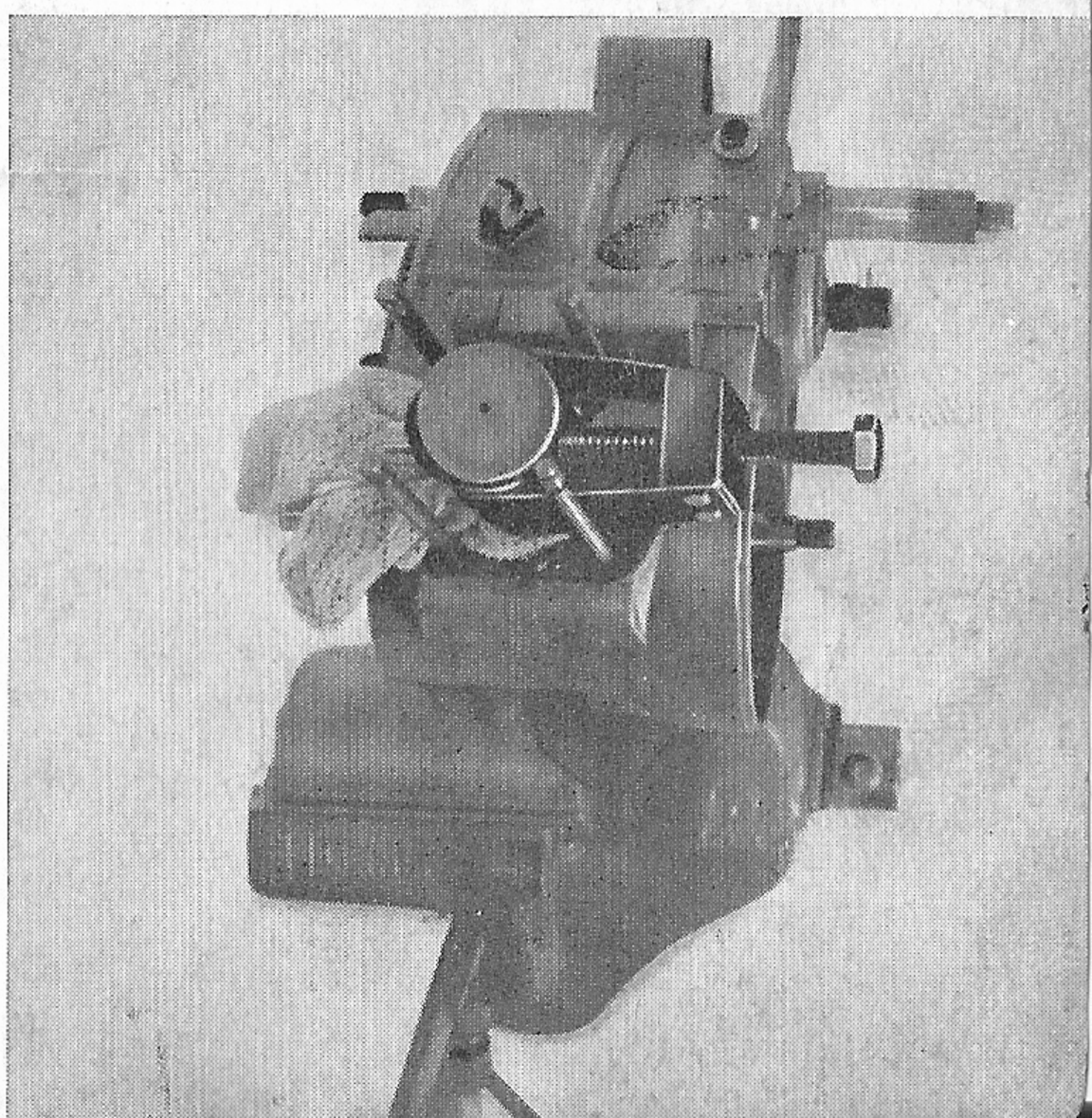


Fig. 18

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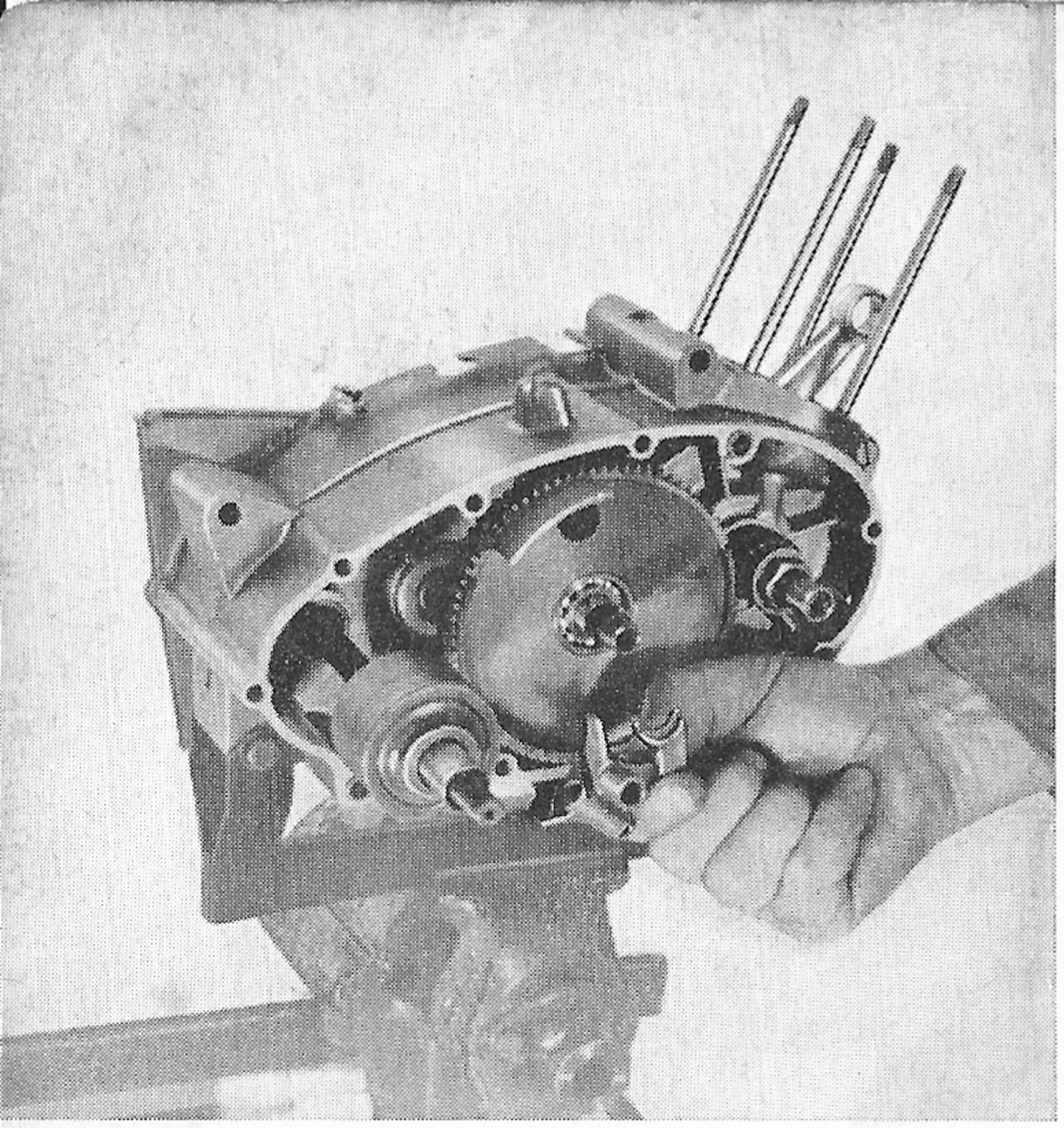


Fig. 19

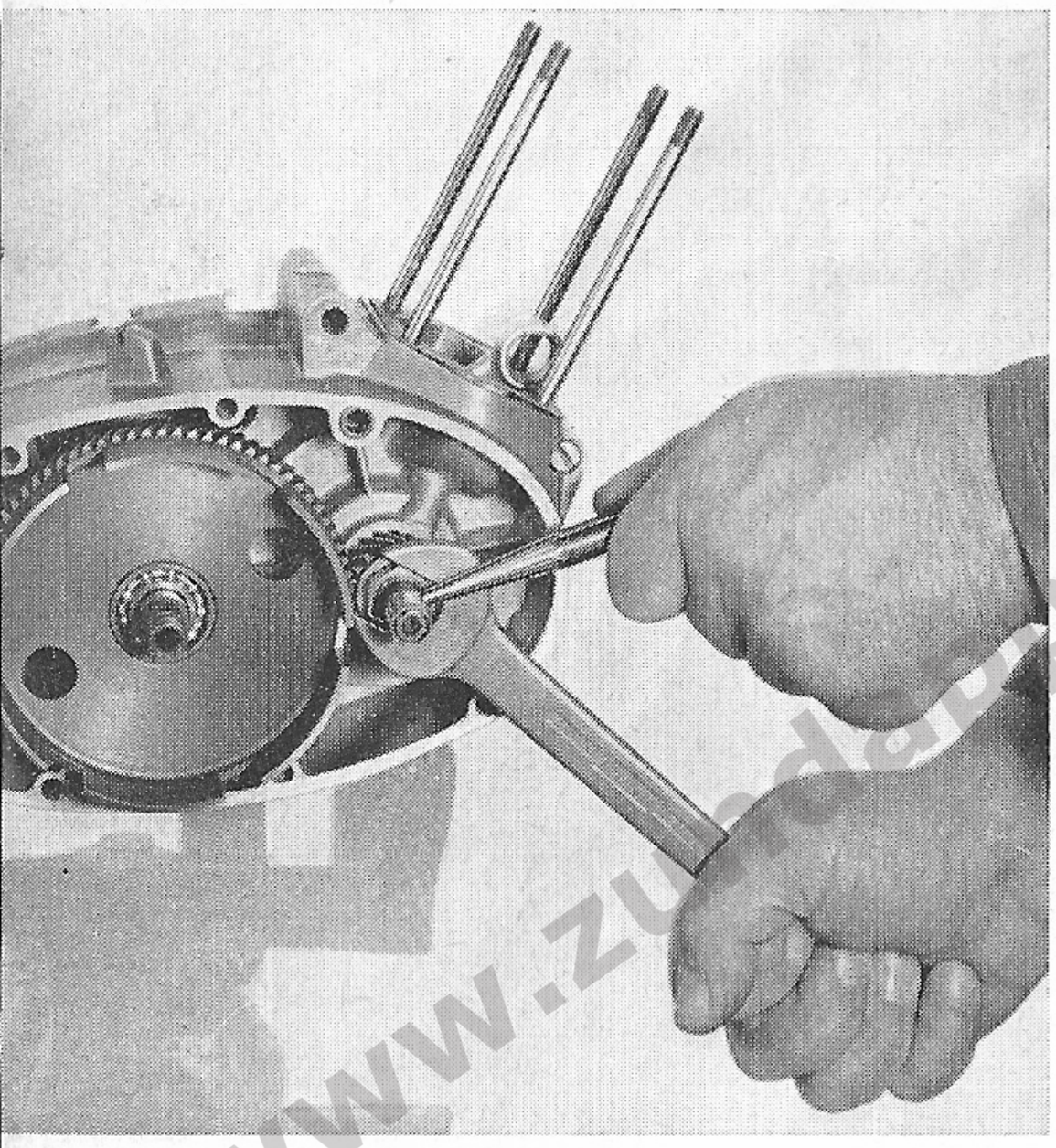


Fig. 20

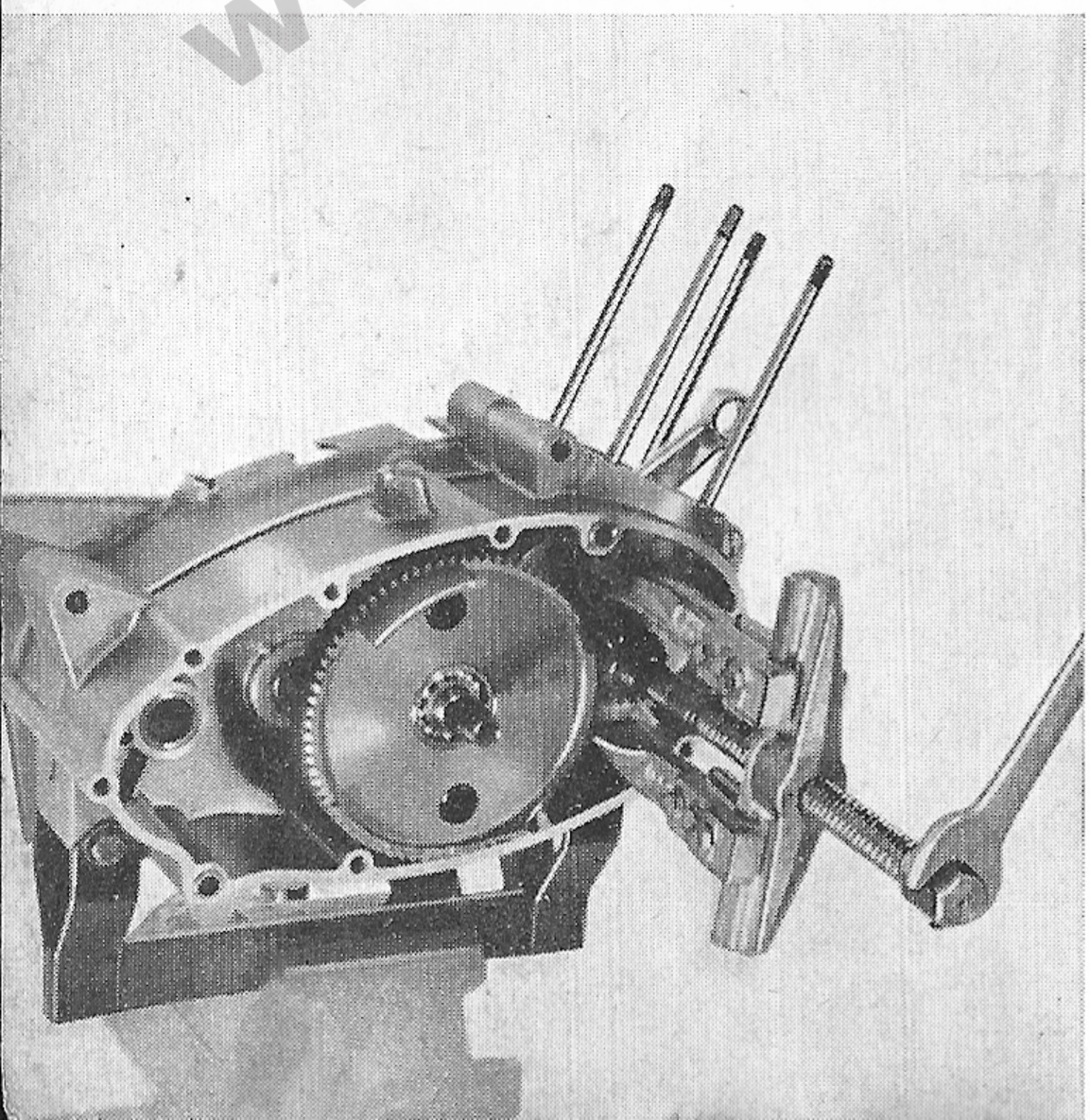


Fig. 21

h) Disassembly of the crankcase

Turn over the engine in the mount to the other side. Take out of the complete foot selector shaft and shift slide of the housing. (fig. 19)

Attention. Watch for the spacer washers behind the shift bell.

Lift the screen sheet at the nut of the pinion on crankshaft.

Introduce into the provided bore or on the sides of the crankpin respectively a mandrel or a forked key and support by hand. While doing this loosen the screw (SW 19 clockwise thread) by means of a ring wrench. (fig. 20)

In case it is impossible to remove the drive pinion by hand it is advisable to use an extractor with two jaws for the removing of it. (fig. 21)

Attention. Be careful not to loose the two steel bolts 5 mm which secure the pinion on the crankshaft.

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Turn out the cylinder bolt M 60 x 50 below the flange of the cylinder. (fig. 22)

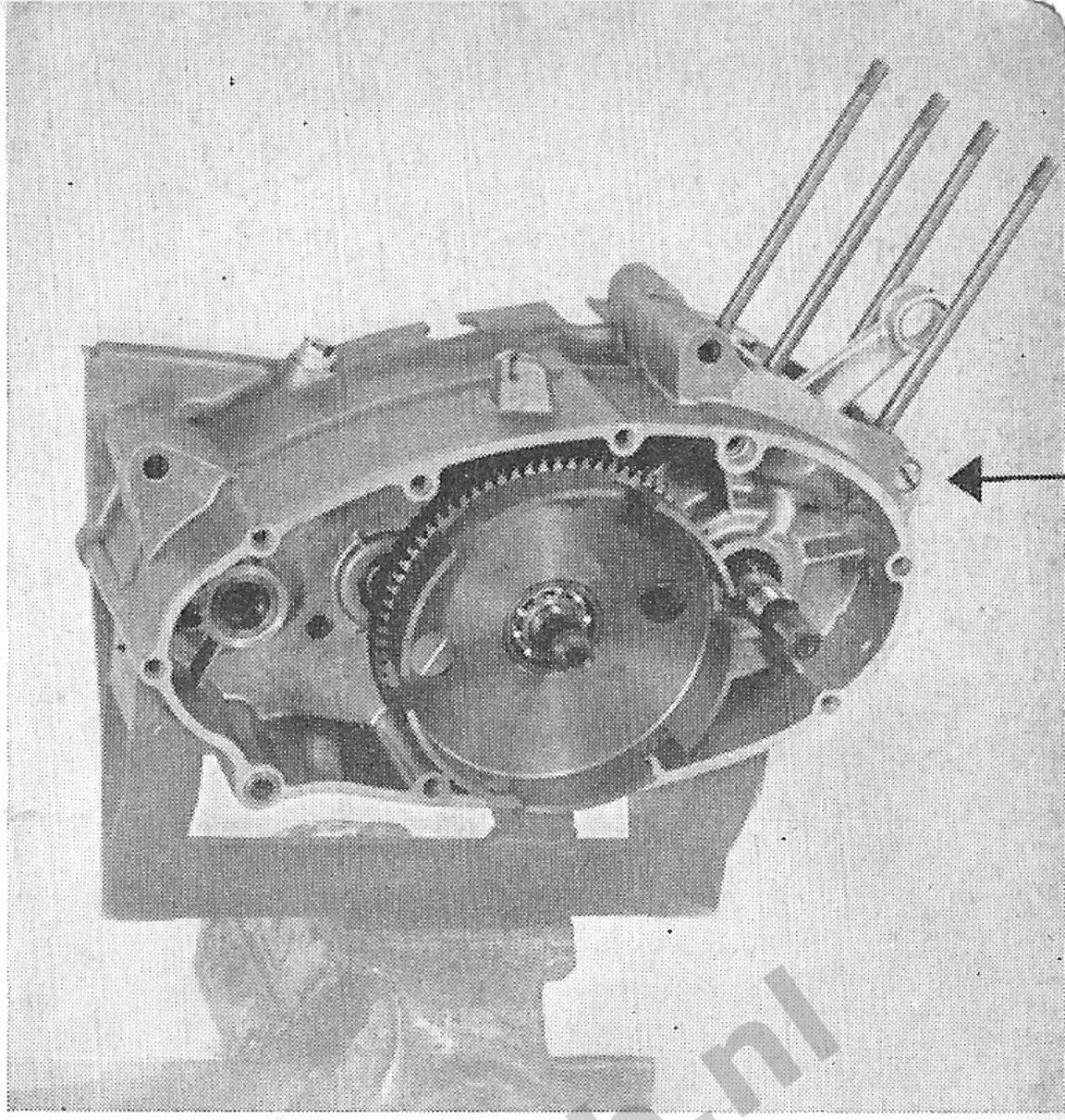


Fig. 22

Now turn the engine in the mount to the other side and remove two cylinder bolts (a) M 6 x 35 and one cylinder bolt (b) M 6 x 65 of the housing. (fig. 23)

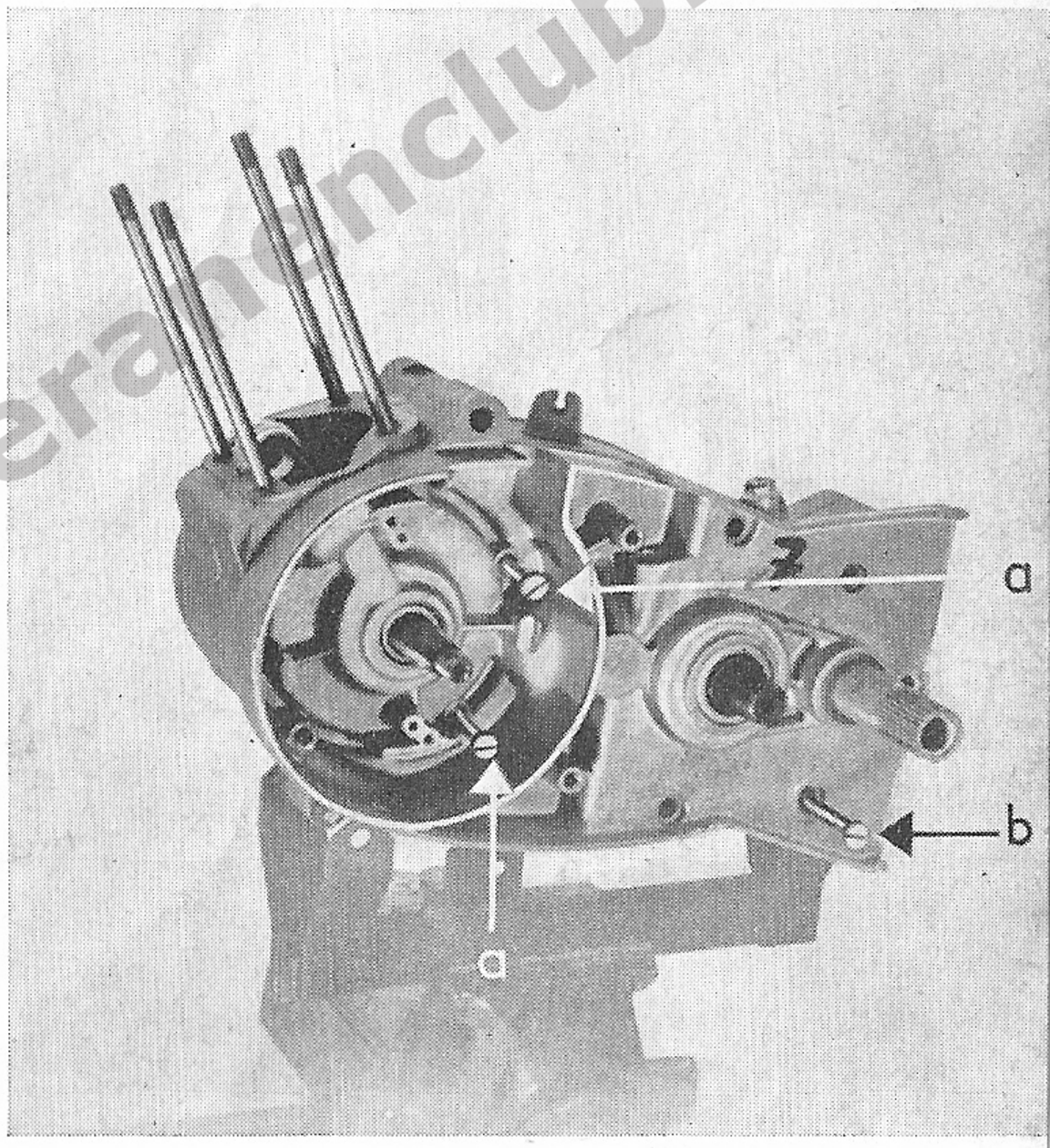


Fig. 23

Place the device SK-A-234 with two bolts M 8 – SK-A-246 and supporting bolt SK-A-213 on the left side just over the shaft for the flywheel magneto. (fig. 24)

Then lift the engine housing complete of the mounting bracket.

