

Advance

Type B Lightweight

Motor Rollers



WALLIS & STEEVENS LTD.
BASINGSTOKE, ENGLAND

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A.B.C. 5th Edition

TYPE B DIESEL OIL ROLLERS

The distinctive features of our "Advance" design as applied to our heavy Steam and Motor Rollers have very fully proved their advantages over ordinary 3-wheel and tandem forms of construction—the same characteristics are incorporated in Type B Models and make for like efficiency in these lighter weights. Carefully proportioned construction, equalised weight distribution, automatic cambering rolls, etc., make all the difference in rolling between what is first-class work and merely ordinary, as they admit of even and equal compression over whole rolled surface, make possible effective consolidation at extreme edges of work and the obtaining of a perfect surface finish with the added advantage and economy of securing these results in the minimum time. The general layout of the Type B Models is compact, wheel base short, centre of gravity low, making for handiness and stability in operation : further, there being no projections on either side, rear rolls can be run right up to margins of work, walls or the like, and the "two clear sides" permit of operating in confined spaces or on narrow paths to best advantage.

The provision of four speeds adds much to general efficiency and economy, as most suitable gear can be used to meet varying conditions of work. Convenience in handling, accessibility for ordinary running attention, construction which facilitates inspection and overhaul, are all of importance to the user and these points have had particular attention throughout the design.

SUMMARIZED SPECIFICATION

74B

Models	O.F.D.	O.F.E.	O.F.F.	O.F.G.
Code Word	Zwewl	Zwez n	Zwids	Zwift
Weight (in working order)	2½ tons 2600 Kgs.	3 tons 3050 Kgs.	3½ tons 3550 Kgs.	4 tons 4100 Kgs.
Rolling Width	3' 10" or 3' 2" 1169 or 966 m/m.	4' 2½" or 3' 6½" 1284 or 1080 m/m.	4' 2½" or 3' 6½" 1284 or 1080 m/m.	4' 2½" or 3' 6½" 1284 or 1080 m/m.
Hind Rolls	3' 0" × 12¾" 915 × 324 m/m.	3' 0" × 15" 915 × 381 m/m.	3' 0" × 15" 915 × 381 m/m.	3' 1" × 15" 937 × 381 m/m.
	Hind Rolls are fitted with Reversible Rims —the alternative rolling widths given above are obtained by reversing rear rims on their centres.			
Front Roll	Diameter, all models, 2' 9" (839 m/m.). Roll is in two sections , having a total width of 2' 0" (610 m/m.).			
Power Unit	2-Cylinder 4-Cycle Compression Ignition Engine —Bore 3¾" (95 m/m.) Stroke 5½" (140 m/m.) swept volume 1985 c.c. developing 15 b.h.p. at 1,100 r.p.m. Starting easily effected by hand from cold consequently no special fittings for this purpose are necessary.			
Fuel Tank	Capacity 8½ gallons (37.5 litres).			
Gear Box	Four Speeds : ⅔, 1¼, 2¼ and 4 m.p.h. (1.2, 2, 3.7 and 6.7 kms. per hour.) Main shaft carried in Ball Bearings, layshaft in Roller Bearings. Reverse on all gears.			
Reduction and Differential Gears	Spur and bevel gears are employed throughout and a 4-pinion differential gear with automatic locking device is included. All are enclosed and run in oil bath.			
Final Drive	Spur Gears direct to rear rolls—rolls revolve on their axles and each is positively driven.			
Rear Axle	Advance Patent giving Automatic Cambering action to rear rolls.			
Forecarriage	Underslung type with overhead steerage operated by machine-cut worm and segment.			
Wheel Base	6' 6½" (1994 m/m.), giving turning circle of 10' 6" (3200 m/m.) radius.			
Overall Dimensions	Length 10' 2½" (3115 m/m.). Width, as rolling width.			
Additional Fittings (see page 8)	Driver's Awning. Water Sprayers and Supply Tank. Power take-off (Driving Pulley).		Code Word : <i>Hood.</i> " " <i>Spray.</i> " " <i>Pully.</i>	

NOTE—**Special Wide Rim Models** are available for rolling grass, sports grounds, aerodromes, etc. Standard models can also be supplied with extra wide rims which are readily interchangeable with standard rims.

POWER UNIT

Two-Cylinder 4-Cycle Compression-Ignition Engine, bore $3\frac{3}{4}$ "—stroke $5\frac{1}{2}$ " developing 15 b.h.p. at 1,100 r.p.m.—it is positioned to give particularly ready access to fuel pump, atomisers, fuel filter, lubricating oil filler, dip rod, lubricating oil filter, etc., and for all running attention. Inlet and exhaust valves can be removed for inspection, regrinding and renewal **without the removal of the cylinder head or the breaking of any joints**. An efficient air filter is fitted.

