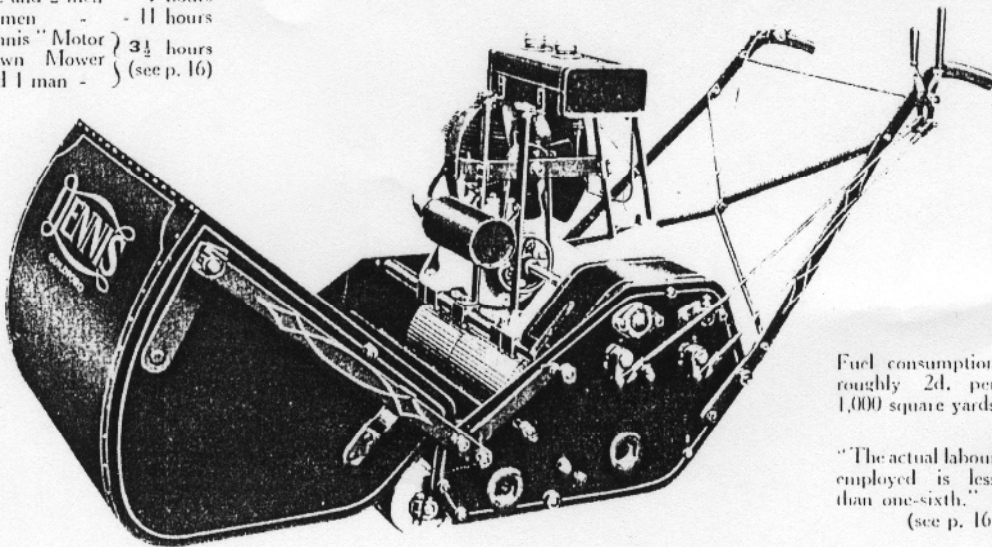


DENNIS  
BROS. LTD.

GUILDFORD

THE PRODUCT OF 28 YEARS' EXPERIENCE  
IN THE MOTOR MANUFACTURING INDUSTRY

Horse and 2 men - 7 hours  
Two men - - - 11 hours  
"Dennis" Motor  
Lawn Mower } 3½ hours  
and 1 man - } (see p. 16)



Fuel consumption  
roughly 2d. per  
1,000 square yards

"The actual labour  
employed is less  
than one-sixth."  
(see p. 16)

# INTRODUCTION

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**T**HE present is the Mechanical Age. Every labour-saving device is not only an individual economy; it makes for general efficiency. The self-propelled vehicle sweetens travel and cheapens transport; the self-propelled lawn mower makes grass-cutting a pleasure and enormously reduces its cost.

A Motor Mower will do more work and better work than a horse-drawn machine without any risk of damage to the turf, and it can be used in all weathers, however soft the ground is.

The "Dennis" Motor Lawn Mower is the result of a series of exhaustive experiments and tests conducted over a lengthy period with a view of producing a self-propelled grass cutting machine that will perform its work reliably, efficiently and economically, and we do not hesitate to claim that it is the most serviceable, up-to-date, and dependable machine on the market. The initial cost is low, its running cost is negligible—it will keep your lawns in good condition with a minimum of time, labour and expense.

The "Dennis" Motor Lawn Mower is not an adaptation of an existing lawn mower to which a petrol engine has been attached; it has been newly designed, from start to finish, as a complete unit.

Produced entirely in our own works, it embodies all the expert knowledge and experience derived from the manufacture of the famous "Dennis" Motor Lorries. It carries with it the backing of one of the oldest firms in the motor industry, whose name is synonymous with dependability, efficiency and durability.

The "Dennis" Motor Lawn Mower is made in two sizes, the width of the knife cylinder being 24in. and 30in. respectively. The larger machine is especially designed to meet the requirements of *Public Authorities, Golf, Cricket, Tennis, Croquet and other Sports Clubs*, and for private use where there is a large area of grass to be cut. Its 4 h.p. engine gives an ample reserve of power and it is easy to control. Its differential gear enables it to drive on all three sections of the main rollers and at the same time to be turned either way on its own ground, so that it may be guided round sharp bends without any effort.

