PLATE 2

SLIDING DOOR FOR MOVABLE TOOL
DISTRIBUTING STATION

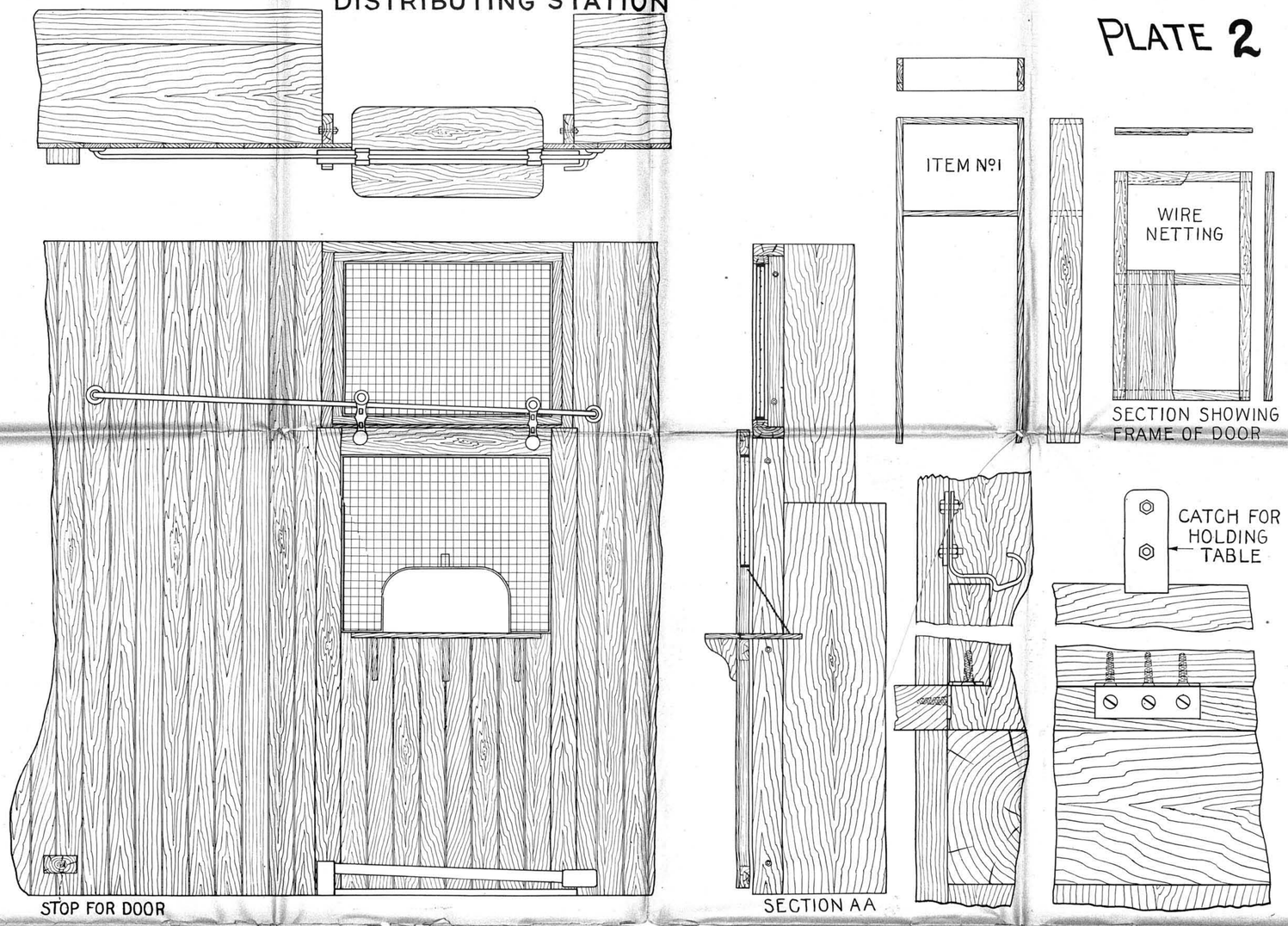


PLATE 15

OLD LAYOUT OF ERECTING SHOP