Engine can be **easily started by one man from cold** by means of a long starting handle operating through the gear box on a ratio of 1.82 to 1 : this enables engine to be rotated quickly, which is so essential for the easy starting of Diesel Engines. To further assist the starting, a heavy flywheel of large diameter is fitted.

Main Bearings and Crankshaft. Phosphor bronze bearings are provided on each side of each crank. They are lined with best quality white metal. The crankshaft ("Siemens-Martin") acid process steel complies with Lloyds requirements.

Cylinders. Heads of detachable type and cylinder liners of special nickel chrome alloy cast iron.

Fuel and Pump Atomisers. The fuel pump is conveniently positioned and is a self-contained unit. Atomisers are of the "self-cleaning" type. It is not necessary to drain the cylinder heads when removing atomisers.

Accessibility. Inspection doors give access to bearings and working parts.

Governor. A totally enclosed centrifugal governor is mounted on the crankshaft, this limits the maximum speed, intermediate speeds set by hand control from the dash but still under Governor control to prevent racing when load is removed.

Lubrication. A gear-pump direct driven from the camshaft, supplies oil under pressure through an auto-cleaning filter to all working parts in the crank-chamber. The pressure can be regulated whilst the engine is working and a gauge indicates the pressure at a point furthest away from the oil pump.

Cooling. Thermo-Syphon cooling is employed in conjunction with radiator of ample capacity and fan of large diameter, the latter being provided with simple and accessible adjustment for belt tension.

Fuel. Fuel used can be of any grade of Paraffin, Gas oils and Diesel oils. For best efficiency we recommend fuel oils having a viscosity not greater than 50 seconds Redwood at 100 deg. and .88 Sp. Gr. and such are readily obtainable in most parts of the world. Fuel Tank capacity, $8\frac{1}{4}$ gallons.



IMPORTANT FEATURES

Valves removable without disturbing cylinder heads or breaking water joints.

Patent cylinder head ensures immediate start from cold by hand without ignition or pre-heating devices.

Handle starting from cold as easy as equal capacity petrol engine.

Positive self-cleaning lubricating oil filter on pressure side of supply to **all bearings**.

All working parts totally enclosed and cleaner fitted to air inlet.

"Self-cleaning" type atomisers having nozzle without small holes obviates choking and consequent damage to fuel system.

TRANSMISSION

This is by **spur and bevel gears** throughout, so avoiding the many disadvantages of chain drives.

The **gearbox**, which is totally enclosed, is arranged to provide **four** gear ratios giving **road speeds**, $\frac{3}{4}$, $1\frac{1}{4}$, $2\frac{1}{4}$ and 4 m.p.h. at normal revolutions of engine: and all four speeds are available for rolling work as well as for travelling. Gears and shafts are of nickel chrome steel, oil tempered; main shaft is carried in **ball bearings** and gears are of ample width for long service. **Intermediate reduction gears are totally enclosed** in a substantial gear box and **run in oil**—they are of steel 45 tons tensile and upwards, machine cut, of adequate proportion and where considered necessary teeth are surface hardened by special process making for greater durability. Six-splined shafts are used throughout the transmission as in automobile practice.

A **four pinion differential gear** is incorporated in reduction unit and has **automatic locking device externally controlled**.

Final drive is by **machine cut steel spur gears** and as the driving rolls revolve on their axles and each is positively driven, load and wear on rolls is equalised.

REVERSING CLUTCHES

These are of multi-toothed type **specially designed to facilitate ready reversal**, they give a positive drive, are of sturdy construction with hardened faces and slide on a six-splined shaft, so ensuring long life without backlash. Control is by a conveniently placed reverse lever and as the clutches are positioned on intermediate shaft and quite apart from speed gear box, **reverse is obtained on all gears** without movement of change speed lever, also gear box shafts and pinions are not subjected to wear and tear of constant operation for reversal, as required gear having been selected, these, as other **transmission gears remain in constant mesh**. Reversing clutches are readily accessible for any attention, should this be required, without dismantling gears.

REAR AXLE

This is of our **patent automatic cambering** type permitting rear rolls to automatically adjust themselves to contour of surface being rolled—the **automatic cambering action gives:—**

Central consolidation.