The "Dennis" Motor Mower can be used as a roller only, as its system of separate controls enables the mechanism for cutting the grass to be thrown out of gear when required.

There is nothing complicated about the "Dennis" Motor Mower. So simple is it, in fact, both in construction and in operation, that it can be safely left in the hands of your present gardener, although he may have had no previous mechanical experience.

In this catalogue will be found full particulars of the "Dennis" Motor Lawn Mower and a description of the special features that make it distinctive amongst self-propelled grass cutting machines, together with instructions for its use and management.

## GENERAL SPECIFICATION

**A**FTER various experiments and practical tests it was decided to equip the "Dennis" Motor Lawn Mowers with a 4 h.p. 4-stroke engine with valves, as this type of engine is much more silent in operation, and capable of running at a slower speed, than the 2-stroke type. A high-tension gear-driven magneto is fitted, mounted on a special platform on the crank case.

Should it be required, the engine can be quickly and easily detached from the two cross-members on which it is supported. These cross-members form a strong and rigid support to the whole

machine. The 2-jet carburettor is controlled by a single lever, which is placed in a convenient position near the right-hand guiding handle grip, the speed at which the machine travels being regulated entirely by this lever alone.

The engine is kept cool by an efficient fan, running on ball bearings, which supplies a constant stream of air, effectively cooling the cylinder and crank case. The tension of the fan belt is regulated by raising the fan spindle in the slot through which it is fixed.

The main rollers, as shown in the illustration (Fig. 1), are of

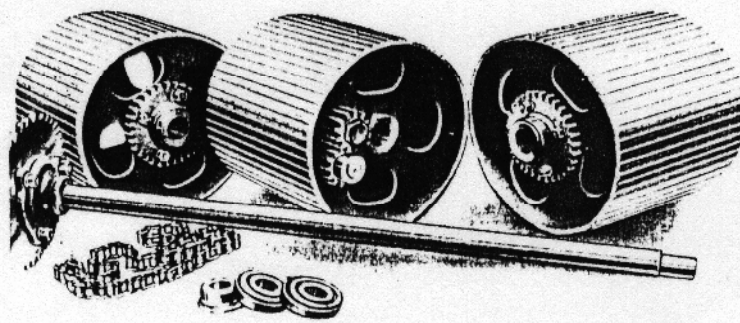


FIG. 1

semi-steel made in three sections, the roller shaft being mounted on ball bearings, and fitted with differential gear attachment, constructed of special steel, heat treated. This enables the machine to drive on all three rollers and, at the same time, be handled with the greatest ease in awkward places, it being possible to turn the machine in either direction on its own ground. The differential gear is mounted on oil-less bearings requiring no lubrication.

The illustration (Fig. 2) shows the two sturdy Ferodo-lined cone clutches—exceedingly simple, smooth in action, and practically indestructible—which transmit the power to the roller and the cutting cylinder through substantial chains fitted to the special steel heat-treated sprockets, these chains being steadied by adjustable jockey chain sprockets of special steel, mounted on ball bearings. Tension springs are also shown, by which the clutch cones are adjusted, ensuring the maximum amount of wear from the Ferodo lining. Note the inverted tooth (silent) chain-driven reduction gear which runs in oil and is completely enclosed in an oil-tight aluminium gear case. A Fabric universal

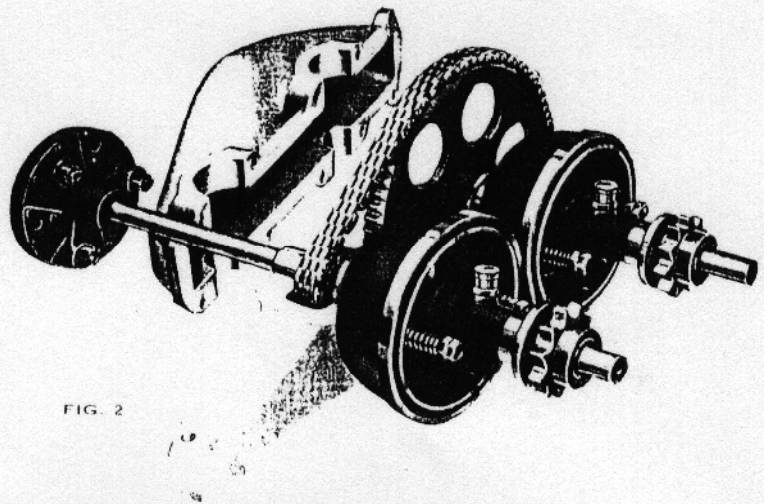


FIG. 2

joint is fitted to the end of the shaft which takes the drive from the engine.

