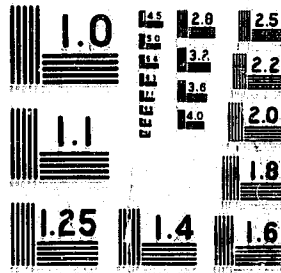
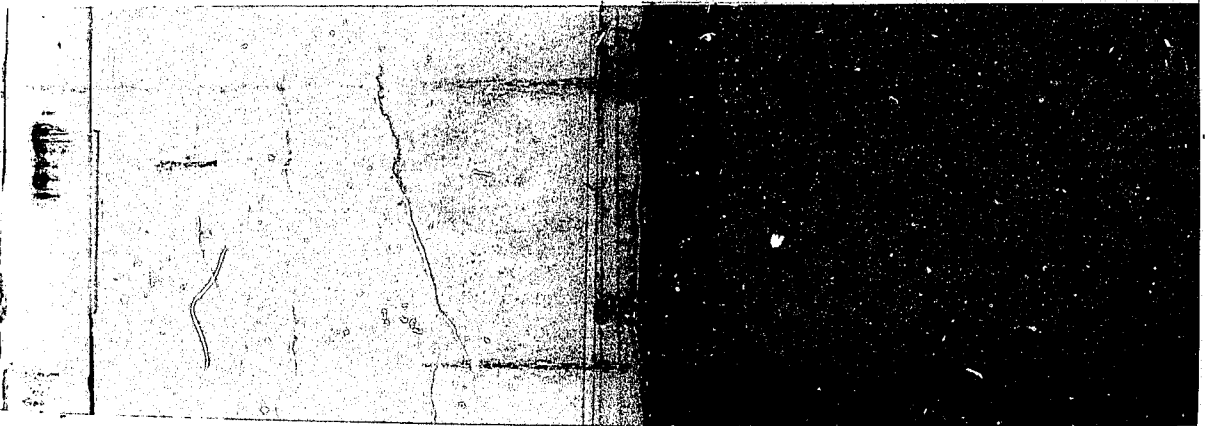




AUSTRALIA



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963



"The Patents Act, 1903-1921"

APPLICATION FOR A PATENT

(By an Actual Inventor or two or more Actual Inventors, or his or their Assignee, Agent, Attorney, or Nominee.)

Referred to Examiner
H. R. W. [unclear]
Commissioner of Patents
7-10-1952

I, ~~WE~~ JOHN DURST

of 189 St. John's Road, Forest Lodge, near Sydney,
in the State of New South Wales, Electrical Engineer,

hereby apply that a Patent may be granted to ~~me~~ ^{me} for an
invention entitled "IMPROVED SINGLE PHASE MOTOR" 024

and I ~~WE~~ do hereby declare that I am ~~not~~ ^{not} -----

the actual inventor of the said invention and I ~~am~~ ^{am} verily
believe that I am ~~not~~ ^{not} entitled to such Patent under the provis-
ions of the "Patents Act, 1903-1921." and I ~~am~~ ^{am} further de-
clare that I am ~~not~~ ^{not} in possession of the said invention, and
that it is not in use within the Commonwealth of Australia by
any other person or persons to the best of ~~my~~ ^{my} knowledge and
belief.

And I ~~am~~ ^{am} make this declaration, conscientiously believing
it to be true.

Dated this 28 day of February A.D. 1951

Signed by the said JOHN DURST

in the presence of

[Signature]

John Durst

Handwritten notes and signatures in a box on the left side of the page.

Patents.

COMMONWEALTH OF AUSTRALIA

The Patents Act 1903-1935.APPOINTMENT OF AGENT AND OF ADDRESS
FOR SERVICE.

I ~~we~~ hereby appoint ARTHUR S. CAVE of 16 Barrack Street, Sydney in the State of New South Wales, Commonwealth of Australia, Patent and Trade Mark Attorney, to act for ~~me~~ ^{me} in respect of ~~our~~ ^{my} application for a patent for ~~my~~ ^{my} invention entitled "IMPROVED SINGLE PHASE MOTOR"

and request that all notices, requisitions and communications relating thereto may be sent to him at the address specified above.

Dated the 28 day of February 19 51

John Amy

To the Commissioner of Patents,
Commonwealth of Australia.

