

Automation

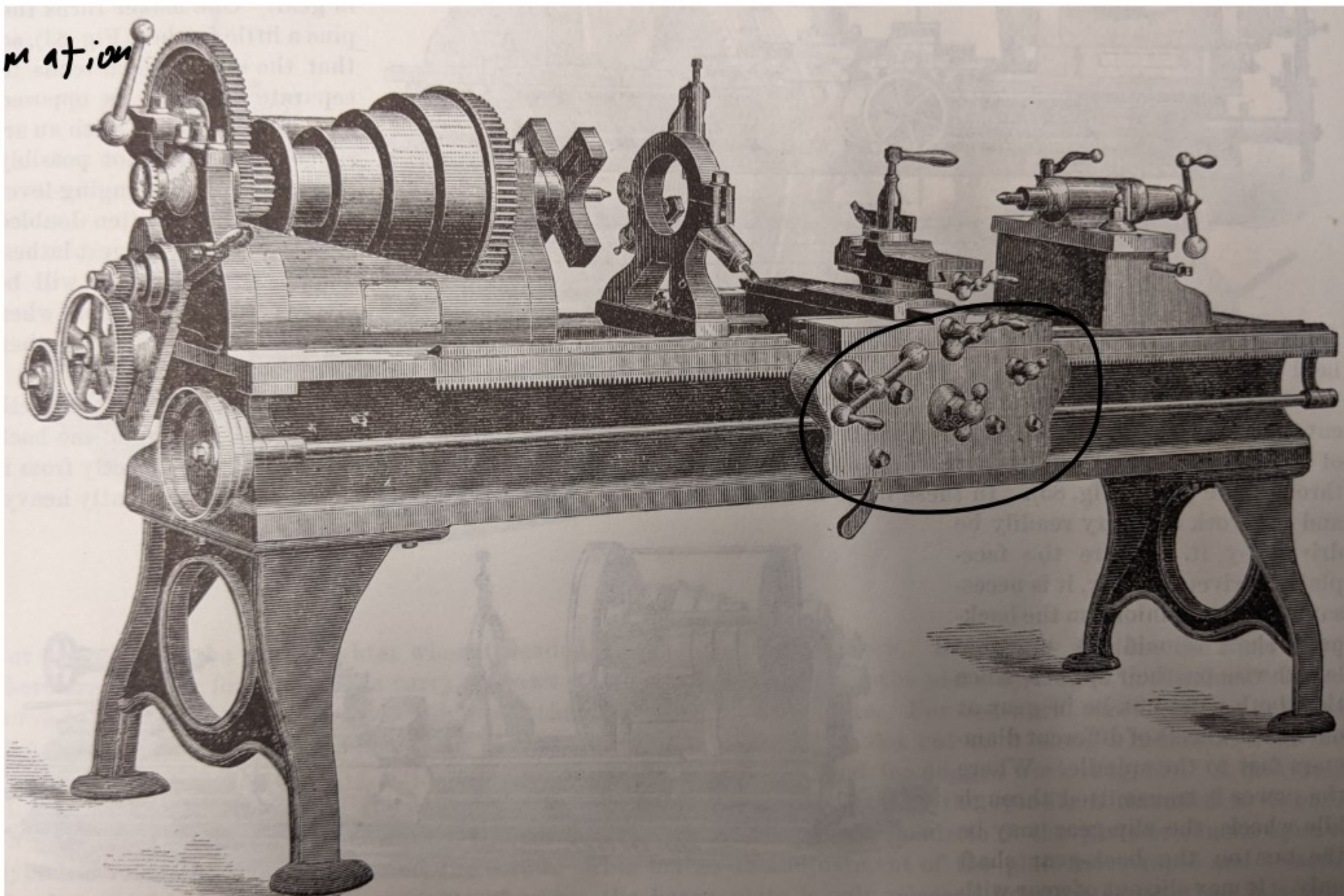