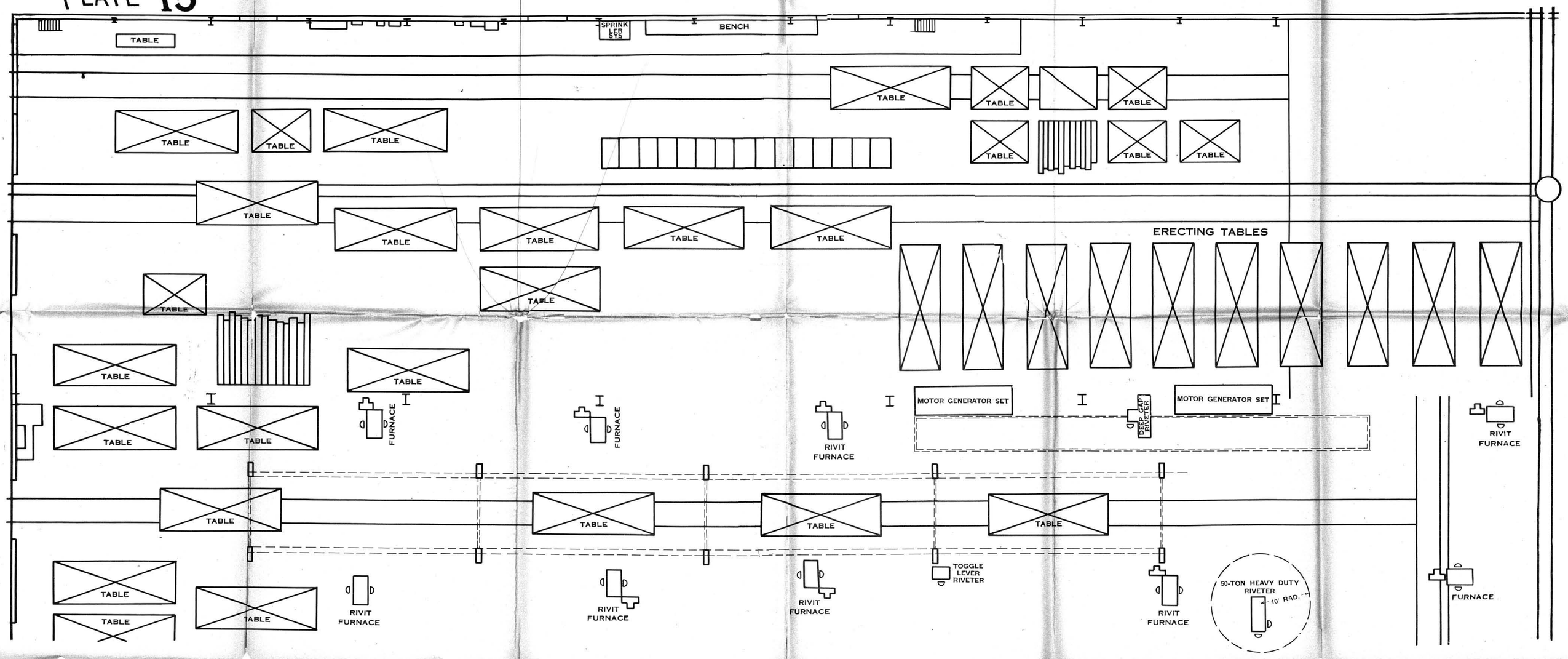


PLATE 3

OLD LAYOUT OF FORGE SHOP

BEFORE THE 5,000 LB. AND 3,000 LB. BRADLEY