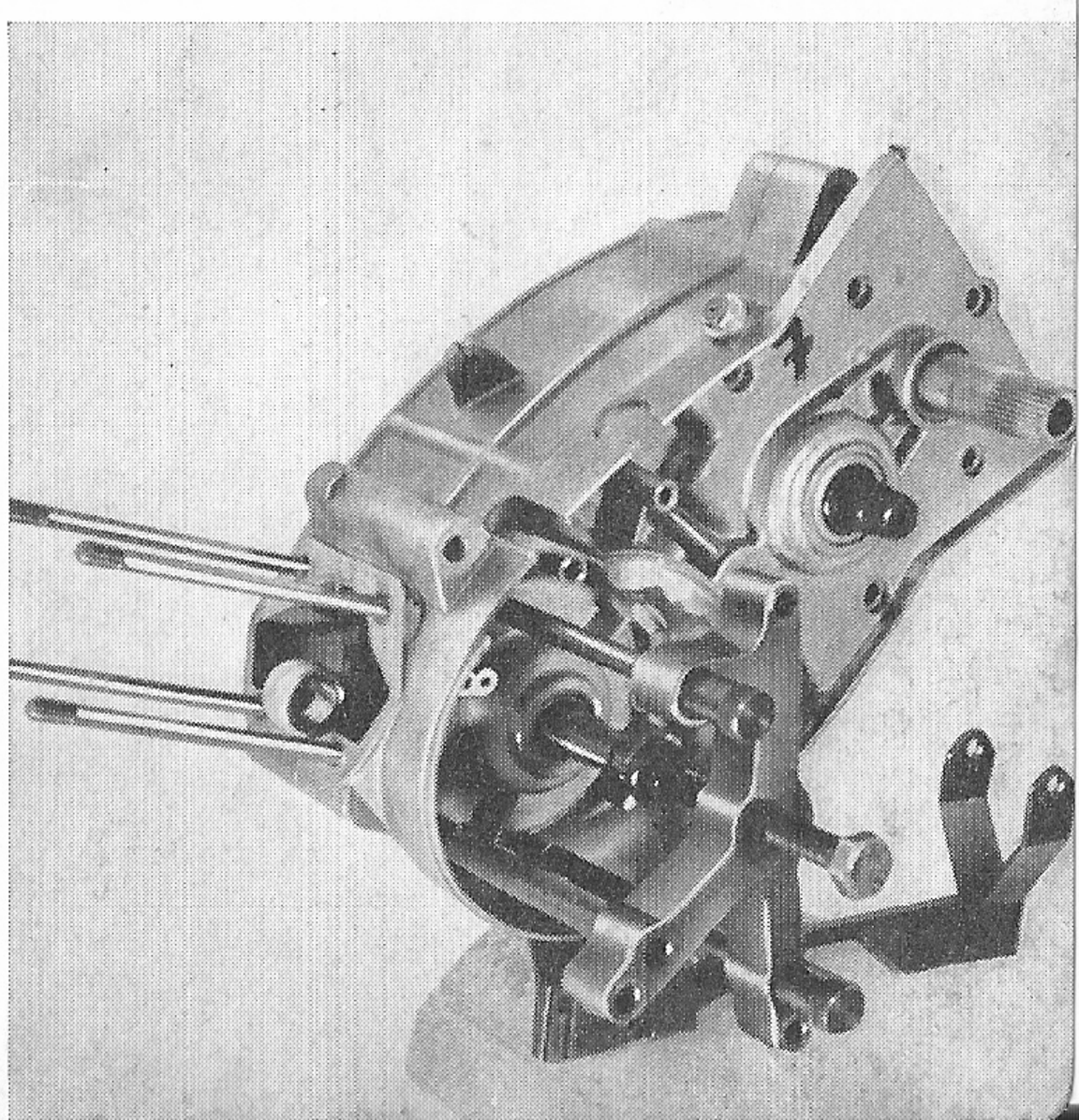


Fig. 24

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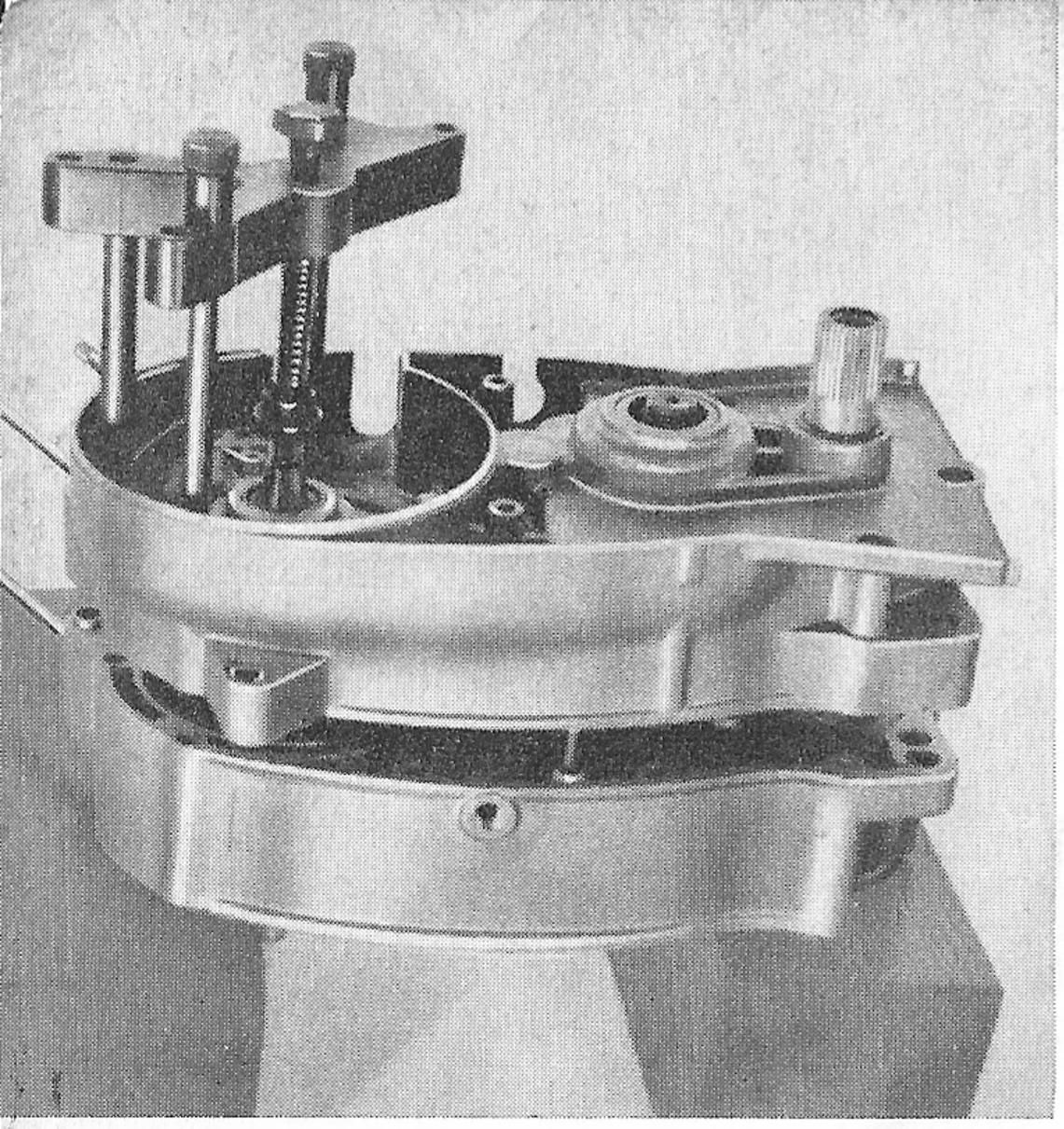
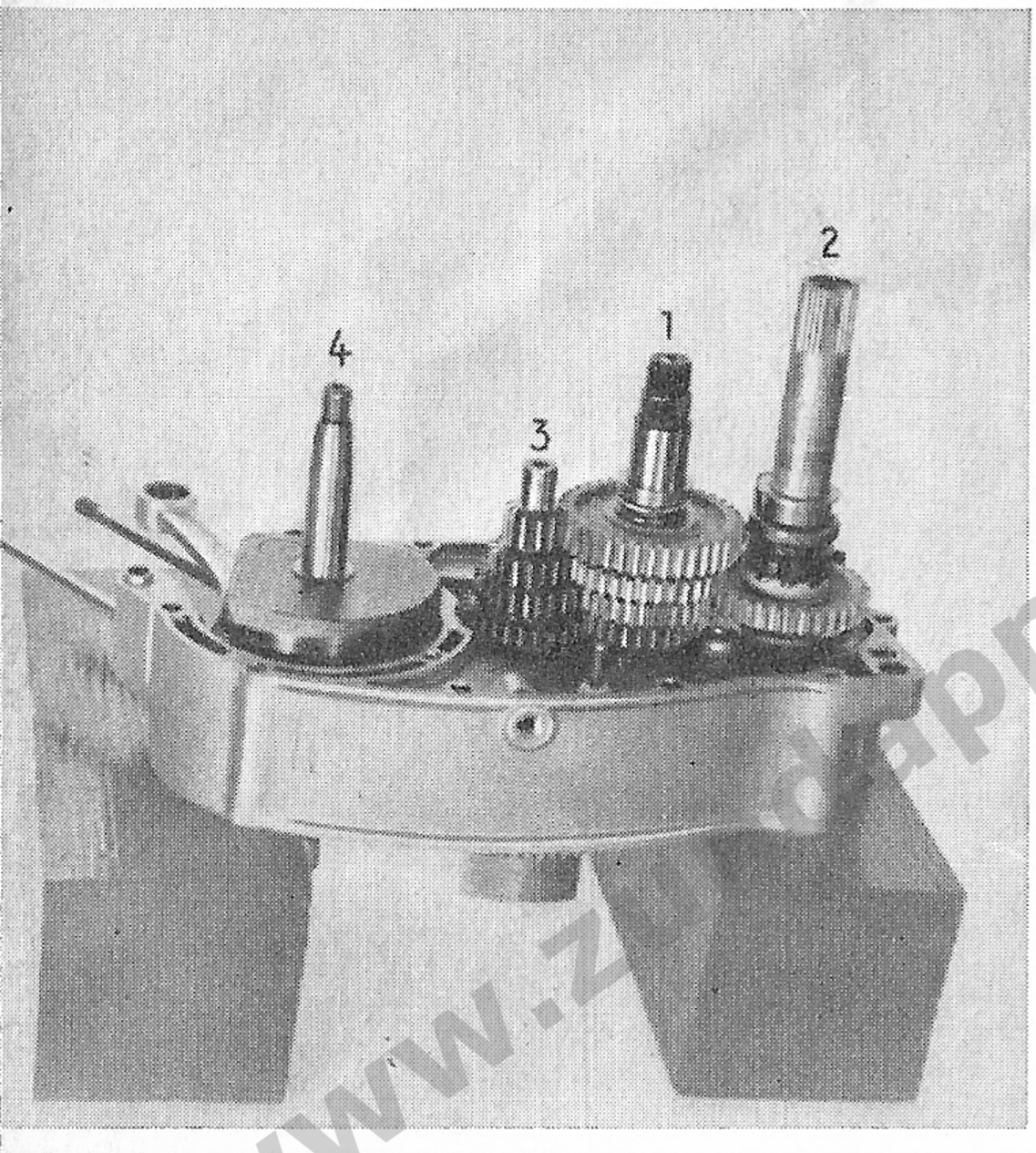


Fig. 25

Then place the housing block with its right side below on two wooden blocks and force the two housing parts away by turning the extracting bolt and by a slide pressure on the selector shaft and kickstarter shaft. (fig. 25)

Then lift the top housing part. When doing this utmost care must be exercised.



Fig, 26

Before lifting the shafts watch for the spacer washers and above all for the proper position of the pinions to each other. A careful execution will spare the adjustment and determination procedure when re-assembling the engine. (fig. 26)

The removal of the shafts is executed in the following sequence:

1. Selector shaft with pinions and pull cotter
2. Starter shaft
3. Transmission shaft

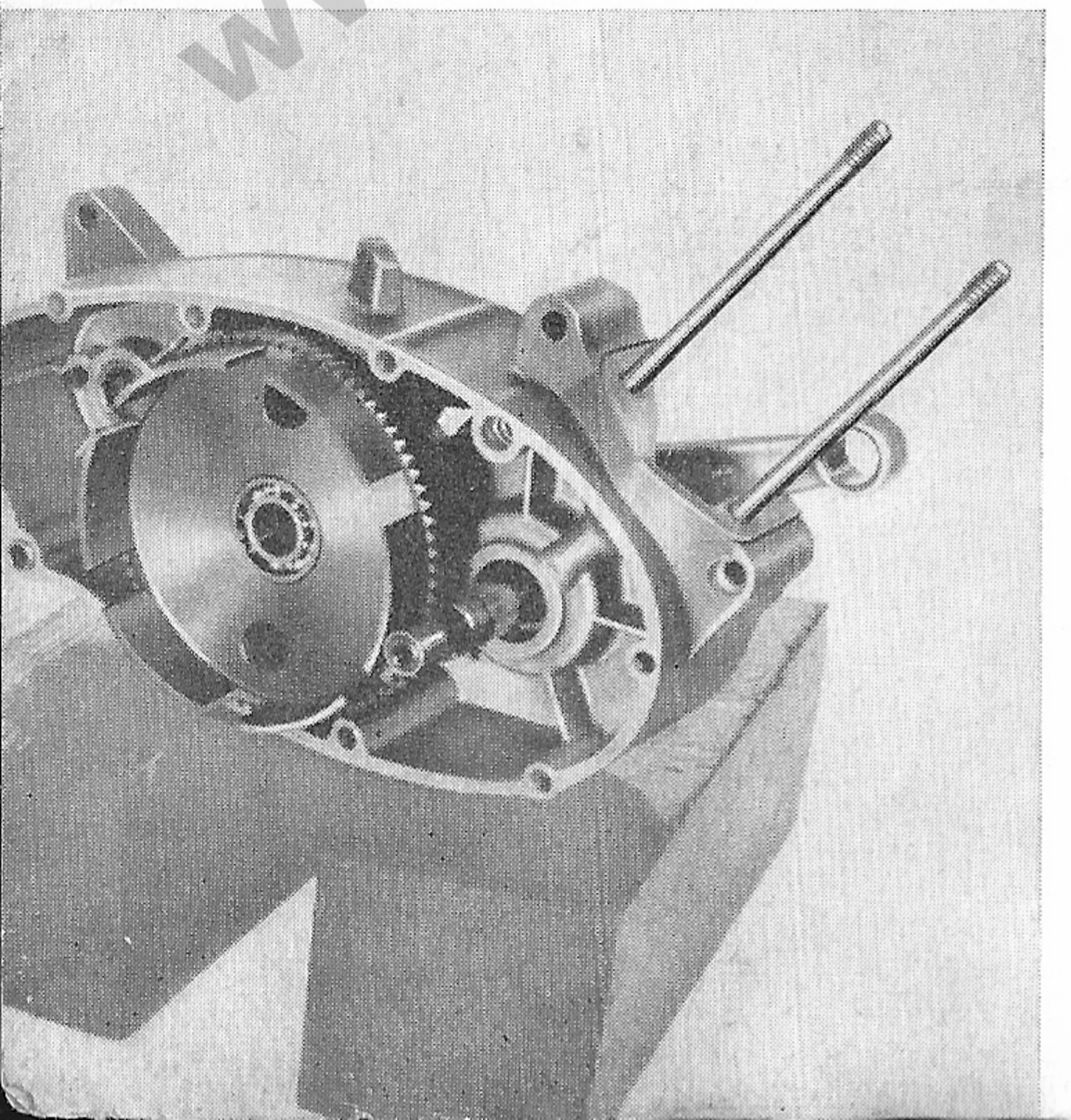


Fig. 27

4. Extracting the crankshaft of the right housing part (fig. 27).

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All removed shafts and pinions should be carefully examined especially for their proper conditions. Damaged parts are to be replaced. (fig. 28)

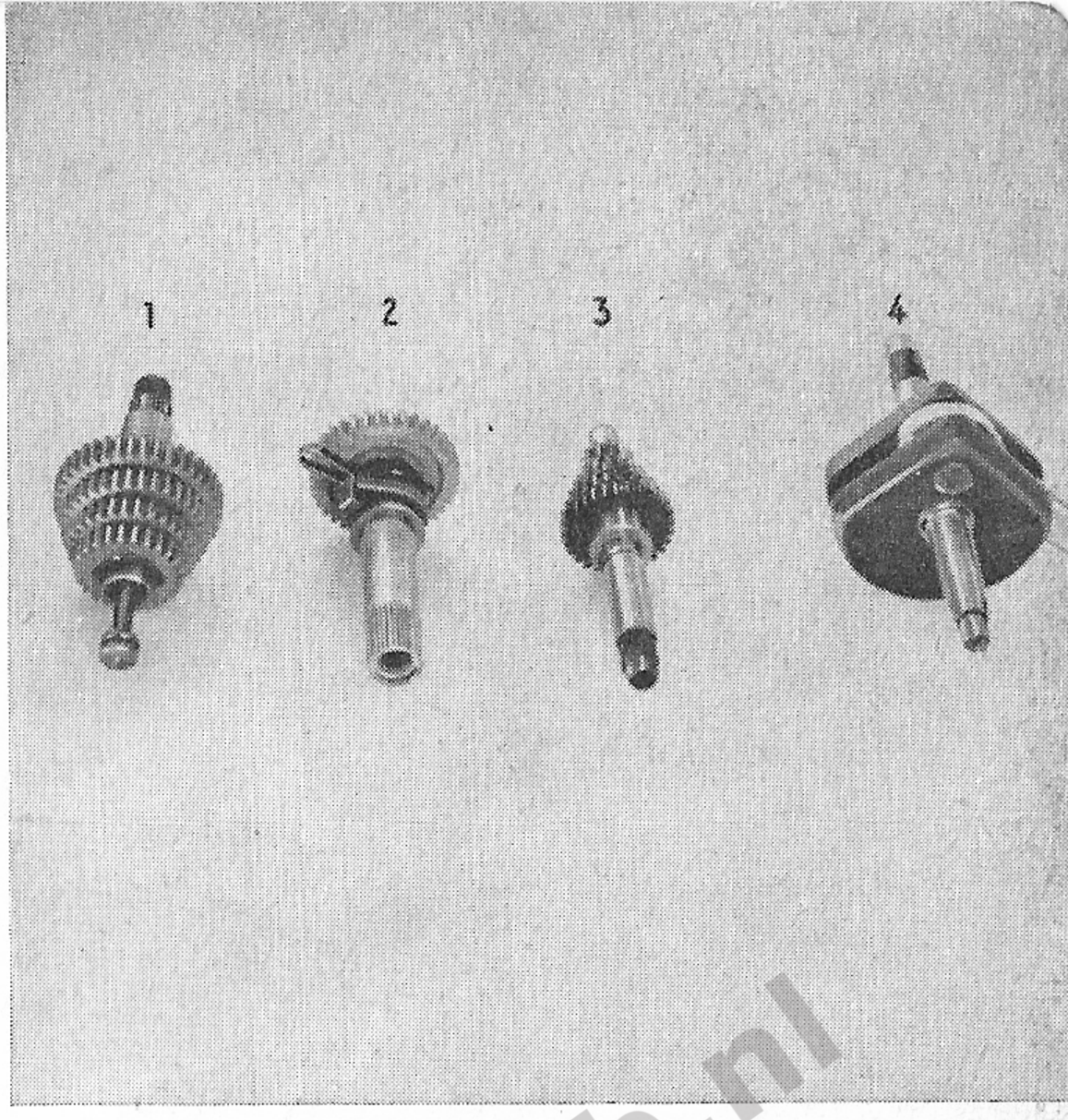


Fig. 28

After having removed the Seeger ring located behind the ball bearing in the housing the clutch sprocket may be extracted. (fig. 29)

In case the clutch sprocket and the two ball bearings show no damage removal of same is not necessary.

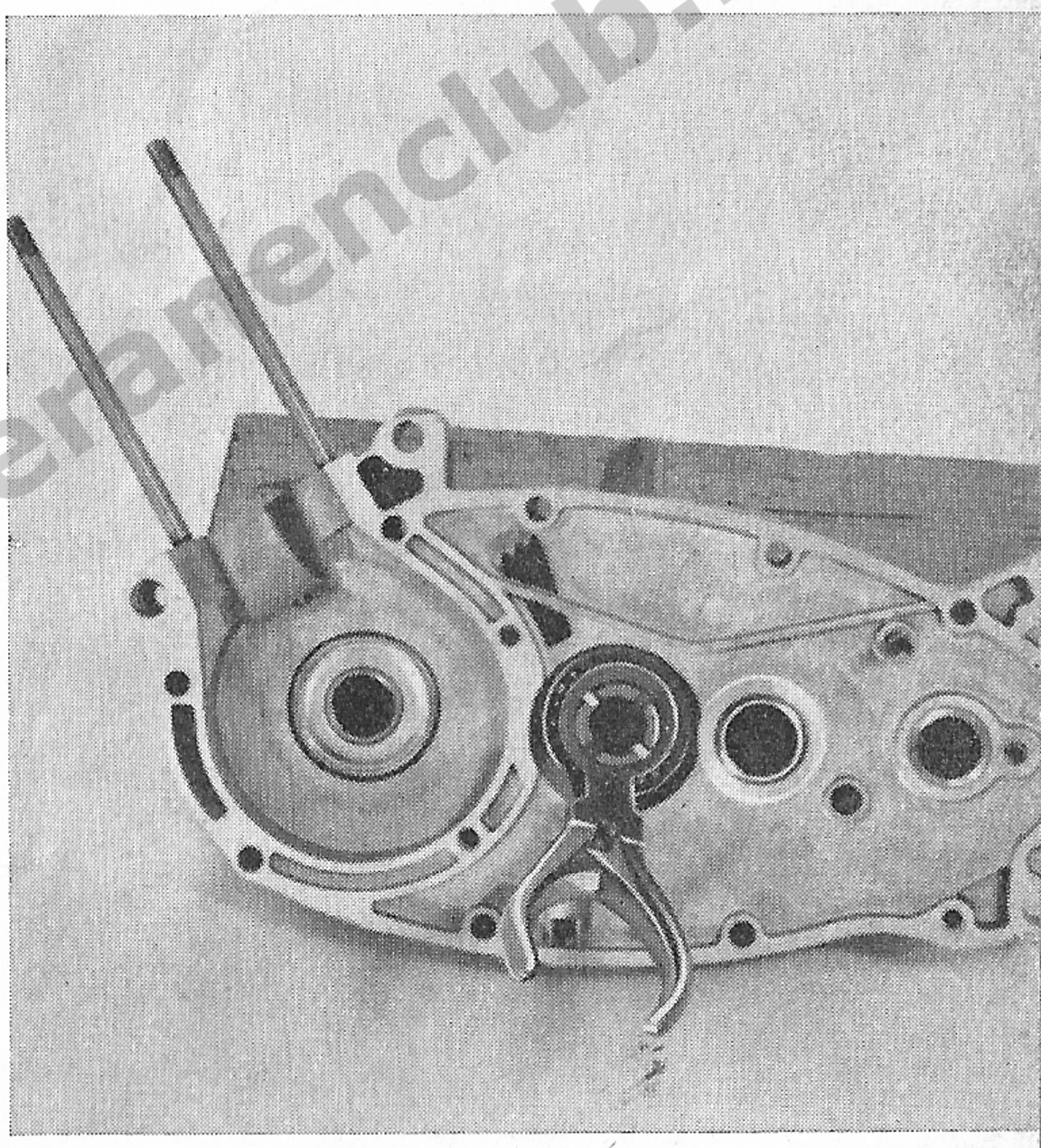


Fig. 29

If found necessary, the ball bearing in the clutch sprocket may be extracted by a simple bearing extractor. (fig. 30)

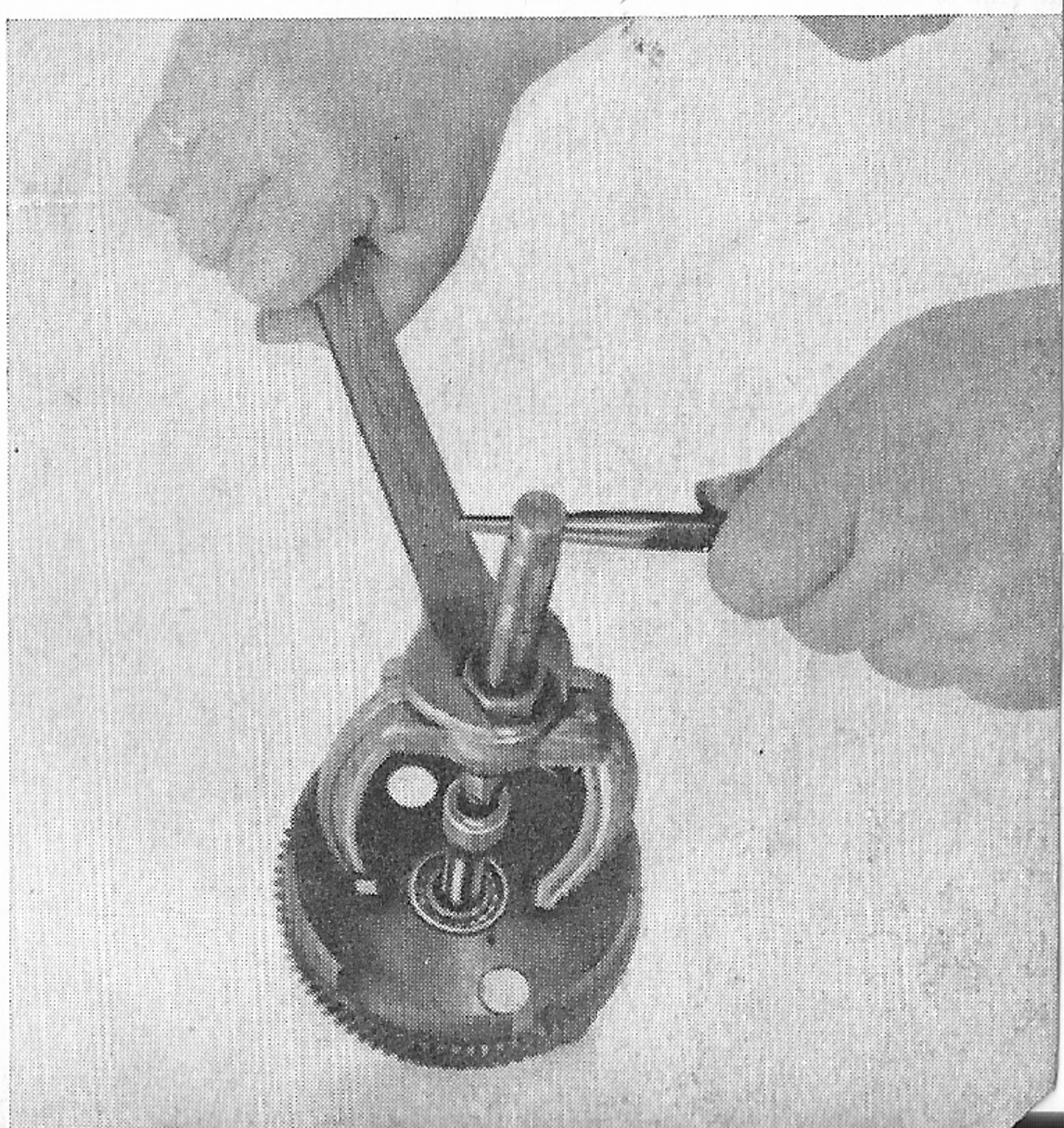


Fig. 30

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2. Assembly of the Engine Type 276

Before starting the assembly of the engine it is of utmost importance that all parts are quite clean. Brush away the luting agent from the jointing surfaces of the housing parts and check the proper condition of these parts.Damaged bearings, gears, shafts and housing parts should be replaced by original ZÜNDAPP spare-parts. Gaskets and seal rings must be replaced by new ones before the assembly.

All parts such as shafts, bearings and so on must be fitted until the stop in the provided bores. For the fitting of the ball bearing it is necessary to warm up the housing part to 85° C.

Brush all moving parts on their surfaces sufficiently with oil we described.

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a) Measurement of the axial play of the crankshaft

The admissible axial play is 0,1–0.2 mm. For taking the measurements the gauge SK-A-133 in connection with the measuring sleeve SK-A-236 is necessary. Introduce the gauge with its loosened fixing screws between the ball bearings of the two housing parts and screw same together. Then tighten the Imbuss bolt by means of an angle wrench. (fig. 31)

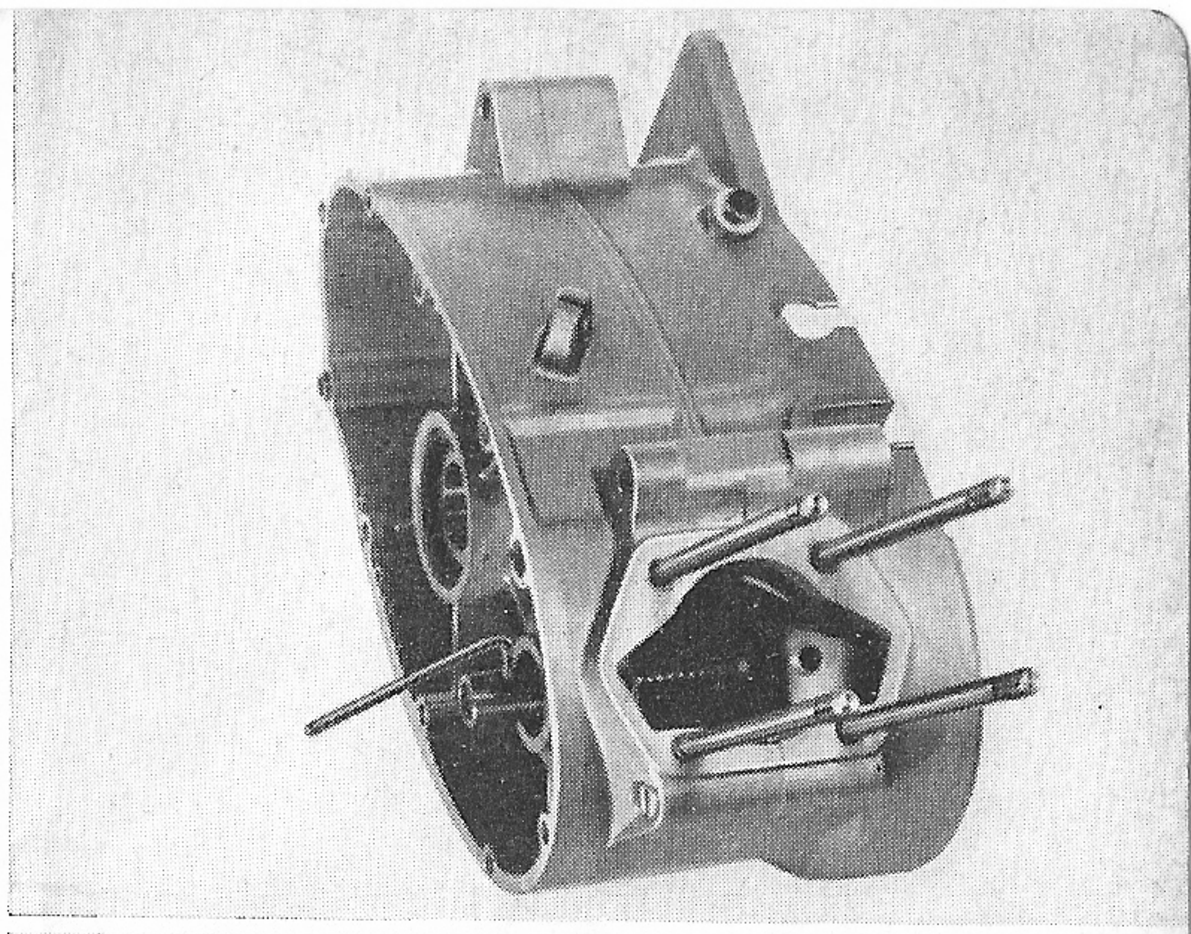


Fig. 31

Then remove the two housing parts and take off the gauge. The distance will be measured by means of a sliding calliper. (fig. 32)

Note the measurements.

