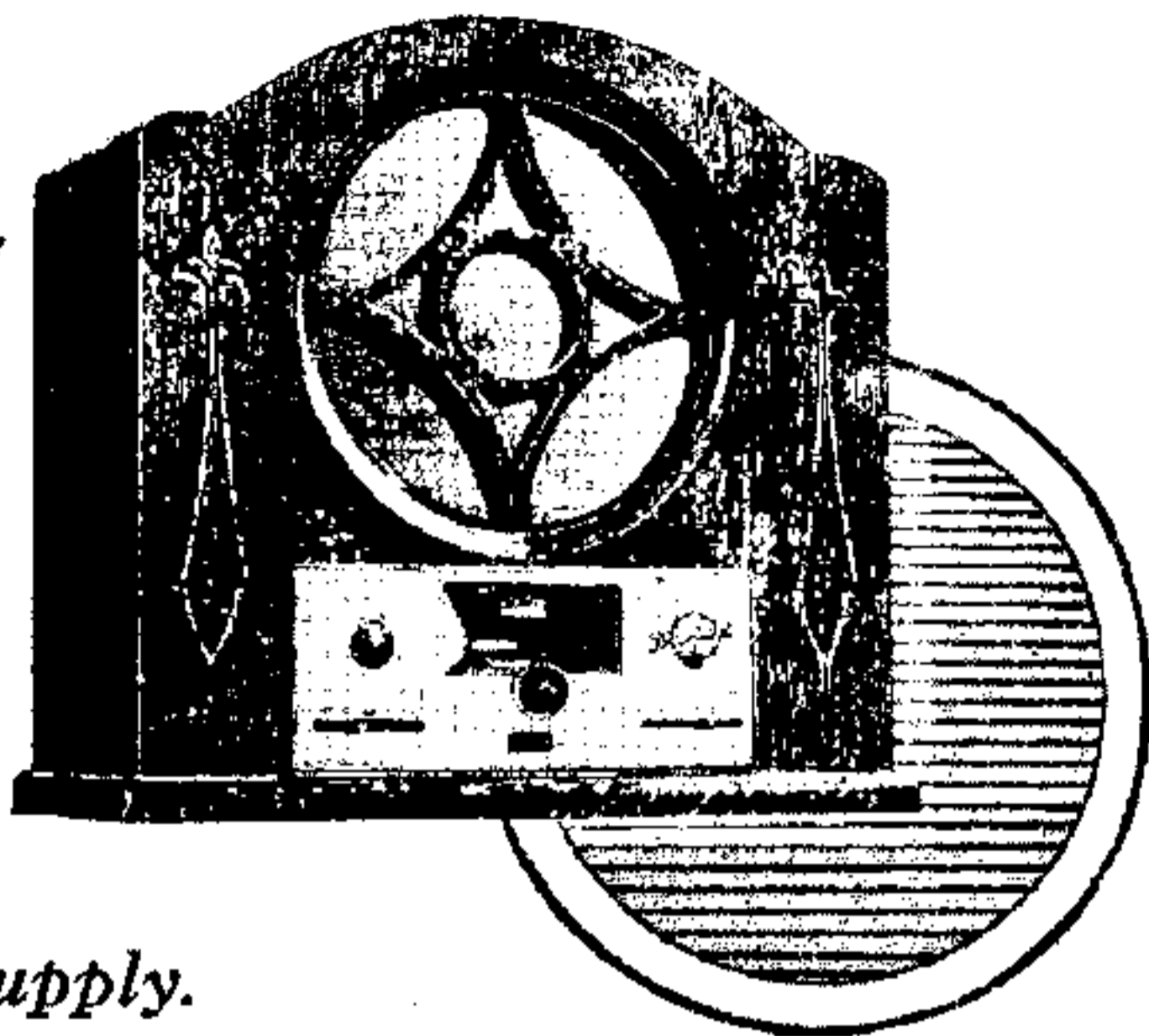


Blue-Spot

ALL ELECTRIC
MODEL W.S.400



Selective Single-dial Set for A.C. Supply.

