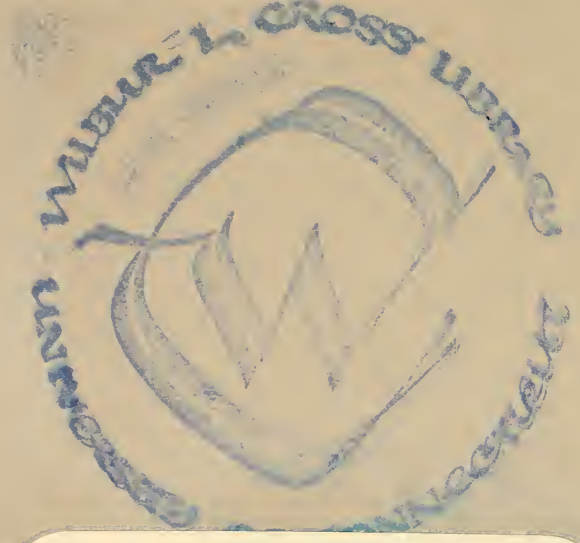

LETTERING OF WORKING DRAWINGS.

— BY —

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NEW YORK.

D. VAN NOSTRAND COMPANY,

1894.

PREFACE.

This is believed to be the first presentation of a collection of styles of lettering made up directly from working drawings.

Brief remarks on the details of the construction of the simplest style of alphabet, on lettering in general, and on the make-up of titles, precede the general collection.

The detached portions of working drawings placed beneath the alphabets of the collection are given to show the appearance of the letters when grouped in words. They give some idea, too, of the general features of a working drawing.

Allow me, here, to express my gratitude to Professor Wing, of this University, for suggestions, and to those gentlemen in many of the principal engineering and architectural offices of the United States through whose kindness the presentation of styles taken from working drawings has been made possible.

J. C. L.. F.

Stanford University, Cal., July, 1894.

LETTERING OF WORKING DRAWINGS.

DETAILS OF THE FORMATION OF A STANDARD ALPHABET.

The remarks included under this head are intended for the draftsman who finds himself unable to give an appearance of uniformity to his lettering.

In freehand lettering, outside of titles, three horizontal penciled guide lines are sufficient (see Plate 1). The distance between the upper and middle, is generally from a half to two-thirds of that between the middle and lower lines. A fourth line might be drawn below, (as shown in Row 1, Plate 1,) but this is scarcely necessary.

Plate 1.

Plate 1.

Plate 1, Rows 1, 2, 3.

The arrows point out the direction in which the pen is moved in making the several strokes of the letter, and the small figures show the order in which the strokes are made.

Lower-Case Letters.

Plate 1.

Plate 1.

We start with the letter o (here a circle) as a basis. All other letters which are curved in part, are nothing more than o with addition or subtraction, or both.

a If we add a straight vertical line to the right side of o we have the letter a.

b This is made by drawing a vertical line tangent to the letter o on the left side.

d This letter is like a except that the stem of d extends to the upper guide line.

g By producing the stem of a downward the letter g is formed. The lower end of this letter is usually curved to the left.

p By drawing a vertical line tangent on the left of o and producing it downward we form p.

Plate 1.

q Like g in the main. The lower end of the straight line is generally curved to the right.

c If the middle right hand portion of o is omitted, c is formed.

e This letter is o with the omission of a portion of the right hand side and the addition of the curved line across the interior.

n, m, h In these letters, vertical lines are drawn tangent to o and the lower half of that letter omitted.

u This is n inverted and reversed.

y If the straight line of u be extended downward, y results.

Plate 1.

r This is n with the omission of the right half of the curve and the right hand vertical line.

s This letter consists of the upper and lower portions of o and a reversed curve joining the left end of the upper with the right end of the lower portion.

i, j, k, t, f and z These letters are self-explanatory.

v Two lines making equal angles with the vertical and meeting at their lower extremities form the letter v.

w This letter consists of two letters v placed in contact side by side.

x This letter is made up of two lines equally inclined to the vertical, meeting at their middle points.

Upper-Case Letters.

Rows 2 and 3, Plate 1.

Plate 1.

A The side lines make equal angles with the vertical, and the horizontal line is just below the middle of the letter.

B The three horizontal lines are equidistant and of same length. The two curves are of the same form and size.

Plate 1.

C Like the lower case c in form.

D The curve is the right half of O.

E, F, H, I, K, L, T, X These are self ex planatory.

Plate 1.

G This is C with the addition of the short horizontal and vertical lines.

J The curve of J is the right lower quarter and the lower left quarter of O.

M The inclined lines make equal angles with the vertical, and form the letter V.

N This letter is somewhat narrower than M.