AND BOARD STEAM HAMMERS, WERE INSTALLED

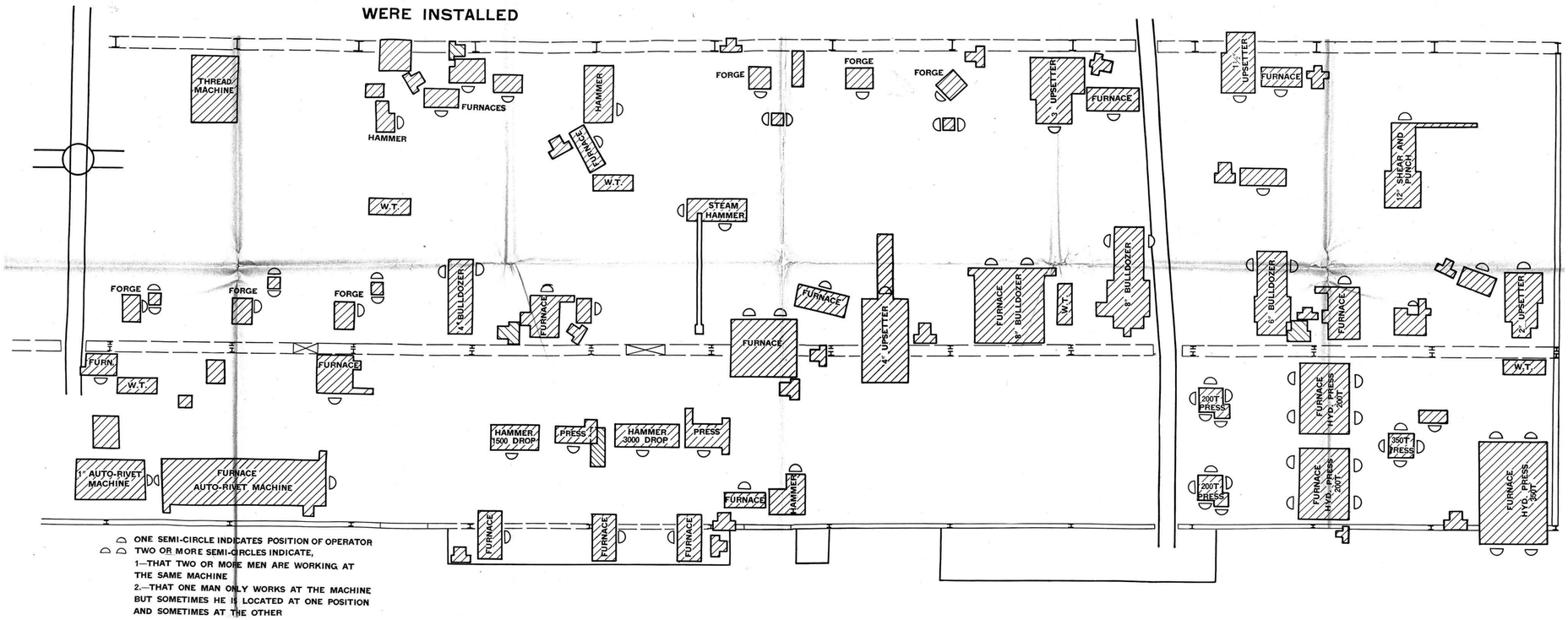
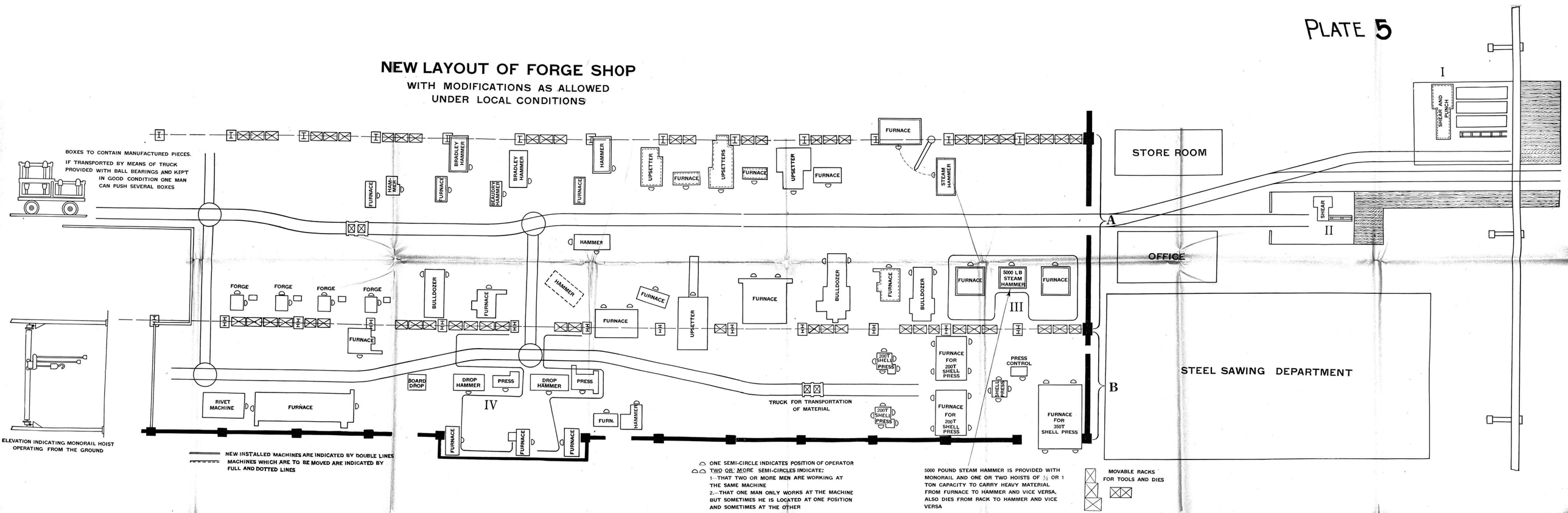