When the first, or cutter clutch, is engaged the cutting cylinder is brought into operation. When the second, or roller clutch, is engaged the machine is self-



opelled. The grass knife cylinder is quite independent and is not driven by the roller, so that should the machine be required to be used as a roller, the first clutch is disengaged and the grass cutter does

not rotate. When both clutches are disengaged the engine runs "free."

Should it be necessary to remove the cutting cylinder, the whole unit can be easily detached (as shown in Fig. 3) by the removal of the driving chain and two ball bearing housings with the special tool provided for the purpose. The cutting cylinder can then be mounted upon its shaft and bearings for grinding purposes, thus ensuring that the knives are actually true with their bearings; it can be replaced with the same quickness and ease.

The blades on the cutting cylinder are double helically mounted, cutting evenly at all travel speeds, and designed to throw the grass towards the centre of box. The blades, which are made of hardened steel on the face, with soft centre, are secured to their carriers by bolts and nuts. They are all jig drilled and interchangeable, so that new blades can be fitted on the spot in case of injury.

The shear blade is mounted on a steel casting,

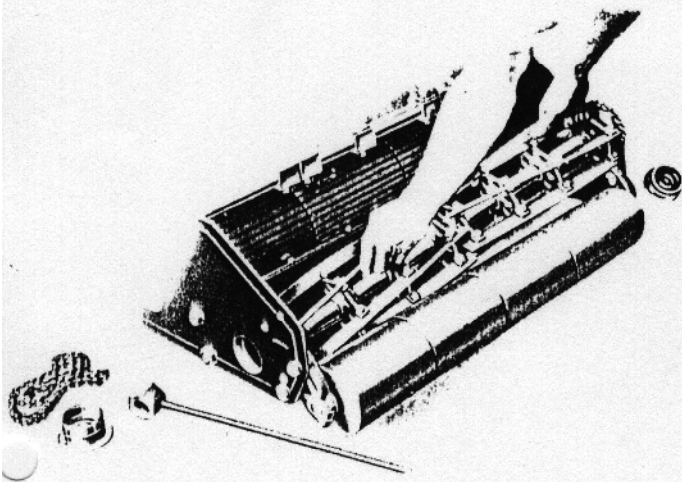


FIG. 3

pivoted on two  $\frac{1}{4}$ " dia. bolts, providing a simple and fine adjustment for the cutting cylinder and bottom plate. This can be firmly locked in its position, so that it is free from any spring.

The grass box, as seen by the illustration (Fig. 4), is pivoted at the forward end, and by a simple front tipping operation the grass can be quickly and easily deposited where required. The box is firmly fixed to the machine to obviate shaking or rattling. Fig. 5 shows how the grass box, when not in use, forms a cover giving adequate protection to the engine.

If it is desired to deposit the grass on the lawn, instead of throwing it into the grass box, all that is necessary is to take out the removable deflector plate.

The grass can be cut to the required length by lowering or raising the front rollers, which brings the

knife-cutting cylinder to the required distance from the ground.

The position of the handles can be adjusted to suit the varying heights of the persons manipulating the machine. (See paragraph 3 of Adjustments.)