It is rare to-day to find a four-valve set that does not follow the customary arrangement of two screen-grid H.F. stages, detector and output valve. We are apt to think along orthodox lines, and the expert may approach other circuit systems with prejudice. It is interesting, therefore, to investigate what a four-valve set consisting of a single H.F. stage, followed by a detector and two L.F. valves, is capable of giving as to range and quality. Such a set is the Blue Spot, and the results given are sufficiently interesting to make one consider whether or not present-day tendencies are not sweeping aside the merits of other systems.

An examination of the set, purely on performance, reveals it to be sensitive. A small aerial was used as best exposing the weakness as to range of the single H.F. stage set. The aerial length was 30ft., and the average height 15ft., and with a single rotation of the dial thirty-five stations were clearly received on the medium waveband, together with about a score of carriers and seven more when switched over to long waves.

A plug connector at the back of the set makes it possible to dispense with the aerial altogether, and, in spite of only a single H.F. stage, the tuning-in of several foreign stations leads one to forget that the elevated aerial has been disconnected.

No set previously tested other than superheterodyne has possessed greater selectivity, and almost within the thickness of a line on its 100 division scale a station passes from full strength to extinction. As to quality it must be borne in mind that the particular model tested was fitted with the inductor type of loud speaker, and not a moving coil, and was designed for sensitiveness rather than large volume. A satisfactory standard of quality is maintained, providing excessive volume is

avoided. The output is ample, being of the order of 300 milliwatts.

Tuning is effected by a single control operating a recessed and illuminated scale carrying a wavelength calibration, and a concentric vernier knob makes tuning easy. A reaction knob is unusually smooth in its effects, due to a special arrangement of by-pass in the anode circuit of the detector. Further adjustment of volume is given by a selectivity control operated by a lever, which, in use, suggests that lever control may have advantages over the rotating knob invariably adopted.

Wave range is also controlled by a lever action, which in the centre position throws in the connections for gramophone pick-up. Circuit details can be gleaned from the accompanying diagram, although attention might be drawn to the more outstanding features. Wave-range switching is unusual, and involves completing the circuit of an open-ended coil

so that for medium wave a pair of inductances are parallel-connected. The aerial circuit is loose coupled, while, following the H.F. valve, is a choke-fed tuned grid circuit which assists in providing good selectivity. Bias to the H.F. valve, an Osram M.S.4, is by cathode resistance. The pair of tuning condensers, which are of the solid dielectric type, are operated by a vertical spindle, the fine tuning control being arranged to rock one of the stators. The values used in the capacity-reaction circuit are such that the critical tuning appears to be unaffected by change of reaction adjustment. A swinging slab coil controls the amount of aerial coupling. In place of the commonly adopted power-grid detection we find an anode-bend detector with a high value of biasing resistance in its cathode lead, and it is to this that the high selectivity is due. It should be noted also that the method

SPECIFICATION.

Single H.F. Stage, detector and two-stage L.F. amplifier.

A.C. mains voltages of 100 to 240 volts.

Loose-coupled aerial with provision for mains aerial.

Filter-fed tuned-grid H.F. intervalve coupling.