O This is a circle.

P If we omit stroke three of B we have P.

Q The construction is apparent.

R This is P with the addition of stroke three. Plate 2.

S See lower case s.

U The lower half of O is the curved portion of this letter.

V Turn A bottom up and omit stroke three and V results.

W This consists of two letters V the extreme left of the one touching the extreme right of the other.

Y The inclined lines make equal angles with the vertical and meet just below the middle of the letter.

Inclined Letters.

Plate 1. If, in the preceding remarks on the formation of the upright letters the words vertical and circle be changed to slant and oval respectively, those remarks will apply to construction of inclined letters. (See rows 4 and 5, Plate 1.)

Italics.

The first two lines of Plate 2 show the principles employed in the construction of all curved letters of this kind. Plate 1.
No verbal explanations are necessary.

The Italic Capitals (upper case letters) are in the main like those in No. 1, Plate 5. Plate 5.

Arabic Numerals.

Plate 1 Row 6, Plate 1, shows the manner in which the majority of the curved portions of the arabic numerals are taken from the letter O. Plate 1.

ON PRACTICE WORK.

The beginner's materials will consist of any sort of drafting paper, medium pointed pen and free flowing ink. All these will be found in any drafting room.

Rule, in pencil, three parallel guide lines, spacing them about as they are given in Plate 1. Plate 1.

Begin with the lower case letters.

As the letter o enters so largely into the make-up of letters, it will be well to practise on this till several of them can be made, one after another, with uniformity.

Next take up the letters embracing o entirely. Beginning with a repeat it till it can be uniformly reproduced.

Continue in this manner with the remaining letters of the alphabet.

Until the beginner is quite proficient in lettering, he should, in making any letter embracing the complete o, make the whole of o and then the necessary additions.

When any portion of o enters into a letter's form, imagine, while you are drawing that particular portion, that you are drawing the corresponding part of the letter o. For example: In making the letter n, draw the straight downstroke, then, beginning at the middle of the stroke, the curved portion as if for the upper half of o, and at the end of the curve proceed straight downward to the bottom of the letter.

Until the beginner is familiar with the standard form of letter as given above, it is not well for him to attempt any modification of that standard. Plate 1.

In practising, take particular pains to make all stems of letters exactly parallel, whether the style be vertical or inclined. If stems cannot be made parallel otherwise, penciled lines of the required inclination should be ruled in. The horizontal spacing of these need not be closer than one half inch.

If all the lines are made of the same weight, progress will be more rapid than if shading is attempted. In making the stems, do not let the pressure on the pen point decrease at the end of the stroke, otherwise there results a pointed line which gives an appearance of weakness to the lettering. I the pen is pressed so lightly that the nibs do not separate, the work will be more satisfactory.

Do not let any part of a letter project beyond, above or below, the guide lines which properly limit it. Do not fail to make a letter meet the guide lines, wherever such meeting is proper. For example, let the letter o be exactly tangent to the middle and lower guide lines.

After becoming familiar with the standard form of letter, any style given in the plates may be copied intelligently, and any style of pen may be used.

MODIFICATION OF CAPITALS.

Plate 2. It is quite seldom that any variety is wanted in the lower case letters of a drawing. But titles are composed in great part of capitals, and it is desirable that there be a variation not only in the size but also in the style of letters composing them. It is the object of this section to show how any plain capital may be made quickly and without previous long experience.

Plate 2. The last four lines of Plate 2 show thirty-eight styles of capitals (all taken from actual drawings) exhibited in the letter F. In every case the letter is given in detail first and then in finished form. It will be seen that the skeleton of the letter (shown in dotted lines) is always the same, whatever the appearance of the completed letter. In making the letter this skeleton is drawn first, and in pencil. The outline which we desire in the finished letter is next sketched in, first in pencil and afterward in ink. Then the outline is filled in solid with ink or shaded according as the finished letter is to be solid or open. Plate 2.

In the right half of the last line of Plate 2, the word "Frame" is given twice. In both cases the initial letter is the same. The other letters in the two cases are of somewhat different style; nevertheless the F appears to be quite as appropriate in the one case as in the other. This fact has made it seem unnecessary to give the complete alphabet in each style exhibited in the single letter F. The draftsman can, from the peculiarities shown in each style of F, construct the remaining letters of the alphabet in the same style, with enough of accuracy to give an appearance of uniformity to the whole. Plate 2

ON TITLES.

Plate 3. A title gives a complete key to a drawing as the title to a scientific or technical book furnishes a key to the contents. Manifestly there are some words of a title which have greater importance than others. It is for the draftsman to so construct the title of a drawing as to bring out this relative importance by making the prominence of the words correspond to it. Plate 3.

