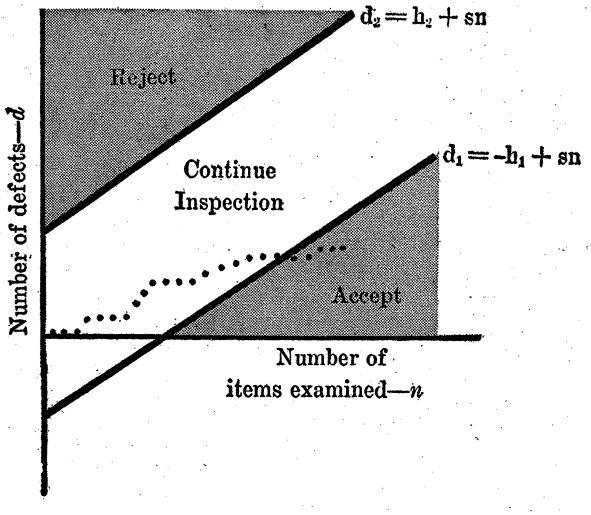
When this chart has been constructed, the procedure consists simply of the sequential plotting against n (number of items examined) of the number of defects observed, d, for which the vertical scale is used. This

Acceptance Inspection Chart



is continued until the plotted line runs either into the area of acceptance or into that of rejection. The dotted line in the figure shows how a set of results would lead, for example, to acceptance.

The equations for the two lines that mark the margins of acceptance and of rejection are derived from the following set of inequalities:

$$\text{B.14} \qquad \frac{p_2^d(1-p_2)^{n-d}}{p_1^d(1-p_1)^{n-d}} \quad \begin{cases} \geqq A & \text{Accept } p = p_2 \\ \leqq B & \text{Accept } p = p_1 \\ < A \text{ and } > B & \text{reserve judgment, take additional observation} \end{cases}$$

By taking logarithms, this becomes

$$\text{B.15} \qquad d \log \frac{p_2}{p_1} - (n-d) \log \frac{1-p_1}{1-p_2} \quad \begin{cases} \geqq a \\ \leqq b \\ < a \text{ and } > -b \end{cases}$$

in which $a = \log A$ and $b = \log B$.

From the first inequality in B.15, the marginal line is obtained by $d_1 = -h_1 + sn$; from the second inequality in B.15, the marginal line is obtained by $d_2 = h_2 + sn$. In these, s, h_1, and h_2 are parameters dependent on p_1, p_2, α and β.

In the inequalities, A and B (for which a and b are the logarithms) are so determined that, if H_1 is true, the probability will be α, or less, that H_2 will be accepted; and so that, if H_2 is true, the probability will be β, or less, that H_1 will be accepted. Thus, whenever H_2 is accepted, $p_2 \geqq Ap_1$ and the total probability of obtaining a sample that will lead to the acceptance of H_2 is at least A times as large when H_2 is true as when