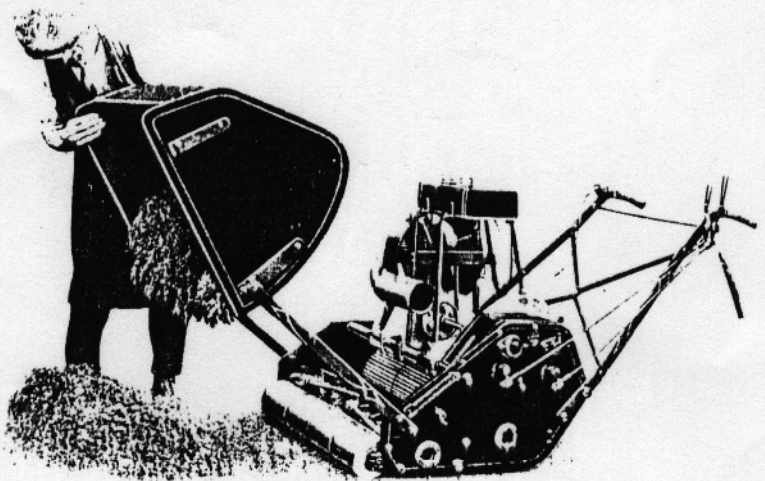


FIG 4.



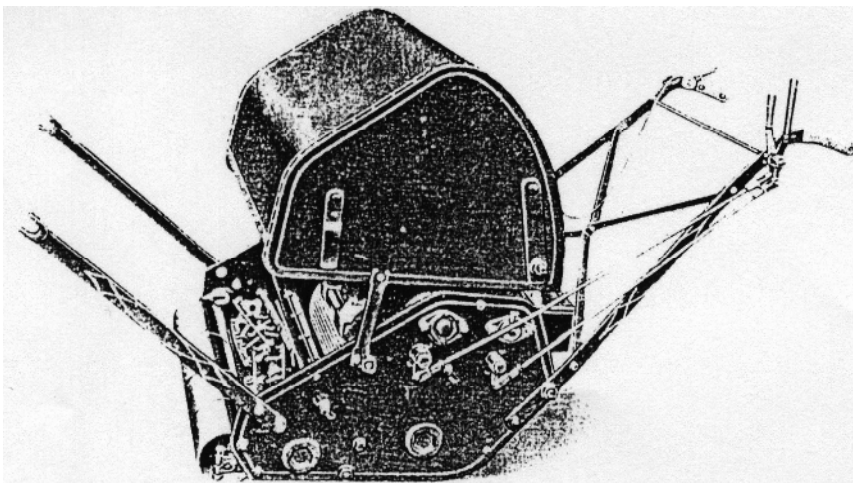


FIG. 5

The fuel tank is divided into two compartments, one for petrol and the other for oil, ensuring that only pure oil reaches the engine bearings. Special attention has been given to lubrication, and it will be

found that the lasting qualities of the mower are of a very high order. The oil supply to the engine, which is controlled by a patented device, is automatic; it starts with the engine and ceases when the engine stops running.

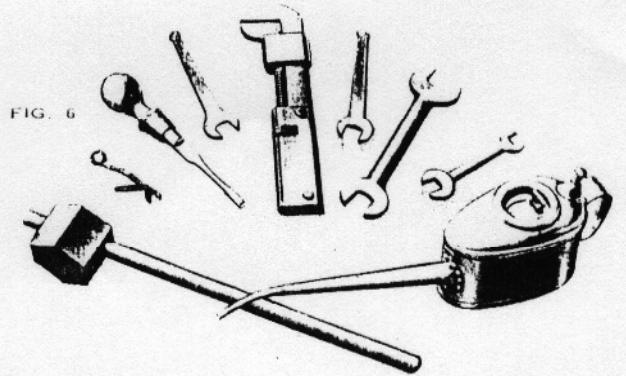
The tool box contains a complete set of tools for the "Dennis" Motor Lawn Mower. They are illustrated in Fig. 6 and, reading from left to right, are as follows:

1. Special tool for removing ball bearing housings.
2. Magneto spanner.
3. Screw driver.
4. Single-ended spanner ( $\frac{1}{16}$  in.).
5. Shifting spanner.
6. Single-ended spanner ( $\frac{5}{16}$  in.).
7. Double-ended spanner ( $\frac{3}{8}$  in. and  $\frac{7}{16}$  in.).
8. Ditto ( $\frac{3}{8}$  in. and  $\frac{1}{4}$  in.).
9. Oil can.

The use of jigs for all adaptable machines explains and ensures the perfect interchangeability of all parts of the "Dennis" Motor Lawn Mower, and customers can rely upon all replacements fitting readily into position.

A list of principal spares is given, with prices, on page 14.

