

*This therefore his therefore*

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*W. A. Williams*

LYNN A. WILLIAMS

FORMERLY

*[Handwritten scribbles]*

VICE PRESIDENT, STEWART-WARNER CORPORATION

FORMERLY

VICE PRESIDENT, THE UNIVERSITY OF CHICAGO

ANNOUNCES THE OPENING OF OFFICES FOR THE PRACTICE OF LAW

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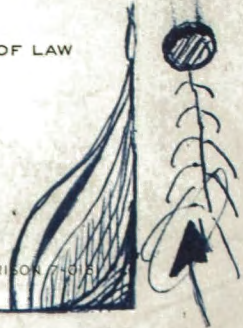
2300 BOARD OF TRADE BUILDING

CHICAGO 4, ILLINOIS

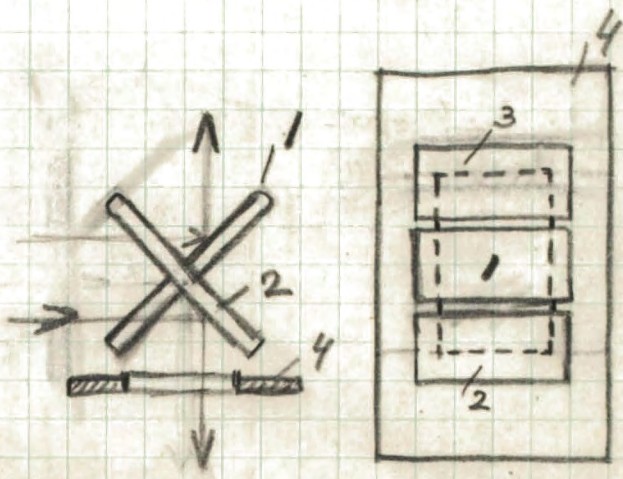
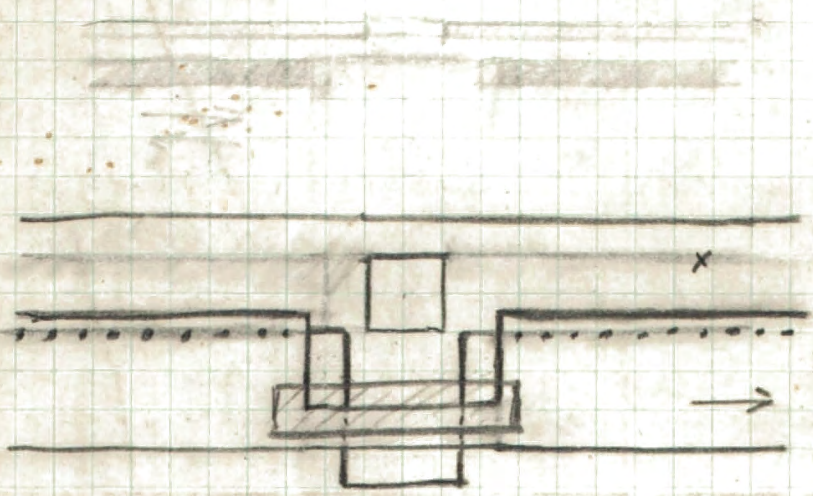
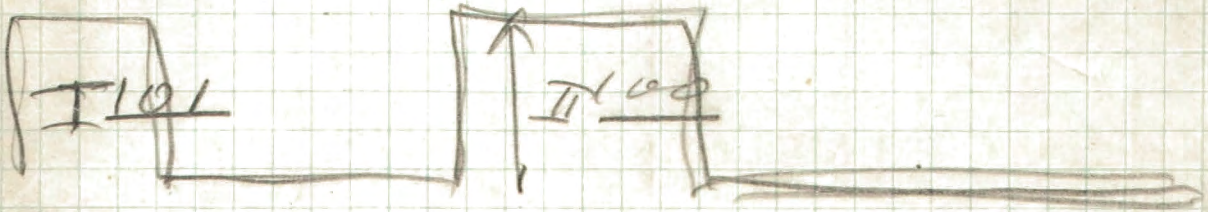
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PATENT, TRADE MARK AND TRADE REGULATION MATTERS