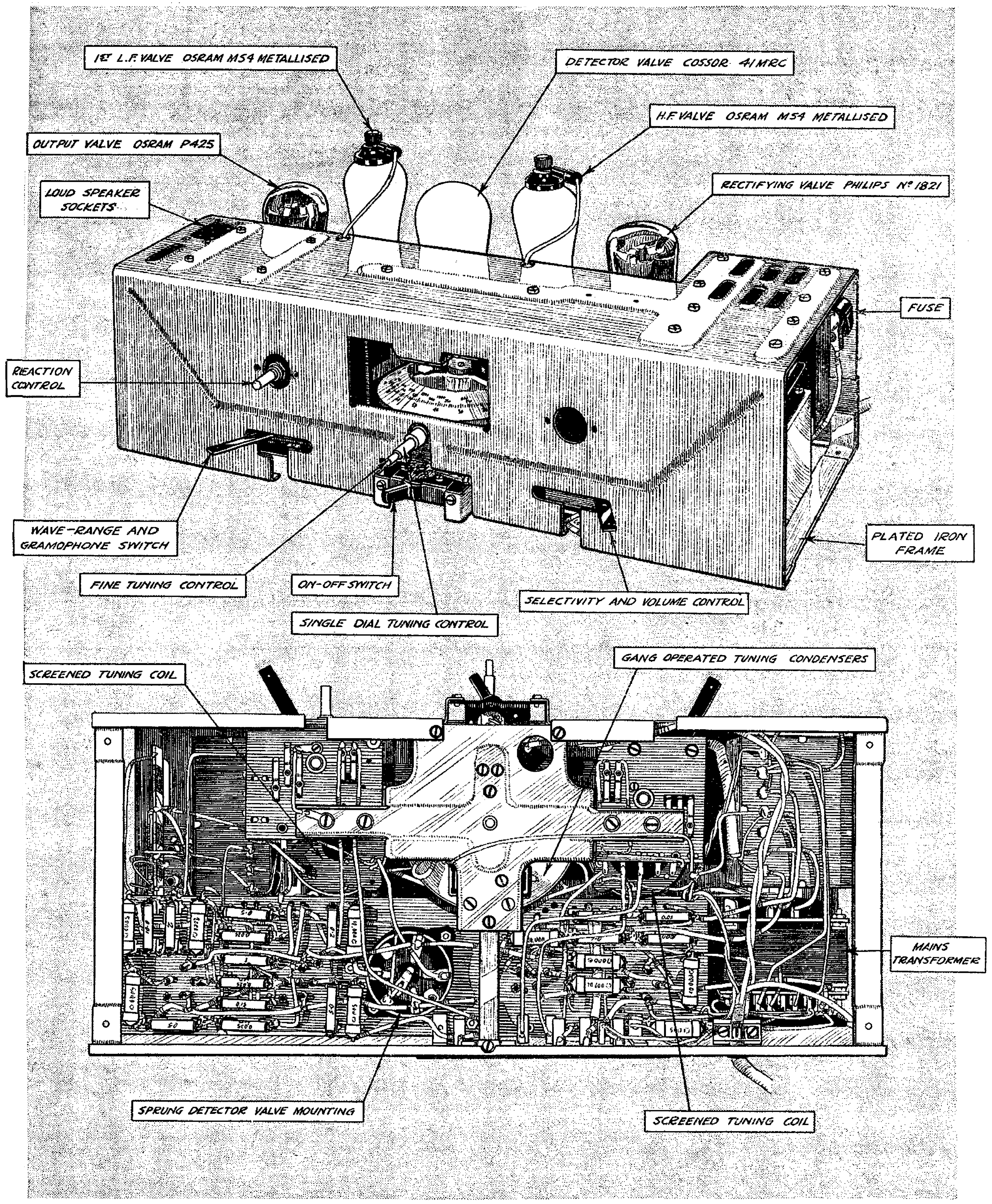
Capacity reaction. Anode bend detection.

All-resistance coupled L.F. amplifier.

Valve rectification. Provision for pick-up.

Valves: Osram MS4, Cossor 41.MRC, Osram MS4, Osram P.425, Rectifier, Philips 1821.

Price: Type WS.400 with inductor loud speaker, 20 guineas.



The compact chassis unit follows a form of construction that should reduce maintenance troubles.