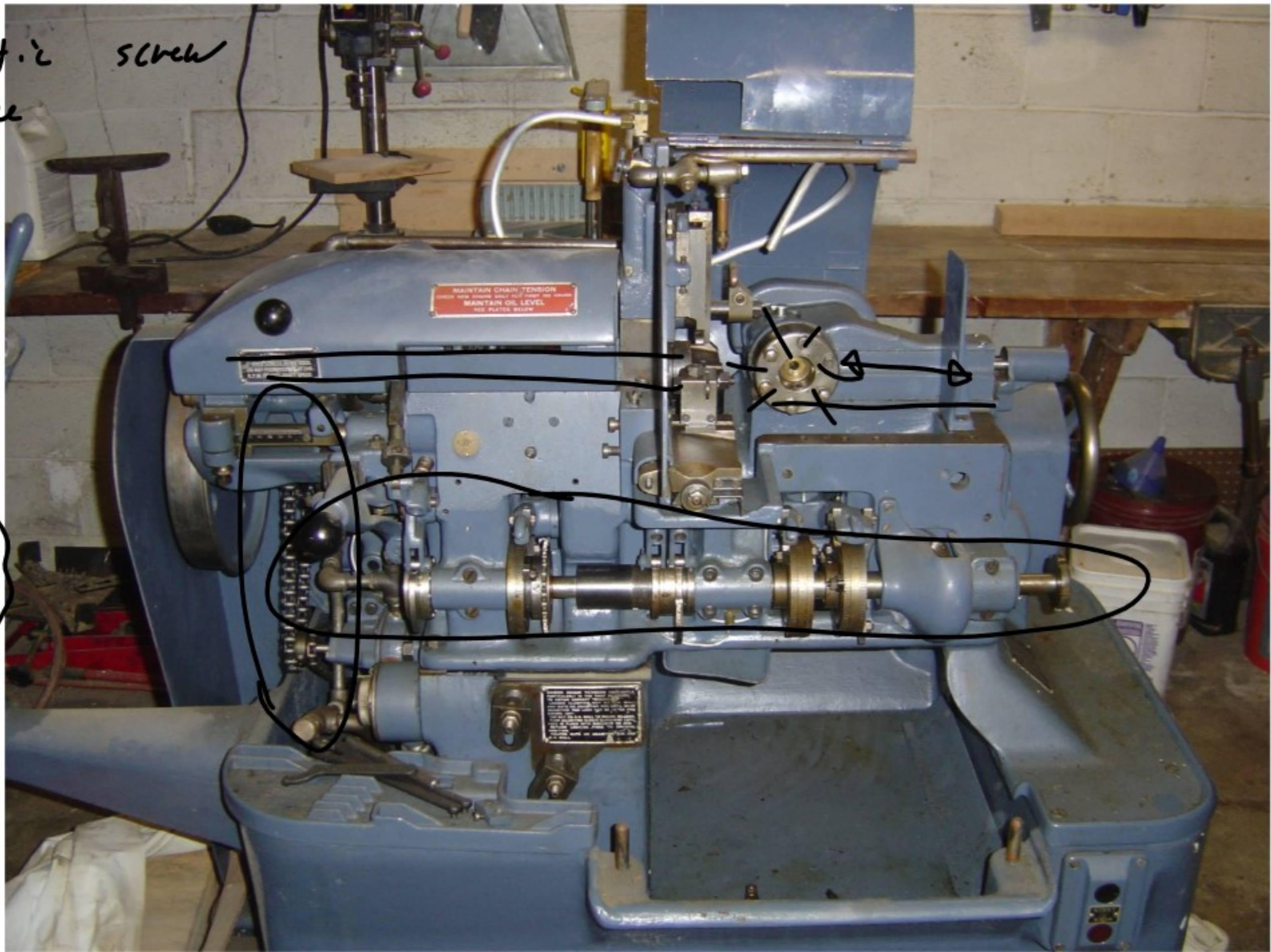
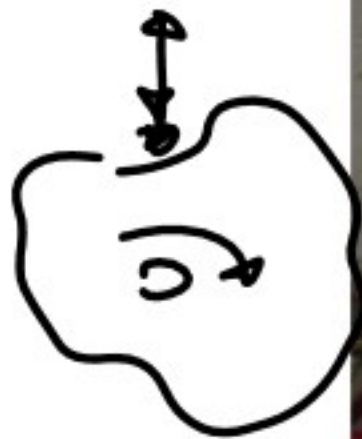