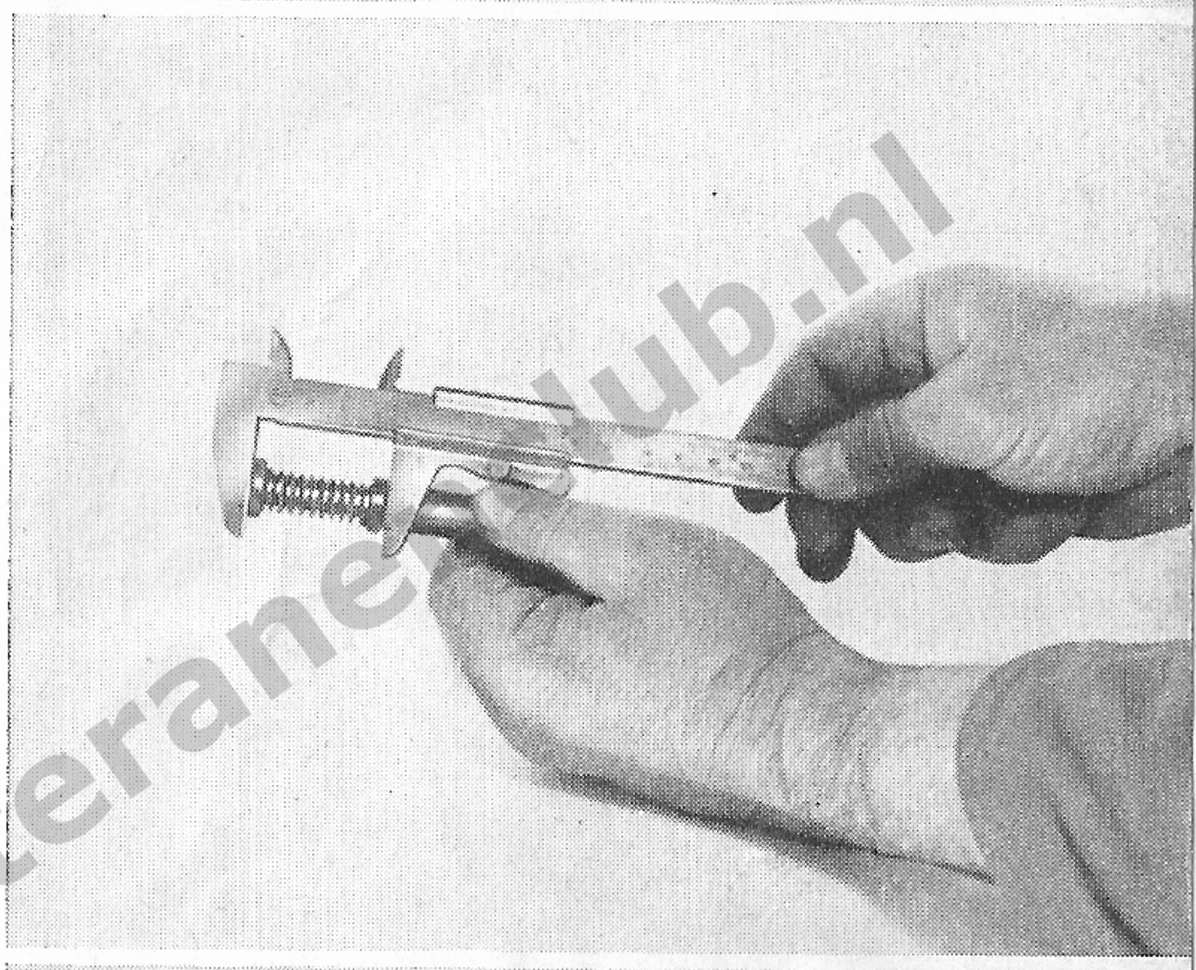


Fig. 32

Then take the measurements of the crankshaft between the two crankcheeks. (fig. 33) The difference between the two found measurements minus 0,1 or 0,2 respectively is the exact measurement which must be compensated by washers.

Take a half of the found measurements and compensate the difference on both sides on the crankshaft. (fig. 34) On the right side of the crankshaft (drive shaft) 1 mm is already compensated as a fixed rate. The rest is compensated on the left side of the crankshaft (shaft for ignition magneto).

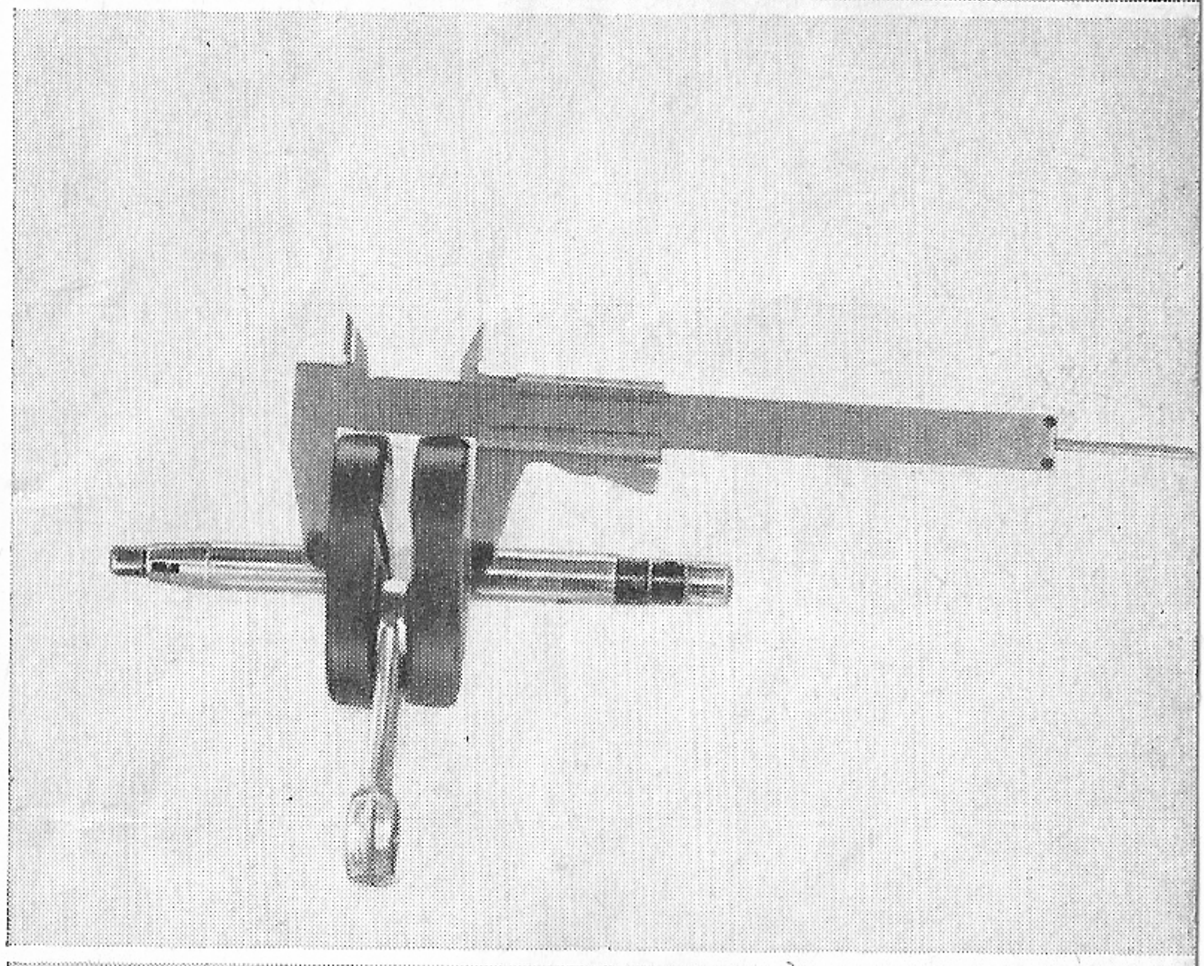


Fig. 33

Example:

Fixed measurements on the gauge	=	58,9 mm
measurement on the crankshaft	=	57,1 mm
difference	=	1,8 mm
axial play	=	0,1 mm
to be compensated	=	1,7 mm

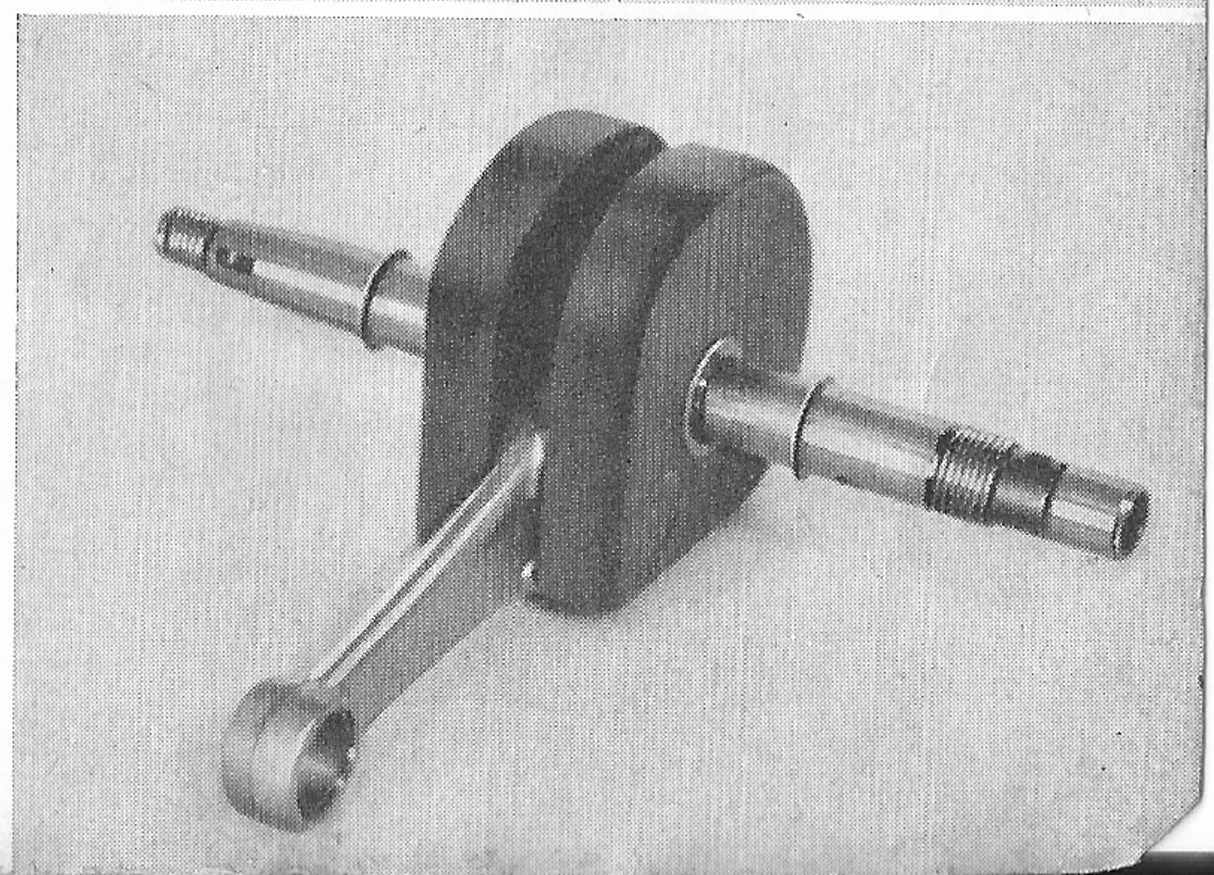


Fig. 34

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Fig. 35

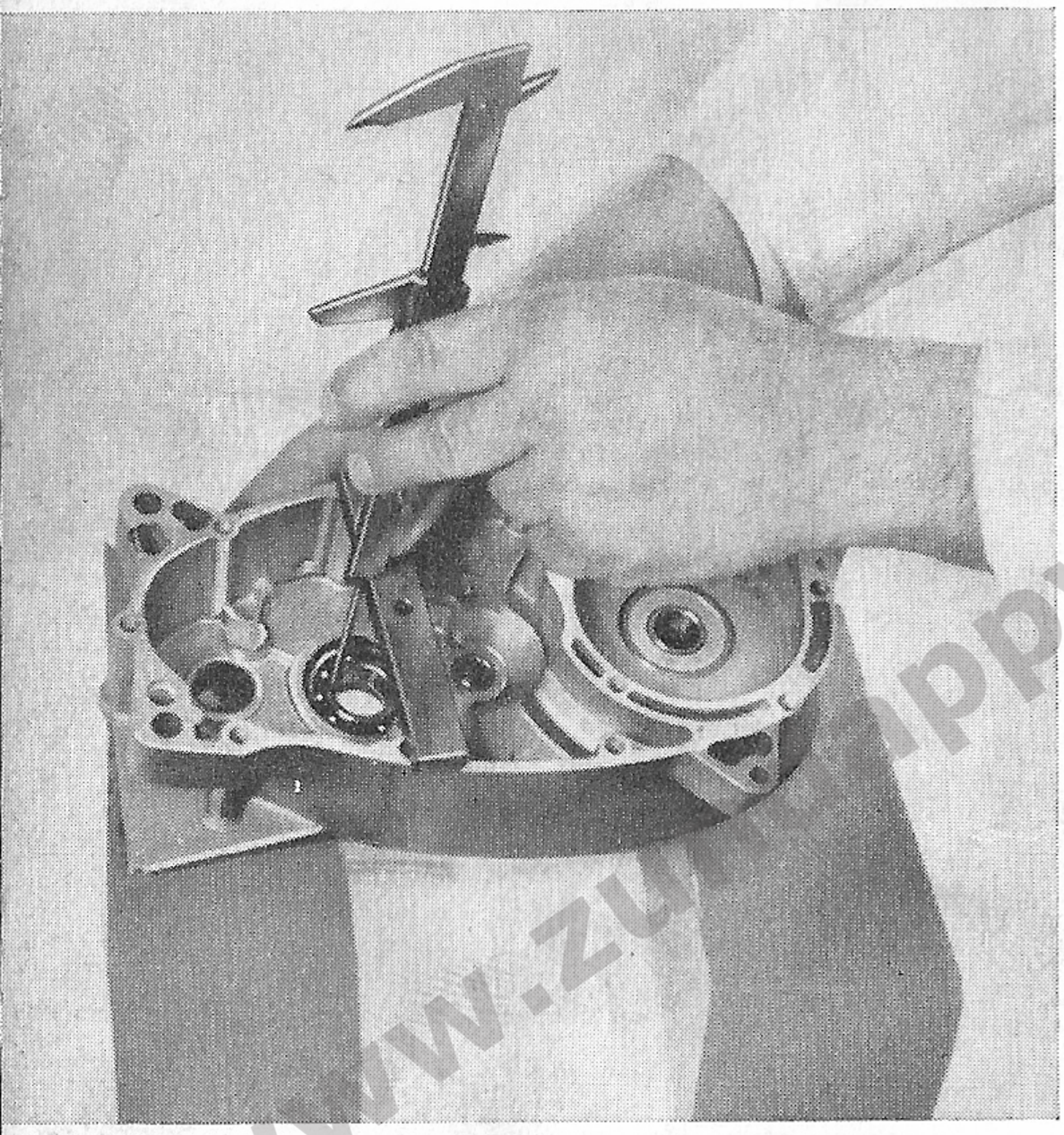


Fig. 36

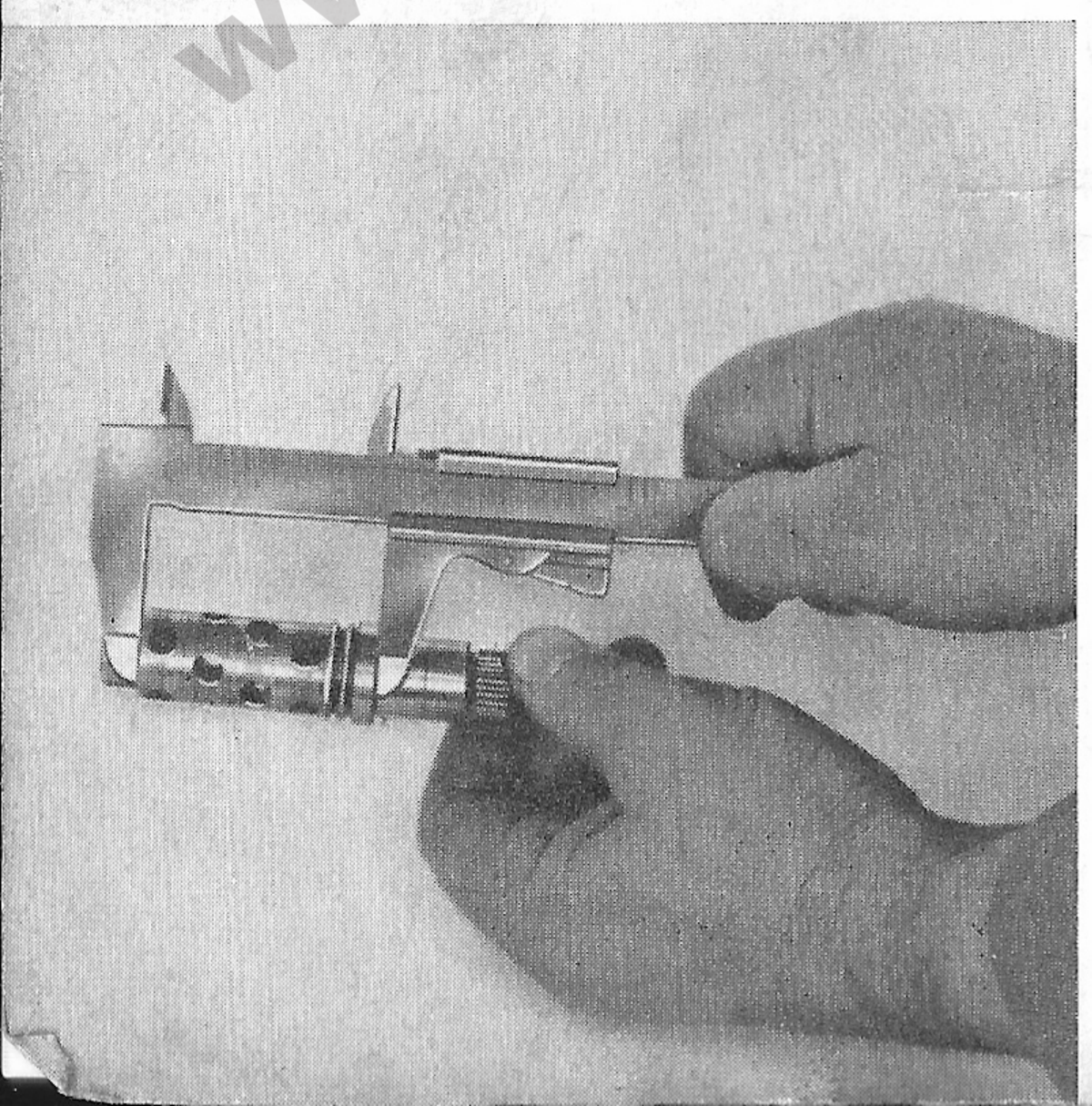


Fig. 37

b) Taking the axial play of the selector shaft

Put a measuring bridge over the right housing part in such a way that by means of a calliper the difference to the stop side of the selector shaft in the housing may be determined. (fig. 35)

The found measurements are to be noted. When doing this consider the thickness of the measuring bridge.

Then put the measuring bridge on the left housing part and take the measurements to the bearing ring (stop of the selector shaft). (fig. 36)

The measurement fixed in this way is to be added to the measurement on the right housing part.

Attention. Consider the thickness of the measuring bridge.

Now determine the exact measurement of the selector shaft between the two stop sides. (fig. 37)

This measurement is lower than the measurements according to fig. 35 and 36.

The difference is compensated by placing washers between ball bearing and speedometer pinion on the selector shaft until a play of 0,1 mm is left.

Example:

Found measurement fig. 35	22,7 mm
found measurement fig. 36	+ 34,9 mm
together	57,6 mm
measurement fig 37	− 56,9 mm
	0,7 mm
axial play	− 0,1 mm
to be compensated	0,6 mm

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c) Measuring the selector pinions

Press in the selector shaft with compensating washers into the left housing part and place on the selector pinions in such a way that the collar shows on top. That means that the collar of the selector shaft points to the larger selector pinion. The fitting of the selector pinions is correct when between the pinions only one oil-groove is to be found. Now take the measurements between the front surface of the selector shaft to stop surface of the selector pinion by means of a gauge. (fig. 38)

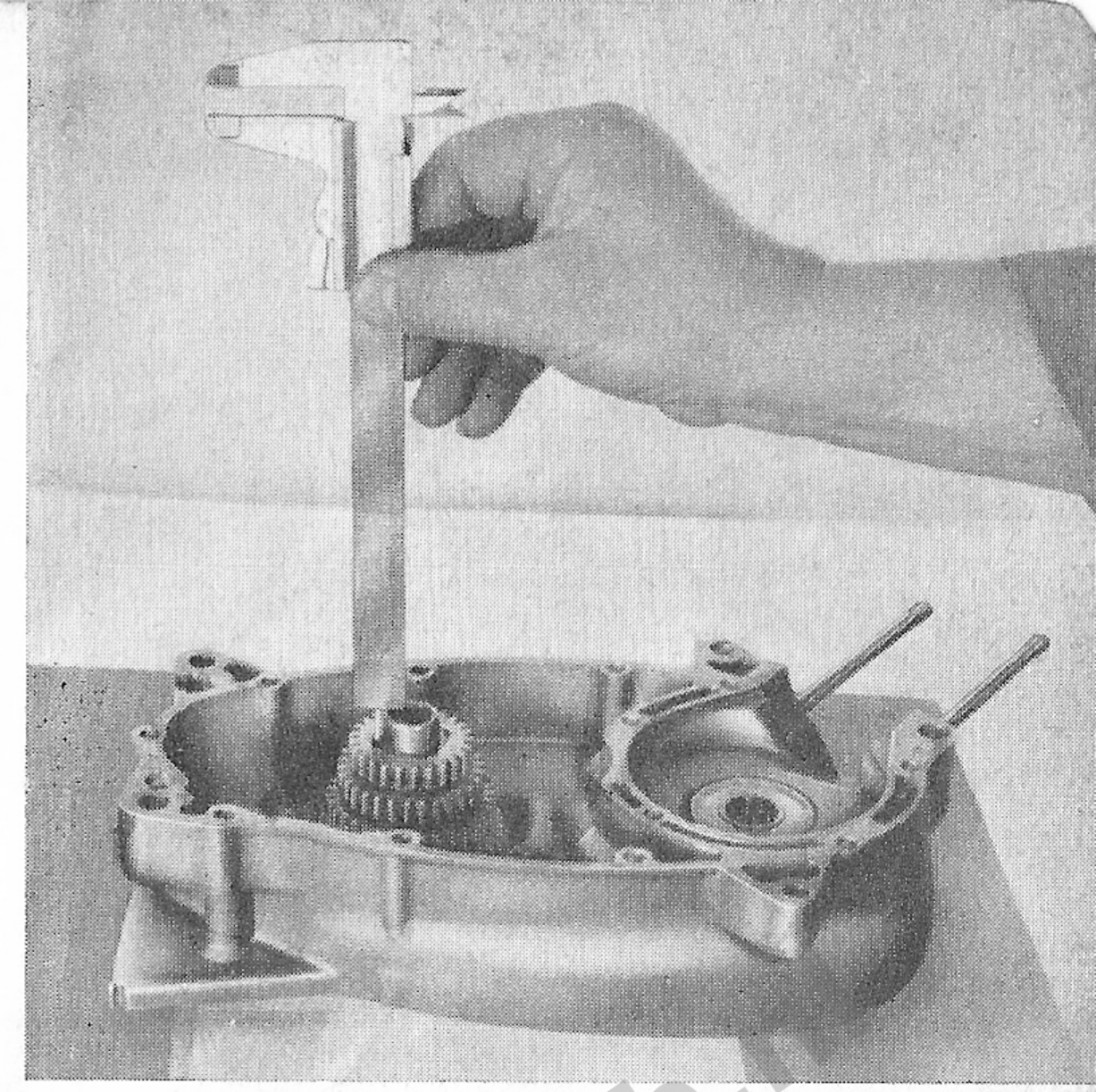


Fig. 38

Then again take the measurements of the same position to the stop collar of the selector shaft. (fig. 39) Under no circumstances this measurement must be higher than those of fig. 38.

In order not to confine the movements of the selector pinions the exact measurements must be lower of appr. 0 to 0,1 mm.

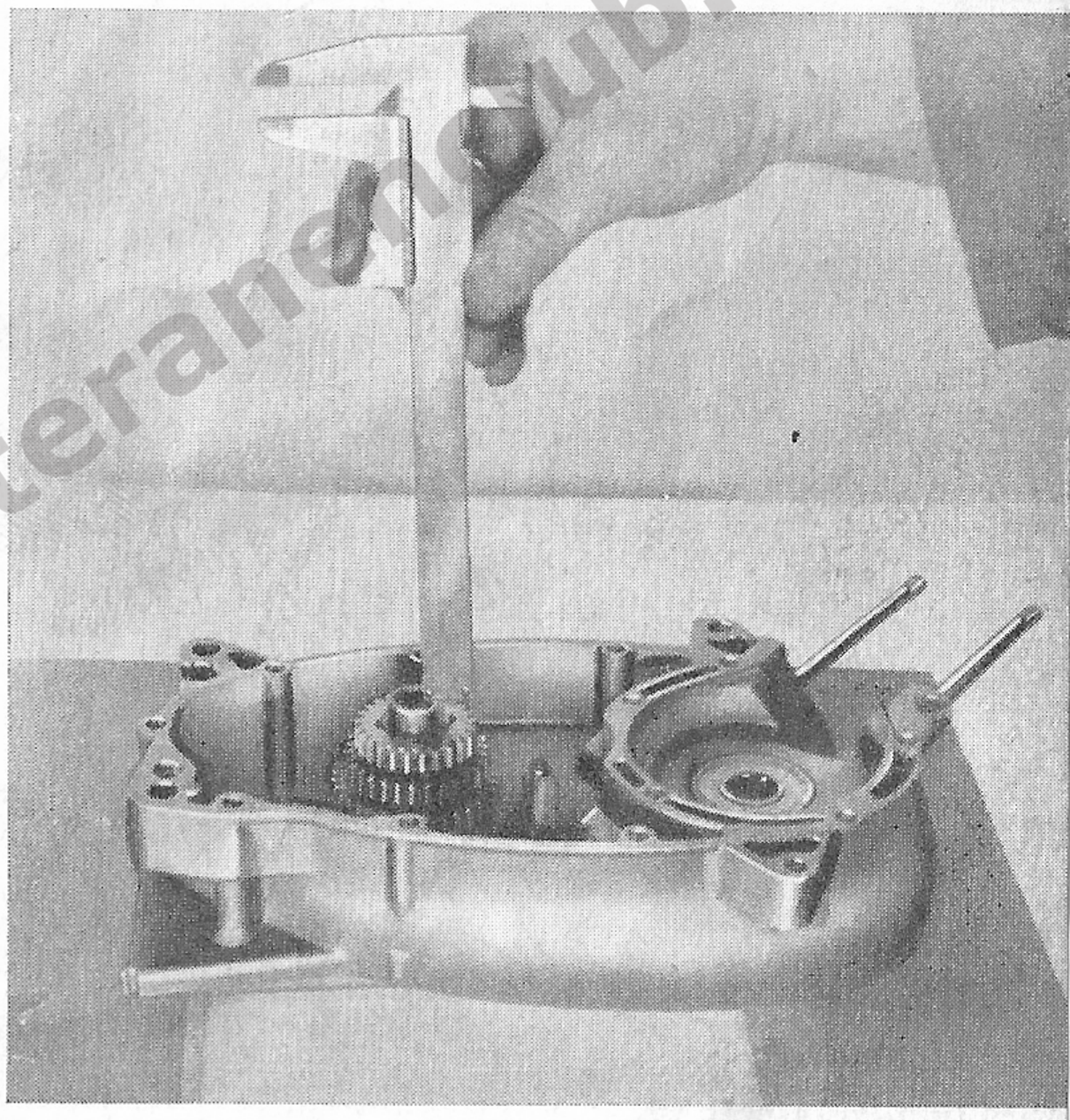


Fig. 39

In case the axial play of the selector pinions is too large this difference is to be compensated by washers between a pinion of the first and second speed until the admissible play is obtained. (fig. 40)
Attention. Be careful not to place the balls for selector pinions by means of grease but use oil instead. Before fitting the selector shaft check very carefully if the fixing pins of the pull cotter shaft with spring have been exactly mounted.

