TO BE USED BY THE DRAFTSMAN FOR ALL SKETCHES, NOTES, CALCULATIONS AND DATA RELATING TO THE ABOVE COMPANY ONLY, UNDER NO CIRCUMSTANCES ARE LOOSE SHEETS OR PRIVATE NOTE BOOKS TO BE USED.

NO UNUSUAL EFFORT SHOULD BE MADE AT NICETY, BUT EACH ENTRY SHOULD INVARiABLY BE COMMENCED WITH THE SUBJECT AND DATE OF THE WORK, AND FULL NOTES MADE OF DATA ON WHICH CALCULATIONS ARE BASED AND THE RESULTS OBTAINED CLEARLY STATED.

BOOKS ARE TO BE ALWAYS QUICKLY AVAILABLE TO RECEIVE INSTRUCTIONS, SKETCHES AND DATA AS MAY BE GIVEN THE DRAFTSMAN AND HE WILL BE RESPONSIBLE FOR THEIR DELIVERY AT ANY TIME.

MORGAN CONSTRUCTION CO.  
WORCESTER MASS.
The text on the page appears to be a hand-written note with measurements and calculations. The note seems to be related to some construction or engineering work, involving dimensions and possibly some kind of structural design or analysis. Due to the handwriting style and the nature of the content, it's challenging to transcribe the exact details without more context. The page includes a diagram with labeled measurements, which likelycorrespond to the calculations mentioned in the text. However, without clearer handwriting or a more detailed transcription, it’s difficult to accurately represent the full content in a plain text format.
SUBJECT: Hoisting Pulleys

COMPANY: [Invisible]

DATE: 6-12-23

Shaft A: Old length from bearing 65°
New length from bearing 62°

Old C: Old dia = 3 7/16 = 3.4375
11.41 sq in = area
1141 x 0.309 = 1.141

Dia of new bearing = 13.37
Dia of new pulley = 4.125 inches

Shaft B: Old length = 6 ft 11 1/2 in = 83.5 inches

Shaft C: Same dimensions as

Shaft D: Same as old shaft E

Crown: 40° 15' 15° 10' 11'
C = 28 1/2 + 0.03
700
C = 29 7/10 + 0.03
700
C = 0.518 + 0.03
0.078 = 0.082
32 Crown

Shaft A: Pulley Hub:
41.25 x 1.66 + 1 = length + dia
17.75 + 1 = 18.75 = dia + length

Shaft B:
14.75 x 1.66 + 1 = length + dia
8.1 + 1 = 9.1 = dia + length

Force
41.75 x 10 = 417.5 tons
418.75 x 10 = 4187.5 tons
WORCESTER, MASS.

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A. 14" idler roll
B. 10" inclined roll
C. Total pull at A
D. 14" belt pulley

A x 106 = 2634 X Y
3300
1200
1900
3200
3416

1. 2634 X = 3,500,000

X = 1330 lbs. pull for 14" belt.

SUBJECT: Belt Tension

18" belt pull on pulley A at 18.44 ft./sec.

53 = 18.44 X
3300
18.44 X = 17,500 lbs.
X = 950 lbs. belt pull for 10" belt.

P = \( \frac{7}{3} T \) lbs. = tension for 10" belt

3P = 7T

2.850 = 7T

T = 407 lbs. tension for 10" belt

3P = 7T

4100 = 7T

T = 570 lbs. tension for 14" belt

Resultant belt pull on pulley A will = 570 X 2 + 1330

= 2,1470 lbs. pressure

Resultant belt pull on pulley B will = 407 X 2 + 950

= 1764 lbs. total pressure

Pressure on bearing C

C x 62 = (1764 X 31) + (2470 X 46)

62C = 54,700 + 11,3700

62C = 168,400

C = 2,720 lbs. pressure on bearing C.
SUBJECT
COMPANY
DATE

62D = (31 \times 1764) + (2470 \times 16)
62D = (54700) + (39500)
62D = 94200

\[ D = \frac{1520}{32} \text{ lbs pressure on bearing D} \]

\[ L = \frac{PXR}{20000} \]

\[ L = \frac{2720 \times 263}{208000} = \frac{715000}{208000} \]

\[ L = 3.6 \]

\[ \text{Bearing A, 2400 AA, rejected area = } 2.9375 \times 11 = 32.925 \]

\[ \frac{2.720}{32} = 85 \]

\[ 8.5 \text{ lbs pressure per sq inch on bearing C} \]

\[ \frac{1520}{32} = 47.5 \text{ lbs pressure per sq inch on bearing D} \]
\[
\frac{(3.15)^3}{(x)^3} = \frac{12 \times 8 \times 33}{10 \times 42} \\
5820 = 5080 \\
x^3 = 96 \times 100 \\
x = 4.625 = \text{dia. shaft (pulling)} \\
\text{Dia. shaft} = 4.5" \\
\]