As in the case of book titles, adjacent words of the

same importance are placed on the same line and composed of the same style and size of letters.

The size of the letters in the most prominent words depends on the size of the drawing and sometimes on the space which can be appropriated to the title.

Plate 3. Fig. 1, Plate 3, gives the skeleton work of a title. According to the relative size of the letters the word "map", "property" and "West Real Estate Co'y" are of about the same importance. "Of" and "belonging to", as connecting words, are given the least prominence. "Norfolk, Va." is of secondary importance.

This skeleton may be inked in directly without modification if it is not worth while to give more time to it. In that case it would have the appearance given in Fig. 1, with the omission of the horizontal and vertical guide lines.

The guide lines of Fig. 2 are exactly like those of Fig. 1. The skeleton letters, shown in dotted lines, are also like those of Fig. 1. Around these skeletons are drawn, first in pencil and then in ink, the outlines of the letters as they are to be when finished. So far, the relative importance of the words of the title is the same as before.

Fig. 3 represents the title in the final stage. The outlines of Fig. 2 have been filled in or shaded, and the guide lines and skeleton lines erased. By giving the letters of "map" the open, and those of "property" and "West Real Estate Co'y" the solid style, the prominence of the two last named, with reference to the first is increased. This treatment is in the supposition that the main object of the title is to show that the exhibit, in whatever form it may be, has to do with the PROPERTY of the WEST REAL ESTATE CO'Y.

By filling in the outlines of "map" and "property," shading those of "West Real Estate Co'y" and erasing skeleton and guide lines of Fig. 2, Fig. 4 is produced. This manner of finishing the letters supposes that the first thing to be brought to the reader's notice is that the exhibit is a MAP of PROPERTY, instead of a sketch or design, etc., of country house or engine, etc. The words "Norfolk, Va." are also more prominent in Fig. 4 than in Fig. 3, though one is a duplicate of the other. Plate 4.

In Figs. 1 and 2, Plate 4, this bringing out of the relative importance of the words of a title by the final work on them is more vividly shown. The outlines in the right half of Fig. 2 are, in size and style, exactly like those in the left half, and by covering one half while looking at the other and *vice versa*, this difference in appearance between the two sides is still more marked.

It is seen that the relative prominence of words whose outlines are of the same style and size depends on the ratio of black to white in the filling-in. Evidently then, the relative importance of the words of a title need not be exactly brought out by the relative prominence of the skeleton letters, unless the skeleton is to be inked in directly without modification.

The relative importance of the words of a title is affected by so many conditions that no reasonable number of rules for deciding that importance would cover all cases.

Even the duplicates of the same drawing may require the words of the titles to be differently emphasized for each. For instance : two copies are made of a map of a portion of a railroad right-of-way lying between two towns. The first copy is to be filed in the railroad's office, the second in a county surveyor's office. In the railroad's office all drawings concern the railroad directly, so that the name of the particular portion of its property represented by a drawing is of more importance than the fact that it concerns this particular railroad. In the surveyor's office the drawings concern various corporations and individuals, and the name of the particular corporation or individuals with which a drawing is concerned, is of the first importance. So for the railroad company's copy the title might be :

MAP
of
PORTION
of
LAKE ERIE AND WESTERN R. R.
Lying between
HURON AND MILAN, OHIO.

and the title for the copy for the surveyor's office would be :

MAP
of
PORTION
of
LAKE ERIE AND WESTERN R. R.
Lying between
HURON AND MILAN, OHIO.

Again, when the drawings of the details of a structure are constructed on sheets of uniform size to be afterward

bound together, the titles of the different sheets are, for example, somewhat analogous to the titles of the pages in a manufacturer's catalogue.

The first page in the catalogue calls attention to the name and location of the manufacturer. On each of the following pages the name of the particular article there shown is emphasized above all other words. The name of the manufacturer is made less conspicuous. So with the drawings: The title of the first sheet gives the name of the structure and its location the greatest prominence, while on each of the remaining sheets is emphasized the name of the particular portion of the structure thereon represented; the name and location of the structure is added in a less prominent way and simply for the identification of the sheet, in case it should become detached from the book of sheets.

Figs. 3 and 4, Plate 4, are specimens of titles composed of lower case letters. Other titles are scattered throughout the plates, showing the arrangement of words incidentally, though primarily for the exhibition of the various styles of lettering. Plate 4.

ON STYLES TAKEN FROM WORKING DRAWINGS.

Plate 5. Alphabets Nos. 1 and 2, Plate 5, are made with a fine pointed pen. No. 2 would seem to be particularly adapted to those who write a back-hand, though it is quite as much used by others.