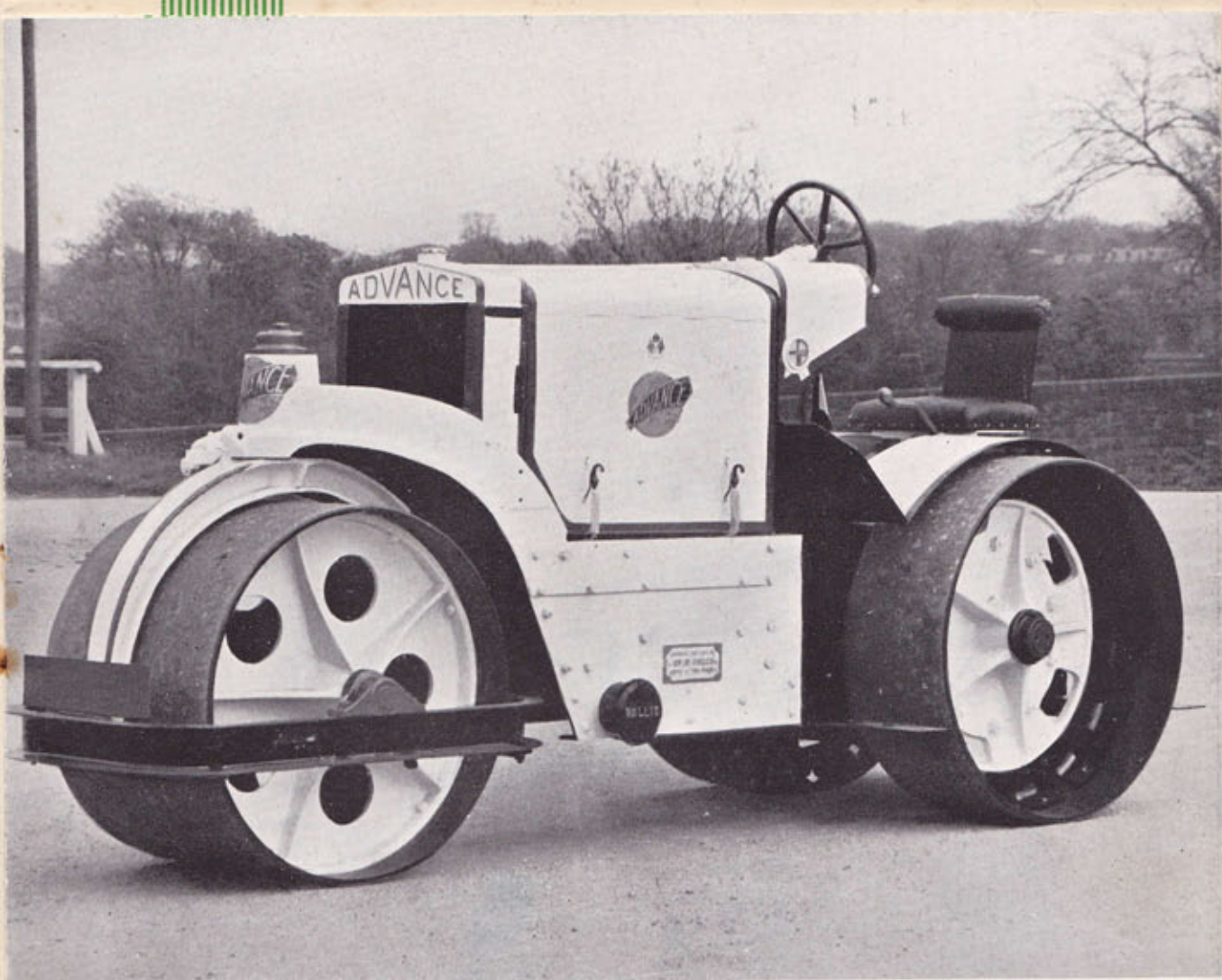
Avoids displacement of materials by outward pressure (as with rigidly mounted rolls, whether of wide tandem type or otherwise).

Obviates cutting in of rolls on deviation from straight line of travel, so ensures perfect surface finish.

Permits of extreme margins of work being efficiently consolidated.

All these points are of much importance in rolling narrow roads, drives, pathways, sports grounds or for work of any character. A further advantage is, that the unequal and undue wear on driving rolls arising from constant wheel slip, inseparable with rolls rigidly mounted, is avoided.

A spring abutment forms part of construction and being common to both axles these work in unison, not independently. Provision is made for locking the axles, so that rolls can, if wished, be held parallel, but under all normal conditions the obvious gain of free movement is so marked that restriction is seldom advisable.