\[
(2.1175)^3 = \frac{8}{10} \\
8x^3 = 105 \\
x^3 = 13 \\
x = 2.350" = \frac{263}{64} \text{ call shaft 2 7/64} \\
\]

\[\text{Dia. shaft} = \frac{23}{8} \\
1.66 \times 2.375 + 1 = 5.05 \text{ length bolt} \\
3.94 + 1 = 4.94 = 5" \text{ Dia. 9 length} \\
\]

\[\text{Philo J. B. Pulley} \\
\text{Dia. shaft} = \frac{23}{8} \\
\text{1.66} \times 2.375 + 1 = 5.05 \text{ length bolt} + 3.94 + 1 = 4.94 = 5" \text{ Dia. 9 length} \\
\]

\[\frac{11}{7} = \frac{772}{2} \text{ lbs. assumed 175" X} \]

\[\text{175" X 11 = 7 X} \]

\[7x = 1970 \text{ lbs. assumed 175" X} \]

\[x = 2772 \text{ lbs. assumed 175" X} \]

\[\text{Pulley X} = 4.5 - 50 \text{ lbs.} \]

\[\text{13} \times \text{79 47} = 1.31 \text{ lbs. area of pin} \]

\[\text{Knee and working stress} = 6000 \text{ lbs.} \]
\[\text{12000} = 12000 \text{ lbs per sq in} \]
\[\frac{4}{5} \text{ of 12,000} = 9600 \text{ lbs. shearing stress} \]
\[P = \text{AXS} \]
\[P = 1.31 \times 9600 \]
\[P = 12,600, \text{ lbs. = amount of shear} \]
\[\text{pin will resist (spring pin)} \]
SUBJECT

COMPANY

DATE

WORCESTER, MASS.

PROPERTY OF MORGAN CONSTRUCTION

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SUBJECT

COMPANY

DATE

WORCESTER, MASS.

PROPERTY OF MORGAN CONSTRUCTION

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
SUBJECT: ...
COMPANY: ...  
DATE: ...

Subject: New Springs Data

PO = 4016 / 1.45 = PO = 2770 = 92.34 lb

FO = BR^2 N
FO = (171)(2.1)(142)
FO = 14375 = 4.91

2 - 4 ID
2 - 0 g ~ 2 - 0 P.R.

PO = A / 12
PO = 4016 = 2900 = 933
14375 = 933 lbf

N = 42 Actual coils.
2 Extracut coils = 44 total

Note: This will have to Another

Spring Data

Open wound spring is dia. 1/2" H.W.
4/4 coils 2 - 3/32 I.D. 3 - 3/32 OD. 3 - 1/2 long

"Compression of 930 lbs. max. safe!
Ends squared & ground.
Used one 1/2" threaded rod.
<table>
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<tr>
<td>Inland Nut Remo Int</td>
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| A | 2 | C1 | Lining Arm |
| B | 2 | C1 | Slide |
| C | 2 | Bolt, Spring & nut 5\(\times\)3 x 6.7 |
| D | 2 | " | "gib |
| E | 2 | " | Spring Rod |
| F | 2 | " | Pin |
| G | 4 | Bronze Bushing |
| H | 2 | Car & Pin |
| J | 2 | Bronze Nut |
| K | 2 | Spring | Spring Seat |
| L | 2 | " |

| Q | Std | 1\(\frac{1}{4}\)" Nut |
| R | 4 | Std | 1\(\frac{3}{4}\)" Nut |
| S | 4 Bent | 4\(\frac{1}{2}\)" Dia x 1" Pin |
| T | 2 Std | Cotter | 3\(\times\)2.5 |
| U | 2 | Cotter | 4\(\times\)2.5 |
| V | 4 | Std | 3\(\frac{3}{4}\) x 4.5 Std Bolt with 4 Y |
| W | 10 | Std | 3\(\frac{3}{4}\) x 4 Cone Bolt Screw with 10 Y |
| X | 4 Bent | Std | 3\(\frac{3}{4}\) x 7.5 with 4 Z & 4 Y |
| Y | 10 | Std | 3\(\frac{3}{4}\)" Nut |
| Z | Std | 3\(\frac{3}{4}\)" Lock Washer | 4\(\times\)2 |
| B 31865 F | 2 | 1\(\frac{1}{4}\)" Bronze Nut |
| B 31865 B 18 | 2\(\frac{1}{2}\)" Bronze Nut |


**SUBJECT**

**COMPANY**

**DATE** April 18

---

\[
N_b = \frac{51}{9} = 5.67 \\
N_b = 5.67 \\
M_b = 48600 \times 10^2 \\
M_b = 48600
\]

- **Minimum bending moment in inch lbs = 10,000**
- \[4000 - 2000 - 8000\]
- \[10,000 = \text{inch lbs}\]

\[
M_b = \frac{51}{9} = 5.67 \\
N_b = 5.67 \\
M_b = 48600 \times 10^2 \\
M_b = 48600
\]