Plate 6. No. 3, Plate 6, is made with a right line pen. This instrument glides very smoothly on tracing cloth. No. 3 might be made also with a stub pen by those who write a back-hand.

No. 4, Plate 6, is made with a fine pointed elastic pen.

Nos. 5 and 6, Plate 7, are made with a pen of medium point. Plate 7.

No. 7, Plate 8, is made with a round pointed pen. Plate 8.

No. 8, Plate 8, is made with a stub pen held in position for back-hand writing.

No. 9, Plate 9, is made with a stub pen held in position for back-hand writing. Plate 9.

No. 10, Plate 9, is made with a medium pointed pen.

Plate 10. Nos. 11 and 12, Plate 10, are made with a medium pen.

Plate 11. Nos. 13 and 14, Plate 11, are made with a fine pen.

No. 15, Plate 11, is made with a fine pointed stub pen.

Plate 12. No. 16, Plate 12, is made with a fine pointed, elastic pen.

Nos. 17 and 18, Plate 12, are made with a fine pointed pen.

Nos. 19 and 20, Plate 13, are made with a medium pen.

The appearance of any style may be changed by simply changing the style of pen given above for it.

Plates 11, 12 and 13 consist of styles used mainly for architectural drawings. No examples of dimensioning are given on these plates for the reason that this detail of architectural, does not differ from that of engineering drawings. Plate 13.

Plate 1.

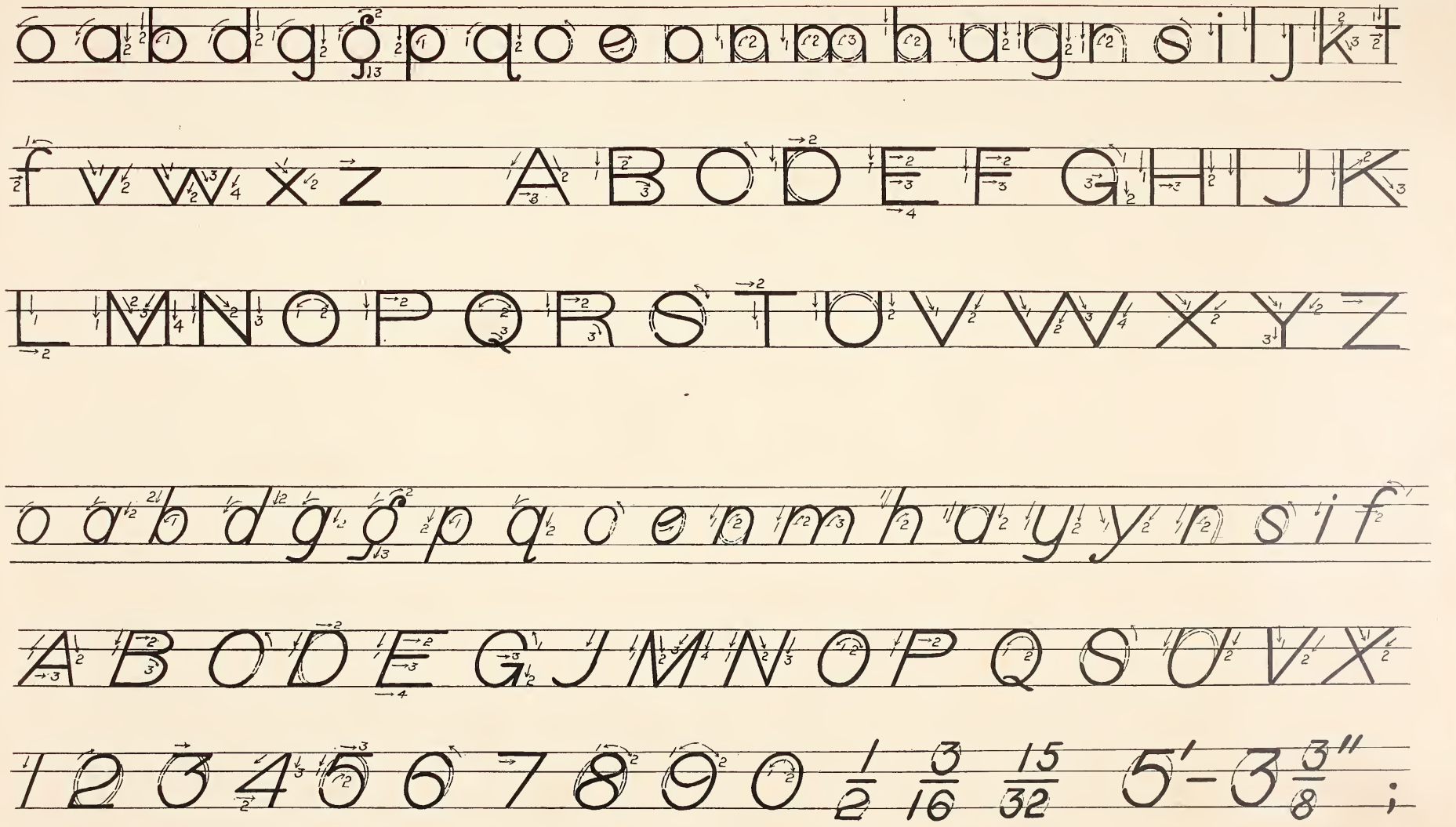
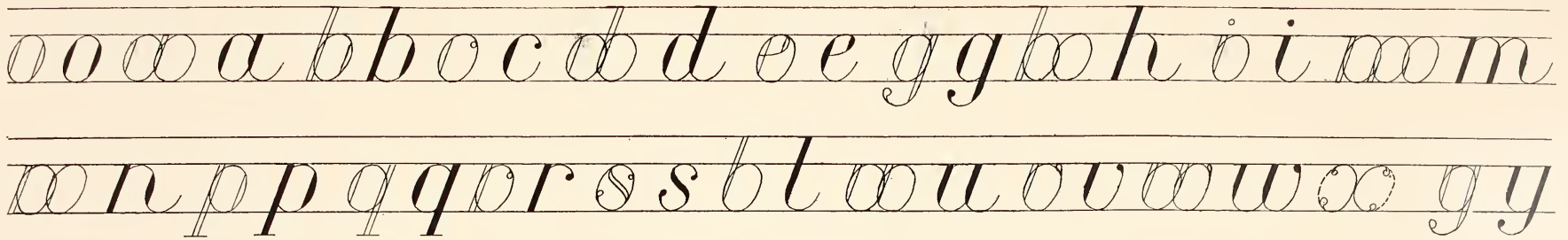
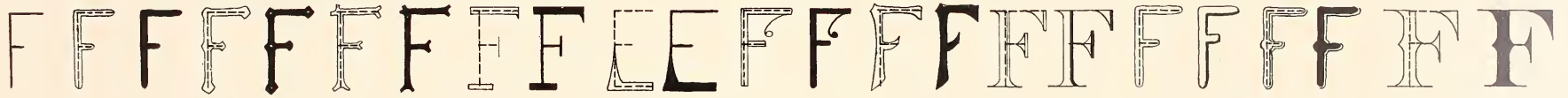