TELEPHONE HARRISON 7-0161



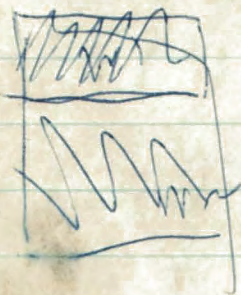
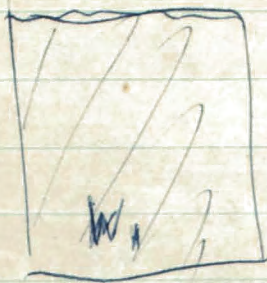
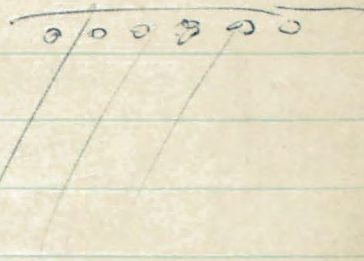
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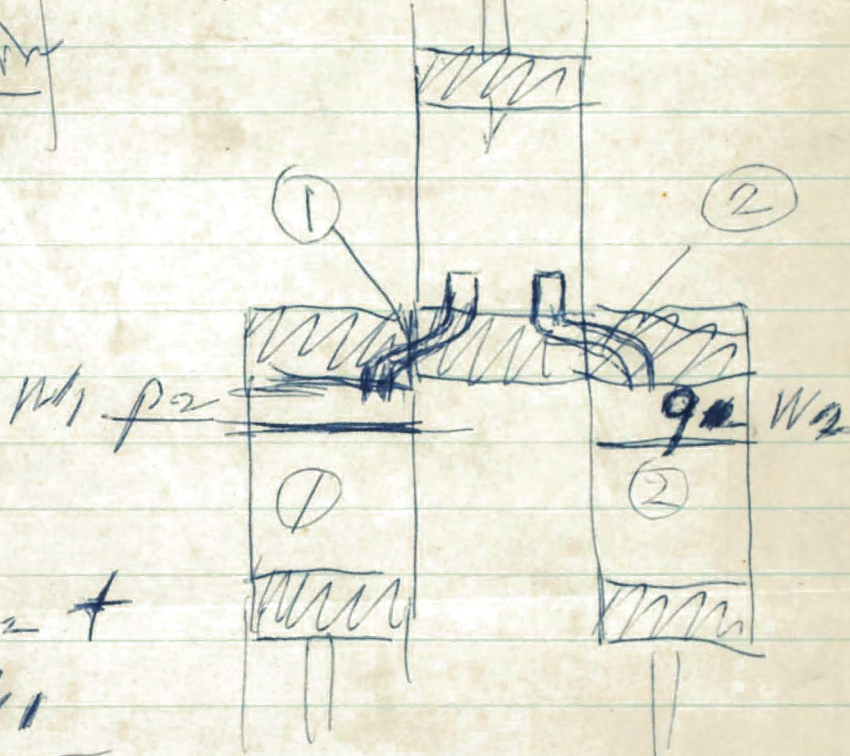


$$\sum_i p_i(f) \log p_i(f) = H(f)$$

$$\sum w_i \log w_i$$



$$w_1 \log \frac{w_1}{1} + w_2 \log w$$



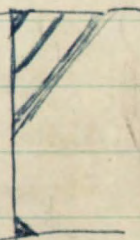
$$w_1 p_2 \log w_1 p_2 + w_2 q_1 \log w_2 q_1$$