PLATE 5

NEW LAYOUT OF FORGE SHOP

WITH MODIFICATIONS AS ALLOWED UNDER LOCAL CONDITIONS

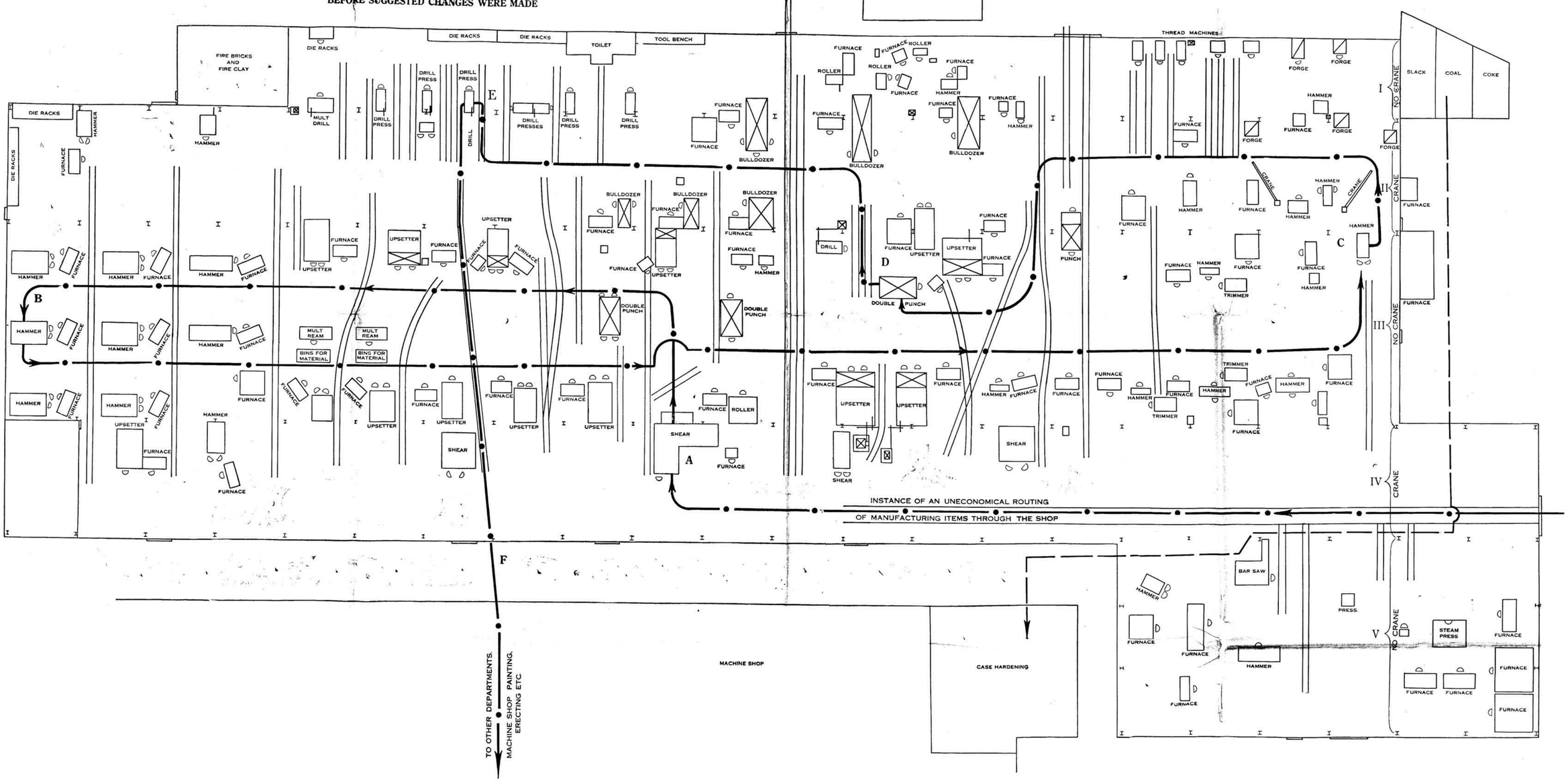


OLD LAYOUT

FORGE DEPARTMENT