- **Minimum bending moment in inch lbs = 10,000**
- \[4000 - 2000 - 8000\]
- \[10,000 = \text{inch lbs}\]

\[\text{Worcester, Mass.}\]

---

**SUBJECT**

**COMPANY**

**DATE** April 18

---

\[
\begin{align*}
2.4375 & \times 14.625 \times 29 \text{ ft} = \text{subject} \\
14.625 \times 1760 (\text{120 ft}) = & \text{subject}
\end{align*}
\]

- **subject**
- \[2.4375 \times 14.625 \times 29 \text{ ft} = \text{subject} \\
14.625 \times 1760 (\text{120 ft}) = \text{subject}
\]

**Worcester, Mass.**

---

**SUBJECT**

**COMPANY**

**DATE** April 18

---

\[
\begin{align*}
79 & \text{ tool} \times 5'' \text{ chain} \\
79 & 39.5 \times \text{circum.} = 39.5 \text{ inches} \\
3.1416 \times 39.5 \times 100 & = 1257.3 \\
1257.3 & \text{subject}
\end{align*}
\]

- **79 tool**
- \[39.5 \times \text{circum.} = 39.5 \text{ inches} \\
3.1416 \times 39.5 \times 100 \]
- \[= 1257.3 \text{ subject}\]

**Co.**

---

**SUBJECT**

**COMPANY**

**DATE** April 18

---

\[
\begin{align*}
18 & \text{ tool} \\
18 & \text{ tool} \times \text{chain} \\
18.080 & \text{subject} \\
15708 & \text{subject} \\
230000 & \text{subject} \\
219912 & \text{subject}
\end{align*}
\]

- **18 tool**
- \[18 \text{ tool} \times \text{chain} \\
18.080 \text{ subject} \\
15708 \text{ subject} \\
230000 \text{ subject} \\
219912 \text{ subject}\]

**Co.**

---

**SUBJECT**

**COMPANY**

**DATE** April 18

---

\[
\begin{align*}
10.08 & \text{ tool} \\
10.08 & \text{ tool} \times \text{chain} \\
10.08 & \text{subject} \\
62.8 & \text{subject} \\
62.8 & \text{subject}
\end{align*}
\]

- **10.08 tool**
- \[10.08 \text{ tool} \times \text{chain} \\
10.08 \text{ subject} \\
62.8 \text{ subject} \\
62.8 \text{ subject}\]

**Co.**

---

\[
\begin{align*}
57.5 & \text{ subject} \\
57.5 & \text{ subject}
\end{align*}
\]

- **57.5 subject**
- \[57.5 \text{ subject}\]

**Co.**
SUBJECT
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72
39.5 = circum. pitch circle
3.1416
39.5/10
3.1416
89.340
2 = .2832
120080
137080
230000
219912
100890
961248
56320

WORCESTER, MASS.
CO.

PROPERTY OF MORGAN CONSTRUCTION

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79 tooth 5" C.P.
5 * 7.9 = 39.5 = circum
39.5 = 125.73
3.1416

Pitl. diam. = 10 - 5.731"
.125 * 5 = .625
10 / 8.231
Addendum circ. = 10 - 8.231"
5 * .30 = .15 * 2 = .3"
10 - 5.731"
8
10 - .2.73" = Addendum circ.

.4CP + .25 = a"

79 tooth with 20° involute
Cordal thickness of tooth =

39/125.731
39
3.1416
395
7.9

1.591 = 66º tooth
7.9 lush 20° involute

Cylindrical thickness of tooth = 2.427"  

7.9% total clearance = 2.8% outer pitch

5" outer pitch = 1.591" dia. pitch

Admittance = .26 x C.P. = 1.25"

Admittance = .10 x C.P. = .150"

Pitch Dia = 125.731"

Outside Dia = 128.731"


\[ \text{Cond} = 125.731 \times \sin 90° - .05 \]
\[ = 125.731 \times 1.139 - .05 \]
\[ = 125.731 \times .0197 - .05 \]

\[ \text{Cond} = 2.477 - .05 \]

\[ = 2.427 \]
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\[ F = \left( \frac{1000}{100} \right)^2 \]
\[ F = \frac{(1000)(10000)}{5} \]
\[ F = \frac{10,000,000}{5} \]
\[ F = 2,000,000 \]

**Special Base for Hat R&D**

**Special Stand for Hat Remont**
16 Y: 3/4" x 3 1/2" RIVET
24 W: 3/4" x 3 1/2" BOLT with 3/16" washers
16 X: 3/4" x 3" RIVET
16 Y: 3/4" x 2 1/2" BOLT with 3/16"
Z 3/8" STD NUT
U 1/2" lock washer

A 31694

8 V: 3/4" x 3 1/2" BOLT with 8X
8 W: 3/4" DIA X 4" BOLT with 8X
16 X: 3/4" NUT
8 Y: 13/8" BOLT
8 Z: 13/8" NUT

Special Stand for Std. Remount