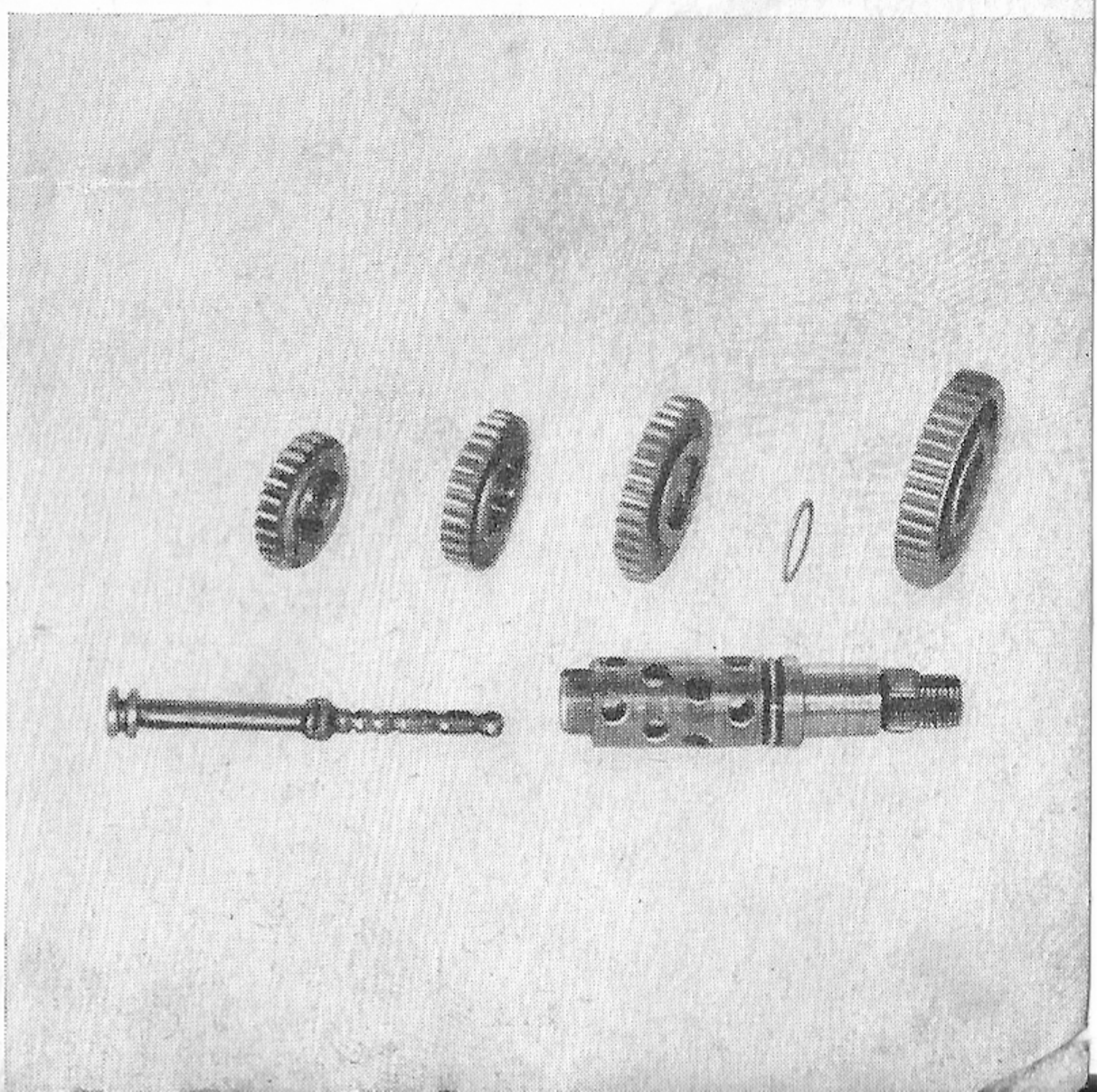


Fig. 40

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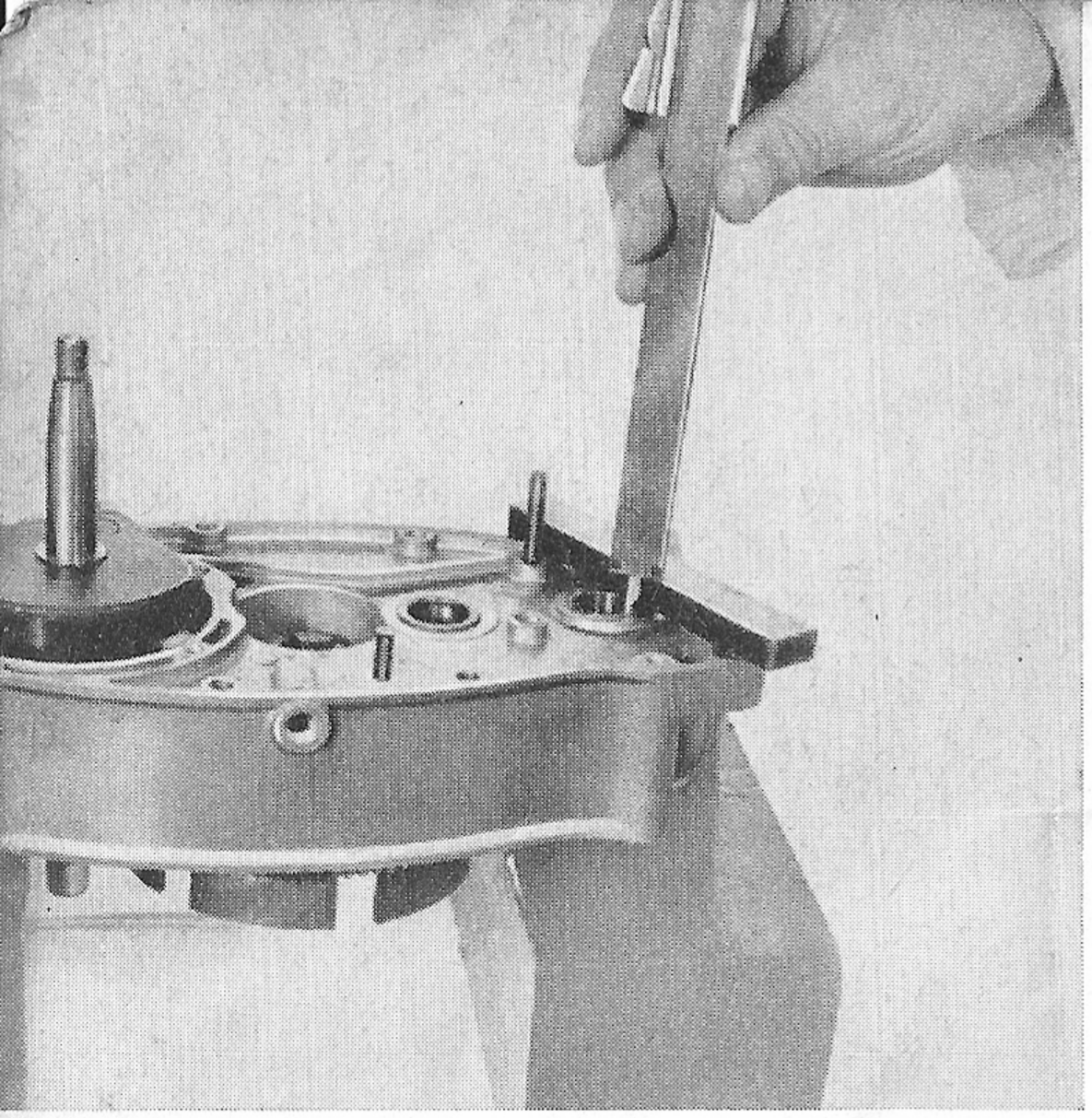


Fig. 41

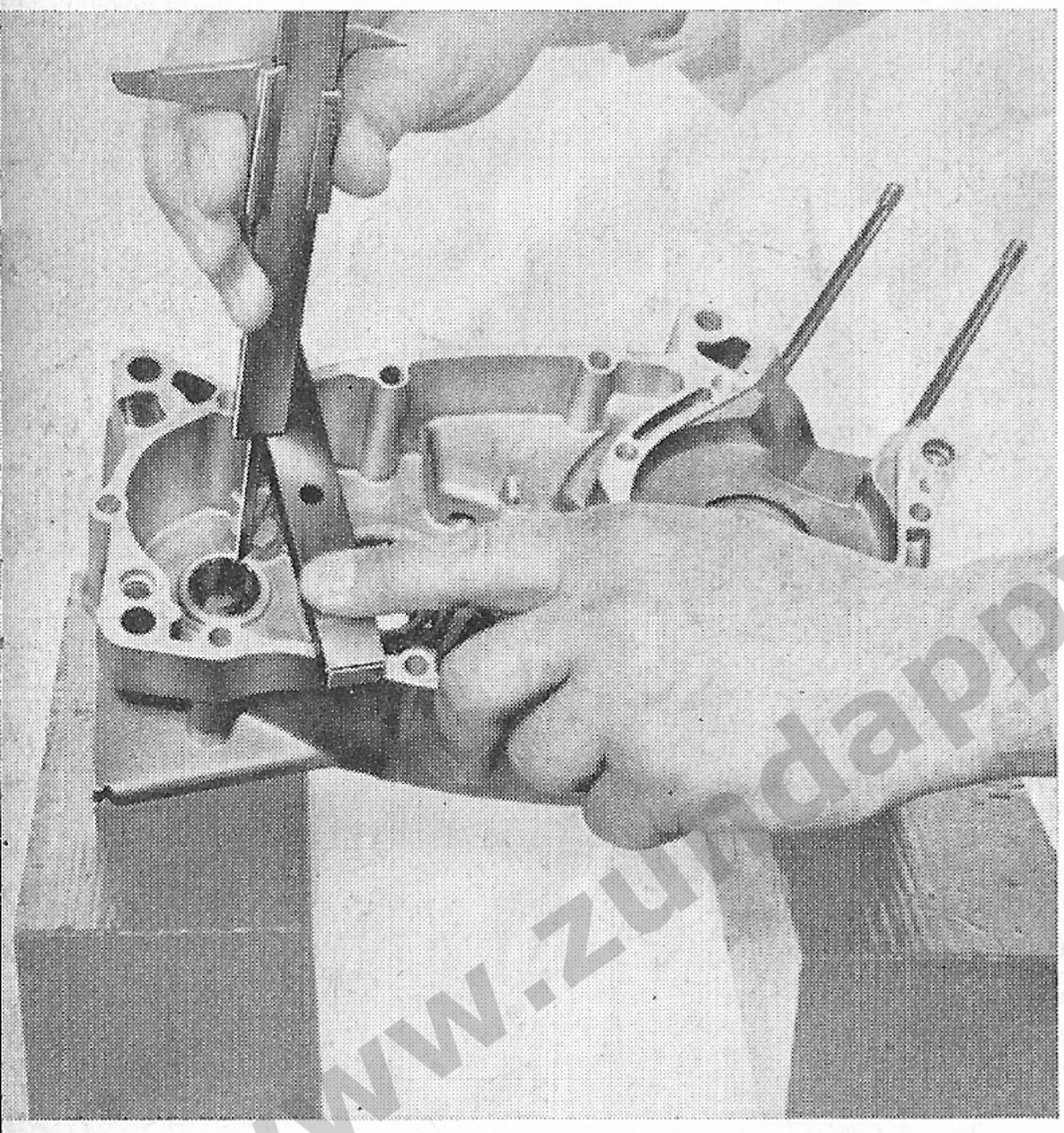


Fig. 42

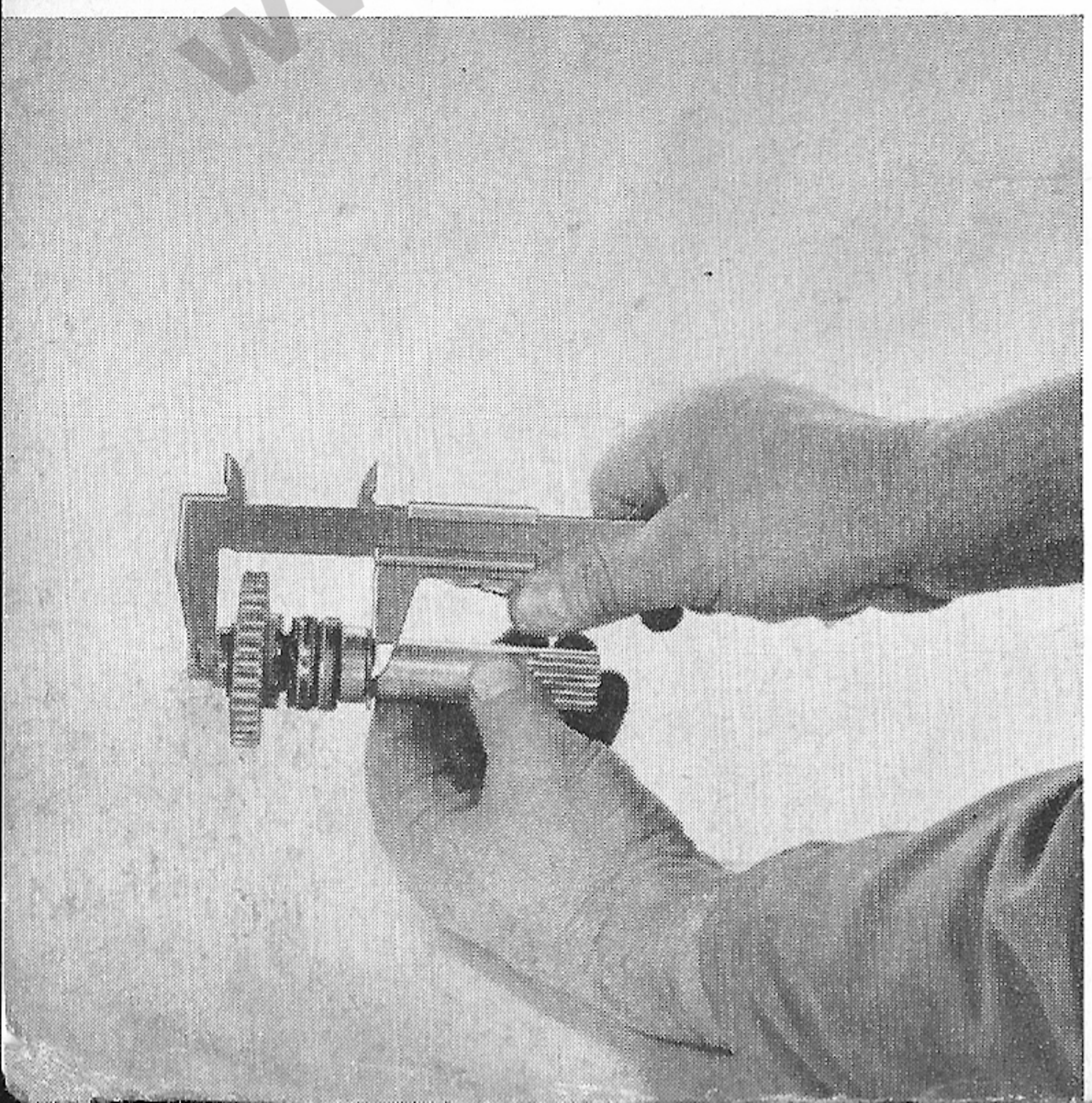


Fig. 43

d) Measuring the starter shaft

Measure the distance between stop collar for starter shaft and the housing surface on the right housing part by means of a measuring bridge and a gauge. (fig. 41)

Fix the measurements!

Then measure the distance between stop collar for starter shaft and housing surface of the left housing part with measuring bridge and gauge. (fig. 42)

Then take the measurements of the space between the two stops on the starter shaft including spacer bushing (fig. 43) and compensate the difference to the above described measurements with washers until a play of 0,3 mm max. is obtained.

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e) Assembly of the engine block

Place or force-in all drive shafts with the necessary compensating washers into the left housing part. The brake spring of the starter shaft is placed in such a position that the support pin on the right housing part may easily be introduced into the brake spring when fitting the two housing parts together. Be careful that the buffer nose of the starter shaft points to the bore on the housing marked with a "x" (fig. 44)

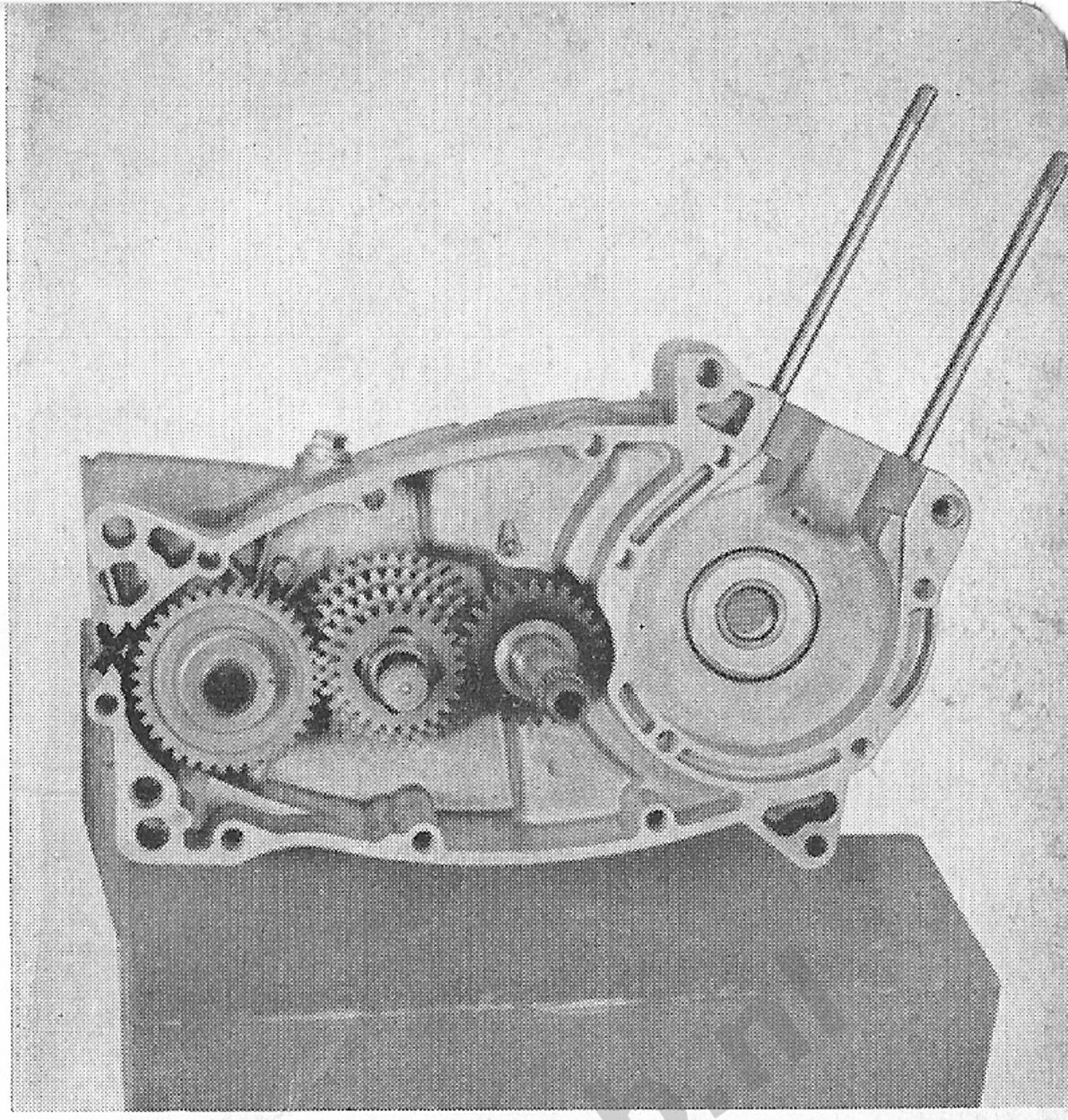


Fig. 44

Fix the crankshaft and the clutch sprocket (when disassembled) into the right housing part and secure the clutch sprocket by means of the Seeger ring (see fig. 39). The assembled housing part is as described in fig. 27.

Brush the mating surfaces of the two housing parts with luting agent such as Teroson-Atmosit, oil shafts and bearing sufficiently and put the two housing parts together. Watch the brake spring! For the further assembly it is recommended to lift the starter shaft in such a way until the support pin fits into the brake spring. This is done that the brake spring does not alter its position when the two housing parts are pressed together. (fig. 45)

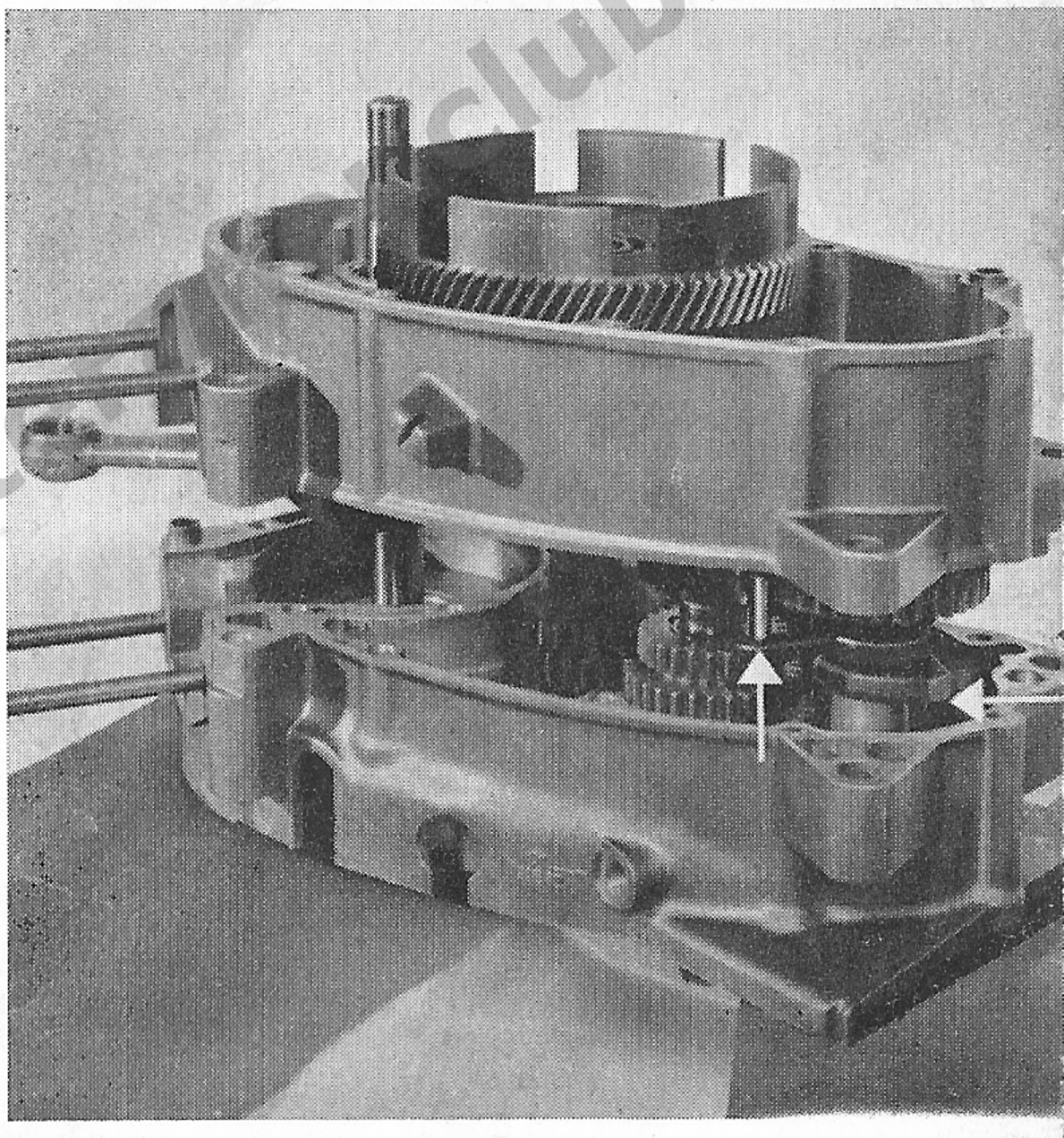


Fig. 45

Fix the engine in the mounting bracket and tighten two bolts (a) M 6 x 35 and one bolt (b) M 6 x 65 (fig. 46)