BEFORE SUGGESTED CHANGES WERE MADE

PLATE 4



NEW LAYOUT OF FORGE DEPARTMENT

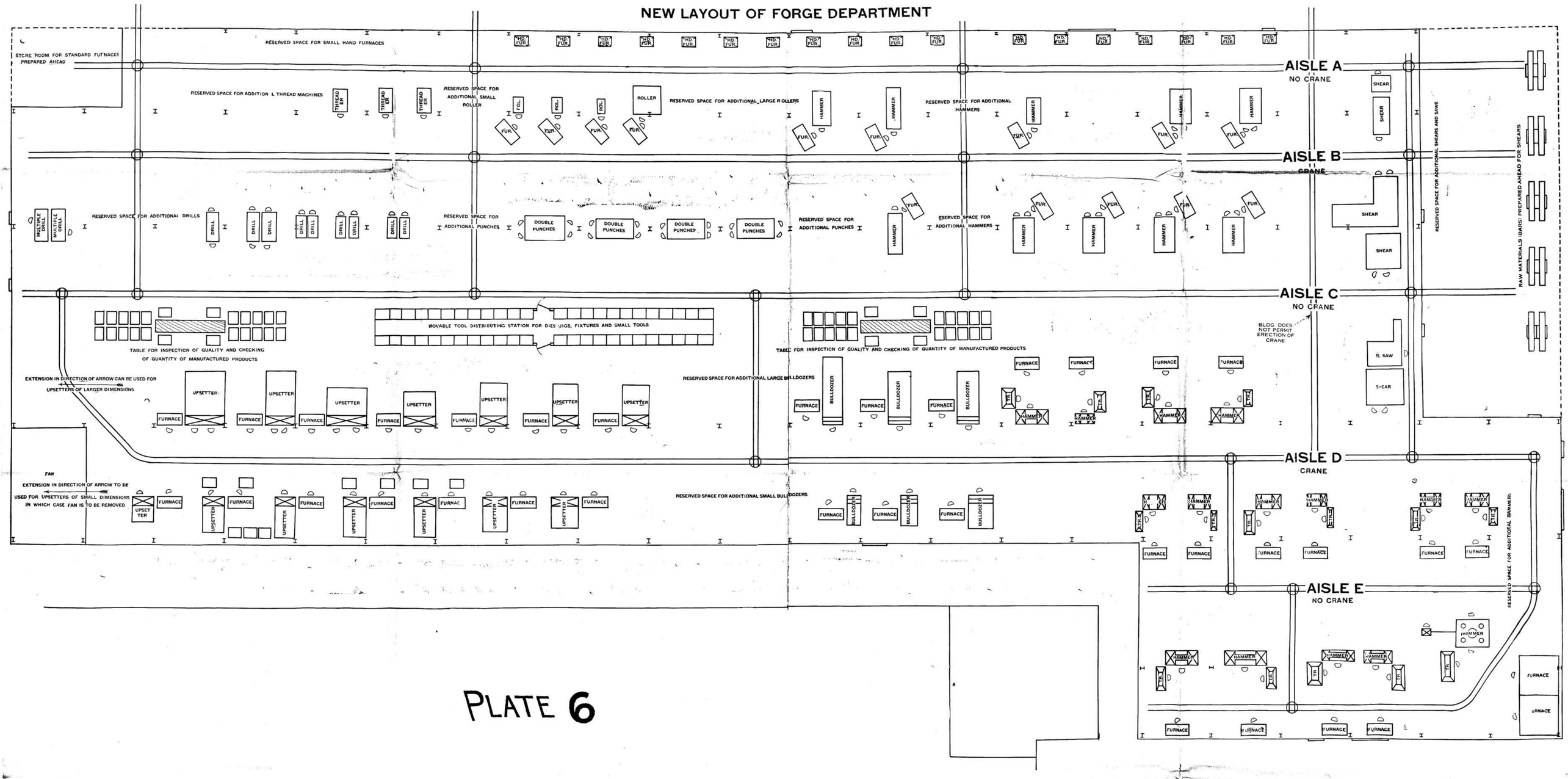
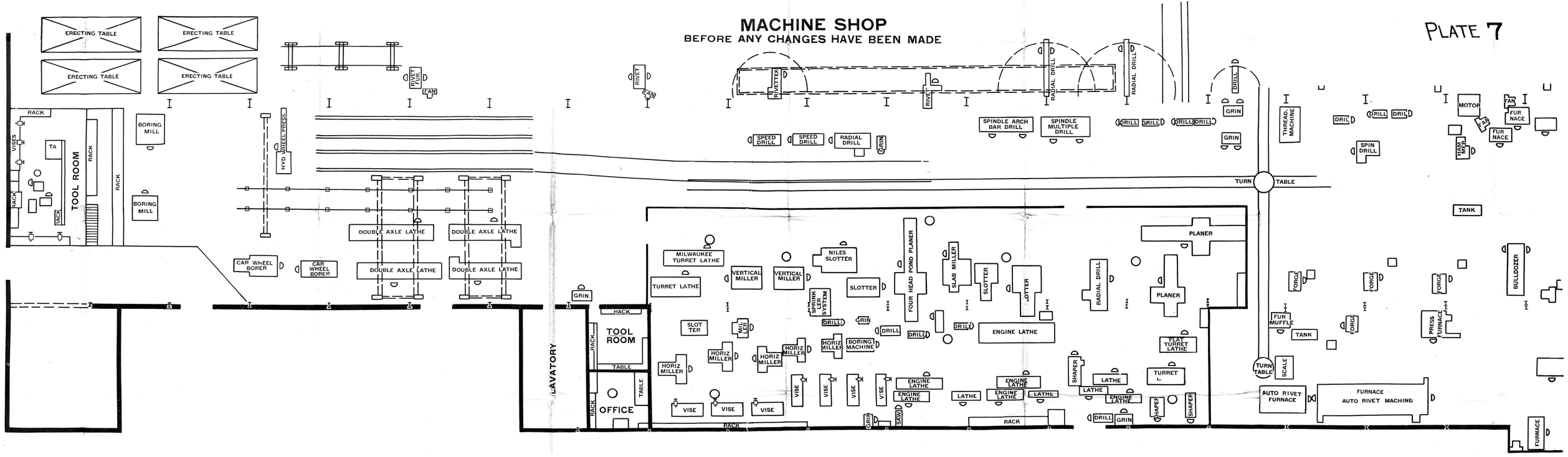