Fig. 83.

Automatic
machine screw

Cams



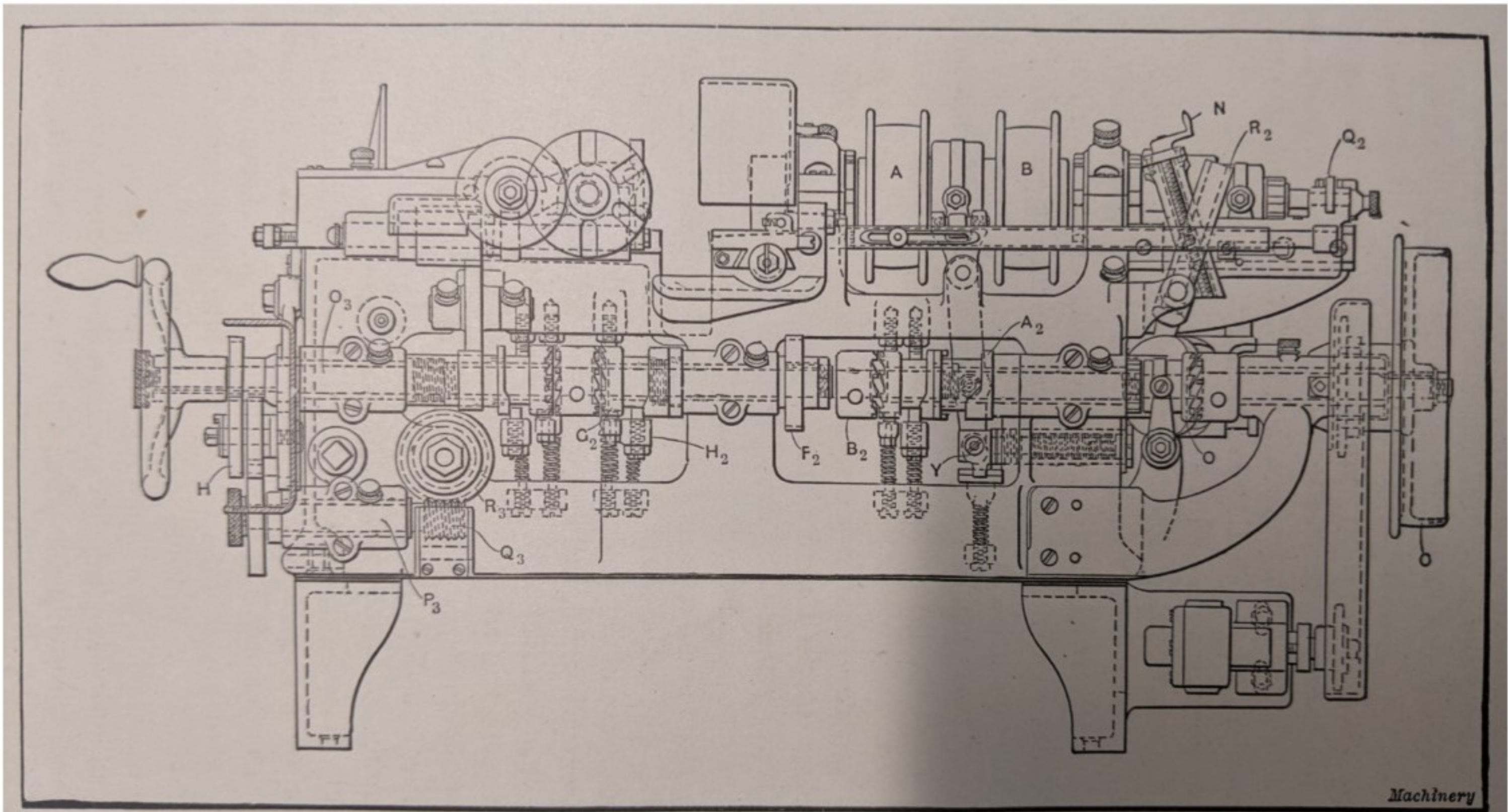


Fig. 2. Rear Elevation of the No. 00 Brown & Sharpe Automatic Screw Machine