$w_1$

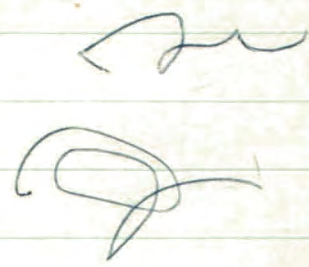
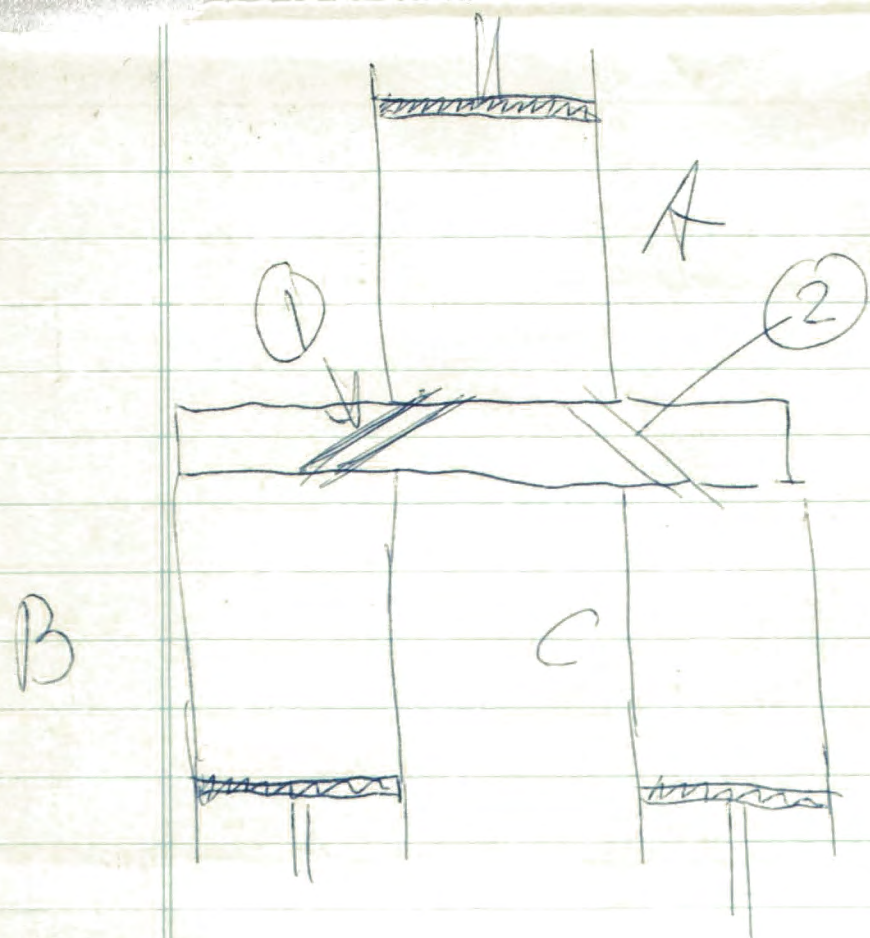
$$\textcircled{p_1} > p_2$$

$w_2$

$$q_1 < q_2$$







$$w_1 \begin{pmatrix} 1 & 2 \\ p_1 & p_2 \\ q_1 & q_2 \end{pmatrix}$$

end

A  $w_1 p_1 + w_2 q_2$

B  $w_1 p_2$

C  $w_2 q_1$

$$\begin{cases} w_1 p_2 = w_2 q_1 \\ w_1 (1 - p_1) = w_2 (1 - q_2) \end{cases}$$

$$A = w_1 p_1 + (1 - w_1)(1 - q_1) = w_1 p_1 + w_2 - w_2 q_1$$

$$= w_1 p_1 + w_2 - w_2 q_1 + w_2 q_2 - w_2 q_2 = w_1 p_1 + w_2 - w_2 q_1 + w_2 q_2 - w_2 q_2$$

$$(w_1 p_1 + w_2 q_2) \log L$$

$$A = w_1 p_1 + \frac{w_2}{w_1} (1 - q_1) = w_1 p_1 + w_2 - w_2 q_1$$

$$\frac{w_2}{w_1} (-p_2) + w_2 q_2 = w_2 (q_2 - q_1) + w_1$$

$$\frac{w_1 - w_2 q_1 + w_2 q_2}{w_1} \frac{1 - w_2 - p_2 + w_2 p_2}{(1 - w_2)(1 - p_2)} + w_2 q_2$$

$$= w_1 (p_1 + q_1 - 1) + w_2 q_2$$

$$2A = \frac{w_1 (p_1 - p_2)}{w_2 (q_2 - q_1)} + \frac{1}{w_1}$$



$$\text{Entropy loss} = - \left\{ \begin{aligned} & [w_1 p_1 + w_2 q_2] \log(w_1 p_1 + w_2 q_2) \\ & + w_1 p_2 \log w_1 p_2 \\ & + w_2 q_1 \log w_2 q_1 \end{aligned} \right\}$$

$$w_1 p_2 = w_2 q_1 = k$$

$$p_2 = \frac{k}{w_1}$$

$$p_1 = 1 - \frac{k}{w_1} = \frac{w_1 - k}{w_1}$$

$$q_1 = \frac{k}{w_2}$$

$$q_2 = \frac{w_2 - k}{w_2}$$

$$\text{Entropy loss} = - \left\{ \begin{aligned} & w_1 - k + w_2 - k \\ & (1 - 2k) \log(1 - 2k) \\ & + 2k \log k \end{aligned} \right\}$$