PLATE 6

MACHINE SHOP

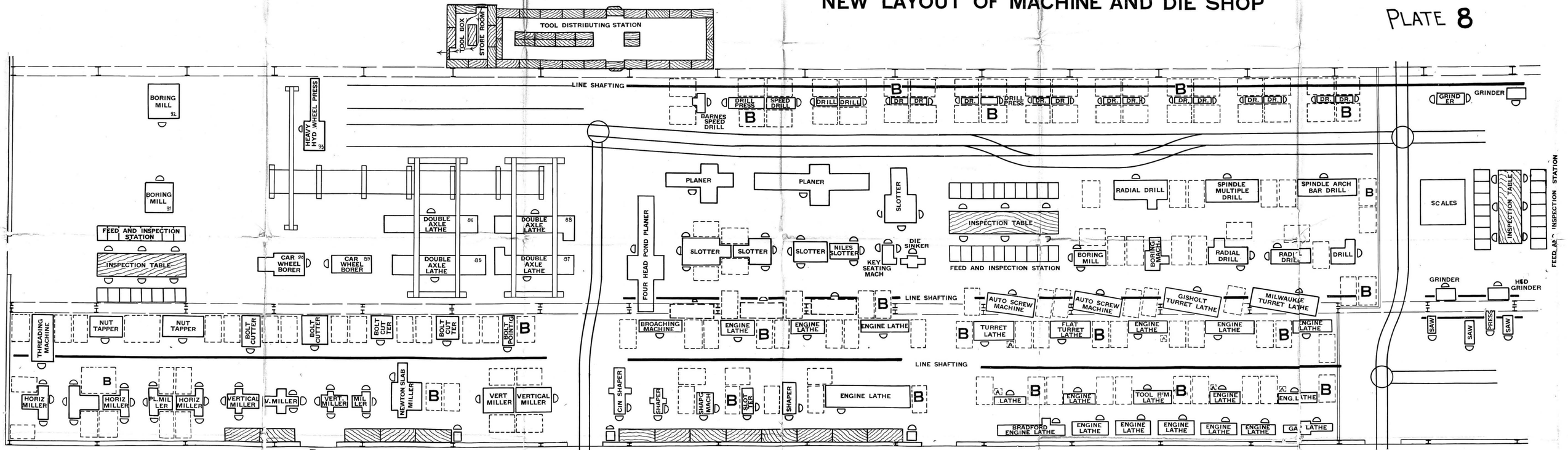
BEFORE ANY CHANGES HAVE BEEN MADE

PLATE 7



NEW LAYOUT OF MACHINE AND DIE SHOP

PLATE 8



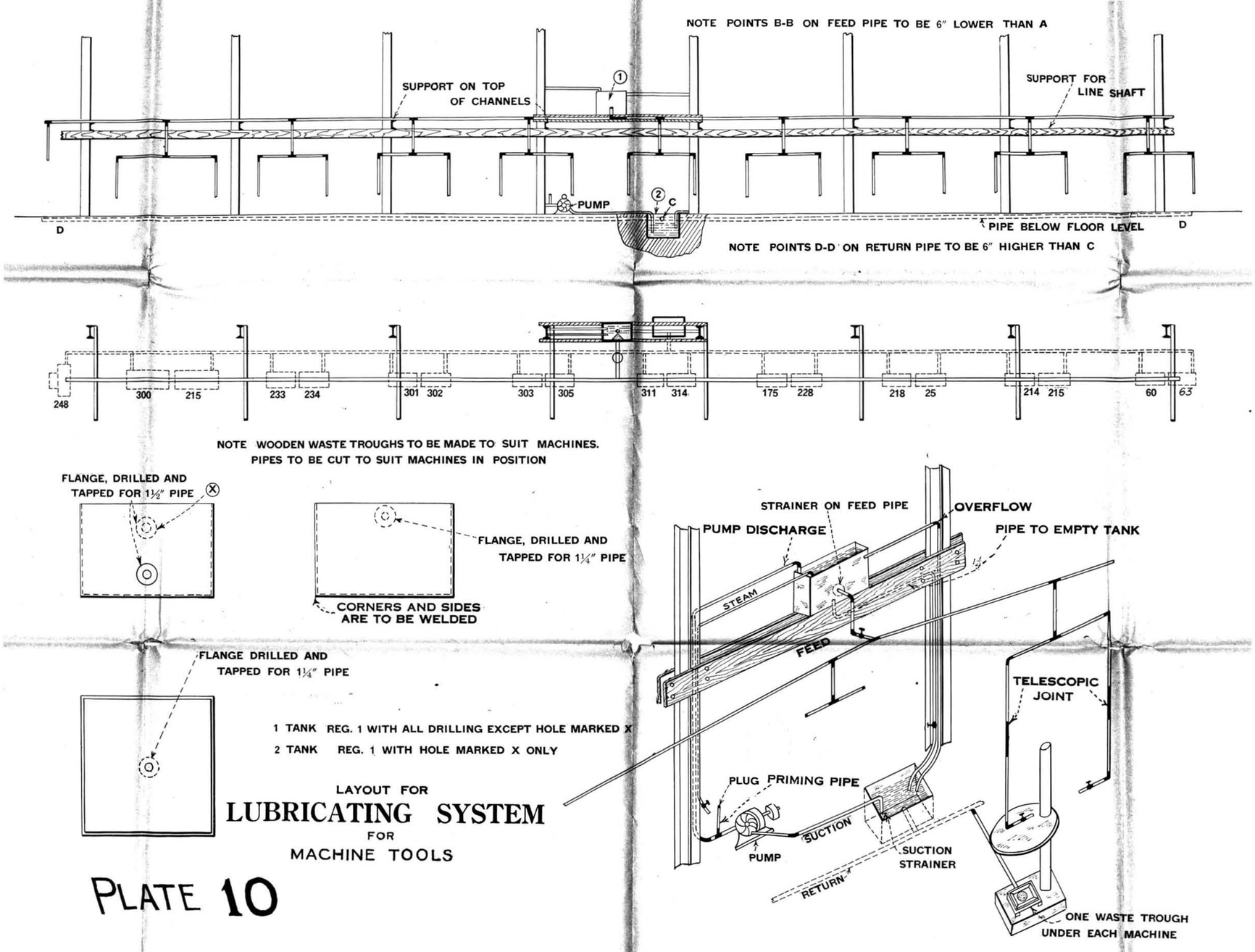
EACH MACHINE PROVIDED WITH SPACE FOR BOXES **B.** ON ONE SIDE OF THE MACHINE THE BOXES CONTAIN WORK TO BE DONE AND WHEN FINISHED WORK WILL BE PLACED IN A BOX ON THE OTHER SIDE OF THE MACHINES.

MACHINES 85, 86, 87, 88, 89, 90, 91, 92, 93 WHICH ARE ON HEAVY FOUNDATIONS WILL REMAIN IN THEIR PRESENT LOCATION.

SEMI-CIRCLE INDICATES WHERE WORKMAN IS LOCATED. WHERE TWO OR MORE SEMI-CIRCLES ARE SHOWN IT INDICATES THAT THERE ARE TWO OR MORE OPERATORS, OR THAT ROOM MUST BE PROVIDED FOR OPERATING AT THE DIFFERENT POINTS.

A. RACKS FOR TOOLS AND DRAWINGS
B. SPACE FOR BOXES TO CONTAIN WORK TO BE DONE AND FINISHED WORK.

MACHINES INDICATED BY DOTTED LINES ARE NOT IN EXISTENCE. SPACE TO BE PROVIDED FOR MACHINES TO BE ADDED.



LAYOUT FOR
LUBRICATING SYSTEM
FOR
MACHINE TOOLS

PLATE 10

LAYOUT OF
SHAFTING AND COUNTER-SHAFTING
FOR
MACHINE SHOP
(OLD AND NEW)