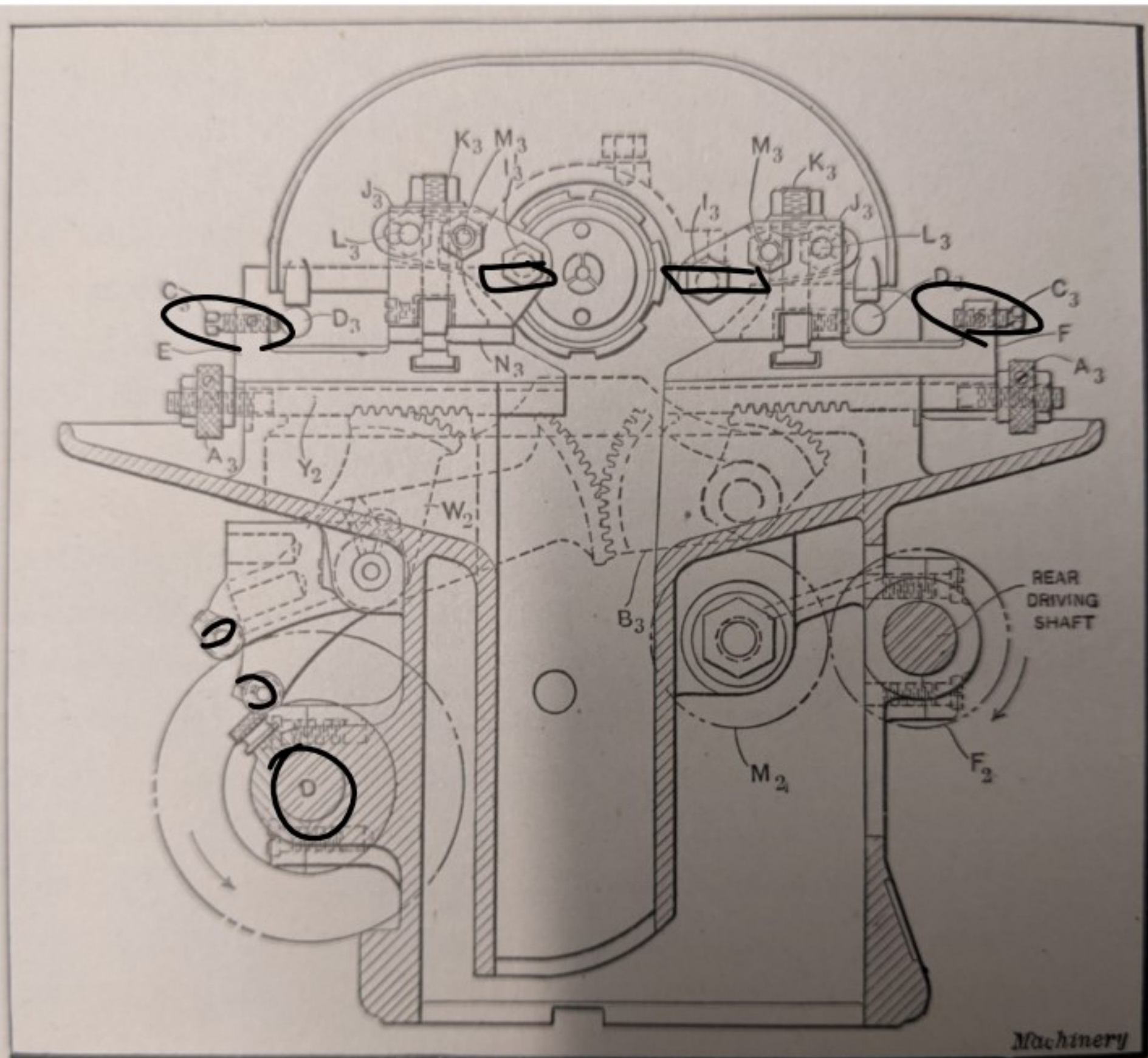


Fig. 3. Partial Section of No. 60 Machine showing Mechanism for Operating Cross-slides

