I have been intending to give you an account of our unipolar or Non polar (as Forbes insists on calling it) experiments.
With a 3" wrought iron cylinder saturated & revolving at 20,000 per minute the difference of potential at centre & ends was only 4 volts, I have another nearly ready for trial 6½" cylinder in two portions insulated transversely & 4 (2 pair) brushes in series & suspect 25 volts at 13,000 which is the limit of speed about with safety.
The difficulty is certaining the contacts, & I can't see that

Elvaston Hall
Derby-on-Trent
Sept 8th 85

12/79

Dear George
I got your letter of the 2nd yesterday & what you say about the substitution of two compound turbines or rather 3 turbines, motor, compressor, & expander, for pressing, is a question I had been thinking a good deal about

came 6 months after. It so happened that at that time that we got a foreman manager for our electric works who had been foreman to a works in London who made numbers of freezing machines, at the time he took us to see one of Denys ships lying in the London Docks which was fitted with a large freezing cold air freezer for the Australian meat trade. It struck me that a light compact cold air machine was much wanted as the ordinary cylinder machines & too heavy for ships use. I went into some rough calculations for the application of our turbine motor to this purpose & found a few practical but I think not serious difficulties, the thing would take some working out, unfortunately my experimental shop is full of electric light work just at present & will be so for a couple of months yet

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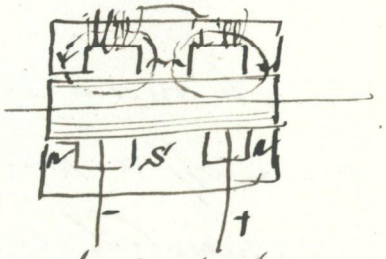
much more current can be
taken off a solid ring than
a segmented commutator
with a breath of queer
size, as far as we have
seen the unipolar arrangement
will not come in for lighting
except for very large installations
even with the speeds we
have at our disposal.
If a multiple series of conductor
& contact rings on an armature
of constant potential is to be
worked up to 50 or 60 volts
there will have to be 2 or 3

pairs of brushes in series



The best number of contacts is with a renewal of polarity in the cylinder but the contacts are both on the maximum or full field of the cylinder

The ordinary drum armature or Gramme works very well from 10 — 18,000 rev^ns per minute & gives a very large contact & requires a very small amount of current to magnetize it

& as there are few wires on the armature the field load of the brushes is almost nil

If you are anywhere near there pray come & stay as a visit we shall be very glad to see you

Yours sincerely
Charles A. Parsons

12/79