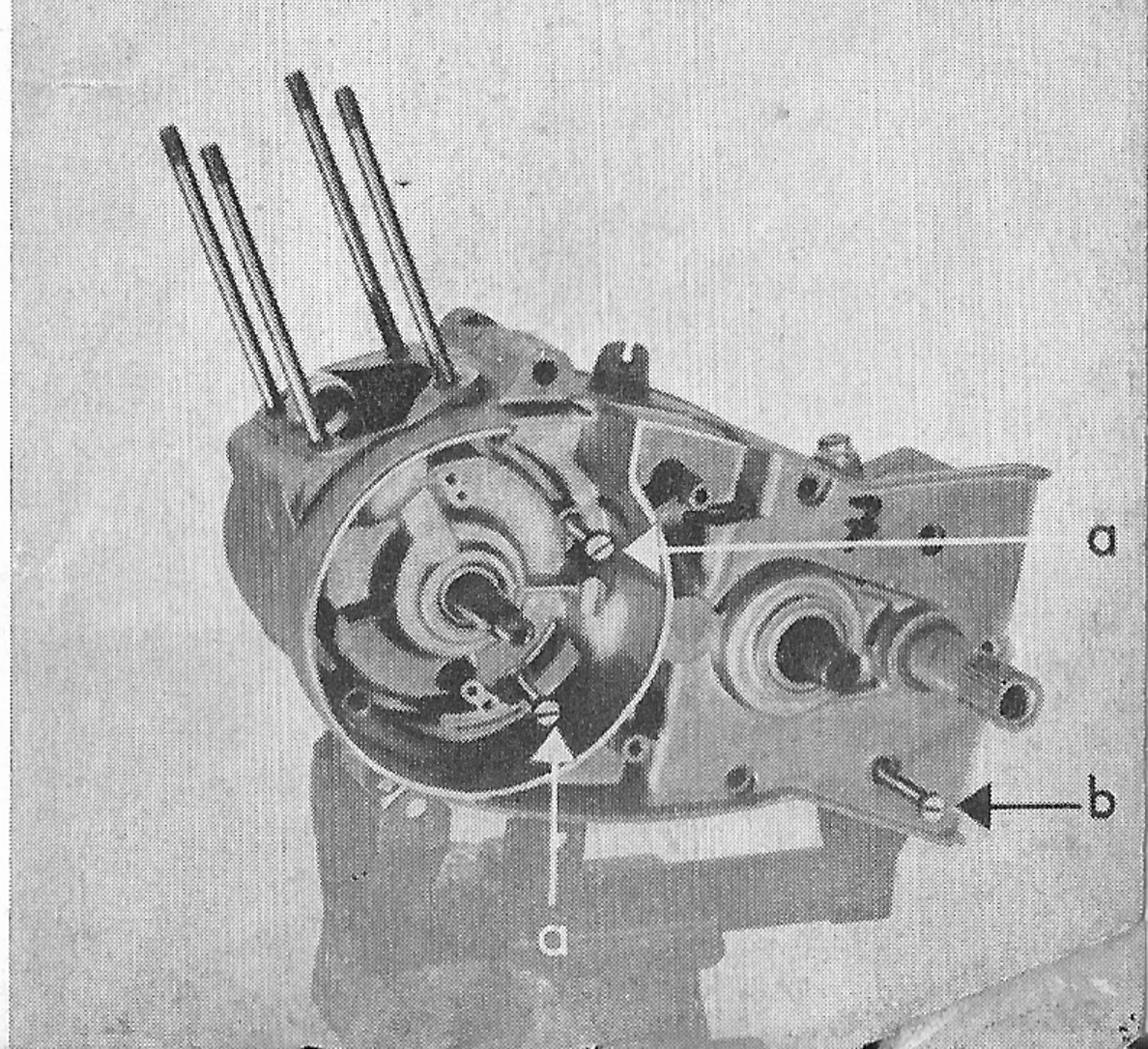


Fig. 46

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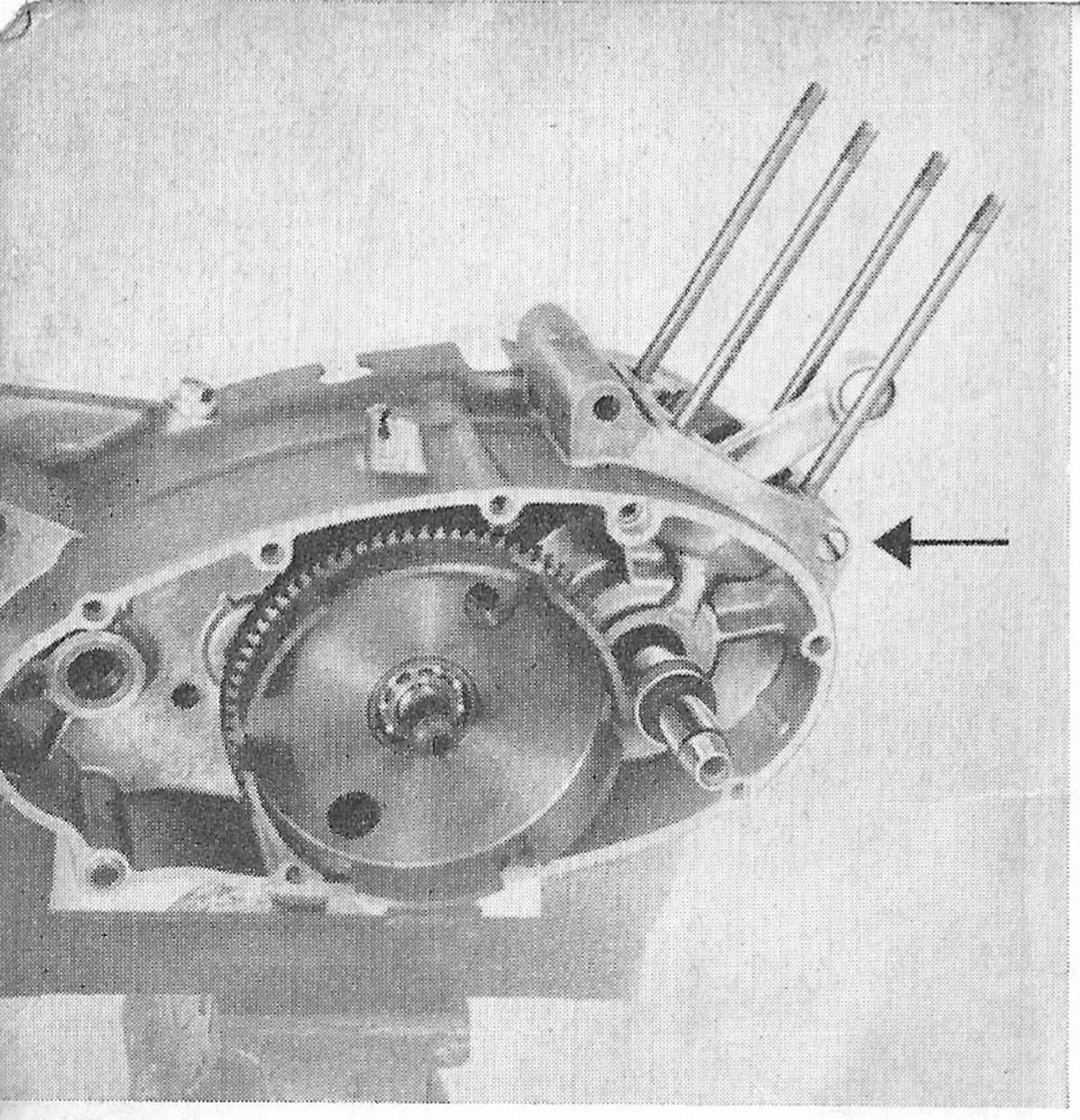


Fig. 47

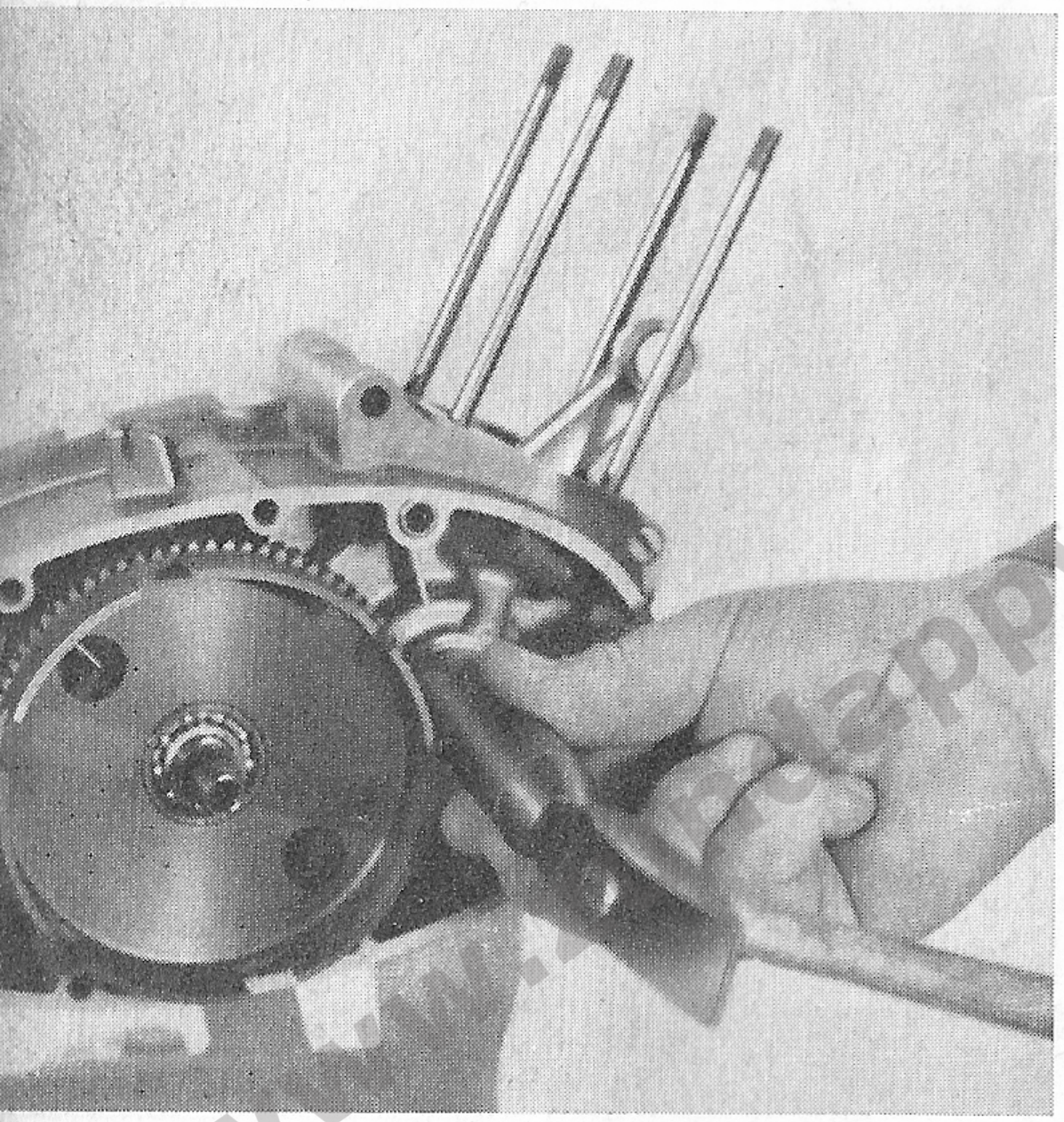


Fig. 48

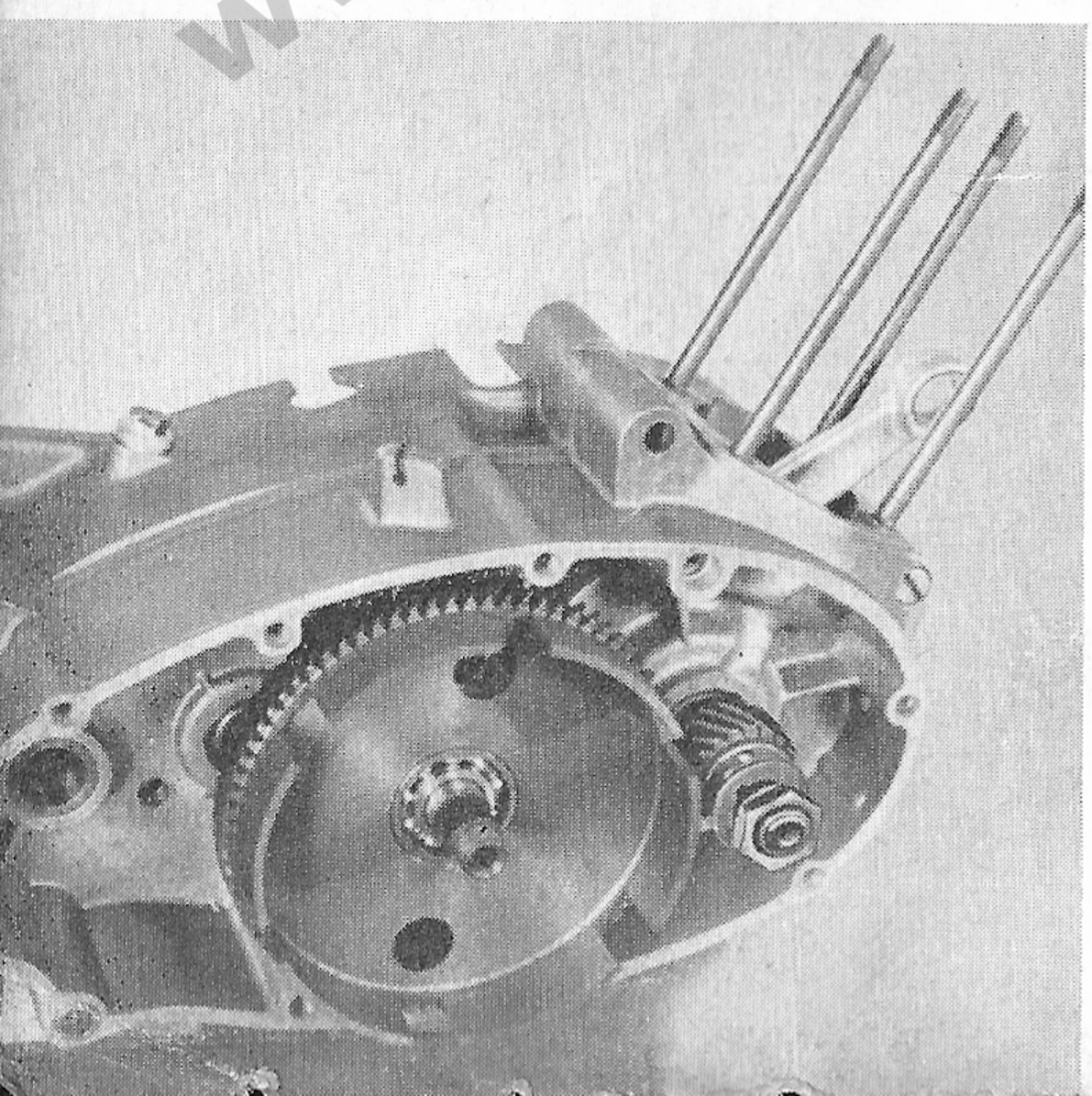


Fig. 49

Turn the engine in the mount to the other side. Fix and tighten one bolt M 6 x 50 on the front right below the cylinder flange.

Then push the seal ring by means of the fitting sleeve MV-6-339 on the crankshaft. . . (fig. 47)

. . . and press it into the crankcase by means of the hollow-punch MV-6-347. (fig. 48)

After having done this place the two bolts 5 mm with grease into the provided bores on the crankshaft. Place on the drive pinion and safety washer in such a way that the nose fits into the bore on the pinion (fig. 49). Then tighten the nut by exercising a counter movement by means of a mandrel or forked wrench placed into the bores and walls on the crankshaft. (fig. 20)

Then bent the safety washer to the nut.

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f) Assembly of the piston, the cylinder with cylinder head

Make the connecting rod ready!

Warm up the piston to 85° Celsius app. Then introduce the oiled needle bearing into the provided bore of the connecting rod.

Then fix the piston pin to the special tool SK-A-163 and hold the piston in such a way to the con. rod that the bores are in alignment. Now introduce the bolt. (fig. 50)

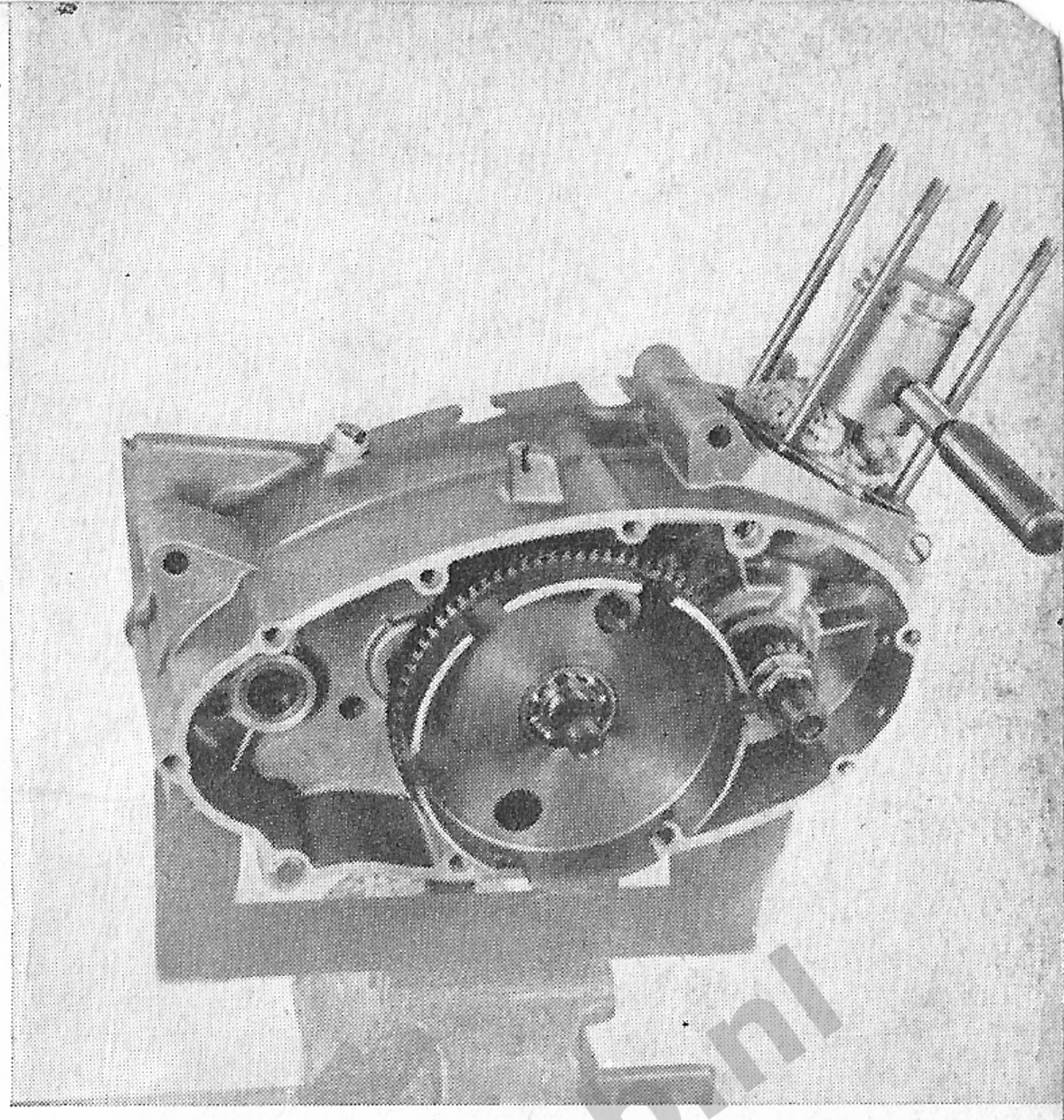


Fig. 50

Then place the circlips securing the piston pin. (see fig. 17)

Attention. Watch for a proper fitting! Provide the piston and cylinder with a film of oil, place the piston rings in such a position that the move is in alignment with the safety pin. Then put the cylinder base gasket over the bolt. For the proper fitting of the cylinder a steel band is recommended with which the piston rings are forced together or if available, a clamp is used for this process. Before fitting the cylinder head to the cylinder it is advisable to make some rotations. By doing this the cylinder fits better and furthermore the oil on the piston bottom is removed. Then fix the cylinder head with gasket and tighten it crosswise by four nuts M 5. (fig. 51)



Fig. 51

Seal rings are to be put on by means of fitting sleves SK-A-244 and SK-A-217 and pressed into the housing by the hollow punch. (fig. 52)

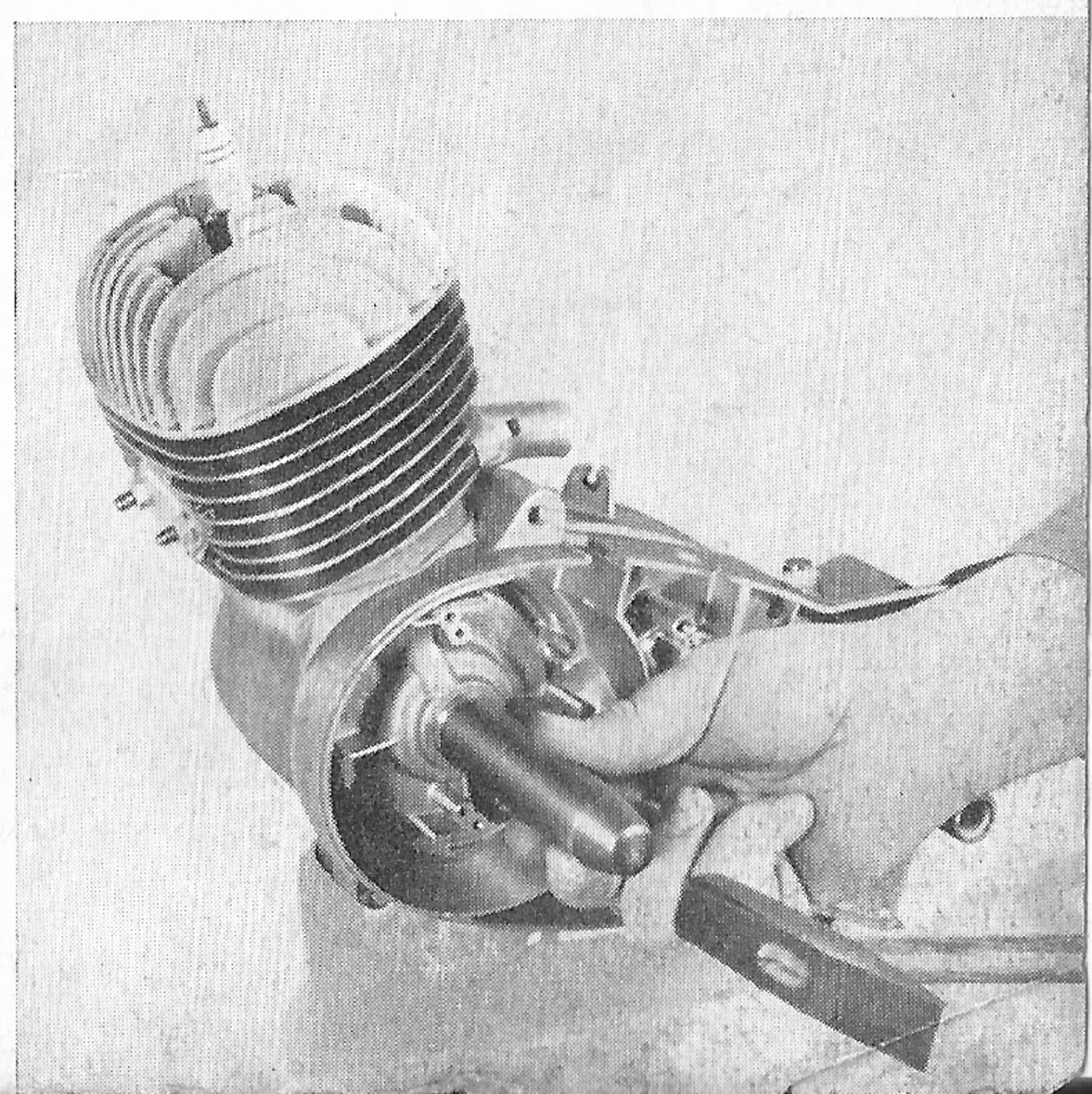


Fig. 52

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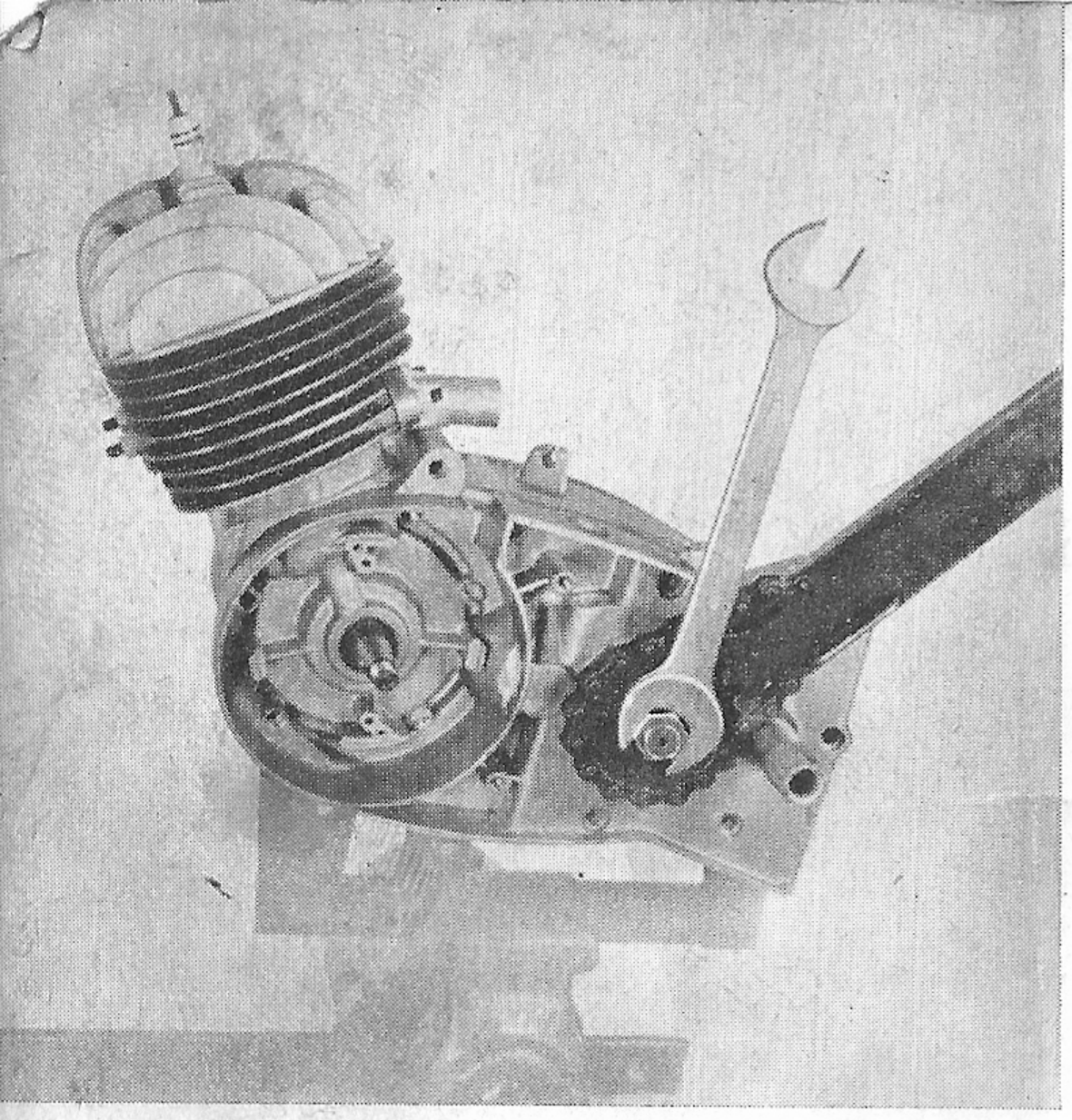