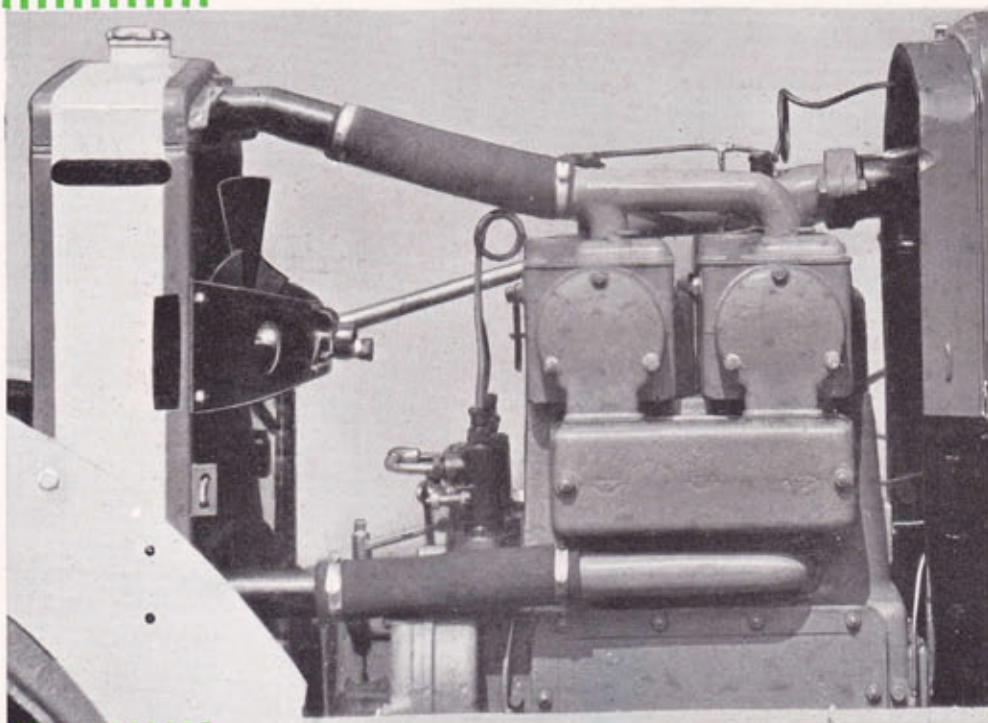
2½-TON MODEL O.F.D.