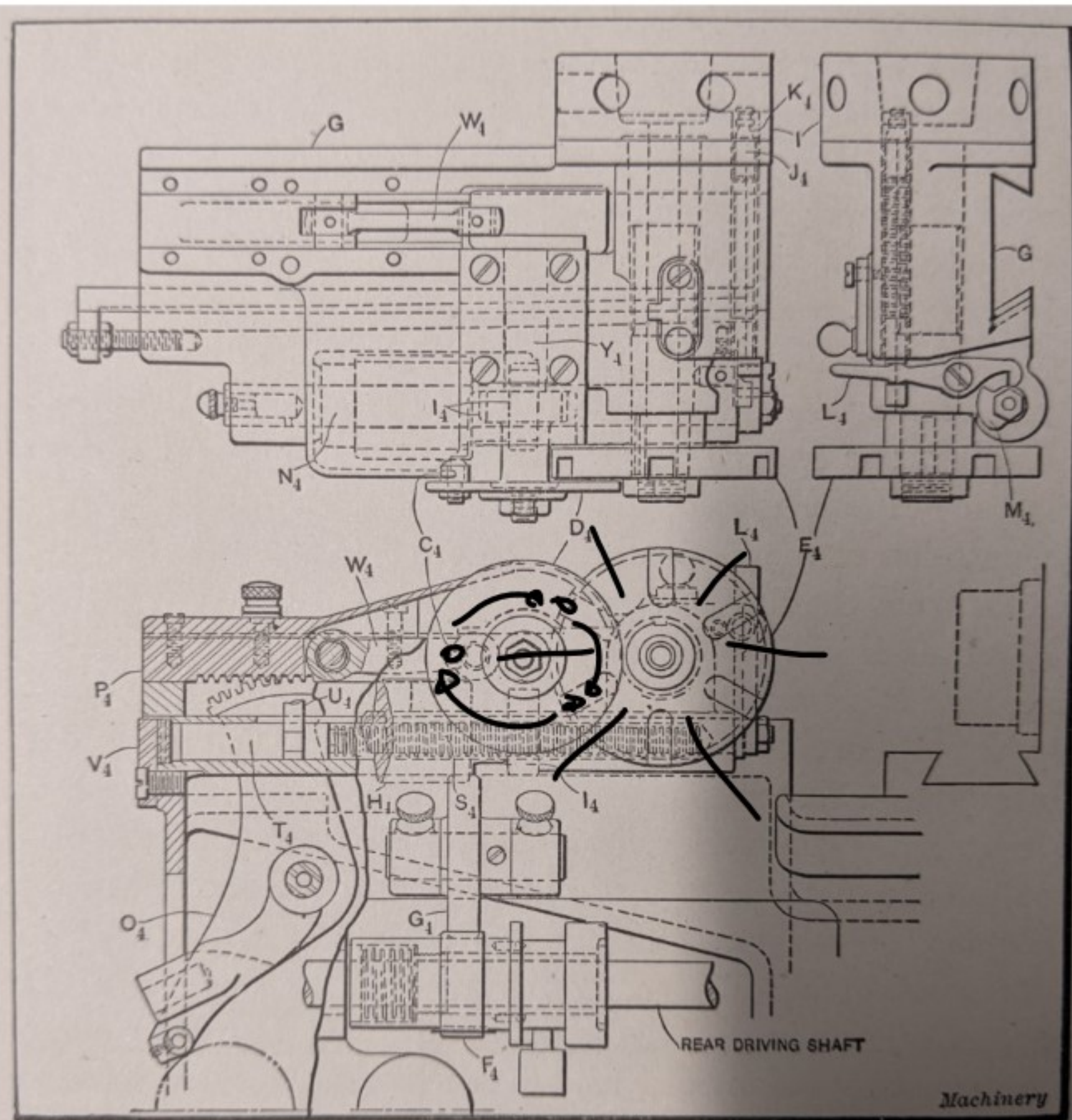


Fig. 4. Plan and Rear Elevation of Turret-slide and its Operating Mechanism



1977

1950s

Computer
Control
Introduced

N

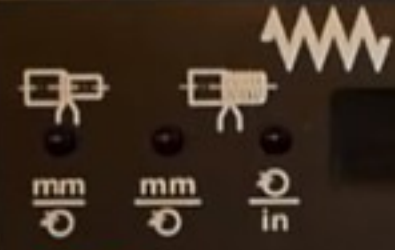
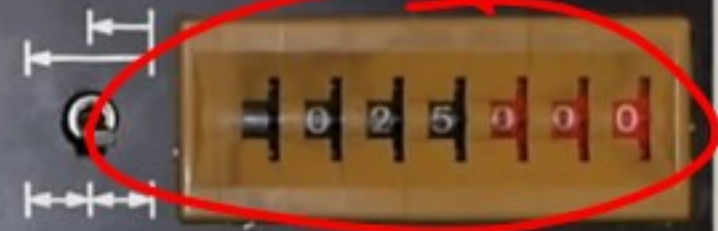
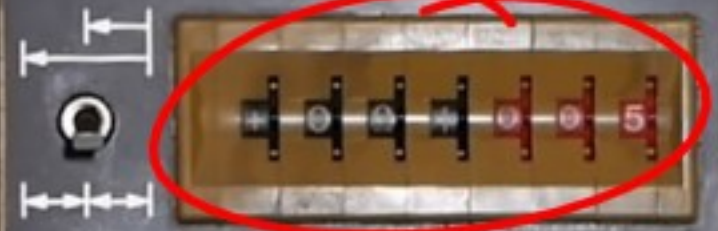
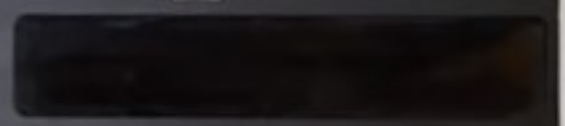
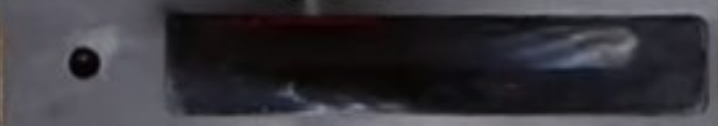
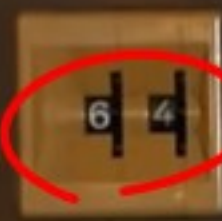