Fig. 53

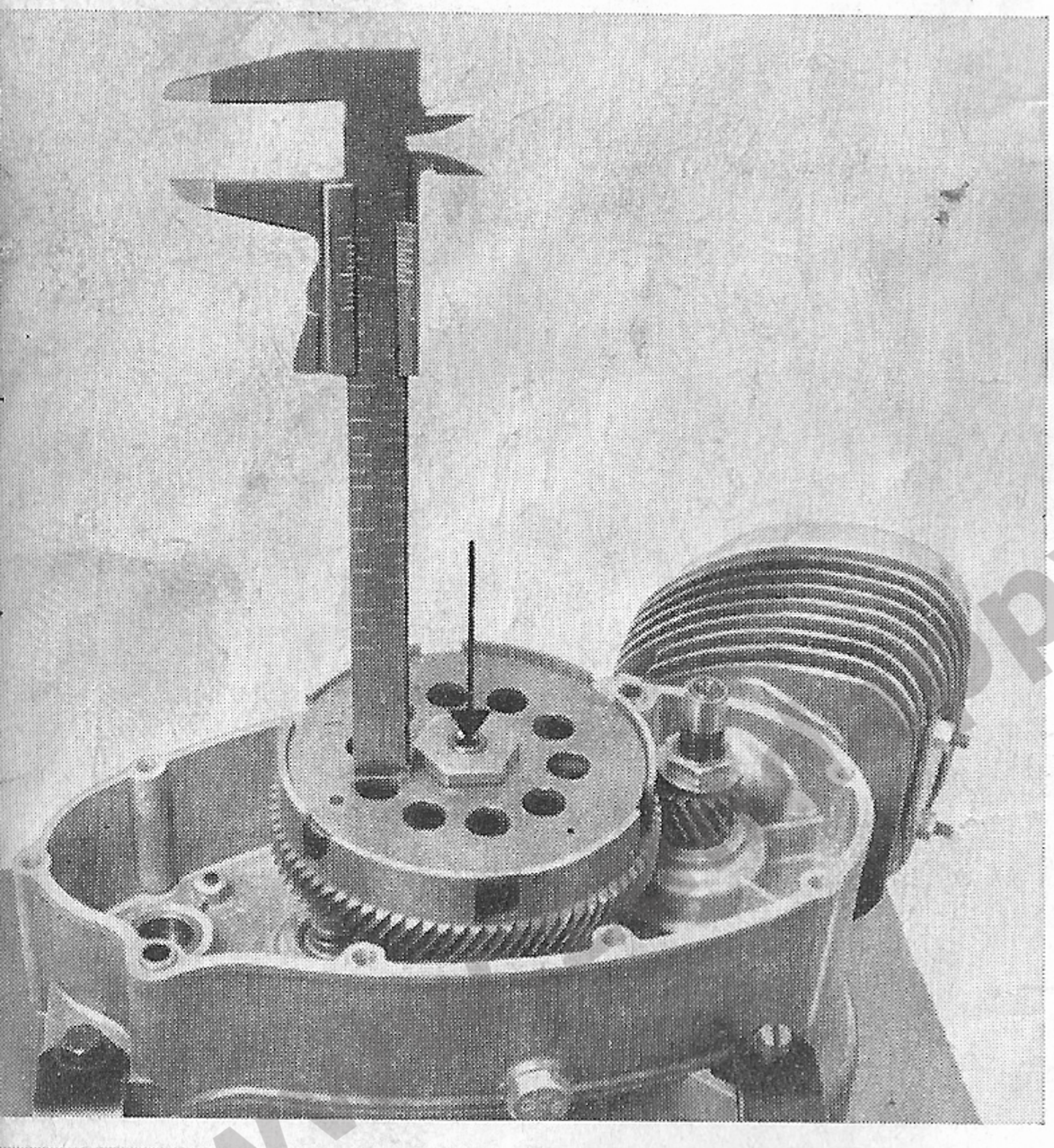


Fig. 54

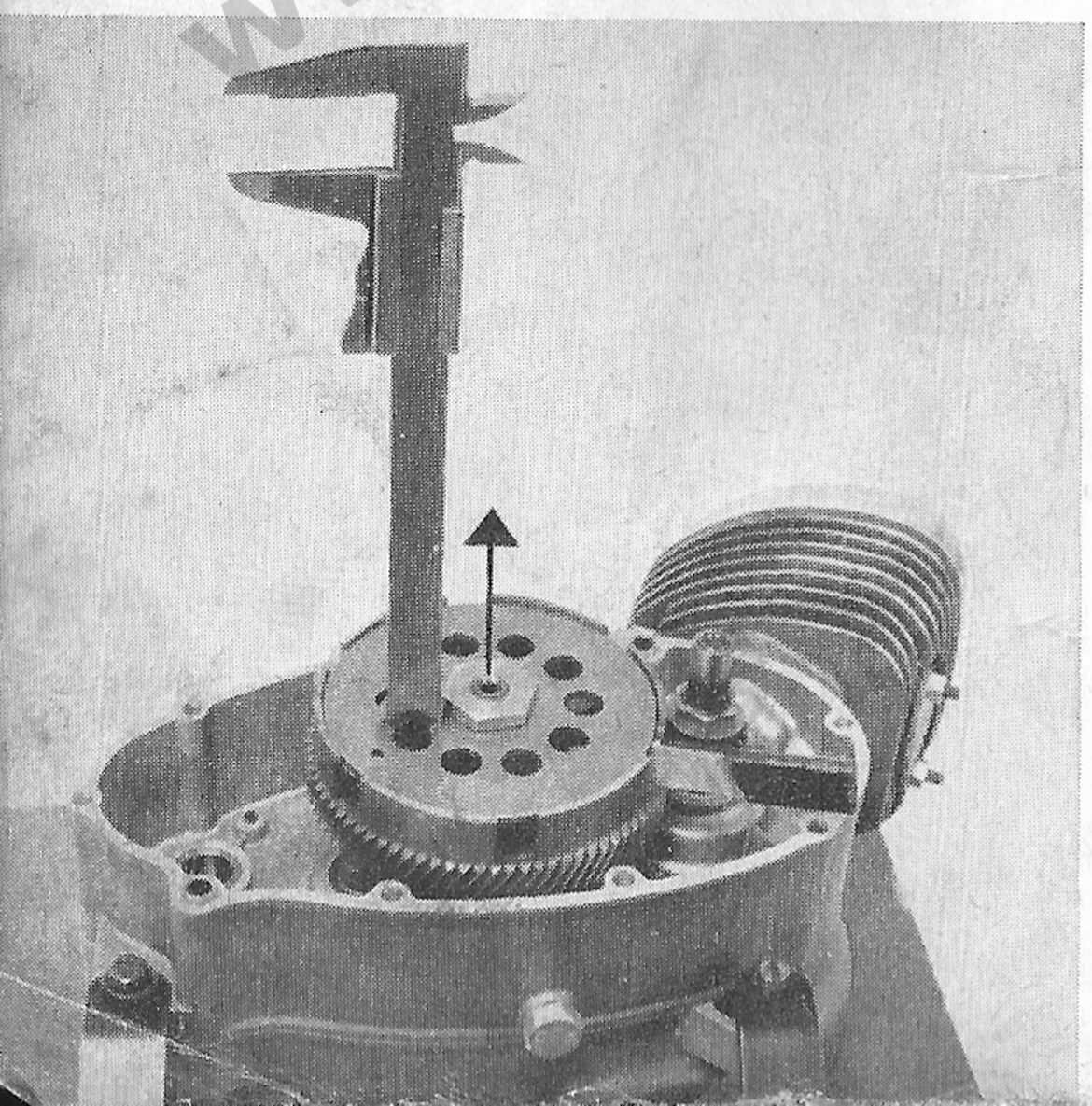


Fig. 55

g) Mounting the chain pinion

Place on the chain pinion on the toothing of the selector shaft and tighten same by the nut. For counter movement use the chain holder (fig. 53).

h) Assembly of the clutch

Before assembling the clutch it is essential to have determined the axial play of the transmission shaft. For this purpose take the engine of the vice and place it with the left housing on two wooden blocks. Now place the clutch pinion with the turned side on top on the toothing of the transmission shaft and then fit the cover plate. After having done this fix the nut. By a slide pressure on the transmission shaft from above the measurement is taken by means of a sliding calliper from top of the cover plate to the inside of the clutch pinion (fig. 54).

Then lift the transmission shaft and the procedure of taking the measurements as already described is repeated (fig. 55).

From this measurement deduct the measurements of fig. 54. The difference means the axial play of the transmission shaft.

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By placing washers between clutch pinion and clutch sprocket the axial play is compensated until a play of 0,1 mm is left. For this purpose loosen again the nut, take away the cover plate and the clutch pinion and place on the necessary compensating washers. Then place again the clutch pinion (fig. 56).

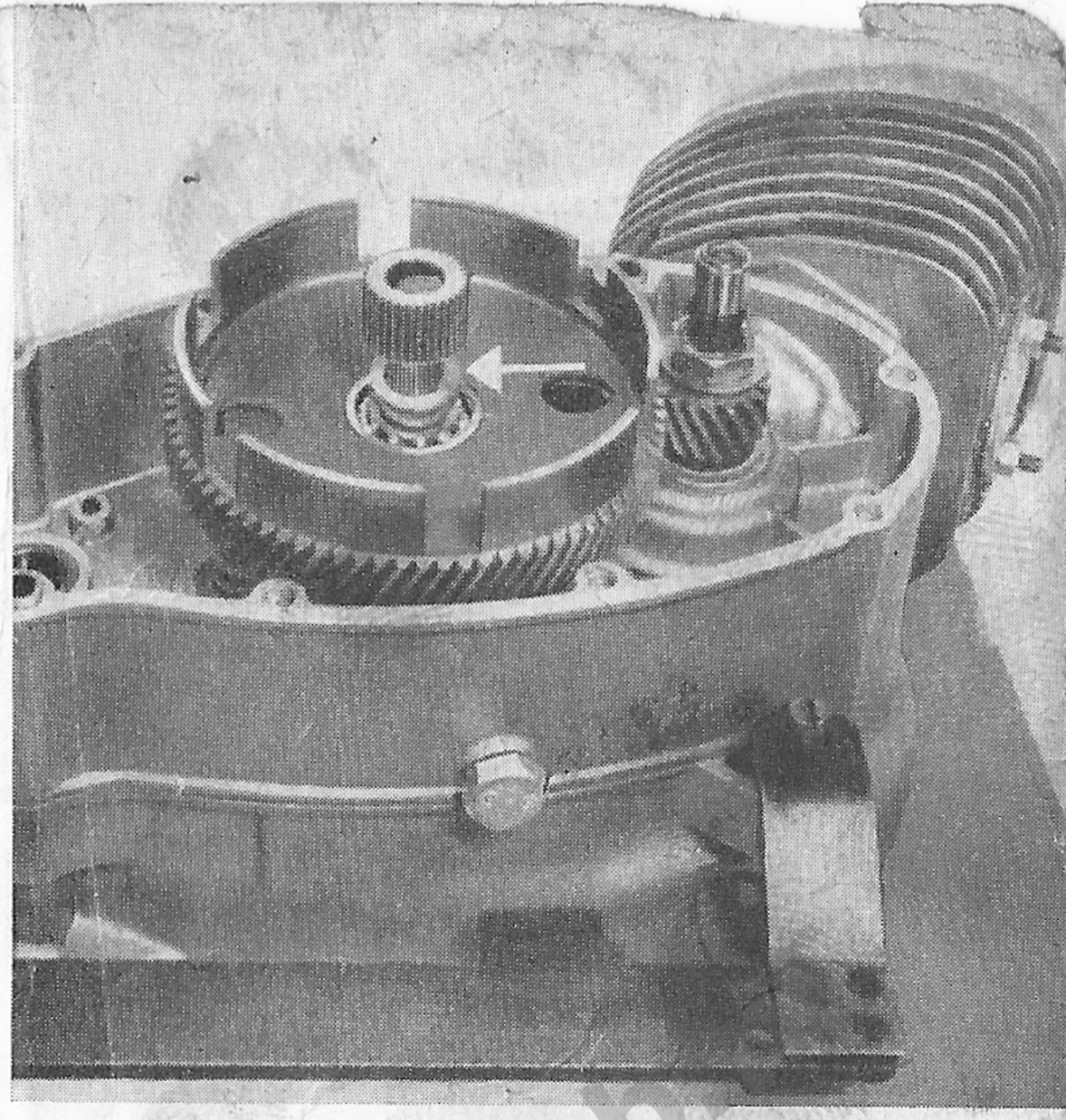


Fig. 56

For the further assembly fix the engine again in the vice.

Now it is possible to add the supporting plate, clutch linings, clutch discs and to fix the cover plate. In order to facilitate the assembly the bores for the spring sleeves, the clutch pinion and all toothed discs are especially marked. When mounting these parts be careful that all bores are in strict alignment (fig. 57). After having put on the cover plate the fixing nut is placed on and tightened (see fig. 14).



Fig. 57

Now fix the spring sleeves with clutch springs and place on the pressure plate. In order to allow the placing of the ten nuts M 4 the clutch is pressed by the tensioning device SK–A–234. Then tighten the ten nuts (fig. 58).

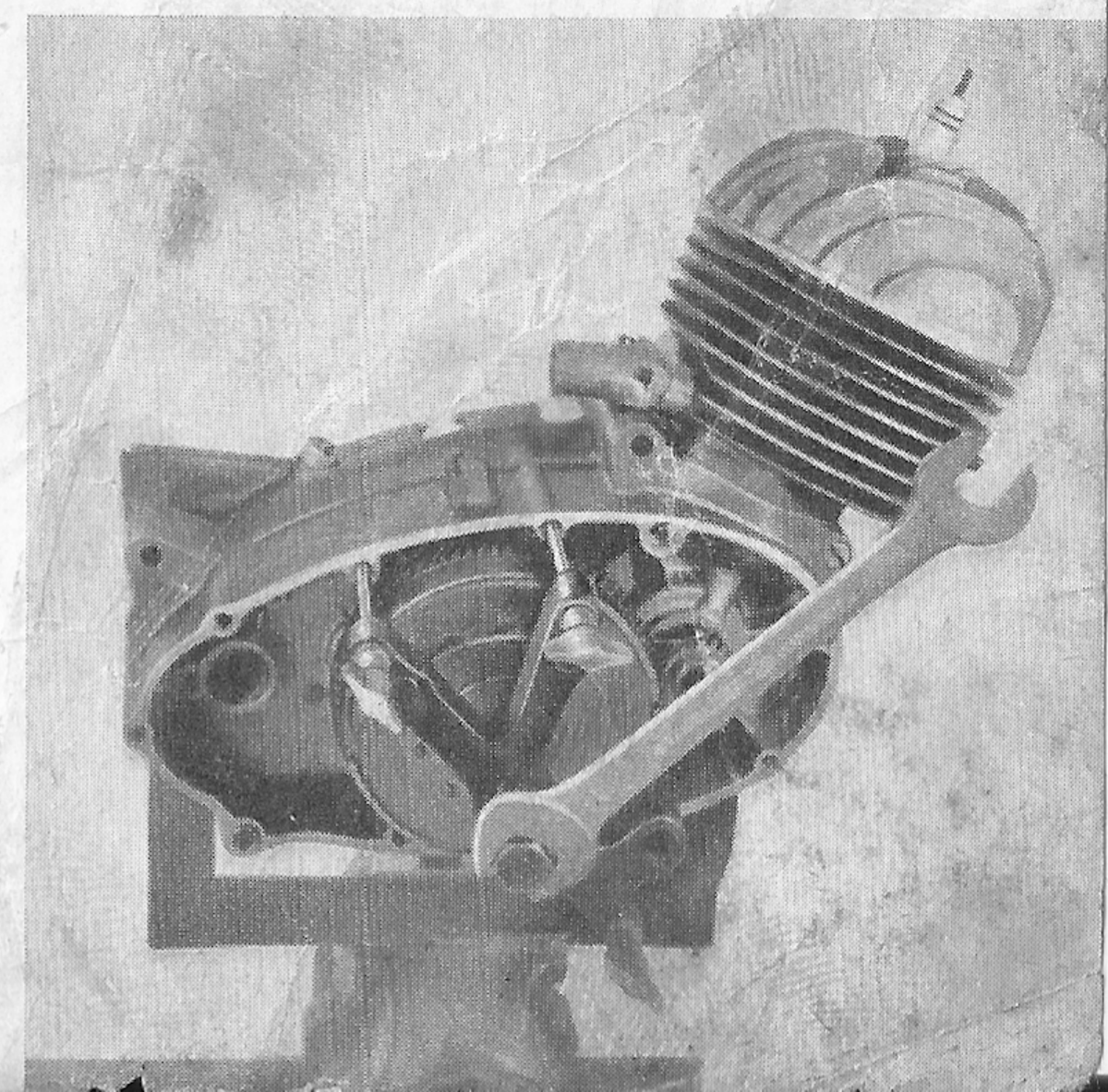


Fig. 58

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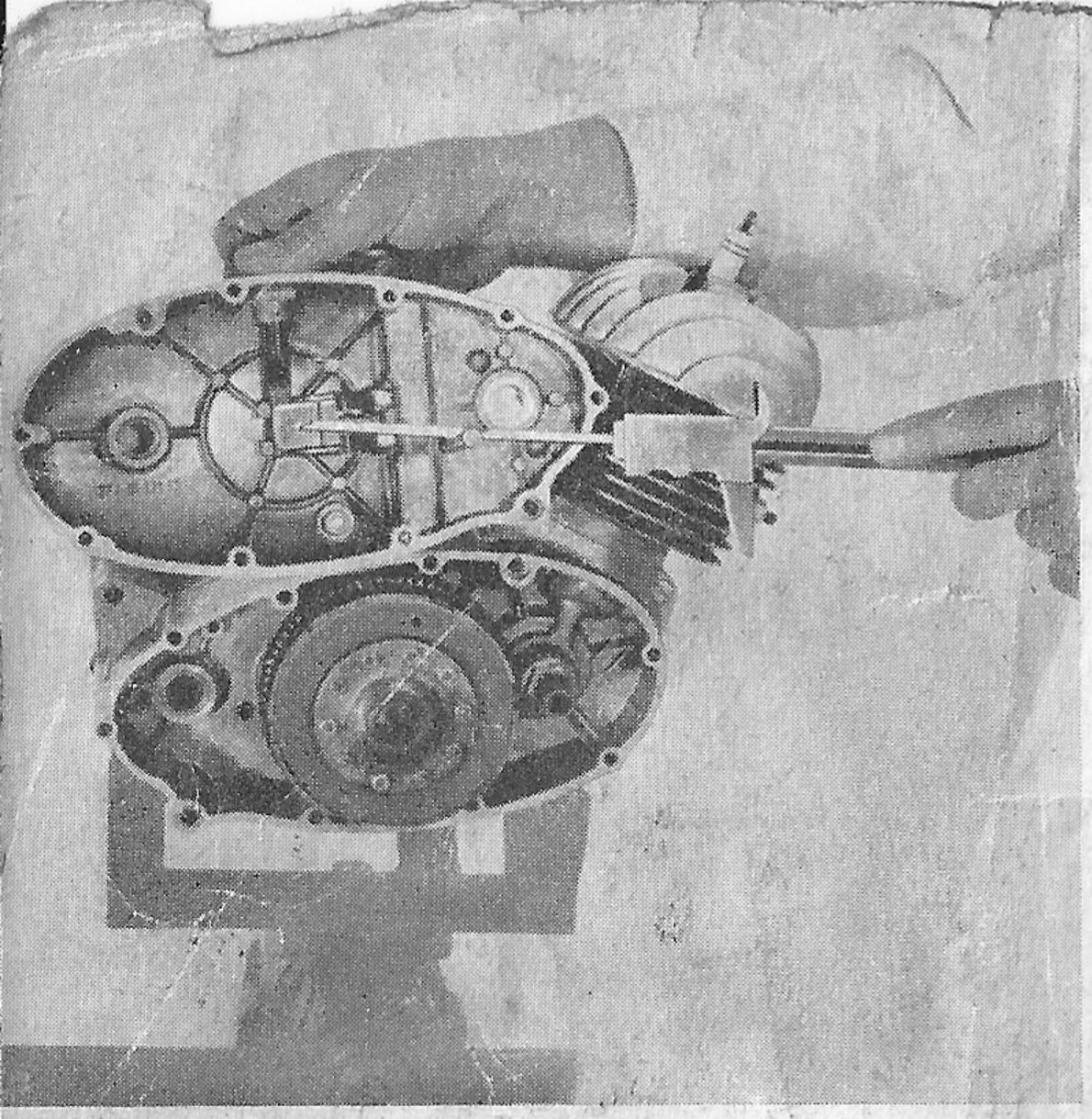


Fig. 59

Then follows the introducing of the pressure piece with compensating washers in the pressure plate. The thickness of the compensating washers is determined by screwing on the right housing cover for a proof and making a mark with chalk on the clutch tongue. The play of the clutch lever must be between 3–5 mm and is adjusted accordingly by the adjustment bolt fixed on the side in the cover. While forcing the clutch tongue to the pressure piece make a few rotations of the engine. By doing this the pressure point is exactly marked on the clutch tongue. This point must be precisely in the middle of the clutch tongue. The mentioned position is obtained by placing washers or taking away washers on the pressure piece.(fig. 59).

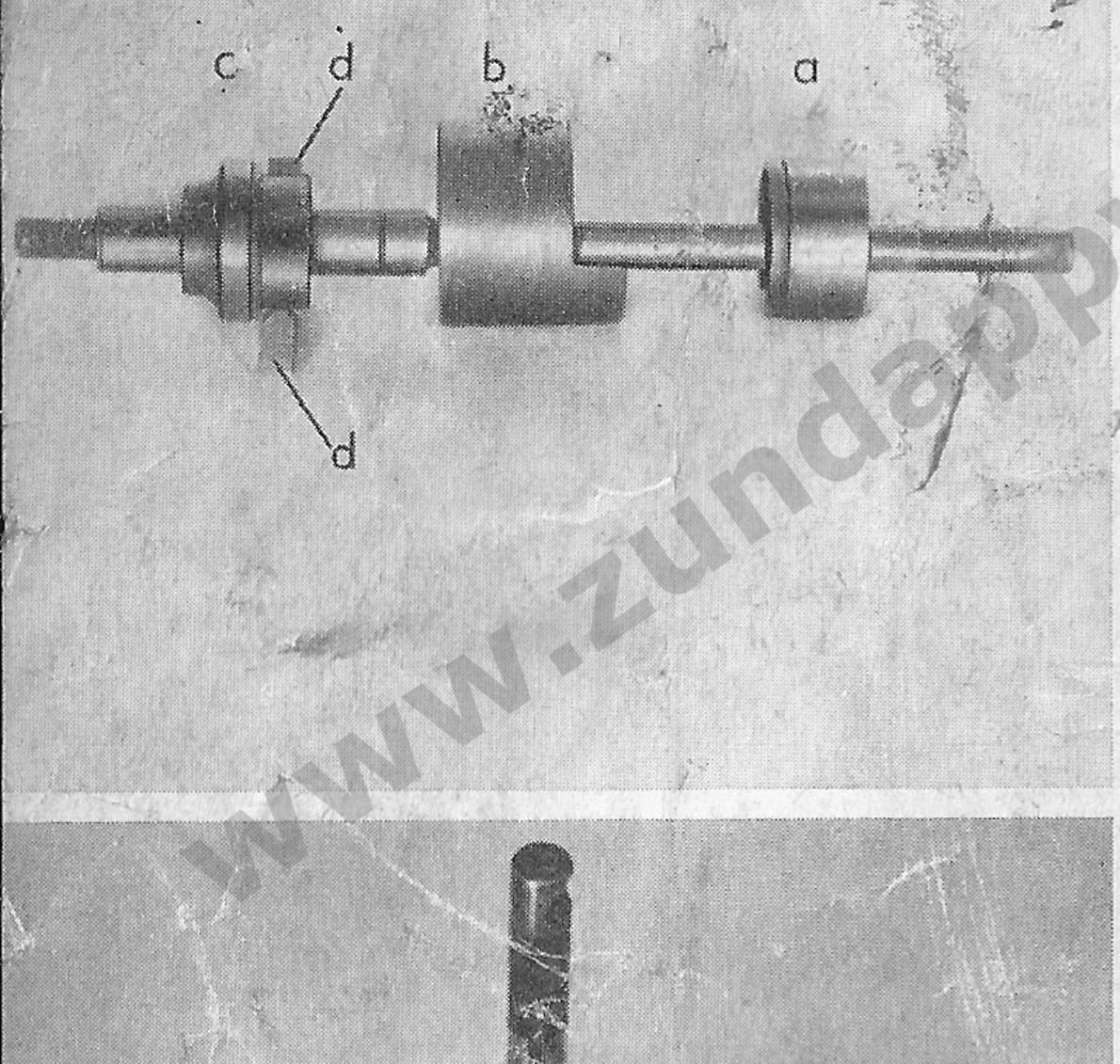


Fig. 60

i) Disassembly and Re-assembly of the foot selector shaft complete

After having removed the outer Seeger ring the latch guide (a) with shift bell (b) may be taken away of the foot selector shaft with latch support (c) (fig. 60 and 61). When doing this utmost care must be exercised that the two selector latches (d) which are under spring pressure may not be forced away. To avoid this it is recommended to watch the lifting from top through selector bell and to hold the latches with the fingers.

The assembly is executed in the reverse sequence. According to our opinion no damages or faults will occur on these parts. In case of need complete foot selector shafts are available.

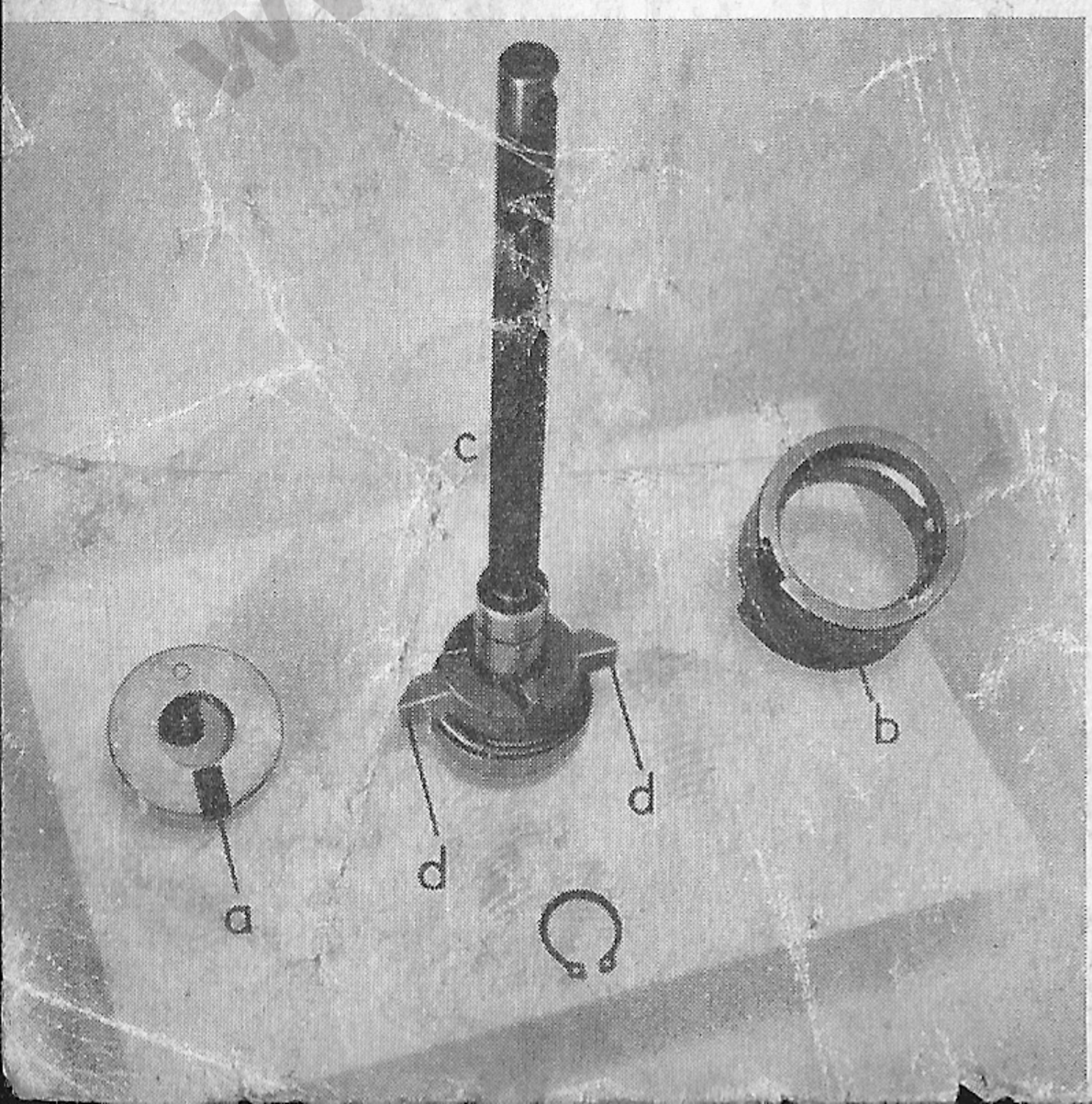


Fig. 61

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k) Fitting of the gear shift device

In order to facilitate the fitting of the shift slide and the foot selector shaft complete it is necessary to place the engine with its left side on two wooden blocks. First press the pull cotter in first speed and then place the selector device in first gear. Then place the selector slide with its semi-circular groove in the cut of the pull cotter in such a way that its bore is in alignment with the bore on the right housing part. (fig. 62).