Advance

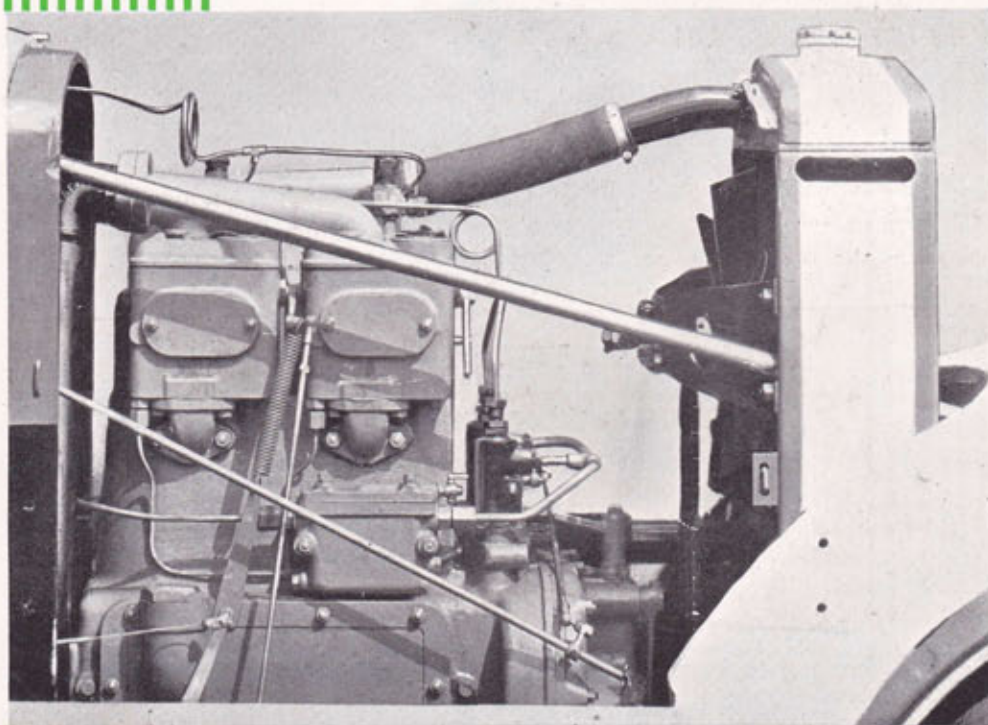
TYPE B LIGHTWEIGHT

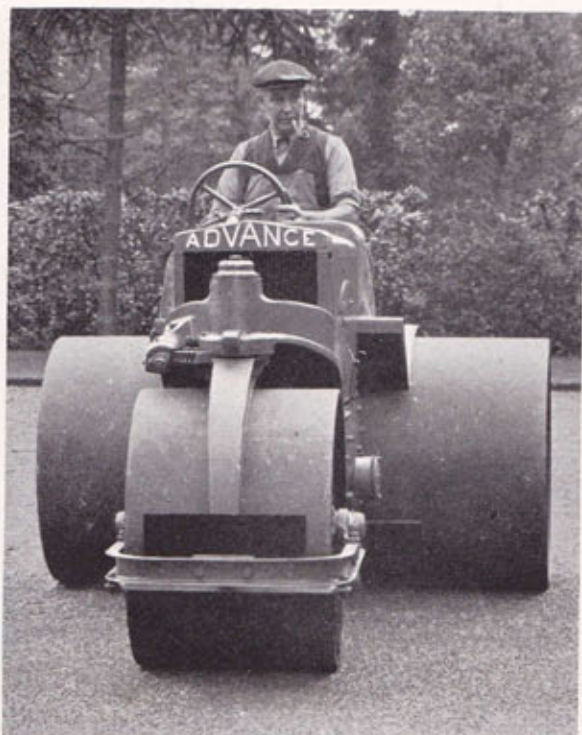
**DIESEL OIL
ROLLERS**

WALLIS & STEEVENS LTD., BASINGSTOKE, ENGLAND



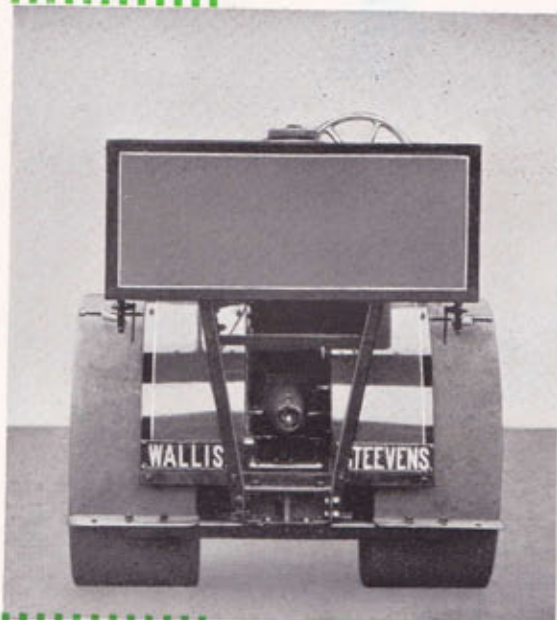
POWER UNIT 2-CYLINDER DIESEL ENGINE DEVELOPING
15 B.H.P. AT 1100 R.P.M. — HAND STARTING FROM COLD —
NOTE EXTREME ACCESSIBILITY —
GEAR BOX PROVIDES 4 ROLLING SPEEDS

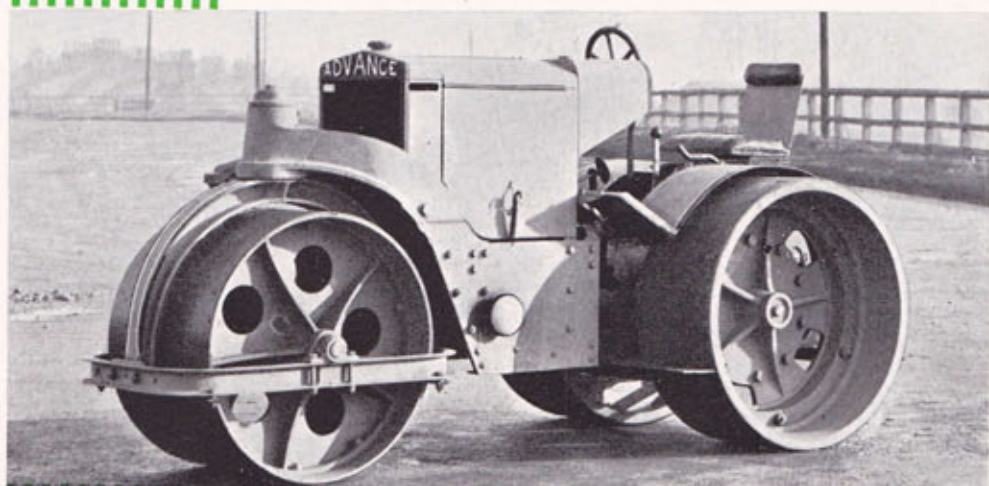




ABOVE (ON LEFT), BOTH SIDES CLEAR. YOU CAN ROLL CLOSE UP TO EDGE OF WORK. (ON RIGHT), A WIDE RIM MODEL.