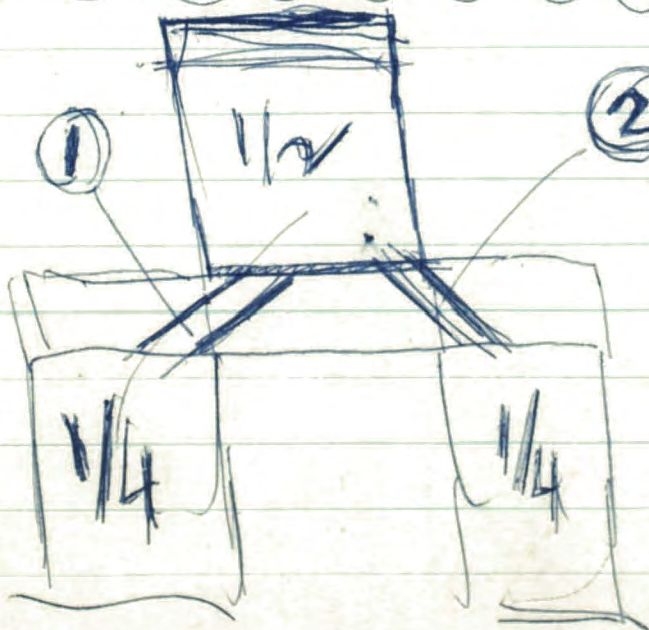
~~$$\log A B = \log A + \log B$$~~

$$E = - \int \log(1 - 2k) \cdot k$$

for inst.  $k = 1/4$

$$E = - \log^{1/2} \cdot \frac{1}{4}$$

$$= -1/2$$



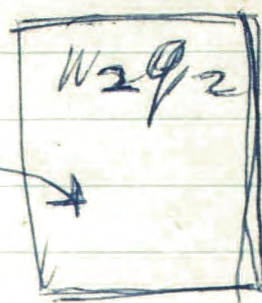
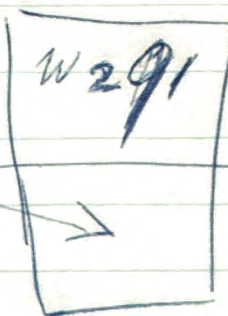
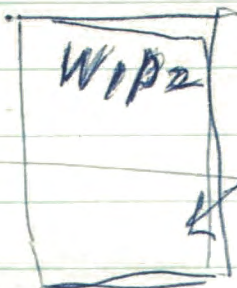
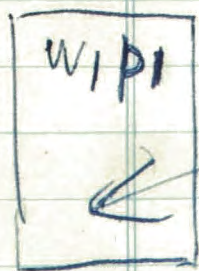
$\sqrt{2}$  depth

$\log 1/2$

$1/2$  or  $1/2$

$1/2$  or  $1/4$



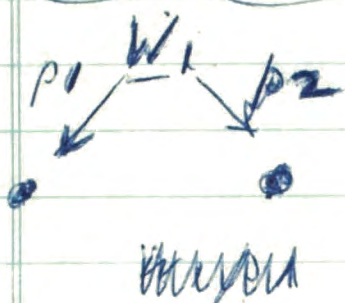


$w_1 p_1$  or  $w_1 p_2$  + etc.

