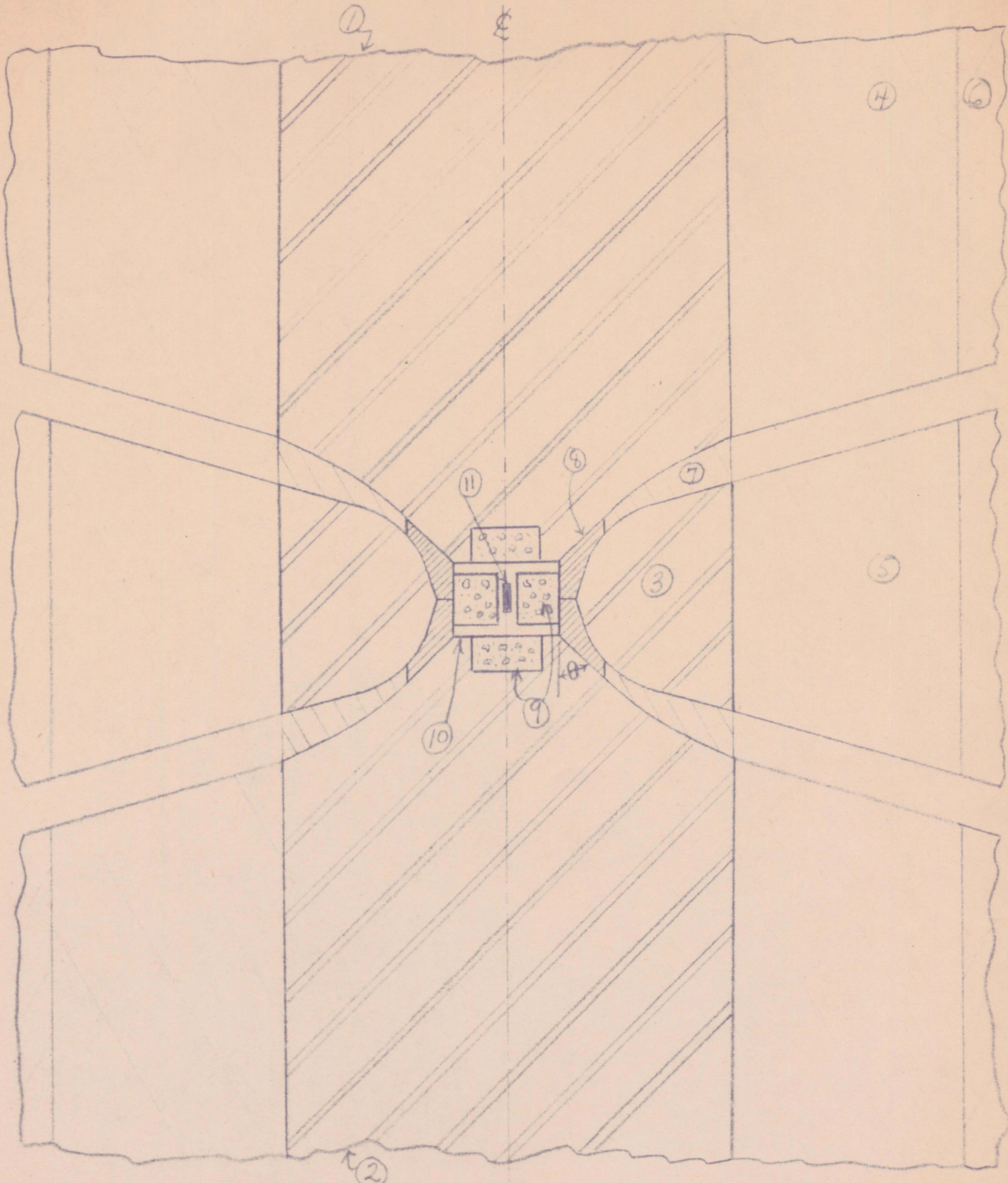


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REVISIONS



ULTRA HIGH-PRESSURE HIGH-TEMPERATURE REACTION CELL II

H. Tracy Hall 2-4-53

PRINTS TO

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ISSUED

APPROVALS

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DISCLOSURE OF INVENTION

ULTRA HIGH-PRESSURE HIGH-TEMPERATURE REACTION CELL II

The Knolls
Schenectady, February 5, 1953

Dr. C.G. Suits, Director
Research Laboratory
The Knolls

Dear Dr. Suits:

The following idea for an Ultra High-Pressure High-Temperature Reaction Cell occurred to me January 16, 1953. This design doubles the effectiveness of Cell I. (See patent letter of Feb. 3, 1953). The thickness of the reaction cell may be doubled without lowering the relative compression and hence ultimate pressure obtained in the cell. Alternatively, the thickness of the reaction cell may be left the same as in Cell I and a much greater pressure may be obtained because the total motion along the centerline of the system has been doubled.

A doubling of the relative motion and compression has been obtained by employing two opposing "Semi-Pistons" (1) and (2) (see attached figure) and a torroidal "Belt" (3). The other features of Cell I have been retained. The "Belt" and "Semi-Pistons" are held under compression by multiple hardened steel binding rings such as (4), (5) and (6). Rubber, plastic or other suitable material (7) aids in keeping the "Belt" properly centered as the "Semi-Pistons" are forced together by the press. The material used for (7) could be chosen so as to provide additional support for the highly stressed "Belt". The usual gasketing material (pipestone, wonderstone, etc.) is shown at (8). Electrical and thermal insulation such as MgO is represented by (9). The graphite heating spool is shown at (10) and the reaction sample at (11).

The same considerations as discussed for Cell I fix the angle θ .

A detailed design of the Ultra High-Pressure High-Temperature Reaction Cell described above has been made and a cell will shortly be built and tested.

H. Tracy Hall

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cc: A Pechukas-Pittsfield