Plate 2.

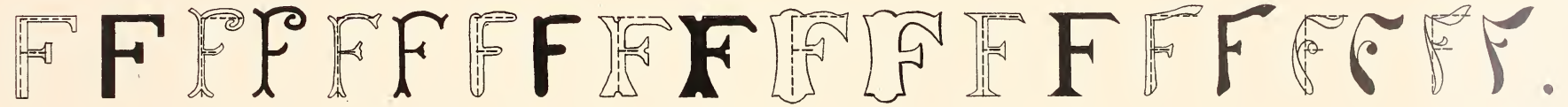
-1-



-2-

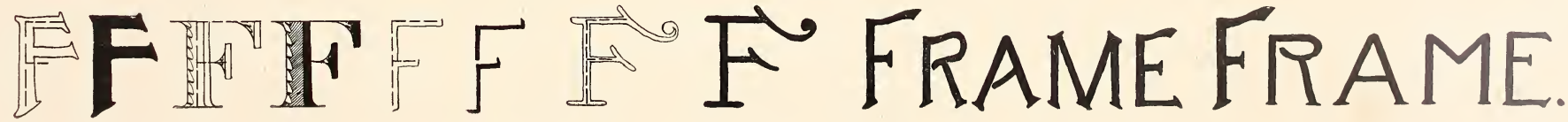


-3-



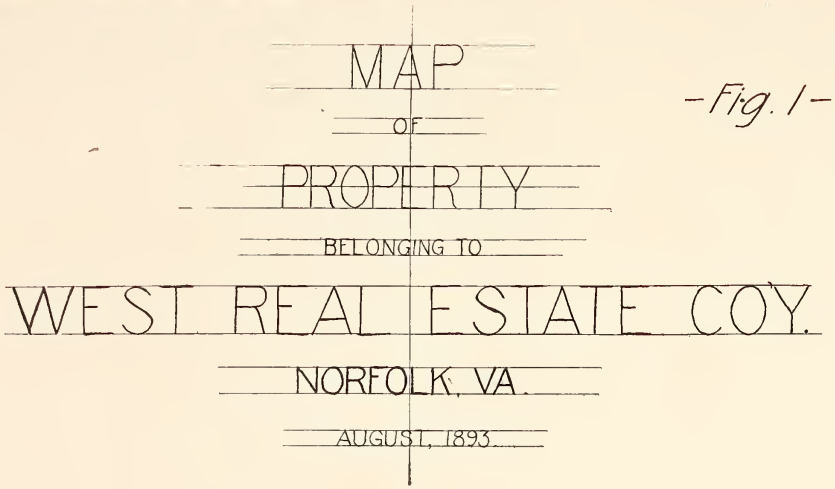
-4-

-5-



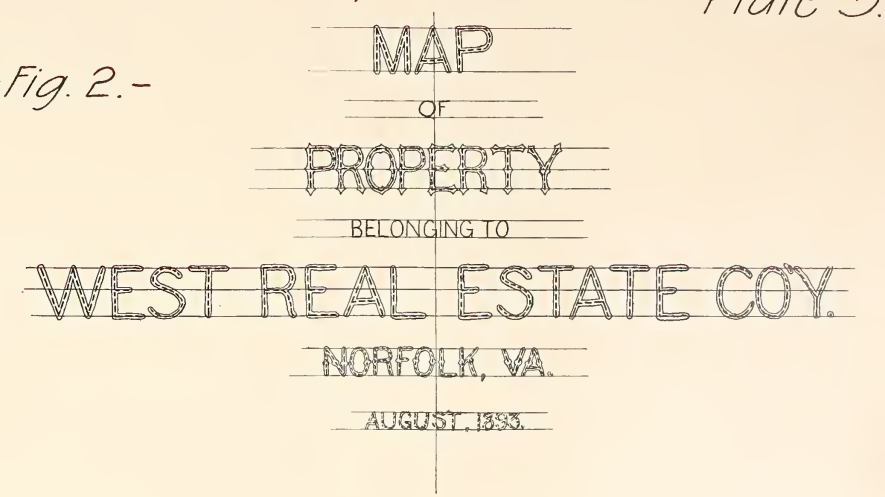
J.C.L.F.

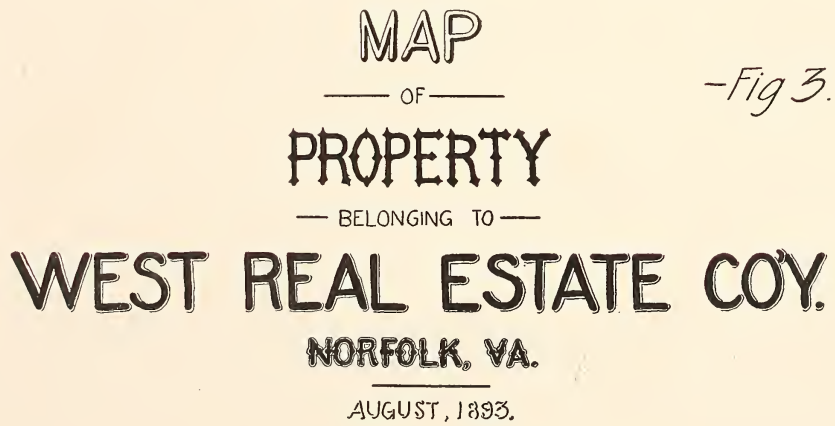
Plate 3.



-Fig. 1-

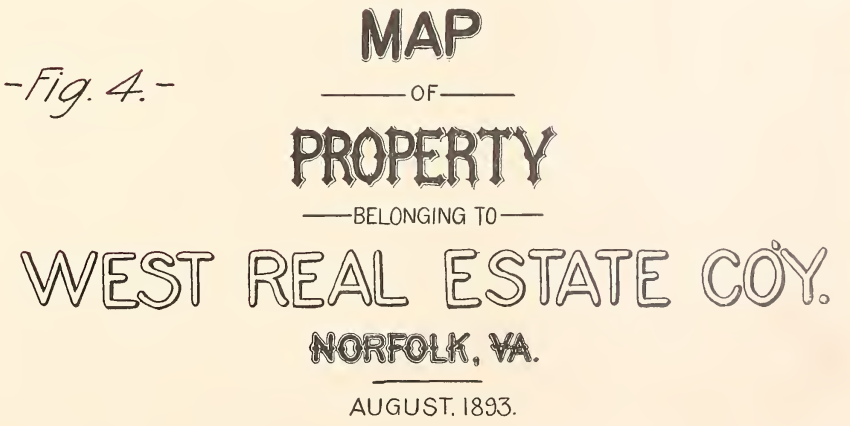
-Fig. 2.-





-Fig 3.-

-Fig. 4.-



J.C.L.F.

Plate 4.