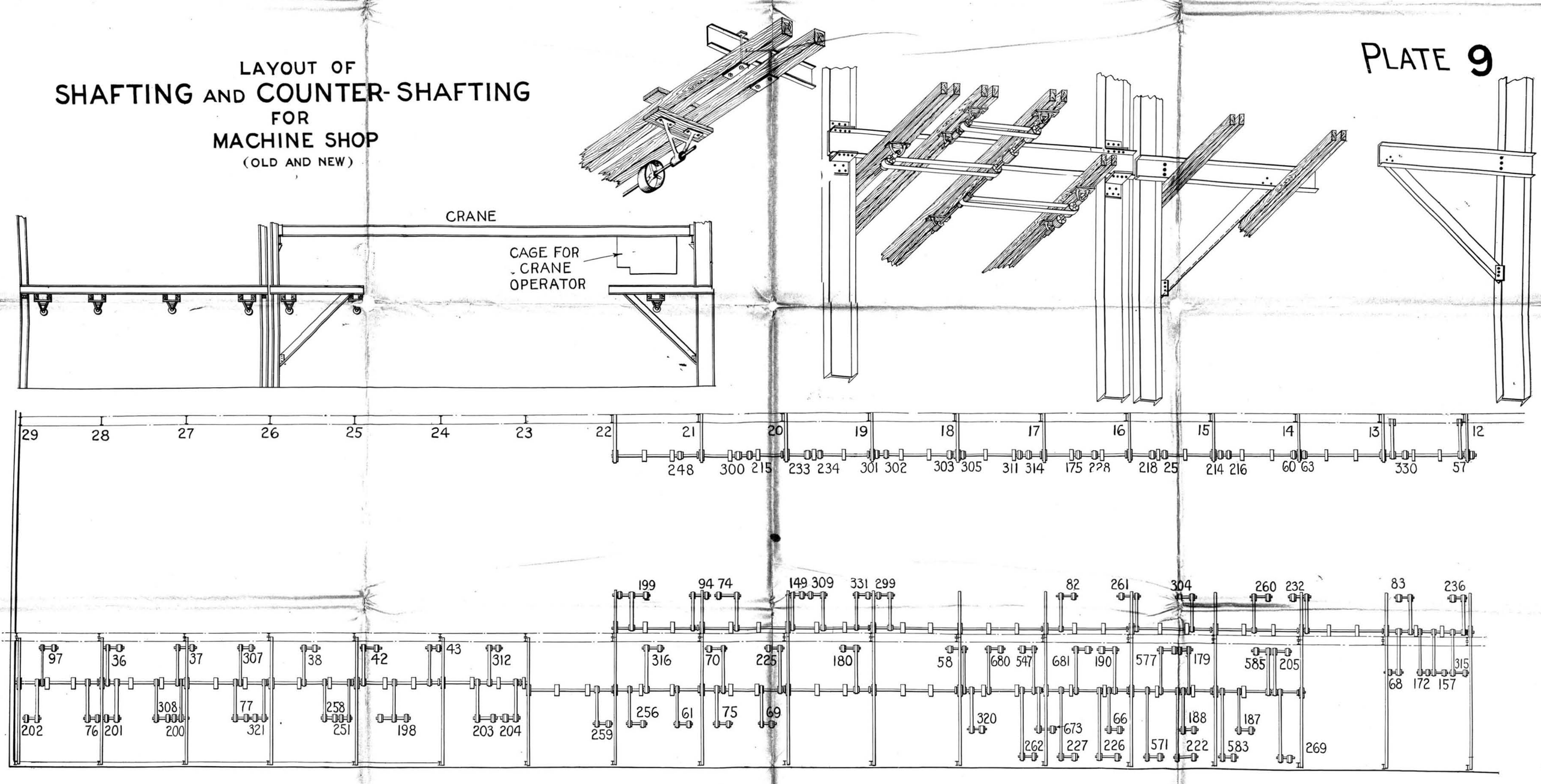
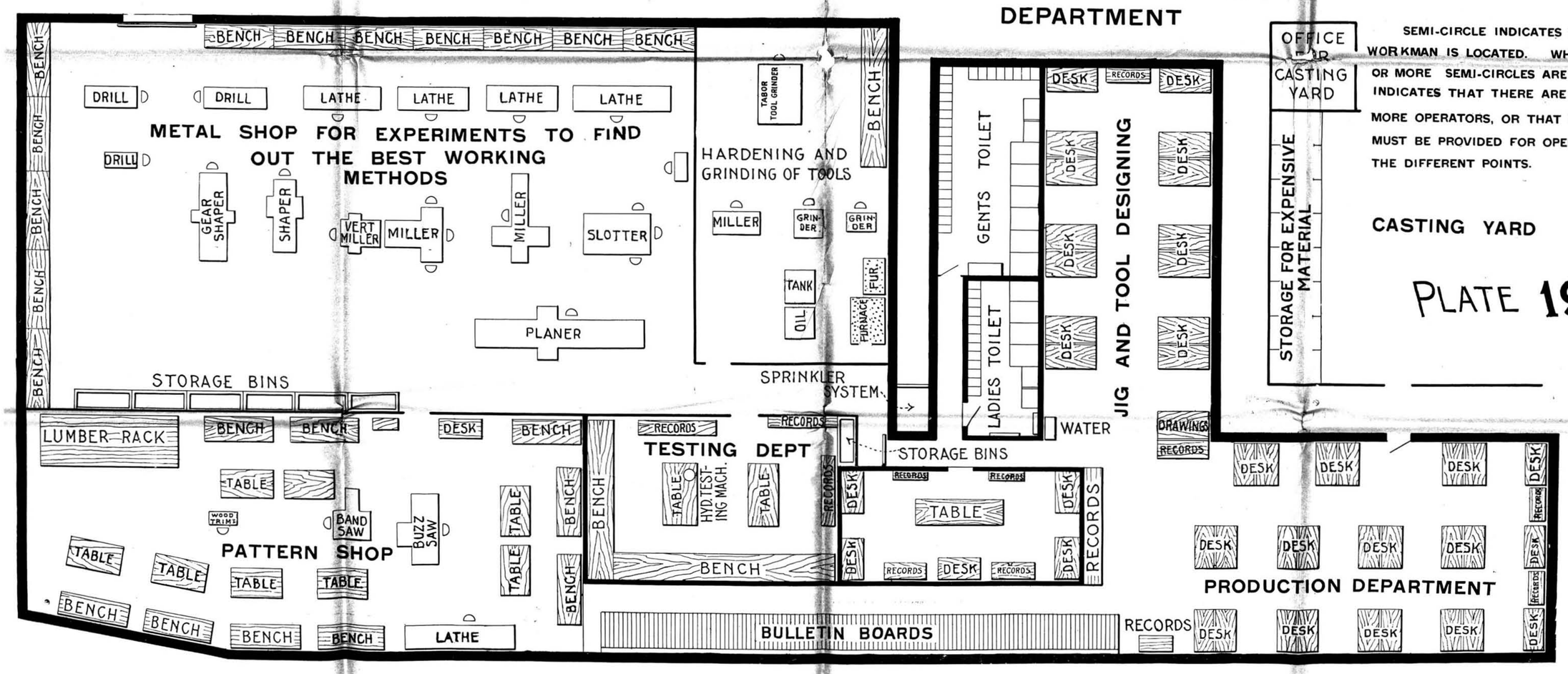