Every part of the "Dennis" Motor Lawn Mower is mechanically perfect, and only the best material and workmanship are employed in manufacture.



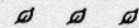
### *DEMONSTRATIONS*

Public demonstrations of the "DENNIS" MOTOR LAWN MOWER in operation are given from time to time and we shall be happy to arrange through our nearest Local Agent for a demonstrator to call and cut the lawns of any applicant for the purpose of showing the machine's capabilities under any weather conditions, and without any obligation on the applicant

## *TO START THE ENGINE*

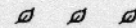
- 1.—Remove cap of filler (17) and fill tank with petrol, turn "on" petrol tap at bottom of tank (handle pointing to rear).
- 2.—Remove cap of filler (18) and fill tank with any good make of air-cooled lubricating oil.
- 3.—Press the control lever (21) about quarter-way downwards and slightly flood the carburettor (20) by pressing down the button on the top of the float chamber for a few seconds, until it floods.
- 4.—Insert the starting handle (16) into the bracket (12) until it engages with the pin, turn until compression is felt, and then pull the handle up smartly, and the engine will start. To obviate the risk of any danger through the back fire of the engine, the starting handle should be pulled sharply in the upward direction only. The engine can be stopped by lifting the half-cam lever (16a) near the valves of the engine.
- 5.—The lubrication of the engine is automatic, and is fully protected by patent. It commences to supply the engine with oil as soon as the engine is started, and the flow ceases directly the engine stops. The circulation through the sight lubricator should be adjusted to about 30 drops per minute, and once set

the regulator requires no further attention. A sign that the engine is fully oiled is the slight emission of smoke from the exhaust.



## *TO DRIVE the MACHINE*

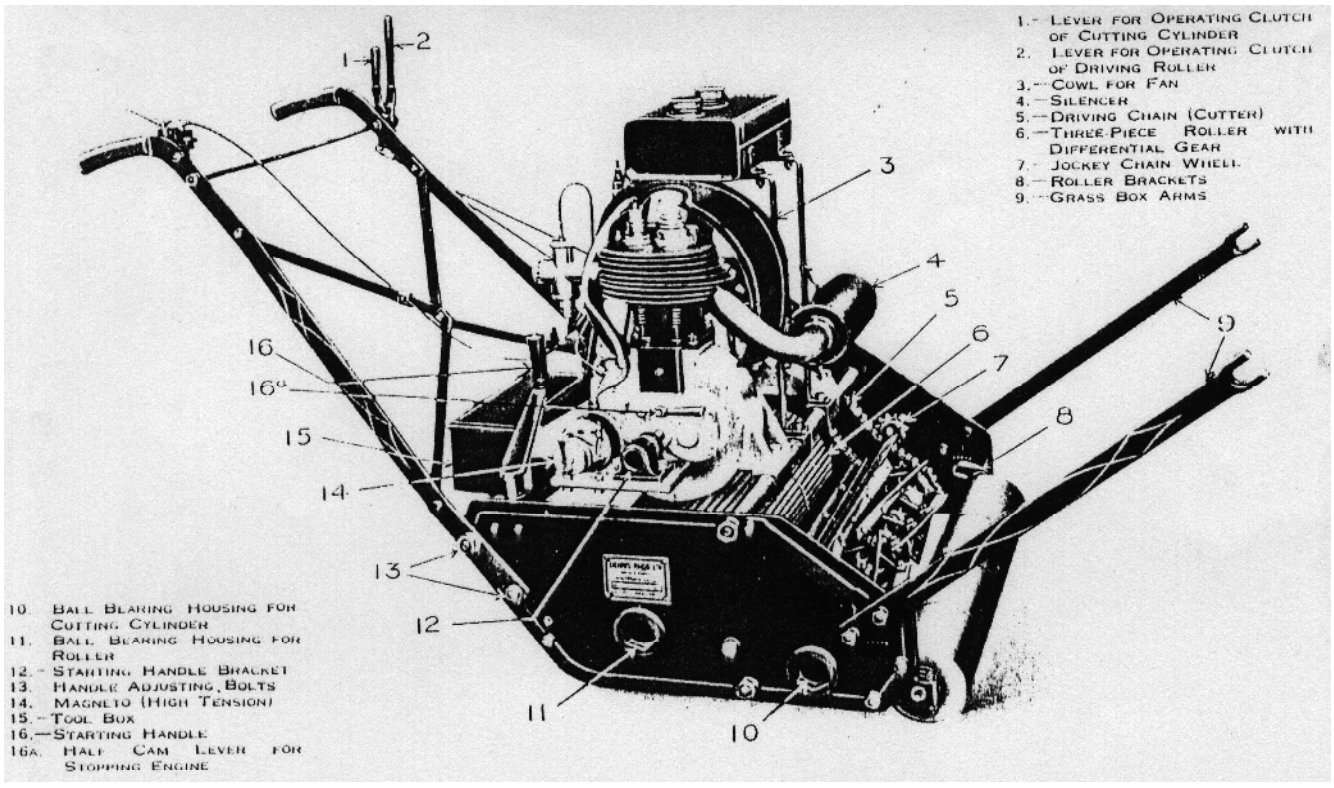
- 1.—Accelerate the engine slightly and press the hand-lever (2) forward until the cam (31) slides out of the recess. This moves the roller clutch into the "in" position and the machine will then glide gently forward. To stop the machine pull the lever (2) back to the upright position. For the convenience of handling this lever is made longer so that it can be easily found.