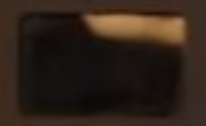
P

P 93 norm. Vorsch. ME-ST
P 92 2m ME-ST
P 91 1m ME-ST
P 96 Kühlw. N-IA-ST-Cont
P 97 Spind. N-IA-ST-Cont
P 98 Vorsch. N-IA-ST-Cont
P 99 lösch. N-IA-ST-Cont

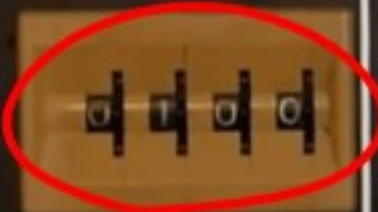
N 99 4-1 [A1] ME-ST
N 98 1-2 [A1] ME-ST
N 97 2-3 [A1] ME-ST
N 96 3-4 [A1] ME-ST

X φ

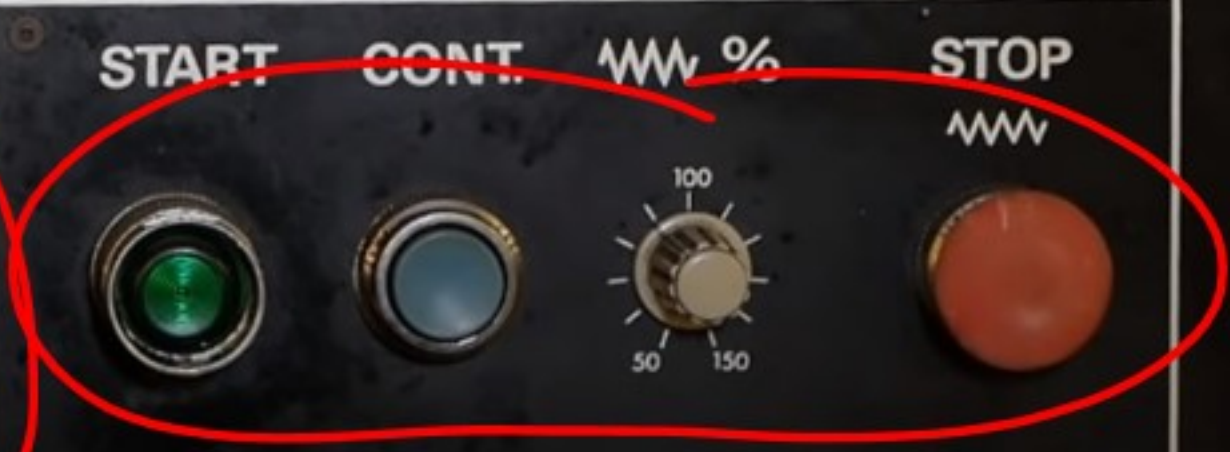
Z



mm
in



AUX.