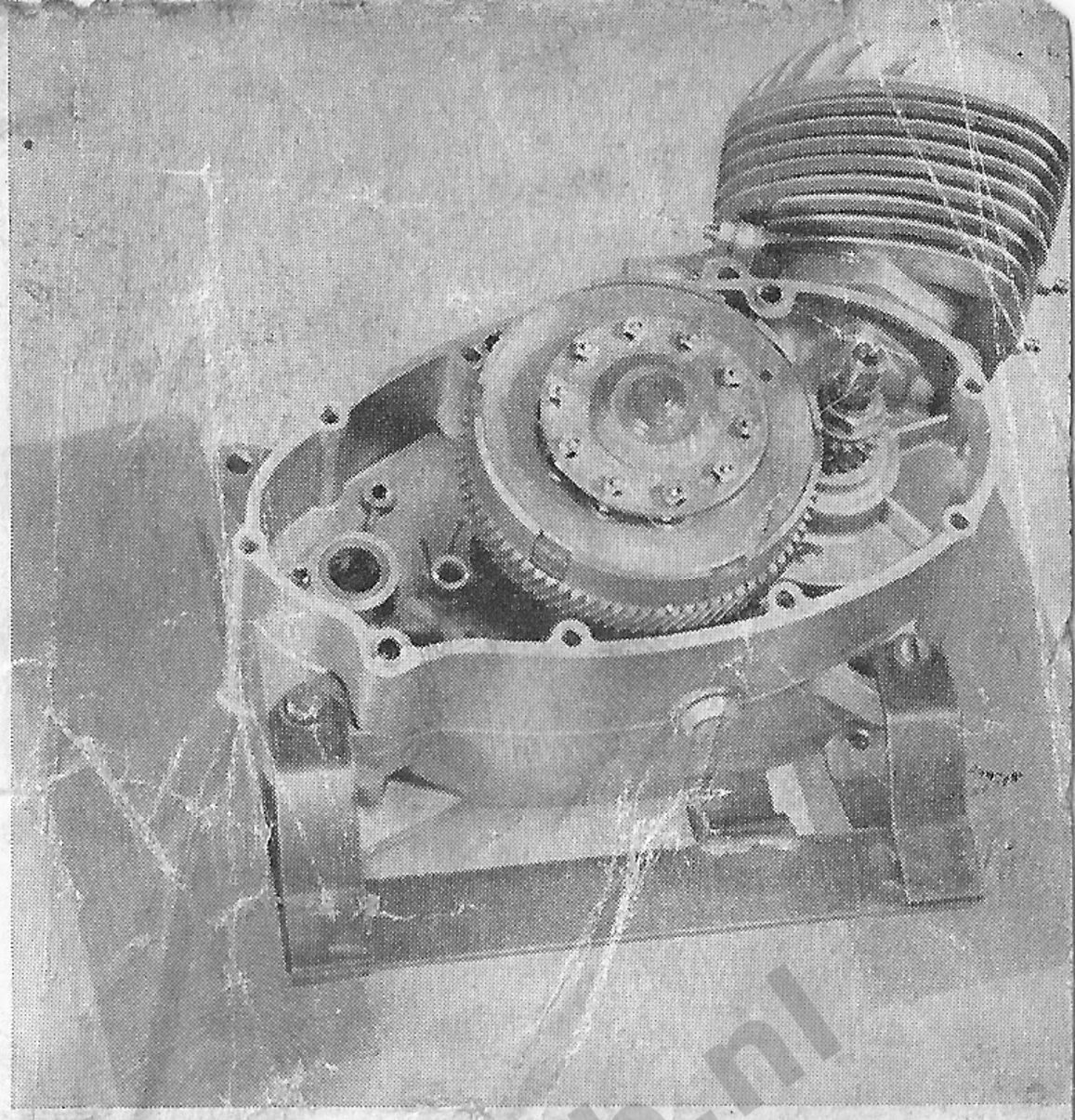


Fig. 62

Attention: The pull cotter has already been fixed when fitting the selector shaft. Replacement is possible after removing of the clutch and through the provided bore in the clutch sprocket.

Place the foot selector shaft complete with one adjustment disc of 2 mm thickness behind the Seeger ring in the provided rest. When doing this, watch that the oblique groove on the selector bell fits into the counter piece on the selector slide. All moving parts must be oiled sufficiently.

Brush the clutch housing cover with luting agent (Teroson-Atmosit) and fix the cover (fig. 63).

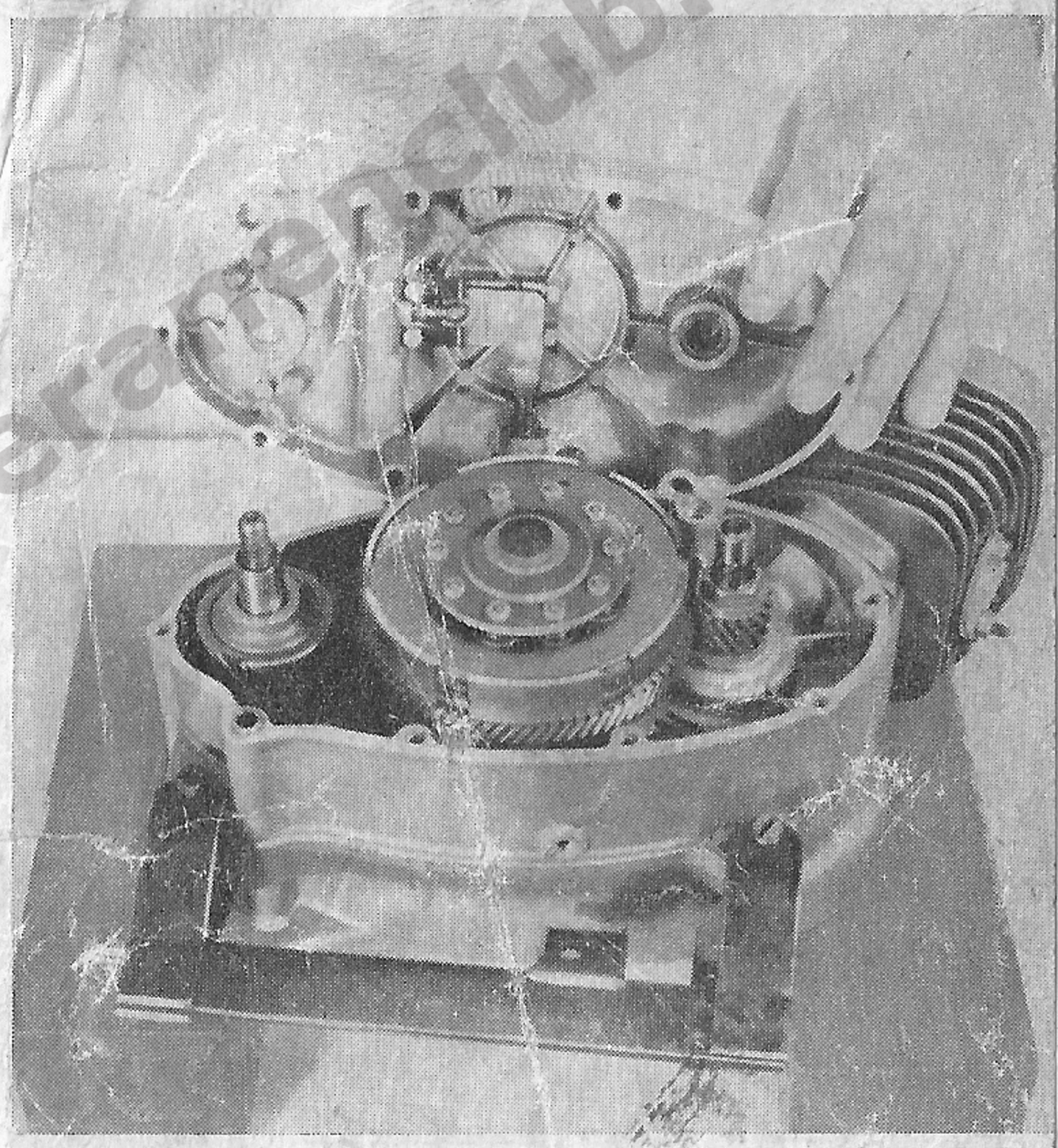


Fig. 63

l) Assembly of the clutch housing cover

Place 1 bolt M 6 x 45 and tighten it (fig. 64).

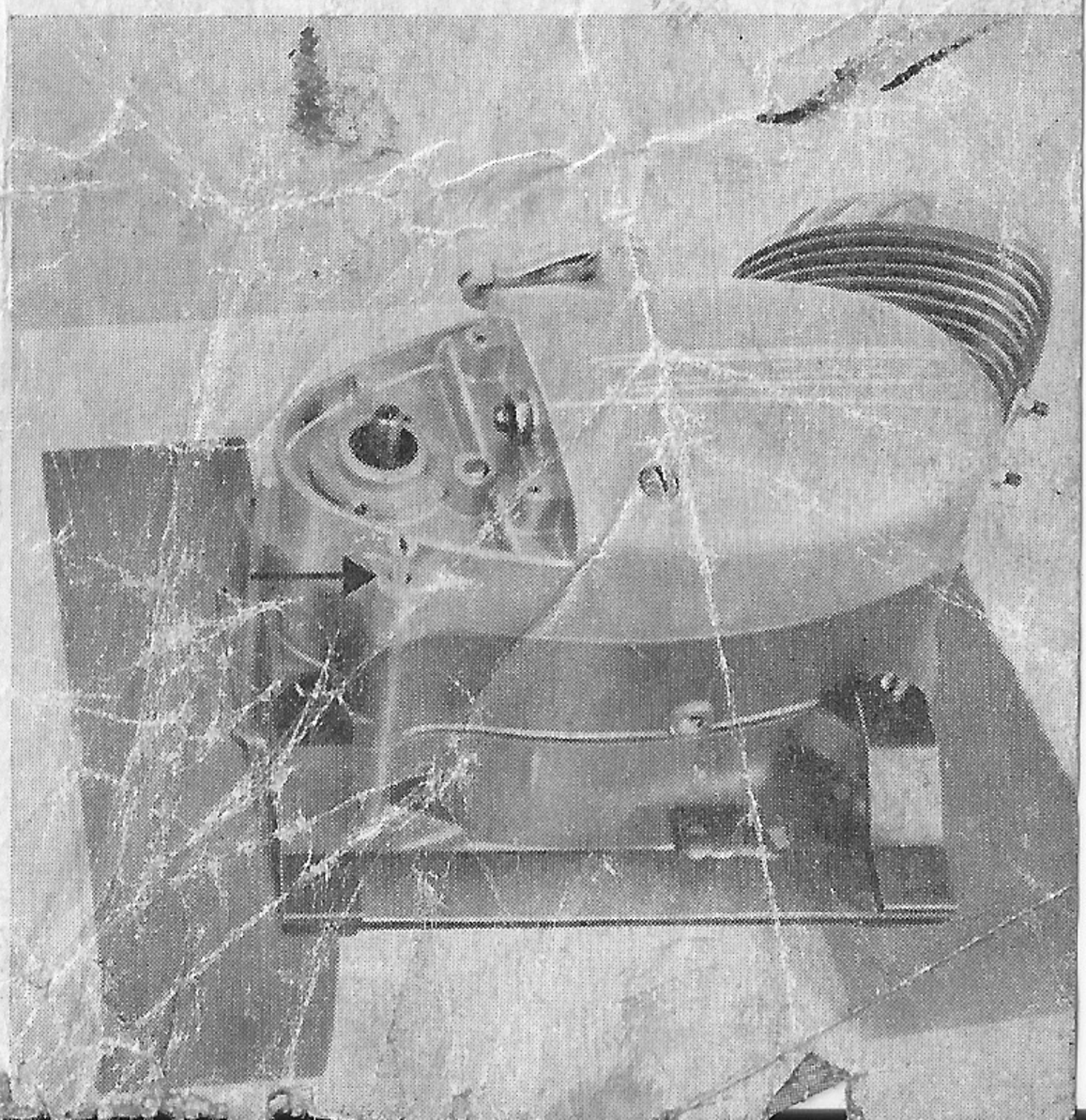


Fig. 64

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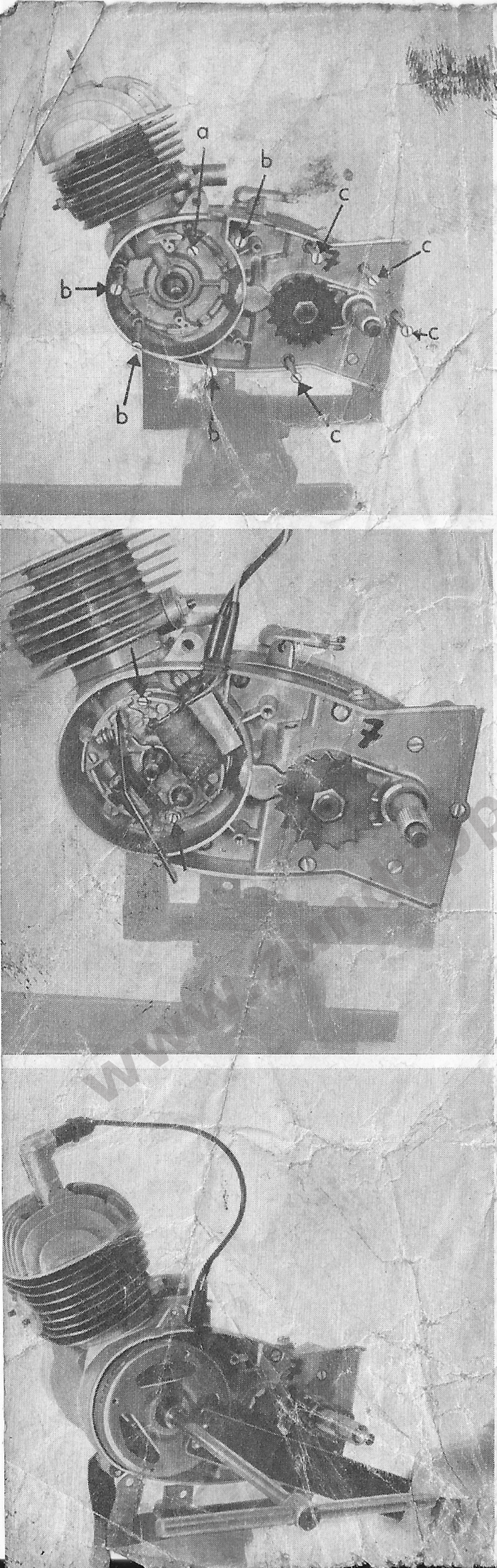


Fig. 65

Turn the engine in the vice to the other side.

Screw into the housing cover left (magneto side)

1 cylinder bolt B 6 x 92 (a)
4 cylinder bolts M 6 x 98 (b)
4 cylinder bolts M 6 x 120 (c)

and tighten same crosswise (fig. 65).

m) Mounting of the ignition magneto

Place the base plate and fix it by bolts M 4 x 6. Do not tighten these bolts as same must be loosened when timing the ignition.

Then insert the cable sleeves in the provided groove on the housing (fig. 66). Watch for the cable clip.

Fig. 66

Introduce the key into the groove on the crankshaft and push on the flywheel.

Attention! When doing this be careful not to change the position of the key.

Fix the fixing nut and tighten same by a socket wrench. For a counter-hold use key SK–A–251 which is placed into the flywheel (fig. 67).

Fig. 67

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The space between the interruptor contacts must be 0,4 mm. Then find the top date center by means of an iginition timing device or a similar device. After having done this make the engine rotate anti-clockwise until the piston travelled 1,8 mm. By turning the base plate it is possible to adjust the ignition timing and by means of a control lamp it is possible to adjust the lifting of the interruptor contact. Now tighten the bolts M 4 x 16 on the base plate and control again the ignition timing (fig. 68 shows the application of the ZÜNDAPP ignition timing device).

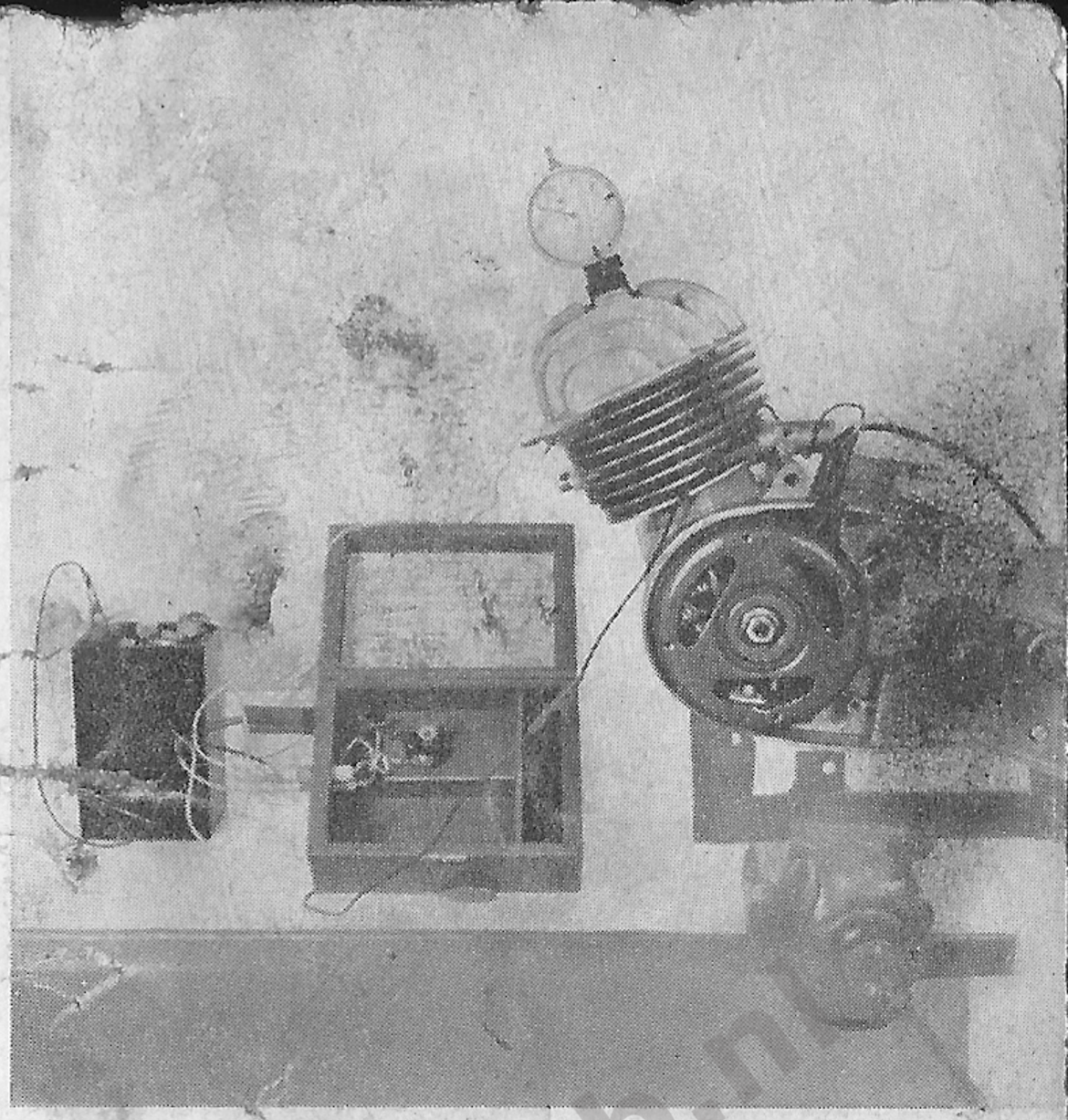


Fig. 68

n) Assembly of the left housing cover with kickstarter

In case it has been inevitable to disassemble the left housing cover it is necessary to insert the starter spring in such a way that when regarding the interior of the cover the spring may be tensioned anti-clockwise. Do not forget to grease the spring. Then introduce the screen sheet with its small nose (a) into the inner loop of the spring (b) while the fixing sleeve (c) with kickstarter lever points straight to the top is introduced from the other side and engages in the groove (d). Now fix the Seeger ring (fig. 69).

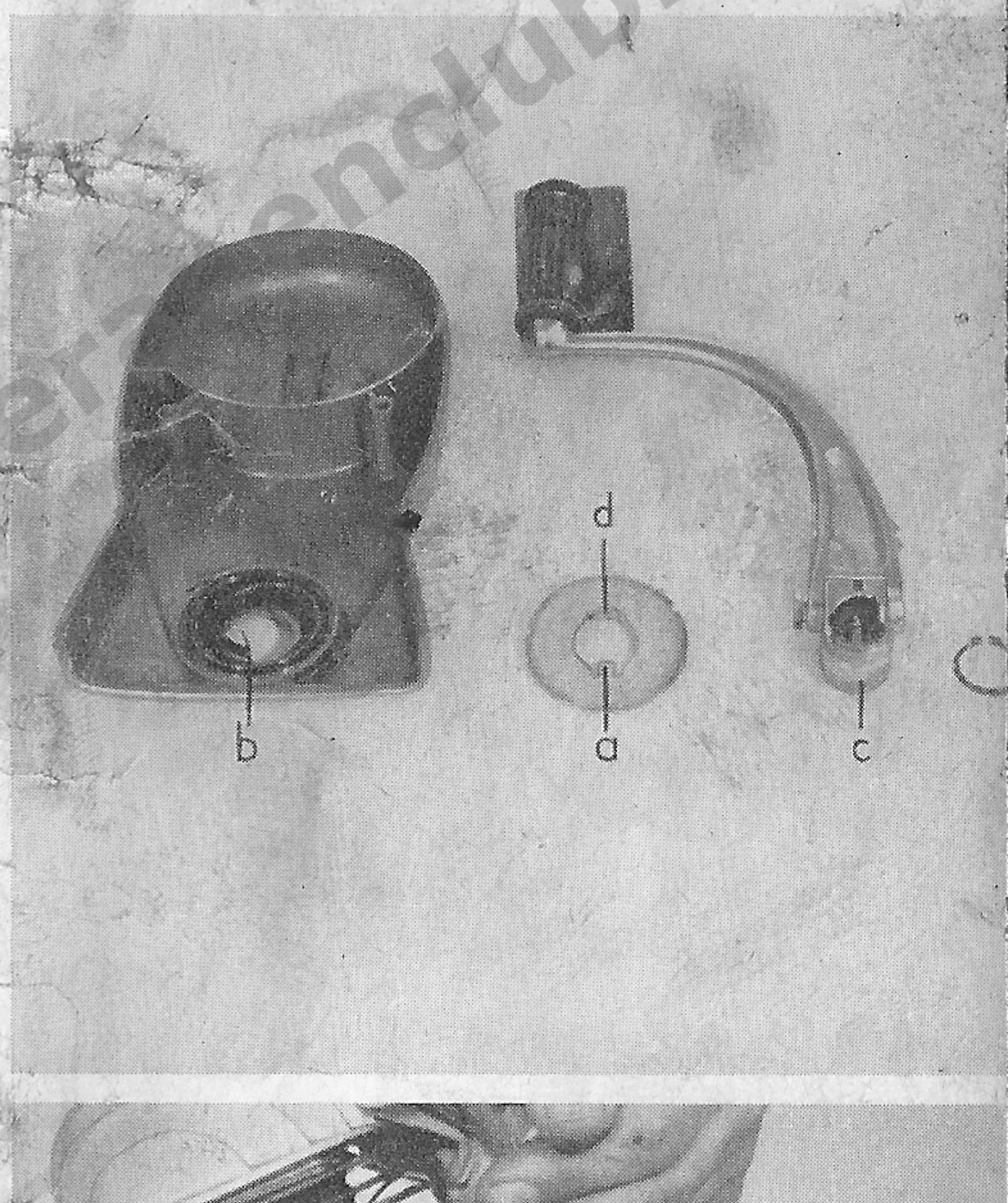


Fig. 69

After having executed this turn the kickstarter lever at 360 degree. By this movement the starter spring is tensioned and the left housing cover may be fitted. Then it is possible to insert the pin on the fixing sleeve into the groove on the starter shaft (fig. 70).

Fig. 70

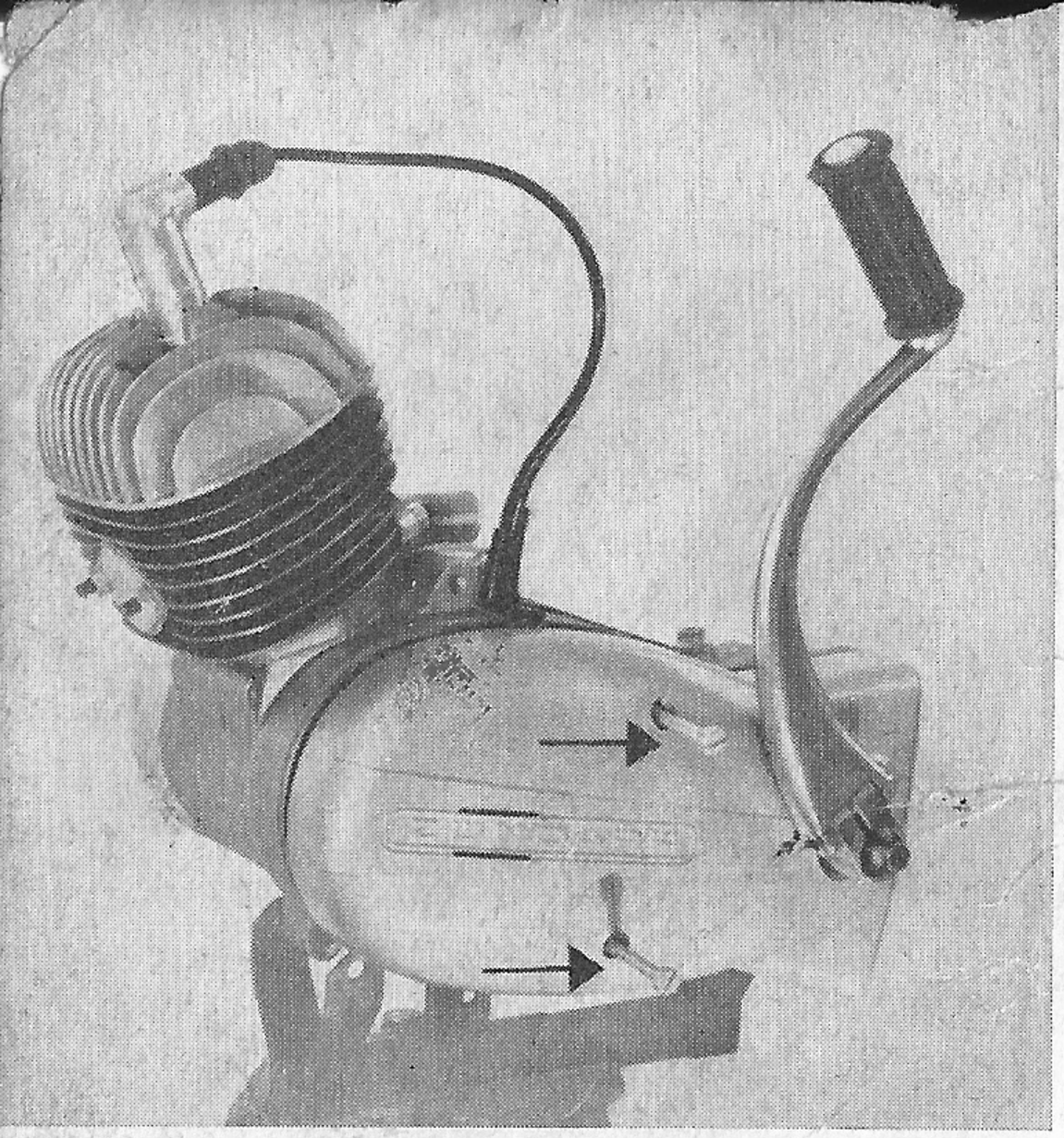


Fig. 71

Fix and tighten the two cylinder bolts M 6 x 55 (fig. 71).