## *TO START THE CUTTING CYLINDER*

Press the hand-lever (1) forward until the cam (30) slides out of the recess. The cutter clutch (23) will then move to the "in" position and the cutting cylinder will rotate. To stop the cutting cylinder pull the lever (1) back to the upright position.

The clutches may be used together or independently, the speed being regulated by control lever (21).



- 1. LEVER FOR OPERATING CLUTCH OF CUTTING CYLINDER
- 2. LEVER FOR OPERATING CLUTCH OF DRIVING ROLLER
- 3. COWL FOR FAN
- 4. SILENCER
- 5. DRIVING CHAIN (CUTTER)
- 6. THREE-PIECE ROLLER WITH DIFFERENTIAL GEAR
- 7. JOCKEY CHAIN WHEEL
- 8. ROLLER BRACKETS
- 9. GRASS BOX ARMS

- 10. BALL BEARING HOUSING FOR CUTTING CYLINDER
- 11. BALL BEARING HOUSING FOR ROLLER
- 12. STARTING HANDLE BRACKET
- 13. HANDLE ADJUSTING BOLTS
- 14. MAGNETO (HIGH TENSION)
- 15. TOOL BOX
- 16. STARTING HANDLE
- 16A. HALF CAM LEVER FOR STOPPING ENGINE

## ADJUSTMENTS

**CUTTING HEIGHT.**—This is obtained by moving the front roller up or down, which can be done by slackening the two bolts (29) on both sides of the machine: the brackets (8) will then move to the required position. To ensure a level cut, care should be taken to see that the pointers on brackets (8) point to the corresponding holes in both main-side plates: the bolts (29) can then be tightened to fix roller in new position.

**SHEAR BLADE TO CUTTING CYLINDER.**—This can be adjusted by slackening the bolts (28 and 28a) in both main-side plates: the shear blade carrier, being pivoted on bolt 28, can then be moved upwards until the correct setting with cutting cylinder is obtained, and it should then be secured in position by tightening up bolts (28 and 28a).

**HEIGHT OF HANDLES.**—Loosen the bolts (13) in both main-side plates: the handles can now be moved to convenient height through the slot in the side plates: tighten up bolts to fix in position.

**FAN BELT.**—Slacken off nut (34), and move the fan spindle upward through slot in bracket and screw nut up tight.

**DRIVING CHAINS.** Slacken the nuts (27), move the spindles through the slots until the chain wheels steady the chains, and screw nuts up tight. The driving chains should not be tight. When all adjustment has been taken up remove  $\frac{1}{2}$  links from chains and re-adjust.

**DEFLECTOR PLATE.**—By unscrewing bolts where fastened to plate carrier the deflector plate can be removed from the machine, and the grass is then deposited upon the lawn instead of being thrown into the box.

**TO TAKE OUT THE CUTTING CYLINDER.**—Take off the driving chain and lower the front roller. With the key supplied unscrew and remove the ball-bearing housings (10) in both main-side plates, and the cutting cylinder can then be lifted up and out.