ARTHUR S. CAVE
PATENT AND TRADE MARK ATTORNEY
SYDNEY

**DOCUMENTS
LODGED WITH
THIS APPLICATION
ARE UNSUITABLE
FOR REPRODUCTION
AND MAY BE
INSPECTED AT THE
PATENT OFFICE A.C.T.**



PATENT SPECIFICATION ⁽²¹⁾ 1262/51

Int. Cl. (51) H02K 17/30, H02K 11/00,

Application Number (21) 1262/51
Lodged (22) 7.3.51

Complete Specification
entitled (54) IMPROVED SINGLE PHASE MOTOR

Lodged (23) 7.1.52
~~Withdrawn~~ (44) LAPSED
Published (41) 13.3.52

Convention Priority (30) NIL.

Applicant (71) JOHN DURST

The following statement is a full description of this invention, including the best method of performing it known to ME:

1262 51

COMPLETE after PROVISIONAL

02.4

Cl. 1
N.L. fees paid.

Referred to Examiner
H. R. WILMOT
Commissioner of Patents
-7 JAN 1952

No.1262/51 dated
7th March, 1951.

ORIGINAL

COMMONWEALTH OF AUSTRALIA

"The Patents Act 1903 - 1950"

COMPLETE SPECIFICATION

"IMPROVED SINGLE PHASE
MOTOR"

I, JOHN DURST of 189 St. John's Road, Forest Lodge, near Sydney
in the State of New South Wales, Commonwealth of Australia,
Electrical Engineer, hereby declare this invention and the
manner in which it is to be performed to be fully described
and ascertained in and by the following statement:-

This invention has been devised to provide a single phase alternating current motor of the split phase induction type electric motor especially from 1/10 HP to 2 HP sizes for any voltage frequency or number of poles which will start on the application of power through a common switch, that is to say it does not require a starting switch or relays or like devices which have been necessary hitherto for starting.

Other objects of the invention are to provide a motor of the type defined which is silent in operation and has:

1. A moderate starting torque on a low starting current.
2. A power factor exceeding .9.
3. A high overload capacity.
4. A motor which will withstand stalling on full operating voltage without damage to windings.
5. A motor which will not surge on starting and which will start on as low as 50% of normal voltage.
6. A motor which does not cause radio interference.

The objects of this invention are achieved by constructing a stator winding incorporating a permanently connected capacitor in such a manner that it matches the reluctance and resistance of the rotor.

One embodiment of the invention is described in detail with reference to the annexed drawings wherein Fig.1 is an end view of the stator; Fig.2 is a diagram of the electric circuit of the stator; Fig.3 is an end view of the rotor; Fig.4 is a fragmentary plan of the rotor; Fig.5 is a fragmentary perspective view of the rotor and Fig.6 is a detail thereof.

In the embodiment of the invention illustrated the stator 7 has shallow slots 8 thereon with horns 9 projecting across the mouth of each slot providing a narrow gap 10. The gap 10 should be at least 1.3 wider than the depth of the horns 9 in order to provide efficient magnetic saturation. The number of slots depend upon the number of poles required in the motor.

The stator winding consists of single coils per slot of two groups of main coils spanning the full pole pitch. For example in a two pole motor there would be three sets of two

coils per pole. In the twenty four slot stator illustrated there are twelve coils 11, all of one size and number of turns grouped in a manner approximately resembling that used for three phase operation and placed in twelve slots as two groups A and B with groups C and D of four slots interposed between them. The two groups E and F of main coils 11 span the full pitch of the remaining slots.

Four auxiliary coils 12 of slightly smaller gauge (the value between the respective windings being approximately in the ratio of 4-9 in resistance) are placed in the remaining eight slots. A small capacitor 13 say 5-6 manufactured for a 3/4 HP motor is placed in series half way between the auxiliary coils 12 (and the main coils 11). The capacitor balances the winding reactance and the phase angle. It has been found that the voltage rise on the capacitor does not exceed the supply voltage on load and it decreases on overload. Two coils of the auxiliary group 12 are formed left hand and the other coils of this group are formed right hand. The group of auxiliary coils 12 are connected in parallel with the main coils 11 and also are permanently connected to the supply.

While a conventional rotor may be employed it is preferred to construct a rotor incorporating the refinements illustrated in Figs. 3 to 6. Its slots 14 are displaced 6° relative to the stator slots. They are flat in section, have a ratio of 5-1 and are totally enclosed with a covering magnetic area equal to half the rotor slot opening.

The rotor bars 15 of copper alloy have the projecting ends 16 overlapped in echelon formation and brazed together to constitute end rings. The amount of overlap 17 of the bars governs the rotor resistance.

The motor is reversed by altering the polarity or sense of one winding. For example the connections from the four coil group winding can be reversed by means of a change over switch.