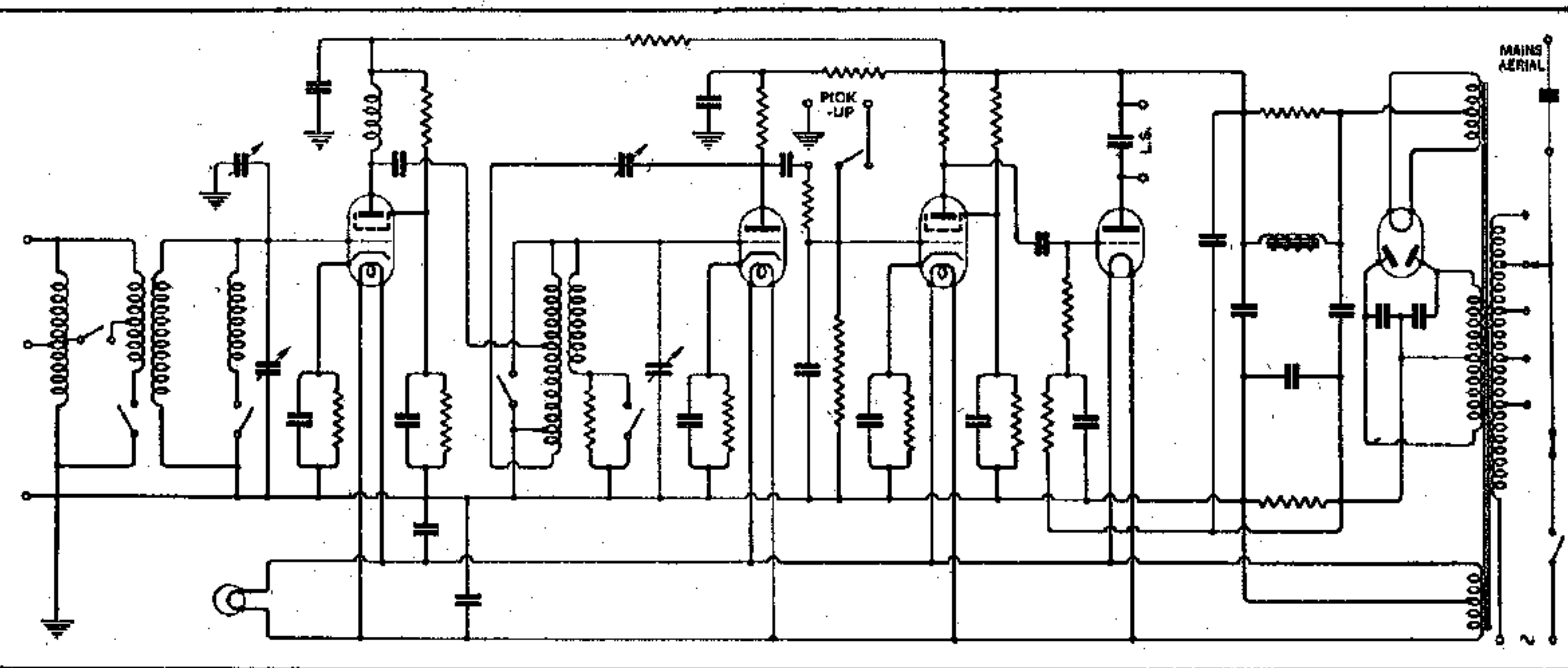
Blue-Spot All Electric Model W.S.400.—

of bias brings about a condition of automatic volume control, for, as a generous signal tends to increase the anode current of the detector, the negative biasing potential developed across the cathode resistance increases also, making the valve less sensitive.

It has been said that only a single L.F. stage is needed following an anode-bend detector, as a large initial signal is required to operate it. Against this viewpoint is the fact that with an anode detector mag-

amplification being corrected both in the intervalve couplings and in the anode of the output valve. The loud speaker is directly in the anode circuit of the P.425, and provision is made for using an external loud speaker. The rectifying valve is a Philips type 1821 delivering a maximum H.T. potential of 250 volts.

For compactness of construction and simple wiring layout, the chassis is remarkable. The condensers are assembled in packs, and there are no fewer than twenty-five resistances held in clips on the underside of the valve



The single H.F. stage is followed by an anode-bend detector and an all-resistance coupled two-stage L.F. amplifier.

nification is lost as compared with the detection of the signal on the grid, and it is for this reason that two L.F. stages are used in the Blue Spot set. A screen-grid valve, the Osram M.S.4, is used in the first L.F. stage, followed by the Osram P.425, giving an output of some 300 milliwatts. Resistance coupling is used throughout the L.F. amplifier, its overall properties for uniform

platform. The chassis is a good specimen of mass production, being an assembly of stampings, screws, and rivets. Ventilation is provided over the mains transformer, which is fitted with a totally protected and easily accessible fuse. No live parts are exposed; and mains voltages from 110 to 240 may be applied by inserting a small insulated pin in its appropriate socket.