### LUBRICATION.—

Oil both clutch cones and the bearing (25 and 26).

Oil front roller through hole in each end of hollow spindle.

Oil both cams (30 and 31) and the pins on which they move.

Oil the ball bearings (10 and 11) through the holes in the housings.

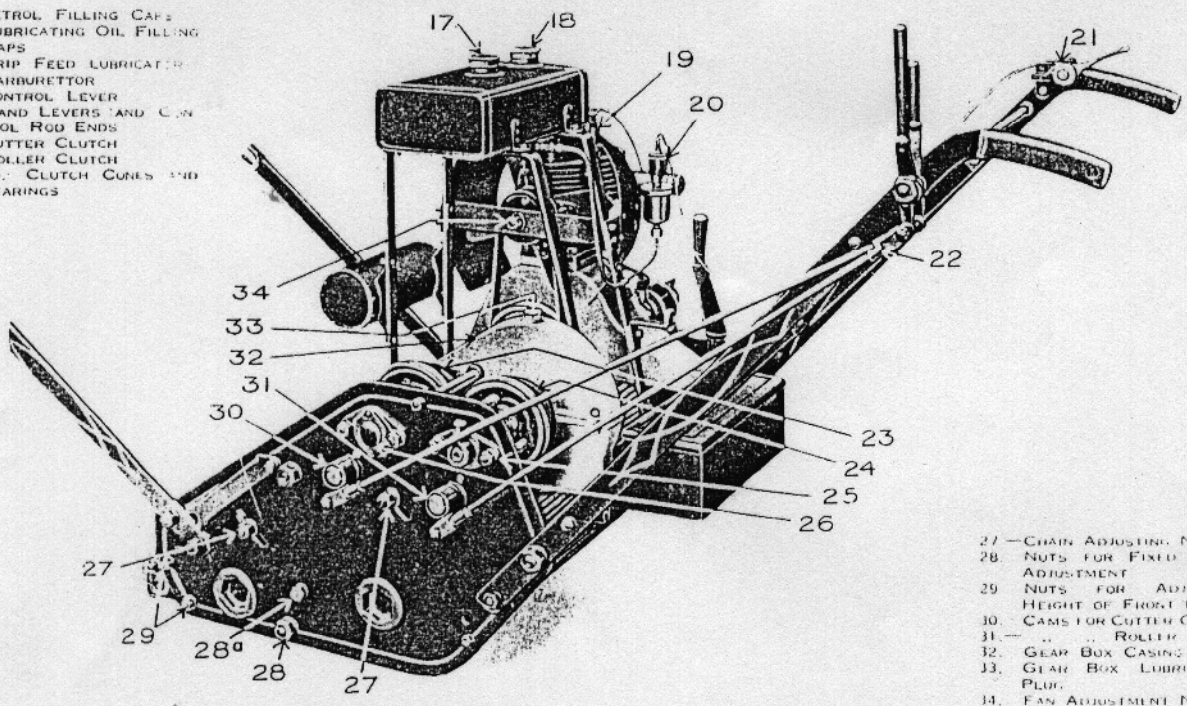
Oil the driving chains and small chain wheels.

Oil the hand levers and control rod ends (22).

Remove plug (33) from gear box (32) and fill with oil to the level of plug near bottom of gear box.

**NOTE.**—When the machine is stopped turn off petrol: the patent automatic oil supply to the engine ceases when the engine stops running. When the machine is stored for the winter see that all ball bearings and chains are well greased to prevent rust.

- 17. PETROL FILLING CAPS
- 18. LUBRICATING OIL FILLING CAPS
- 19. DRIP FEED LUBRICATOR
- 20. CARBURETTOR
- 21. CONTROL LEVER
- 22. HAND LEVERS AND CONTROL ROD ENDS
- 23. CUTTER CLUTCH
- 24. ROLLER CLUTCH
- 25 & 26. CLUTCH CONES AND BEARINGS



- 27. CHAIN ADJUSTING NUTS
- 28. NUTS FOR FIXED KNIFE ADJUSTMENT
- 29. NUTS FOR ADJUSTING HEIGHT OF FRONT LEVER
- 30. CAMS FOR CUTTER CLUTCH
- 31. " " ROLLER " "
- 32. GEAR BOX CASING
- 33. GEAR BOX LUBRICATION PLUG
- 34. FAN ADJUSTMENT NUT





## PRICES

The "DENNIS" MOTOR LAWN MOWER is made in two sizes, and the prices include delivery to any railway station in Great Britain.

