NEW/JAL/YP/46B-10 2nd December 1977.

SPIN MOULDED FILTERS

The raison d'être for the three filters under current investigation are:-

1. DUMBELL Filter

After an initial section of conventional filter, which removes some of the TPM, the smoke passes through an annular passageway by means of preferential pressure drop routes, the centre region being compressed. Dilution air is then admitted through a porous wrapper, which also allows the diffusion of CO and NO away from the filter. The aim is to reduce CO and NO levels by deliberately encouraging the smoke to pass near the wrapper.

2. GROOVED Filter

By passing the smoke through an orifice, filtration is achieved by coagulation and deposition of the TPM in the concentrated central area, which increases the puff-by-puff pressure drop profile, thus allowing higher than normal reduction in deliveries.

3. MOULDED CROSS-FLOW Filter

Smoke is simply diverted across the wall of a tube of filter material of high packing density, the area of pass being larger than the cross sectional area of the normal

filter. This type of filter is known to give higher filtration efficiency at acceptable levels of pressure drop - without the need to use ventilation.

1. DUMBELL FILTER

The machinery is reaching an advance stage of development and could be transferred to BAT, Germany, say in January. They could then, in co-operation with Hauni, make arrangements for the manufacture (or conversion) of a unit or units for production use.

2. G ROOVED FILTER

Given that our Max.5 is transferred to BAT, Germany, we would need a Max.5 or Max.S as a test bed to complete the present development which is just starting on our Max.5. The time scale involved could be quite short since much of the work is in common with that already successful in 1.

3. MOULDED CROSS FLOW FILTER

This is regarded as being a practical concept but we have yet to determine the best route in terms of the machinery. At this stage assistance would be useful in two areas.

1) A young willing engineer to work with J.A.L.
2) Access to a further Max.5 or S once the preliminary work on a rig has been completed.

Thus we could visualise all three developments proceeding in parallel with their completion points being determined by the stage of present development for each, i.e.

Dumbell	-	6 months
H.E.E.	-	8 months
Moulded Cross Flow	-	9 months

Considerable advantage may exist in undertaking the three pieces of work in parallel since there is a heavy interaction between them.

The underlying concept is to provide change parts which will enable current filter tip machines to be converted for specialised filter manufacture, and equally to enable the interchange between the three filters to be achieved with a minimum of disruption.

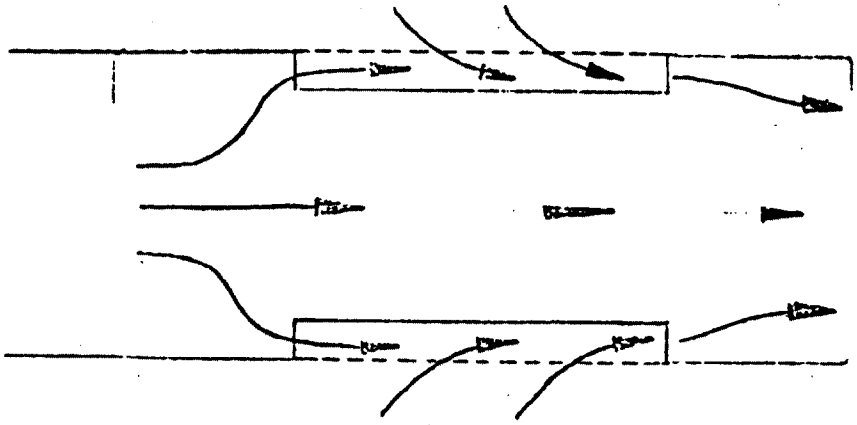

Fig.1

DUMBELL Filter

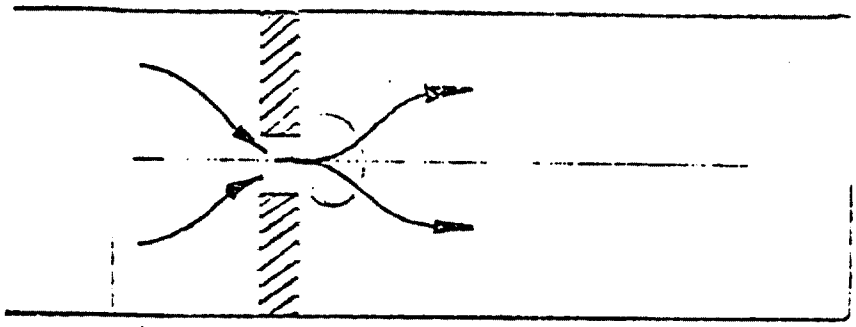

Fig.2

GROOVED Filter

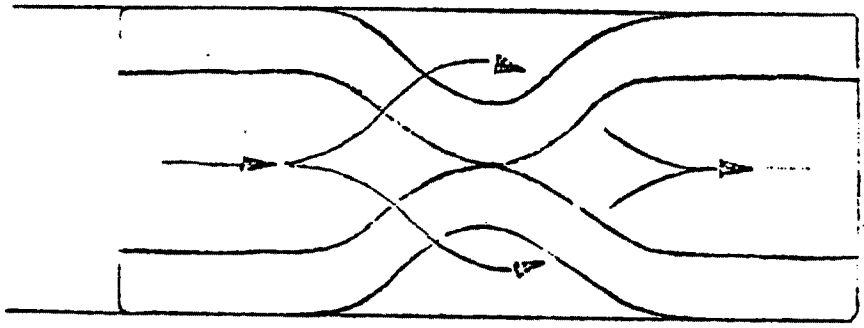

Fig.3

MOULDED CROSS FLOW Filter