START CONT. % STOP

FABRIQUE DE MACHINES
SCHAUBLIN S.A.
2730 DEVIKLAND SUISSE

Data General Nova

16 bit

3 MHz processor

16 KB ram

Arduino Nano

8 bit

16 MHz

2 KB ram

Modern CNC

Computer

Numerical

Control

G code

Semi Standardized

M codes

M03 spindle clockwise

M04 spindle counter clockwise

M05 spindle

M07/08 coolant on

M09 coolant off

M06 tool change

M06 T1

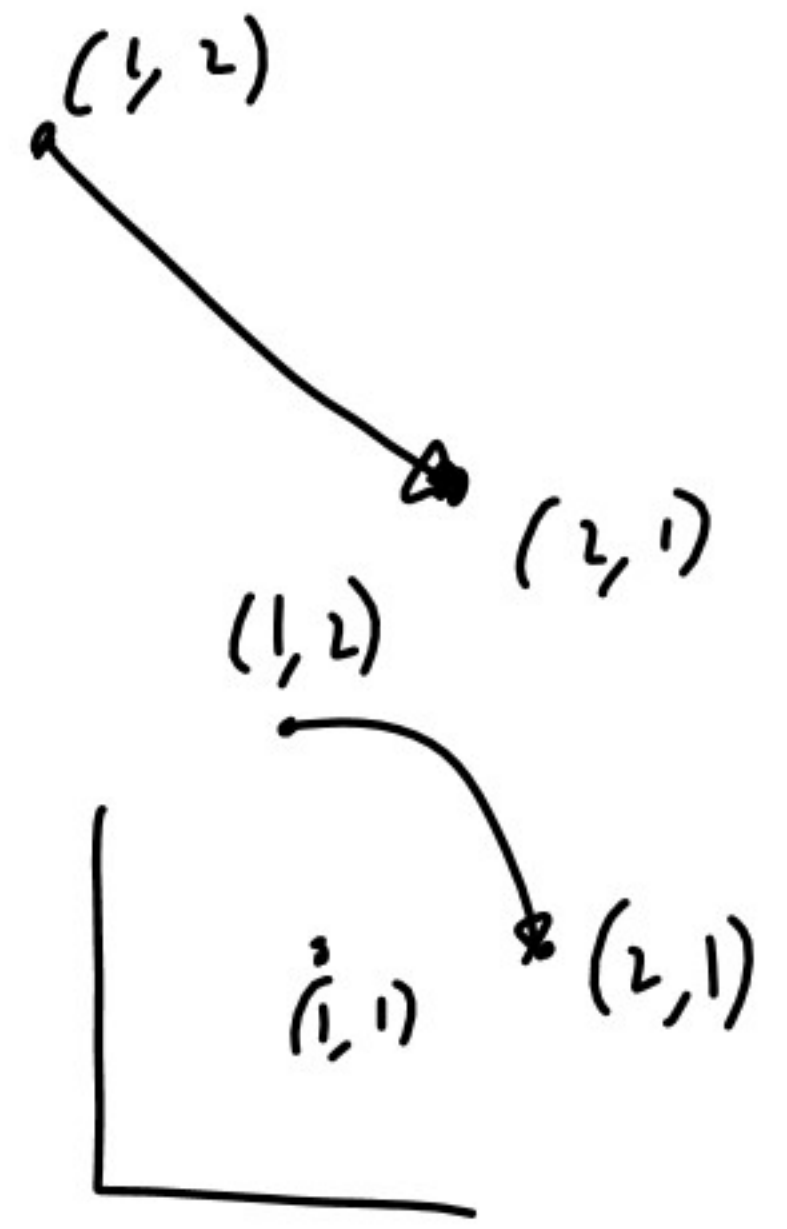
M06 T2

G00 rapid
 G01 linear
 G02 clockwise arc
 G03 counter clockwise arc

G02 X2 Y1 R1
 G02 X2 Y1 I1 J1 F2

G17 } arc plane selection
 G18 } xy
 G19 } zx
 } z

G01 X2 Y1 F2



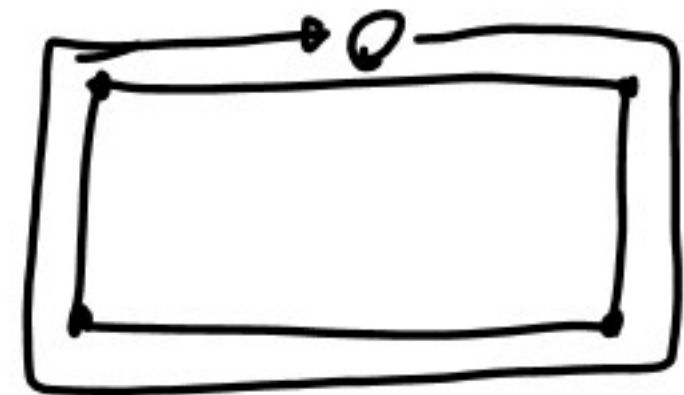
G20 inches

G21 mm

G32/33/34 Threading

G40/41/42/43 tool compensation