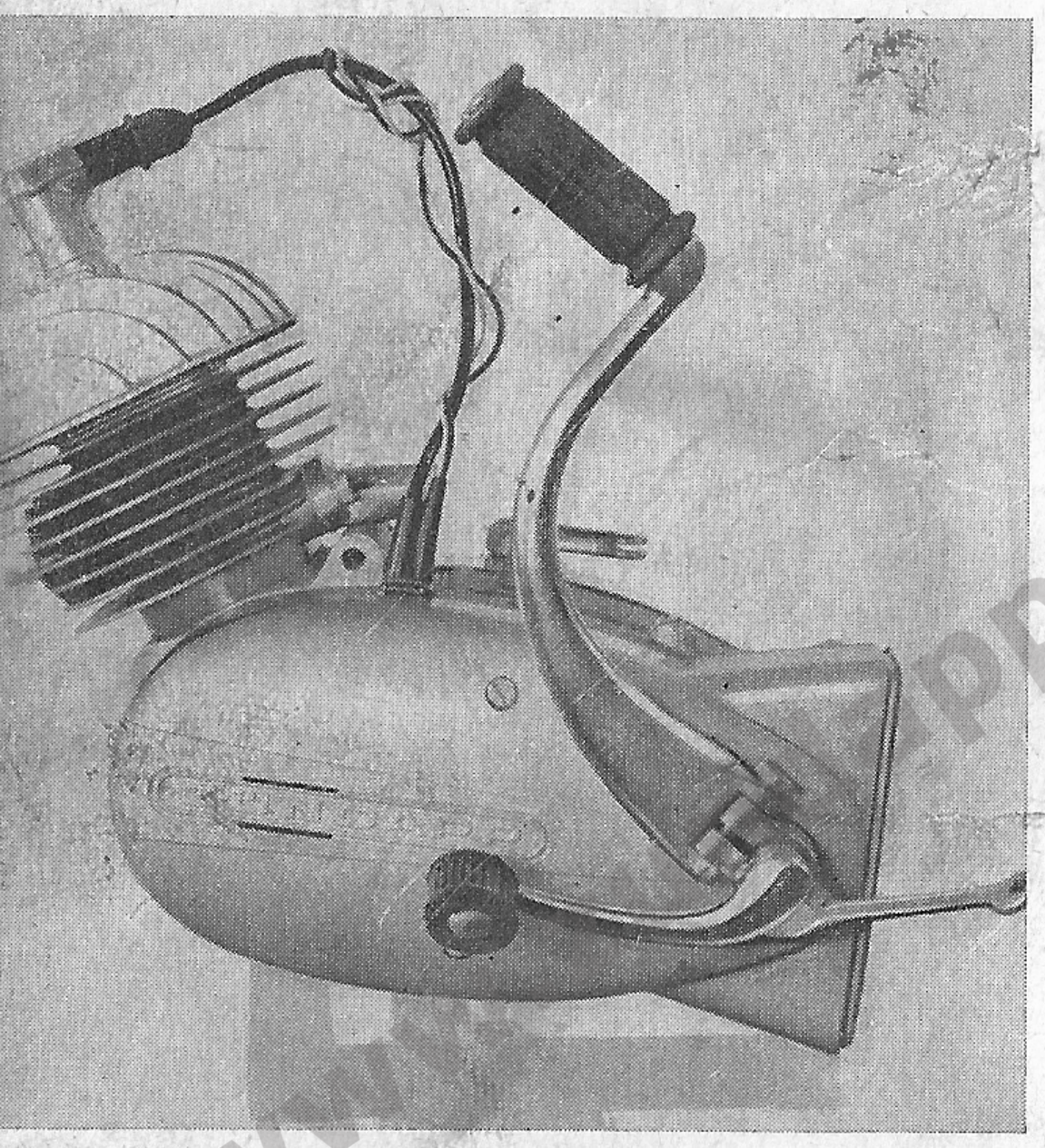


Fig. 72

Tighten the fixing screw on kick-starter lever. Place on the foot shift lever in proper position on the toothing of the foot selector shaft.

Then tighten with fixing bolt (fig. 72).

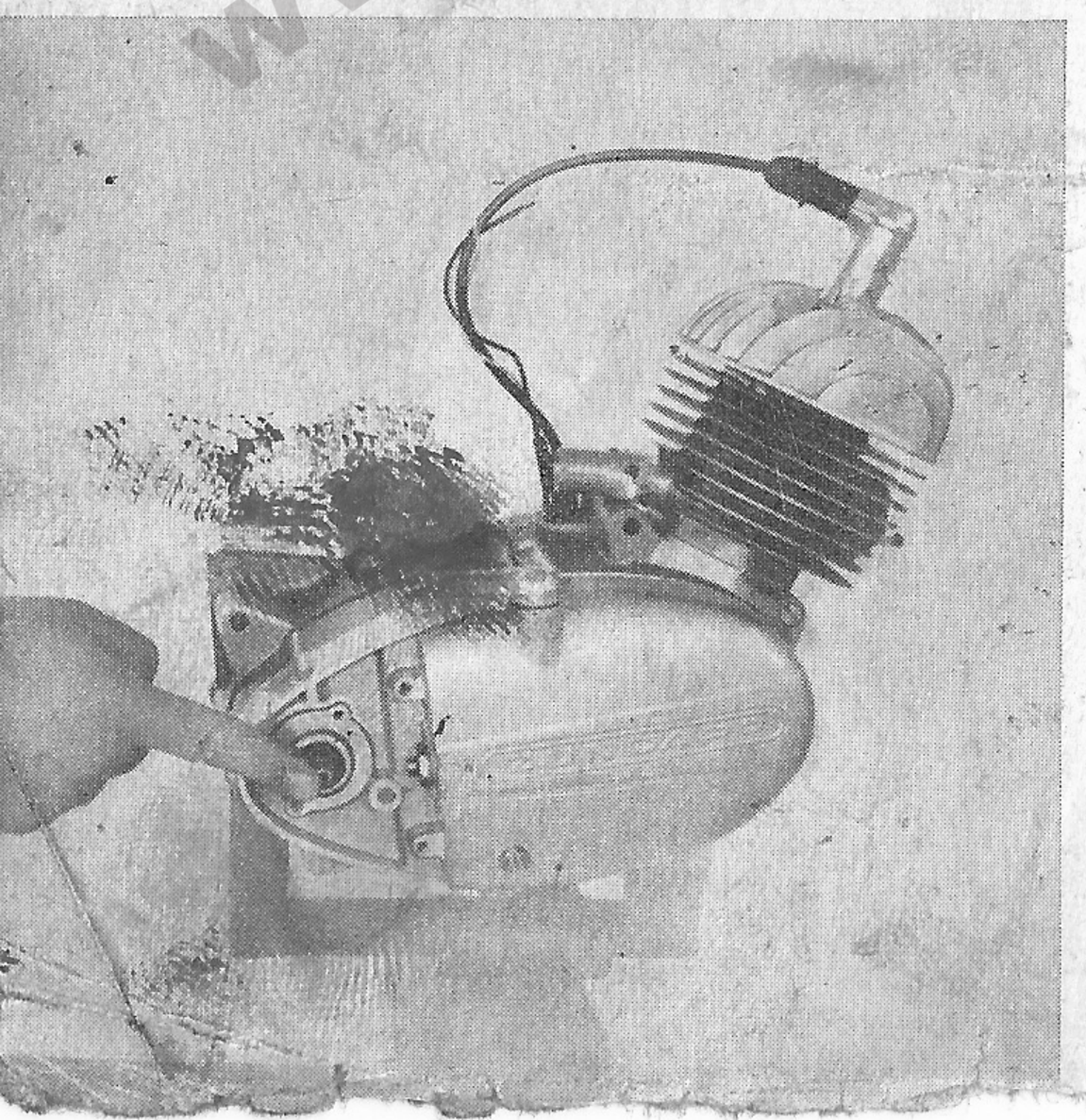


Fig. 73

o) Adjustment of the selector device and clutch play

Turn the engine in the vice to the other side.

By a heavy pressure effected by hand on the foot selector shaft it is possible to force same to the adjustment disc behind the Seeger ring (fig. 73).

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Now open adjustment bell by loosening it until a resistance may be felt, this means that the adjustment bell is in touch with the collar of the housing (fig. 74).



Fig. 74

Then turn the adjustment bell for app. a quarter rotation and bring the two opposite grooves in alignment with the two bores on the housing. Then it is possible to fix the two bolts M 6 x 10 with washers and tighten same with a screw driver (fig. 75).

In case after short driving of your vehicle the gears are forced out it is possible to remedy this by turning the adjustment bell at app. two grooves to the right side. Then tighten same again. In other cases try to remedy this fault in reverse sequence.

The proper play of the clutch lever (3–5 mm) is adjusted by the adjustment bolt fixed on the housing cover. Screwing in the bolt confines the play and screwing out the bolt makes it larger.



Fig. 75

p) Fixing the cover for clutch and selector adjustment

The cover is placed on and fixed with two raised head bolts M5x15 (fig. 76).

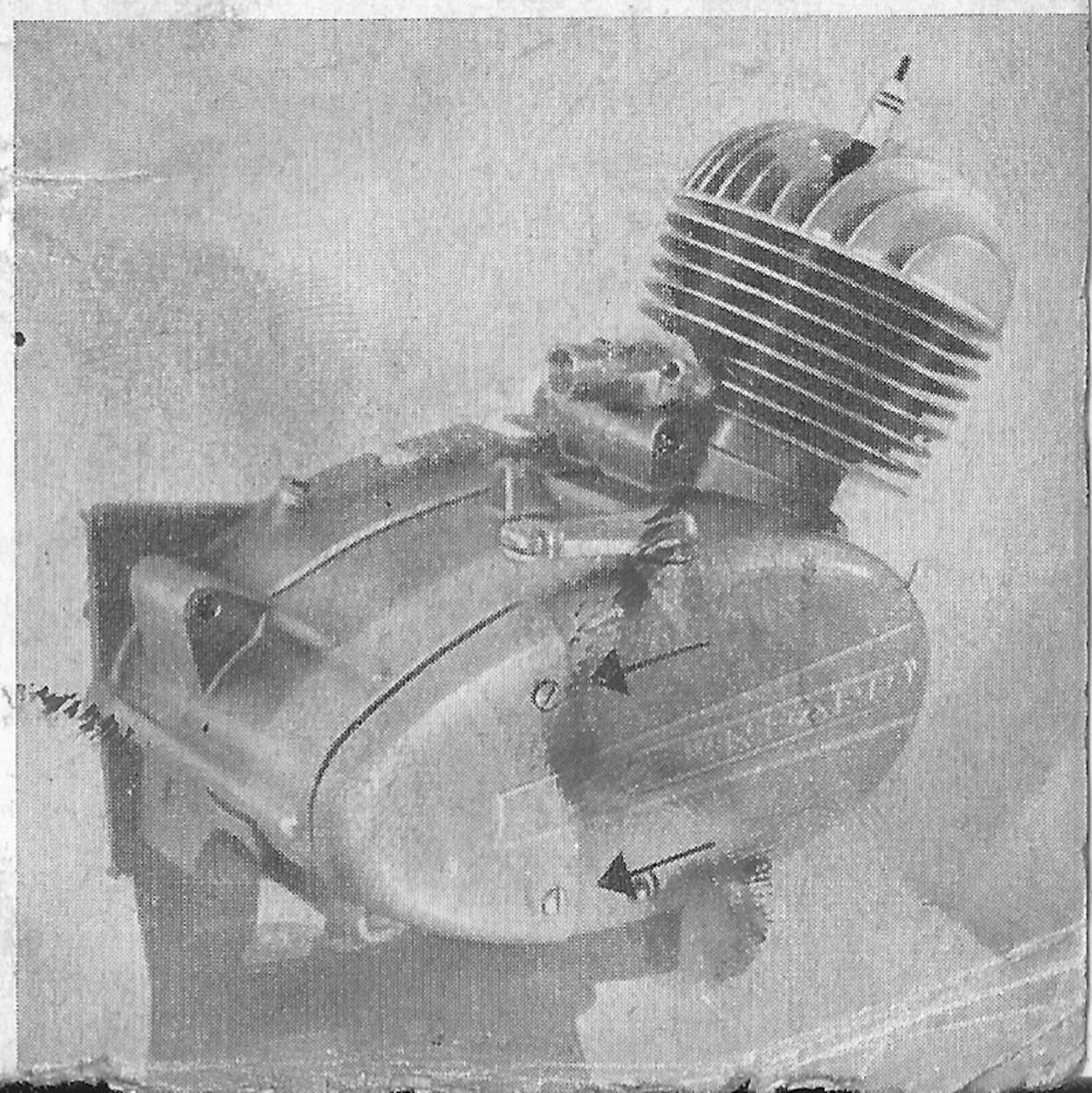


Fig. 76

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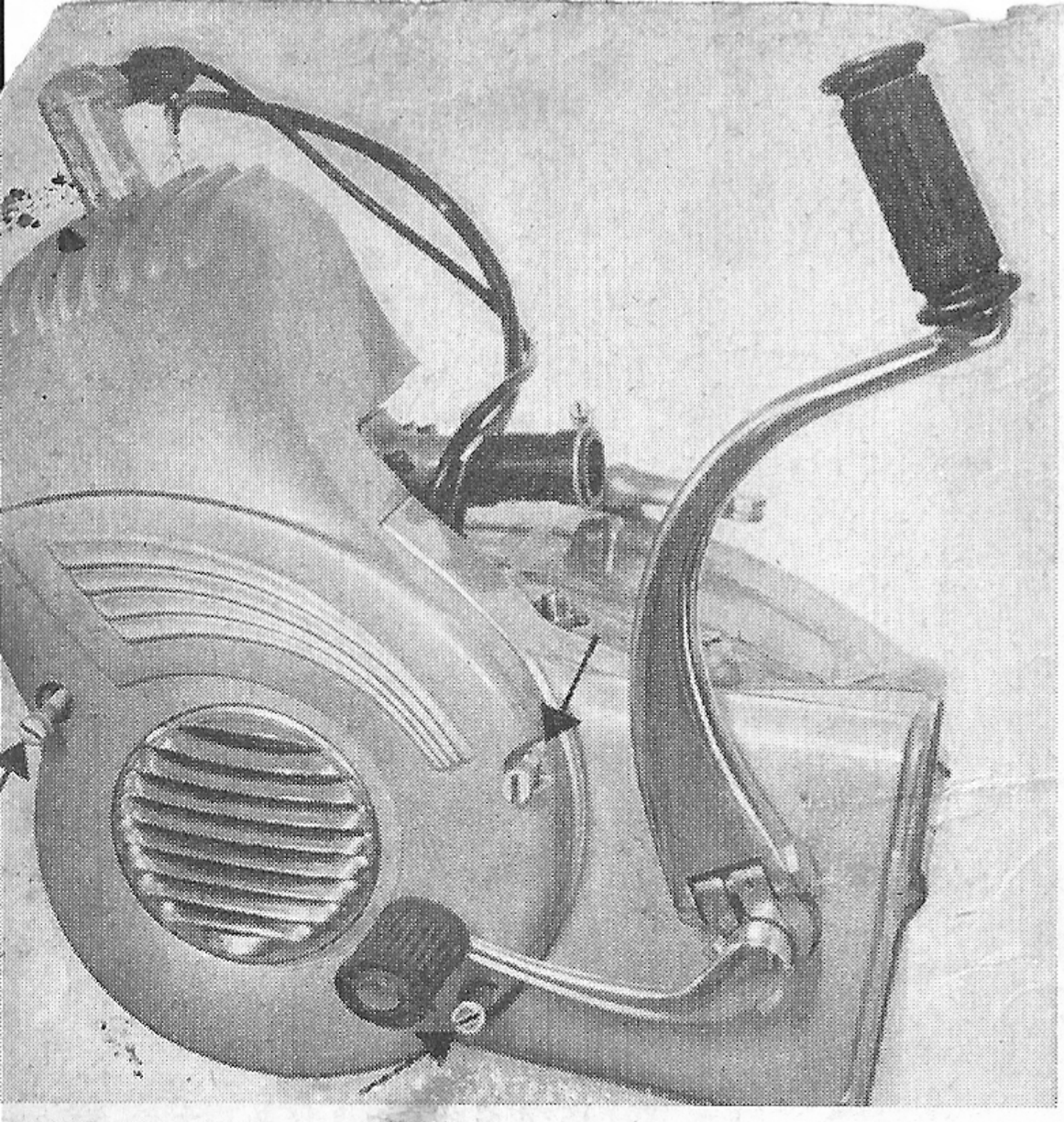


Fig. 77

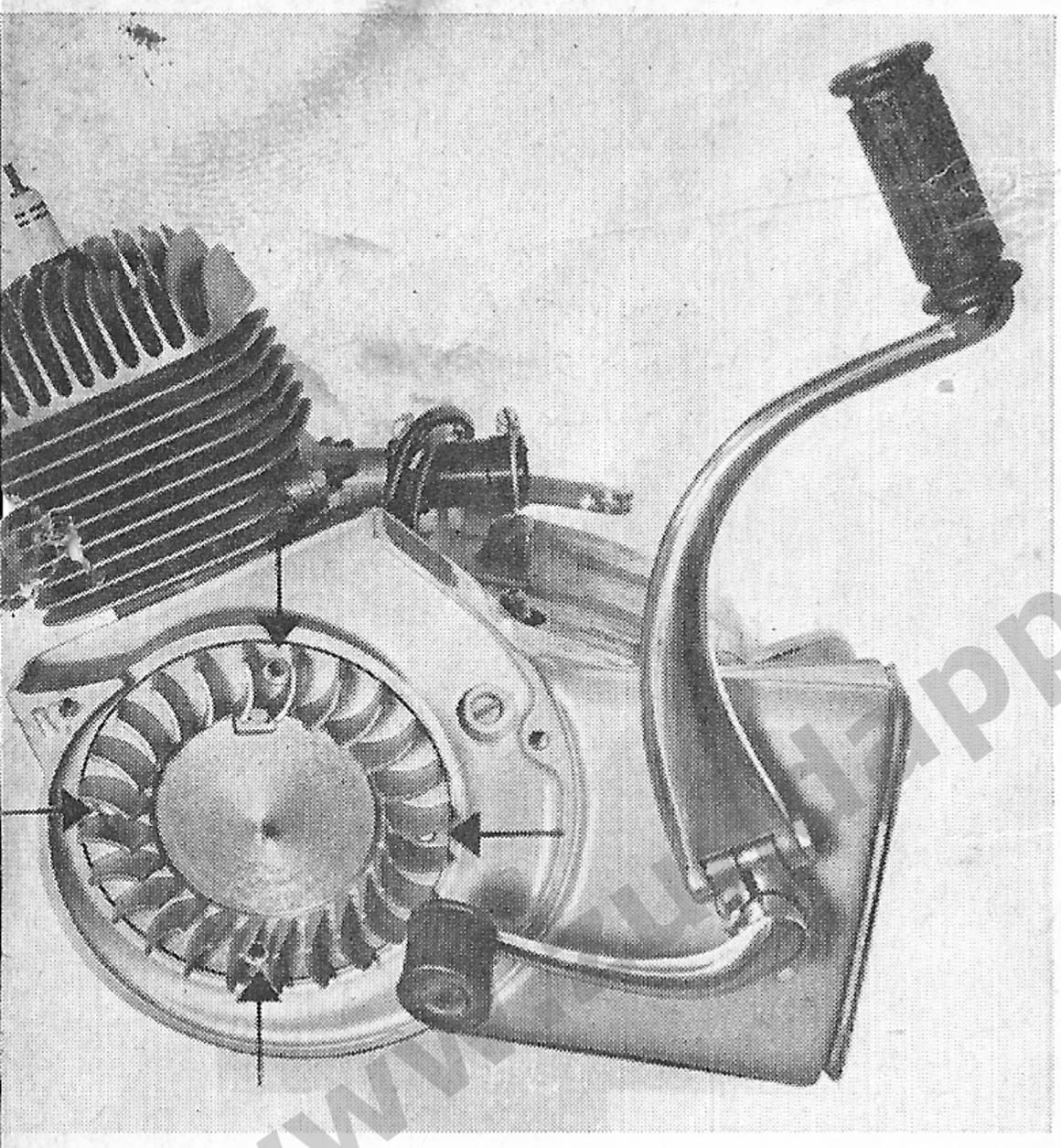


Fig. 78

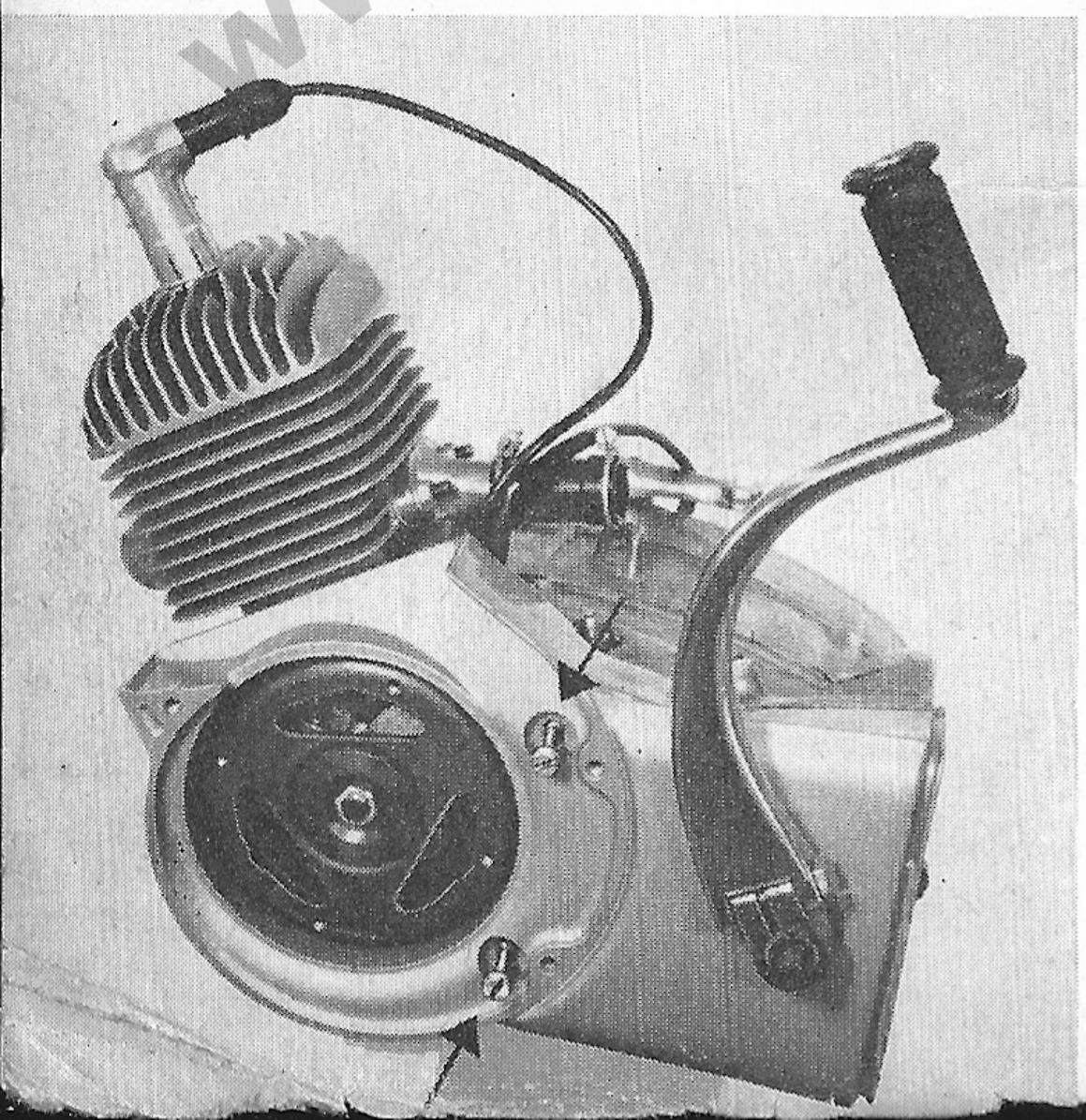


Fig. 79

3. Additional works on engines with blower

a) Removal of the blower housing

By screwing out the three cylinder-bolts M 6 x 30 the blower housing may be taken off without removing the left housing cover (fig. 77).

b) Removal of the blower wheel and checking the ignition timing and contact space

For checking or repairs on the interruptor and the ignition timing the blower wheel must be removed. This blower wheel is fixed by four raised bolts M 5 x 10 to the flywheel and may be removed after having loosened the screws (fig. 79).

c) Removing the left housing cover

After having removed the foot selector lever (already described fig. 1) and loosening of the fixing bolt (see fig. 2) on starter lever and unscrewing the two cylinder bolts M 6 x 35 (fig. 79) the left housing cover may be taken away. When doing this keep the starter lever in its initial position until the pin on the fixing sleeve becomes loose of the groove on the starter shaft. Then release the tension of the starter spring and take away the housing cover.

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All further disassemblies and assemblies as well as repairs and replacements on engines with blower are the same as already described for engines cooled by air. In the repair work are included the fixing of the foot selector lever, the fixing of the selector and clutch adjustment as well as the mounting of the right housing cover. The assembly of the blower wheel and housing is executed in reverse sequence as described under a) to c) see fig. 77, 78 and 79.

ATTENTION! After the assembly it is of utmost importance and inevitable to fill in the proper quantity and quality of oil as described in our booklet "operation and maintenance".

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4. Special Tools

a) Tools already used on former types of engines

1	Motor clamping device	SK–A–126
1	Retaining spanner (MV–6–106)	SK–A–251
1	Extracting device for piston pin	SK–A–64
1	Interchangeable screwdriver	SK–A–76
1	Measuring ledge (in connection with sleeve SK–A–236)	SK–A–133
1	Hexagonal wrench	SK–A–106
1	Measuring ledge	SK–A–161
1	Measuring bridge	SK–A–206
1	Fitting sleeve for seal ring on crankshaft	MV–6–339
1	Fitting sleeve for selector shaft	SK–A–217
1	Hollow punch (crankshaft)	MV–6–347
1	Inserting mandrel for piston pin	SK–A–163
1	Measuring ring (Squaring con. rod)	SK–A–125
1	Straightening tool for con. rod	MV–6–115
1	Ignition timing device with box	ML–401
1	Ignition timing device	252–00.851

b) Tools for engine type 265, 266 and 267

1	Tensioning device	SK–A–234
	with two bolts	SK–A–237
	and one bolt	SK–A–265
2	Bolts	SK–A–246
1	Supporting bolt	SK–A–213
1	Sleeve for SK–A–133	SK–A–236

c) New developped special tools for engines type 276 and 277

1	Extracting screw	SK–A–263
1	Tensioning bolt	SK–A–266
1	Hollow punch	

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