-Fig. 1-

PLAN

SHOWING

CROSS-SECTIONS of BRICK PAVEMENT

FOR

MAIN STREET,

CITY of HORNVILLE, N.Y.

-Fig. 2.-

PLAN

SHOWING

CROSS-SECTIONS OF BRICK PAVEMENT

FOR

MAIN - STREET

CITY OF HORNVILLE, NY.

-Fig 3.-

PLAN

SHOWING

Present Condition and Proposed Change of Crossing

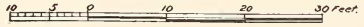
OF

C.I.&T.R.R over RIVER-ROAD,

Passaic Bridge, Cal.

July, 1893.

Scale:



-Fig. 4.-

Profile

OF PORTION OF THE

Sandusky & Columbus Short-Line Ry,

LYING BETWEEN

Sandusky & Bellevue, O.

June, 1893.

J.C.L.F.

Plate 5.

Styles Taken From Working Drawings.

-1-

ABCDEGHJKLMNOPQRSTUVWXYZ&1234567 8/9

abcdefghijklmnopqrstuvwxyz. Rivet Lower Plates. Floor.

-2-

ABCDEFGHIJKLMNOPQRSTUVWXYZ. 1234567890 15/16".

abcdefghijklmnopqrstuvwxyz. 15' 11" cen. to cen. of Trusses. &

Design of
Quadruple-Track Draw Bridge
over the
Harlem River in the City of New York
for the
N.Y.C. & H.R.R.R. Co.,
Stress Sheet.

Submitted by
THE "ONLY" BRIDGE CO.,
Berlin, Ohio.

The Swing Bridge Co.
Order: 783.
Class: 3c.
Drawing: 12519.
Scale: 1/2"=1', 1 1/2" and 3"=1'.
Engineer in Charge: H. Monad.
Draftsman: C.N. Jones.
Date: Aug. 17th, 1893.

J.C.L.F.

Styles Taken From Working Drawings.

-3-

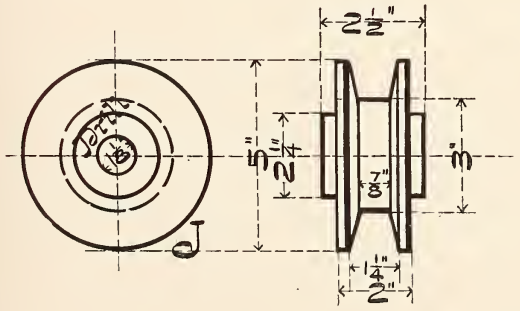
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 3587690

a b c d e f g h i j k l m n o p q r s t u v w x y z & Total length of Axle 6'-4½".

-4-

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 12348.

a b c d e f g h i j k l m n o p q r s t u v w x y z This to be Cold-rolled Iron.



Remarks:-

For turning Roller do not allow more than ¼" diameter.

Outer row of bosses on Lower Track must not be over 3/16" high.

J.C.L.F.

Styles Taken From Working Drawings

-5- ABCDEFGHIJKLMNOPQRSTUVXYZ abcdefghijklmnopqrstuvy

Base-pl-16x16x1'-4"-(Stock)-⅝" rivets and bolts except where marked

-6- ABCDEGHIJKLMNOPQRSTUVXYZ abcdefghijklmnopqrstuvwxyz.

Location of Anchor Bolts and Plan of Pump Foundation-Section of 5'6" Balance Valve.

New Longitudinal Struts

for Spans 6&7

Delaware River Bridge.

L.V.R.R.

CONTRACT No 57-93

SKEW PORTAL

All Holes Not Marked Are 11/16 inches Diameter

All ⅝" inch Rivets.

Rods on Blacksmith's Bill.

J.C.L.F.

Styles Taken From Working Drawings.

-7-

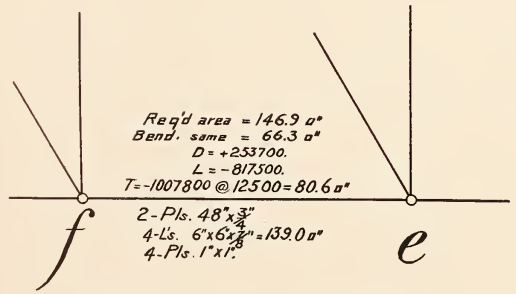
ABCDEFGHIJKLMNOPQRSTUVXYZ abcdefghijklmnopqrstuvwxyz&

Solid Through Floor; Vertical Plates 18" x 5/16"; Horizontal Plates 13" x 5/16; Angles 3"x3".