BELOW, FRONT AND REAR VIEWS WITH WATER SPRAYERS FITTED



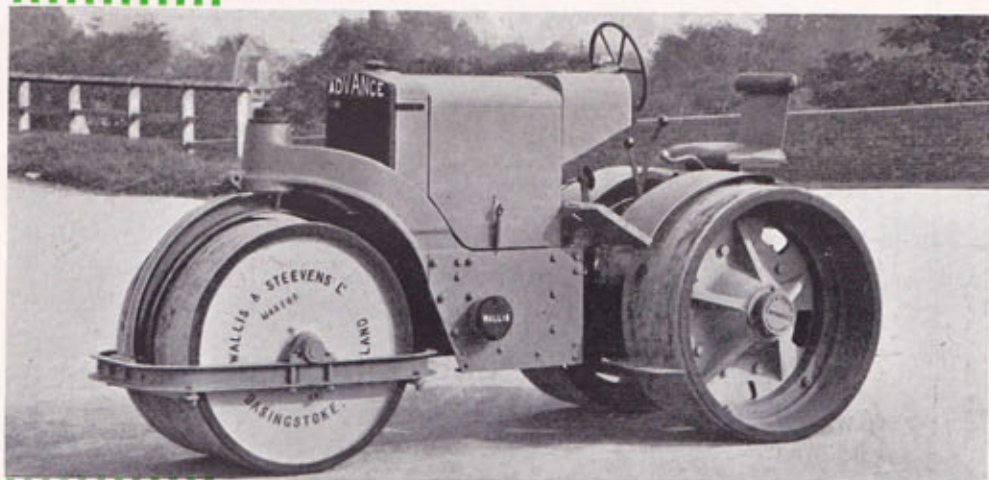


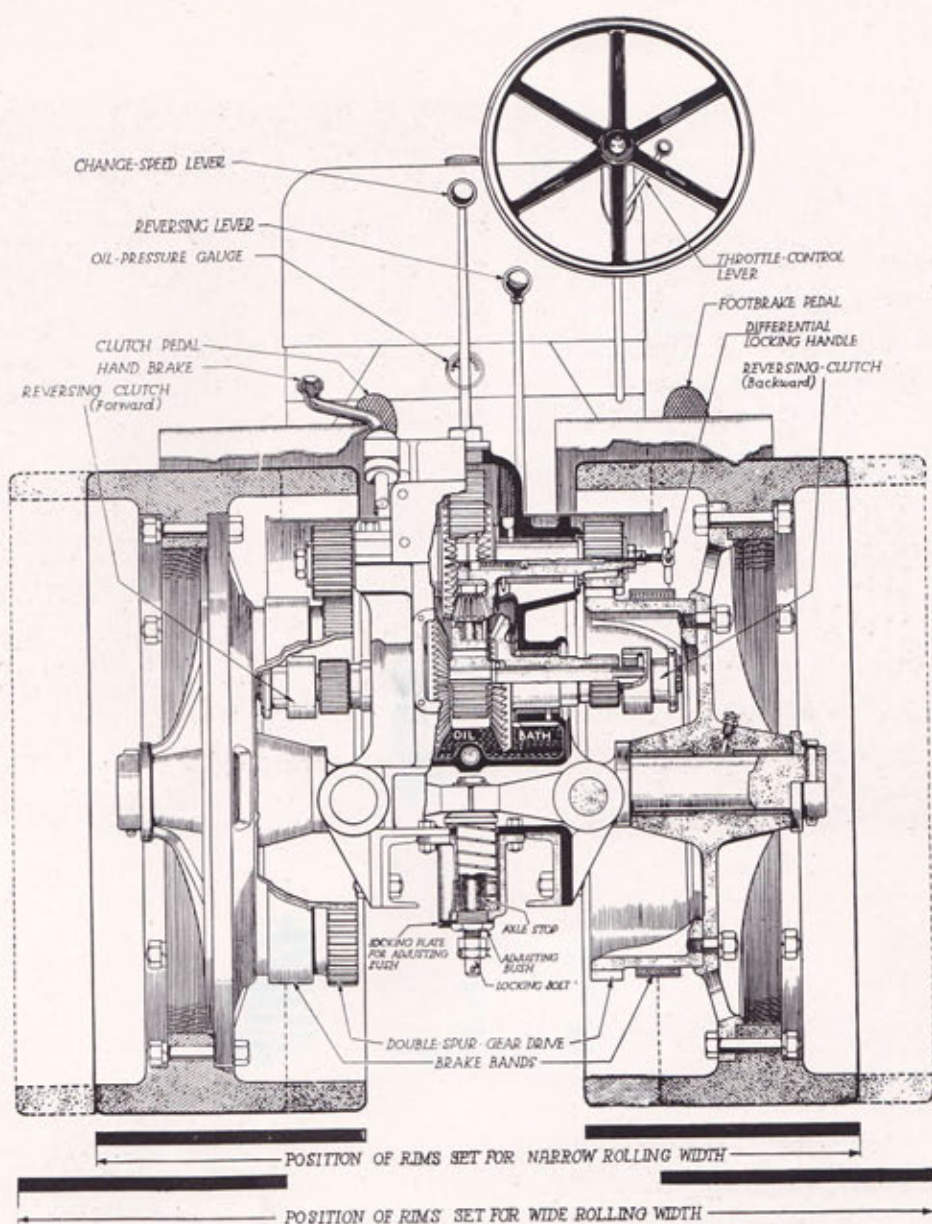
ABOVE
3-TON MODEL (O.F.E.)