K.W.H.
20/1/13

CLAIMS

Having now fully described and ascertained my said invention and the manner in which it is to be performed I declare that what I claim is:

1. In an electric motor of the type defined the construction of a stator having in its winding a capacitor permanently connected in such manner that it matches the reluctance and resistance of the rotor.

2. In an electric motor of the type defined a stator winding consisting of main single coils in two groups spanning the full pole pitch of the stator, auxilliary coils in two groups interposed between the main group coils having a capacitor in series therewith, said auxilliary coils being connected in parallel with said main coils and connected to a source of current supply.

3. In an electric motor of the type defined a stator having a winding as claimed in claim 2 mounted in shallow coil slots, each said slot having horns projecting across the mouth thereof with a gap between them at least 1.3 wider than the depth of the horns.

4. An electric motor constructed as described with reference to the annexed drawings.

DATED this 4th day of January, A.D.1952.

WITNESS: J. O'Brien.

JOEN DURST
By his Patent Attorney,
[Signature]
Fellow Institute Patent
Attorneys of Australia.

DRAWINGS

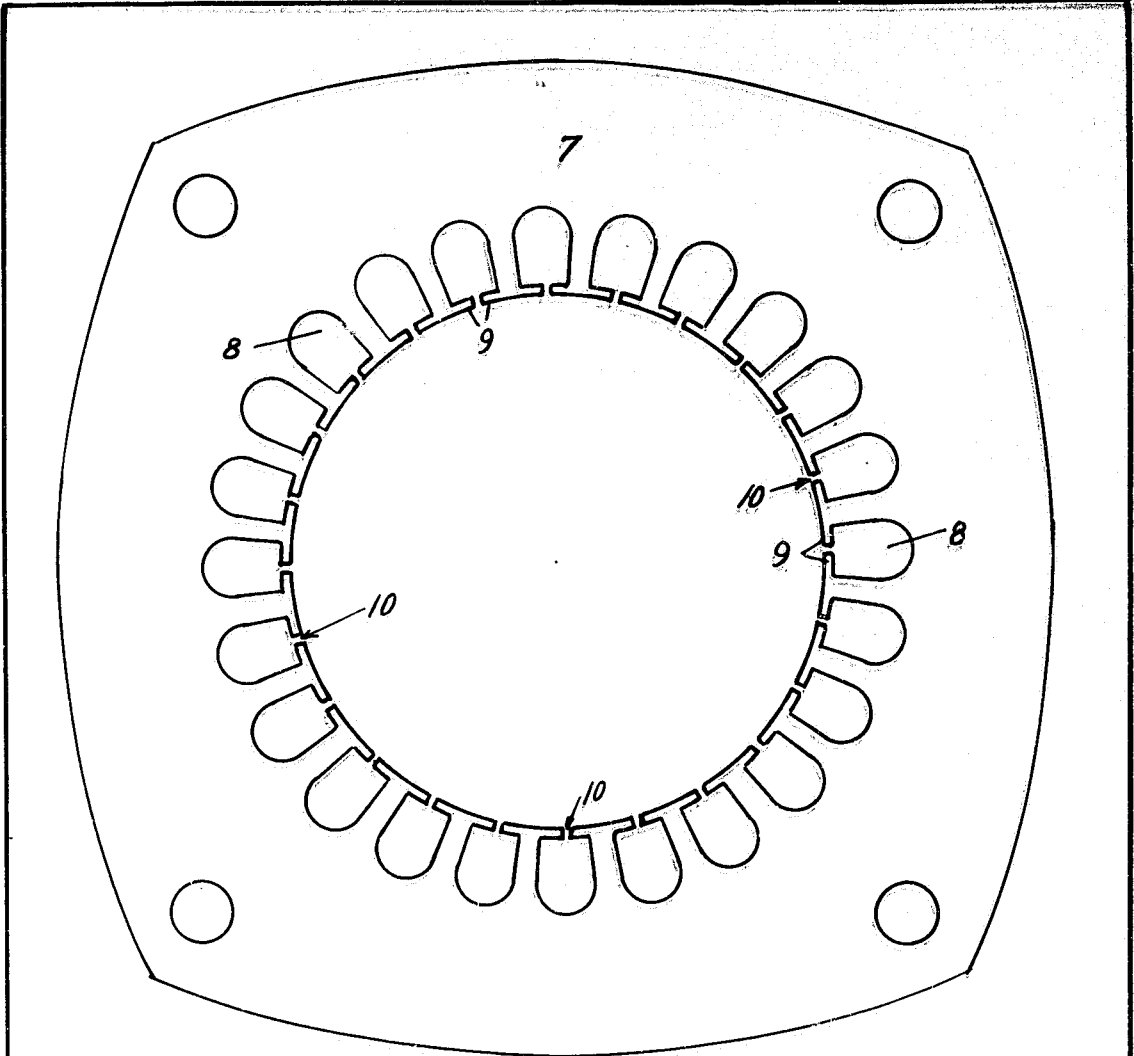


FIG. 1

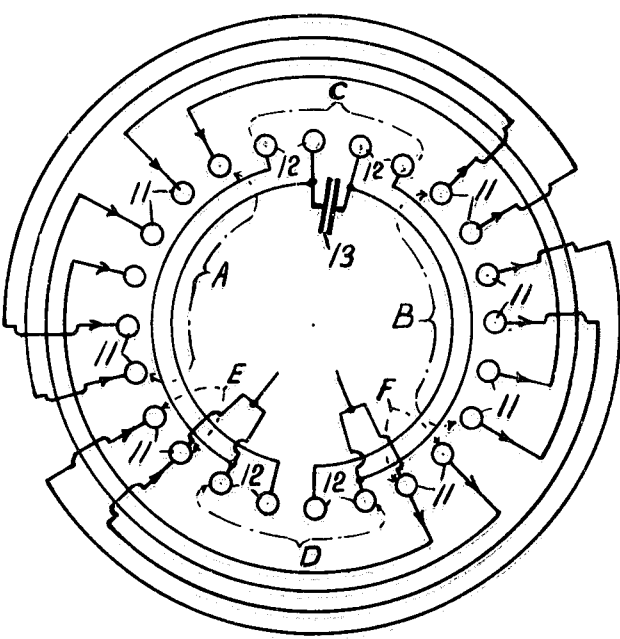


FIG. 2.

J. Durst
by his Patent Attorney
[Signature]
F.I.P.A.A.

F.I.P.A.A.

J. Durst
by his Patent Attorney
[Signature]

FIG. 5

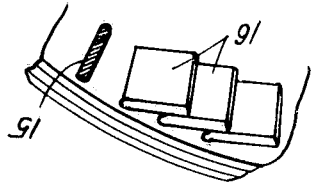


FIG. 6

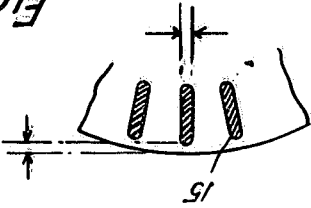


FIG. 4

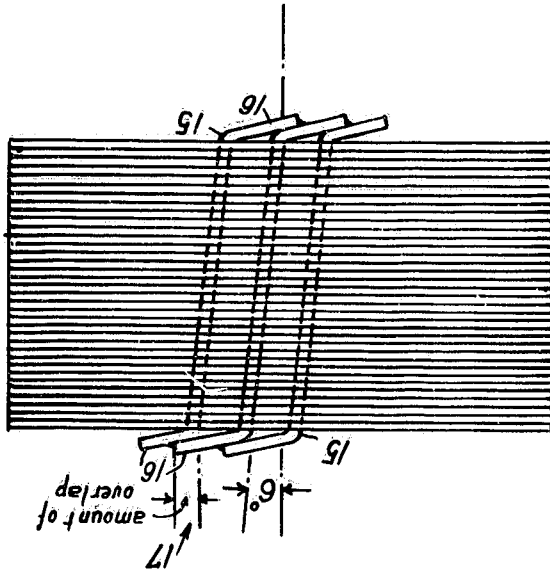
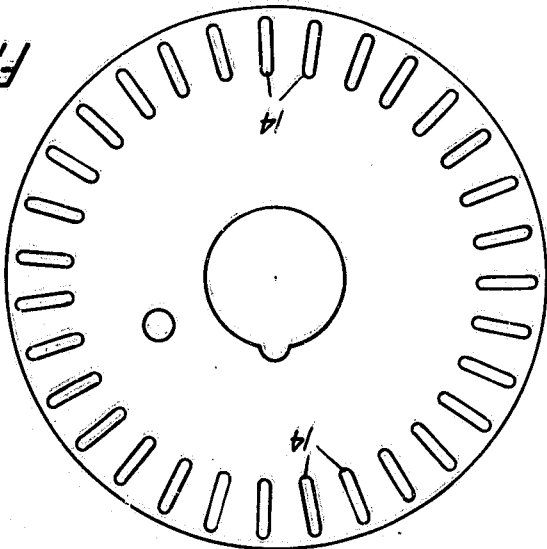


FIG. 3



END