G90 absolute
G91 incremental



G54-59 work coordinate systems

G10 L2 P1 X Y Z

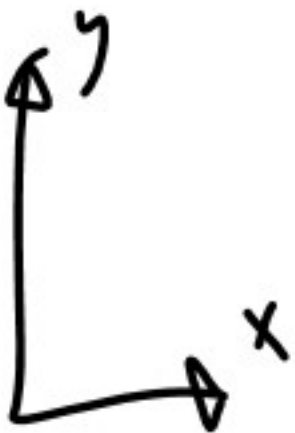
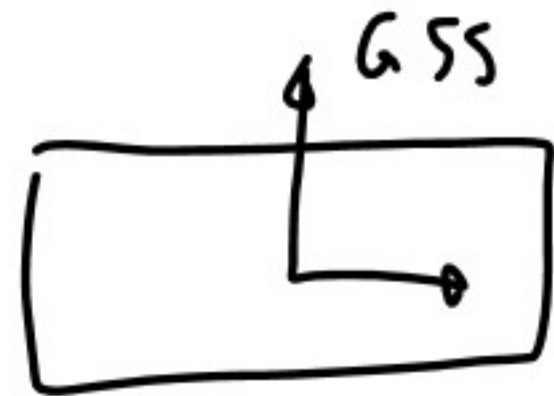
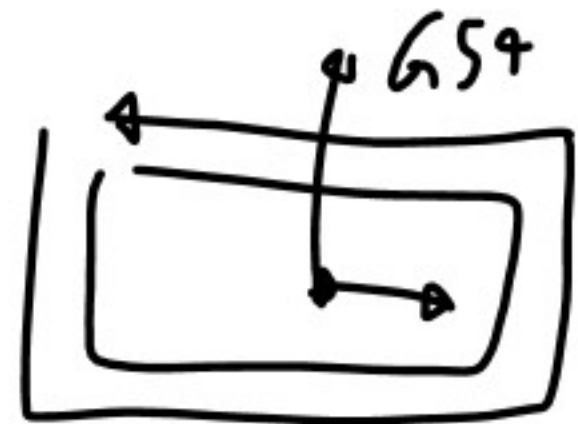
CAD/CAM

Computer

Aided

Manufacturing

Model \rightarrow G code



- ▶ Automatic Screw Machine (<https://youtu.be/ga9T70S1XTg>)
- ▶ Automatic Screw Machine (<https://youtu.be/hCuYuwdV-Rs>)
- ▶ Automatic Screw Machine (<https://youtu.be/vvClb2NL0Do>)
- ▶ CNC Milling (<https://youtu.be/SecY2laMtfs>)
- ▶ CNC Turning (<https://youtu.be/0YJsXMMq24A>)
- ▶ 9 Axis (<https://youtu.be/cUnz8g5vHel>)
- ▶ NC Viewer (<https://ncviewer.com/>)
- ▶ Something Random
(<https://www.tiktok.com/@hoaus7750/video/7154306521000578347>)