-8-

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz. 23 5/16

4 Trackstringer Wall Plates, Mk: SBP. End Floorbeam, Mk: EF1. 95 of these.



[Taken From a Strain Sheet]

Floorbeams & Trackstringers
for 1-82'-0" S. Tr. Thó. Skew Plate Girder Span.
3rd Crossing Pocono Creek.
W. B. & E. R. R.

J.C.L.F.

Styles Taken from Working Drawings. etc.

-9-

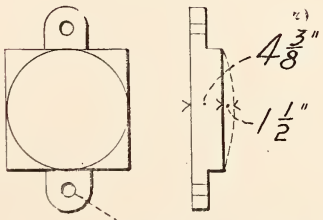
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 0 $\frac{15}{16}$" Set.

a b c d e f g h i j k l m n o p q r s t u v w x y z. Rests of Expansion Rollers Required. E

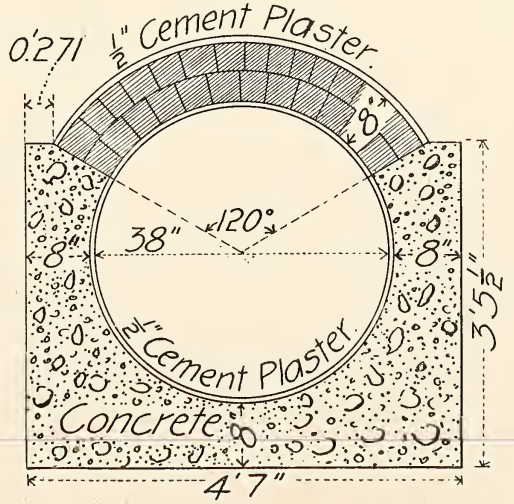
-10-

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z. 1 2 3 4 5 6 7 8 9 0 $\frac{15}{32}$".

a b c d e f g h i j k l m n o p q r s t u v w x y z. Cover Plates of Top Flange Same Size.



1¼" Cored Holes for 1⅛" Anchor Bolts.



Section of 38" Sewer.

Quantities per lin foot.

Concrete Masonry: 0.29 cu yds.

Brick " 0.10 " "

Ins: Cement Plaster: 1.15 sq. yds.

J.C.L.F.

Styles Taken From Working Drawings.

-11-

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z 1 2 3 4 5 6 7 8 9 0 $\frac{15}{32}$

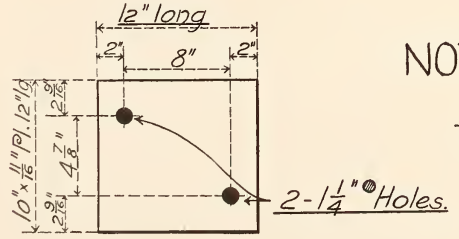
All Rivets $\frac{7}{8}$" diam. Open holes $\frac{15}{16}$" diam. unless marked otherwise-.

All Rivets $\frac{7}{8}$" diameter. Open holes $\frac{15}{16}$" diam. unless marked otherwise.Q

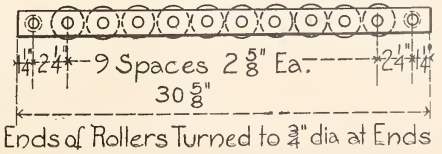
-12-

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz No

Hanger $1\frac{3}{4}$" □ Screw $2\frac{1}{2}$ ● Pl. 8" x $\frac{1}{2}$" x 16" Pinhole $4\frac{29}{64}$" Note: All Rivets $\frac{1}{2}$" diam.



NOTE: The Broken Lines of the Diagrams Correspond to the Full Red Lines of the Tracing.



J.C.L.R.

Styles Taken From Working Drawings.

-13-

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abcdefghijklmnopqrstuvwxyz Section showing Construction of Porch.

-14-

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-15-

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Second floor Plan. Scale: 1/8" = 1 foot.

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5207

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-16-

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XYZ. abcdefghijklmnopqrstuvwxyz. Section I.

-17-

ABCDEFGHIKLMNOPQRSTUVWXYZ.

abcdefghijklmnopqrstuvwxyz. Plan of Section House. No.

-18-

ABCDEFGHIJKLMNOPQRSTUVXYZ. Bedroom.

abcdefghijklmnopqrstuvxyz. Plan showing Fixtures.

Women's Cloak Room. Agent's Room Private Laboratory.

Open Sheet-lead Drain. Ticket Office. Steam Drying Bath.

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Plate 13.

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-19-

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-20-

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PREPARATION-ROOM AND ANALYTICAL LABORATORY.

Job No. 666

Sheet 8

Tracing 2

Drawer 9.

Made April 1893.

SECOND FLOOR PLAN

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UNIVERSITY OF CHICAGO

SCALE: 4FT = 1IN

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