~~$E = \dots$~~

$$w_1 p_1 \cdot w_1 \log \frac{w_1}{w_1 + w_2} +$$

$$+ w_1 p_1 w_2 \log \frac{w_2}{w_1 + w_2}$$



$w_2$

$$w_1 p_1 + w_2 q_1 = w_1$$

$$w_1 p_2 + w_2 q_2 = w_2$$

$$w_1 p_2 = w_2 q_1$$

$$w_1 p_1 - w_2 q_2 = w_1 - w_2$$

~~XXXXXX~~

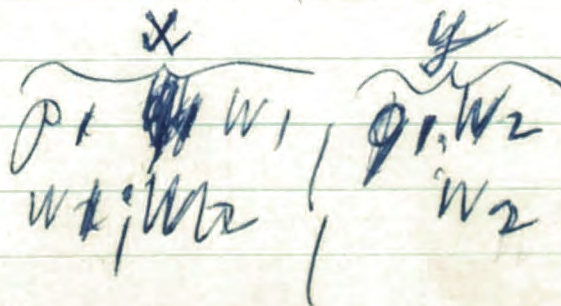
$$w_1 p_1 + w_2 (1 - q_2) = w_1$$

$$w_1 (1 - p_1) + w_2 q_2 = w_2$$



$w_1$

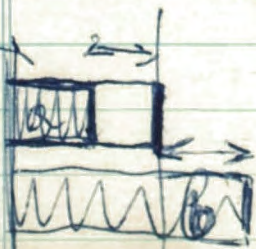
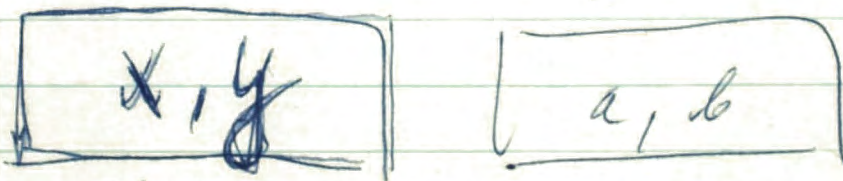
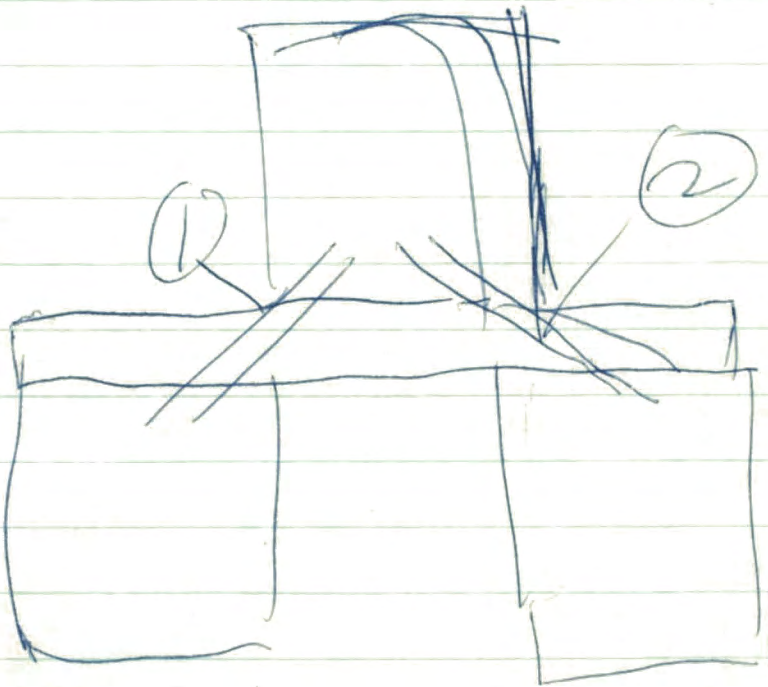
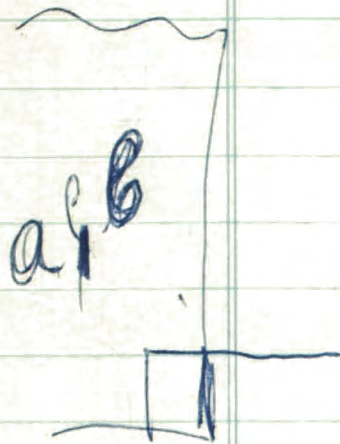
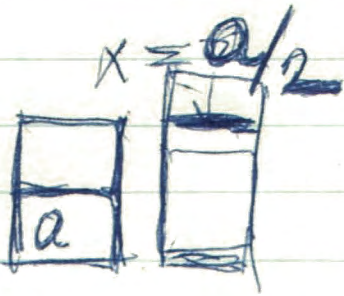
$w_2$





$E = )$

$$w_1 p_1 \ln w_1 p_1 + w_1 p_2 \ln w_2 p_2 + w_2 q_1 \ln w_2 q_1 + w_2 q_2 \ln w_2 q_2$$



$$\frac{d}{h} \ln \frac{x}{a} + \frac{d}{b} \ln \frac{x}{b}$$