CENTRE
A COLONIAL MODEL
WITH AWNING,
WATER SPRAYERS AND
POWER TAKE-OFF
(DRIVING PULLEY)

BELOW
3½ and 4-TON MODELS
O.F.F. and O.F.G.





SECTIONAL VIEW SHOWING
PATENT AUTOMATIC CAMBERING AXLE
DIFFERENTIAL GEAR
REVERSIBLE RIMS
ETC.



FORECARRIAGE & STEERAGE

Forecarriage is of **underslung** type—this allows very free movement to front rolls without transmitting rocking motion to Roller chassis and is a marked advance on the ordinary overhead pivoted construction, as it provides a much steadier and better rolling effect. The steel underframe takes up all movement of rolls, movement of the fork itself being restricted to steerage control only.

The **overhead steerage** operates through machine-cut worm and segment, it gives a much more positive control than old type chain steerage and makes for ease and certainty in operation. Two large renewable brass bushes are fitted in steering head and steering pin is of unusual length so as to give freedom from backlash, even after long service. The steering fork is of cast steel.

ROLLS

Rolls are of comparatively large diameter, of substantial construction throughout, and **grease gun lubrication** is provided to all bearings.

Rear rims on all models are of type renewable independently of naves as are also front rims of Models O.F.D. and O.F.E. Naves of rear rolls are brass bushed. If desired, cast iron rims on rear rolls can be steel-plated at extra charge.

Special attention is called to construction of rear rims which are **reversible on their centres**, so providing for the **alternative rolling widths** shown in summary. As rims only have to be reversed, the change is very easily and quickly effected, no other parts having to be removed or re-assembled.

Front Roll is in two sections to facilitate steerage.

Model O.F.D. has steel plate rims to both front and rear rolls.

Model O.F.E. has steel plate rims to front rolls, cast iron rims to rear rolls.

Models O.F.F. and O.F.G. have cast rims to both front and rear rolls.

BRAKE

There are two powerful band brakes, these are of generous width, having renewable fabric linings and act on **brake drums** of **exceptionally large diameter**—the brake drums being bolted direct to each hind roll, **no braking stresses** are **transmitted through the gearing**—further, a failure in the transmission does not affect the efficiency of the brakes. Two independent controls are provided, one being by foot pedal and the other by hand-operated screw.

DRIVING CONTROL, ACCESSIBILITY, ETC.

Starting handle operates from rear of Roller and all controls are conveniently positioned to facilitate ease in handling. The driver's seat, which is comfortably padded, is arranged so that its position can be adjusted for leg length.

Ready accessibility for ordinary running attention is a feature of design—**grease gun lubrication** is provided to all bearings, which are not incorporated in the enclosed transmission and so automatically lubricated, and inspection or overhaul is much facilitated by the unit construction and general layout.

TOOLS

Outfit of tools includes hammer—set of spanners—adjustable spanner—pliers—screw-driver—grease gun and oilcan. A lock-up toolbox is fitted in a readily accessible position.

PAINTING

This Roller is painted with best quality materials and finished in first-class style.

SHIPPING PARTICULARS

APPROXIMATE SHIPPING PARTICULARS.—Normally Type B Rollers are packed in one case with rolls, etc., in position, so that they are ready for operation on knocking down case—some saving in freight can, if wished, be effected by removing rear rolls and axles, but this entails a certain amount of erection on arrival.

Model.	O.F.D.	O.F.E.	O.F.F.	O.F.G.
Measurement.	190 cub. ft. 5.28 cub. metres	203 cub. ft. 5.74 cub. metres	203 cub. ft. 5.74 cub. metres	203 cub. ft. 5.74 cub. metres
Gross Weight.	2-tons, 18-cwts. 2950 Kgs.	3-tons, 8-cwts. 3450 Kgs.	3-tons, 18-cwts. 3960 Kgs.	4-tons, 8-cwts. 4470 Kgs.

Awning: Measurement: 24 cubic ft. .68 cub. metres. Gross Weight: 2½ cwts. 115 Kgs.

ADDITIONAL FITTINGS

AWNING.

Code Word :
Hood.