**24in. CUTTING CYLINDER** - - - - - **£75 0 0**

Length over all	6ft. 6in.	Shipping Dimensions: Height	3ft. 5in.
Width over all	2ft. 6in.	Width	2ft. 8in.
Nett Weight	3 $\frac{3}{4}$ cwt.	Length	2ft. 9in.

**30in. CUTTING CYLINDER** - - - - - **£90 0 0**

Length over all	6ft. 6in.	Shipping Dimensions: Height	3ft. 5in.
Width over all	3ft. 0in.	Width	3ft. 2in.
Nett Weight	4 $\frac{3}{4}$ cwt.	Length	2ft. 9in.

## GUARANTEE

AS in the case of their Motor Lorries and Fire Engines, Messrs. Dennis Bros., Ltd., guarantee, to the original purchaser, while he remains the owner in possession, that in the event of any part or parts of the Dennis Motor Mower requiring replacement during a period of six months from date of delivery, by reason of defects due to faulty material or bad workmanship, the Company will supply to the purchaser, free of charge, duplicates of such parts in exchange for those defective, and will forward such duplicate parts to any address in the United Kingdom, carriage forward.

# TESTIMONIALS

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Mr. J. COOKE, Head Groundsman of the Aldershot Command Sports Board :

" The 30-inch Motor Lawn Mower supplied by Messrs. Dennis Bros., Ltd., has done excellent work. It is a very handy, clean-cutting machine and easily managed. We are now able to cut an area of 2½ acres on a consumption of 1½ gallons of petrol in approximately 3½ hours, whereas with a horse-drawn machine of the same size it formerly took six and sometimes as long as seven hours."

From Mr. A. C. SAXTON, Pyrmont, Sydney, N.S.W. :

" The 24-inch 'Dennis' Motor Lawn Mower arrived in good order, has been set going, and is doing excellent work. I am very pleased with same. One of my neighbours on seeing this machine at work asked me to order one for him, so I would be glad if you would forward a similar machine to A. C. Ingham, Timber Merchant, Pyrmont, Sydney."

Mr. W. HARTMANN, writes from Milburn, Esher, Surrey :

" I can only say I am immensely pleased with the 30-inch 'Dennis' Motor Lawn Mower, as the work done with it is perfect in every way. I find that one of our men does in a few hours what it formerly took two men two days to do. The motor is easily handled and can go round sharp corners splendidly. In every way the machine gives us every satisfaction and I congratulate you upon introducing such a useful thing as your 'Dennis' Motor Lawn Mower."

Mr. H. H. MACLEOD of Eynesbury, Merrow, Guildford, states that :

" Your 24-inch Motor Lawn Mower has now been in use for the last three months and has given entire satisfaction. My gardener is delighted with it, as he is now able to cut the lawns single-handed in 4½ hours—a task which formerly took two men about 14 hours to do. In other words the actual labour employed is now less than one-sixth of what it was before using your Motor Mower. Moreover it not only cuts but *rolls* and it can be used in almost all weathers."

Messrs. THE NEW ZEALAND EXPRESS CO., LTD., Dunedin, write :

" We think you will be interested to know that the 30-inch 'Dennis' Motor Lawn Mower is giving complete satisfaction, and we have pleasure in enclosing an order for one 24-inch machine.

"Although only a comparatively new output from the Dennis factory it already has demonstrated that it will maintain the high reputation for sound construction and efficiency enjoyed in the Dominions by its elder brothers, the 'Dennis' Motor Lorry and the 'Dennis' Turbine Fire Engine, each of which is easily the most popular of its class in New Zealand.

"In addition to the saving it effects in time and labour the mower is remarkable for the ease with which it is guided round awkward corners and up steep banks which are a feature of the gardens of this city of the hills."