Driver's awning can be supplied when required. It is of substantial all-steel construction, carried on stout angle section supports and fitted with drop curtains.

WATER SPRAYERS AND SUPPLY TANK.

Code Word :
Spray.

Provision is made for fitting Water Tank of, approximately, 27 gallons (123 litres) capacity with spray pipes to both front and rear rolls: control to spray pipes permits of front and rear rolls being sprayed either simultaneously or separately.

POWER TAKE OFF.

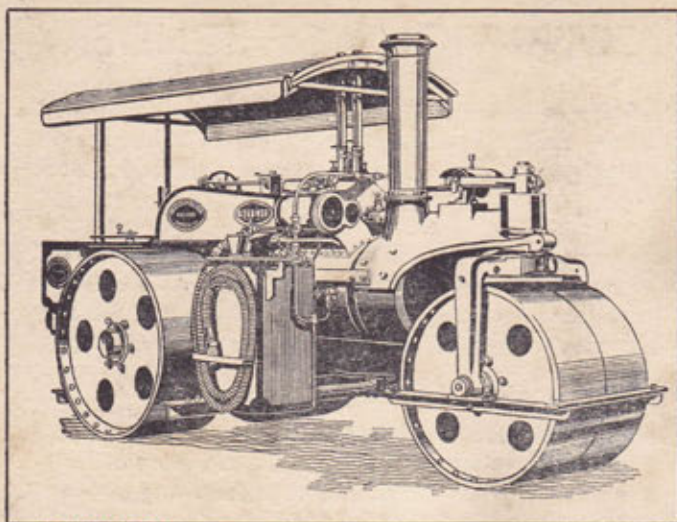
Code Word :
Pully.

Pulley for driving machinery can be fitted at rear end of Roller, all **four speeds** are available—control by engine clutch obviates necessity of fast and loose pulleys and striking gear on driven machine.

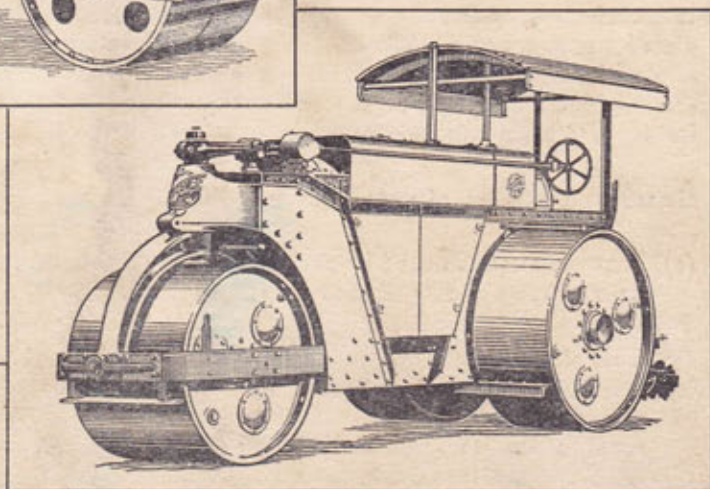
STEEL-PLATING REAR ROLLS

Code Word :
Plate.

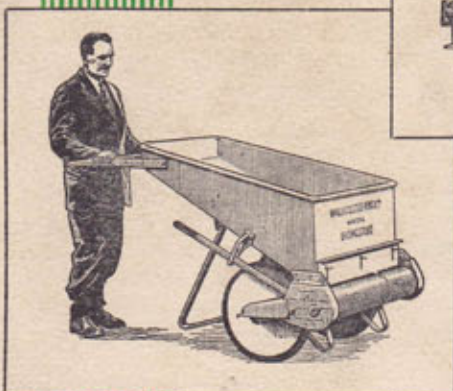
Cast iron rims of rear rolls can, if wished, be plated with steel at a slight extra cost. *It will be noted from Specification that Model O.F.D. is supplied with steel plate rims, as standard, without extra charge.*



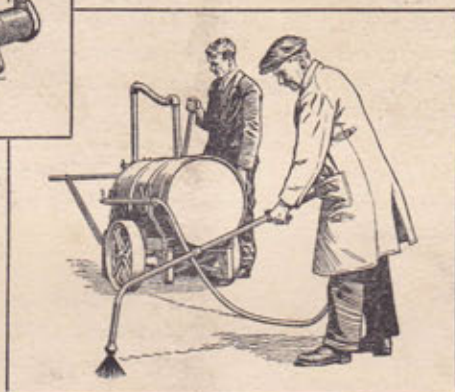
An "Advance"
Steam Roller



An "Advance"
Diesel Roller



Chipping
Distributor



No. 7 Direct
Sprayer

WALLIS & STEEVENS, LTD., MAKERS
BASINGSTOKE, ENGLAND