PLATE 9

ENGINEERING AND EXPERIMENTAL DEPARTMENT



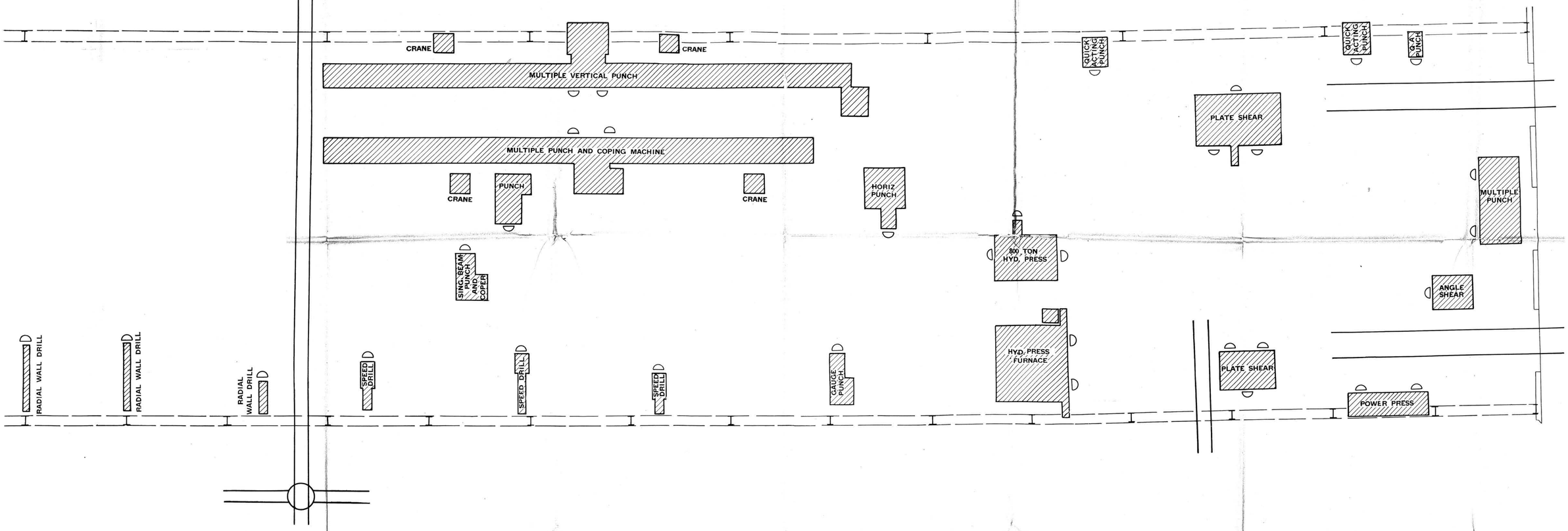
SEMI-CIRCLE INDICATES WHERE WORKMAN IS LOCATED. WHERE TWO OR MORE SEMI-CIRCLES ARE SHOWN IT INDICATES THAT THERE ARE TWO OR MORE OPERATORS, OR THAT ROOM MUST BE PROVIDED FOR OPERATING AT THE DIFFERENT POINTS.

CASTING YARD

PLATE 19

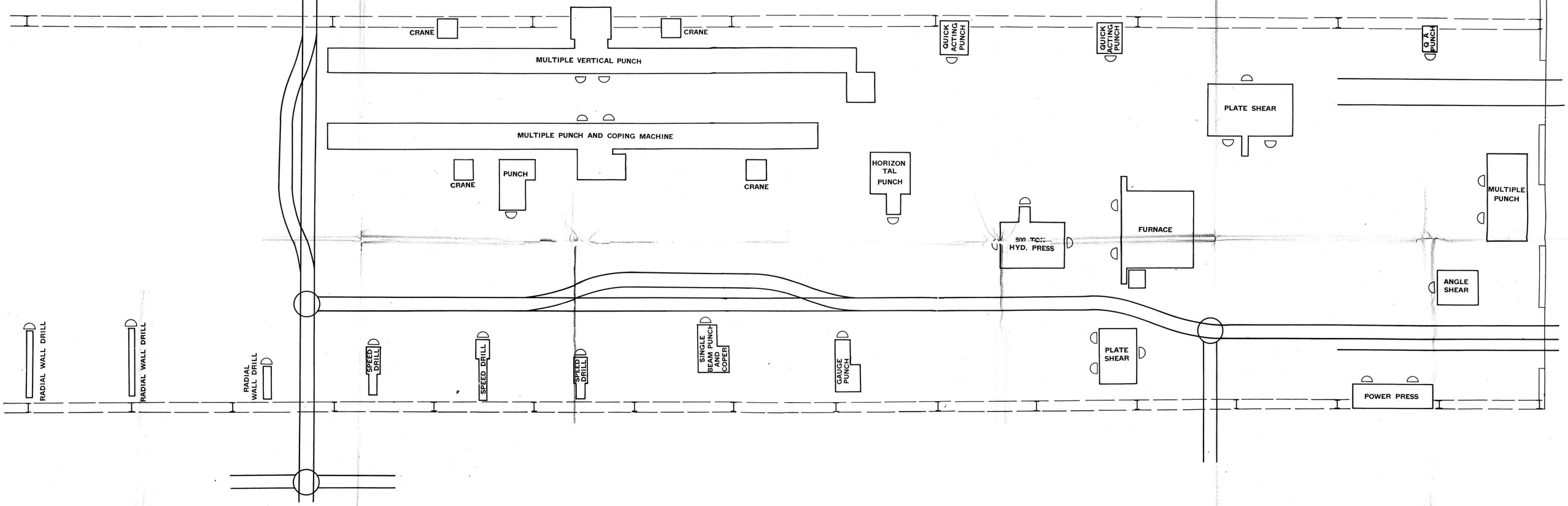
OLD LAYOUT OF STEEL PREPARATION SHOP BEFORE CHANGES WERE MADE

PLATE 11



NEW LAYOUT OF STEEL PREPARATION SHOP.

PLATE 12

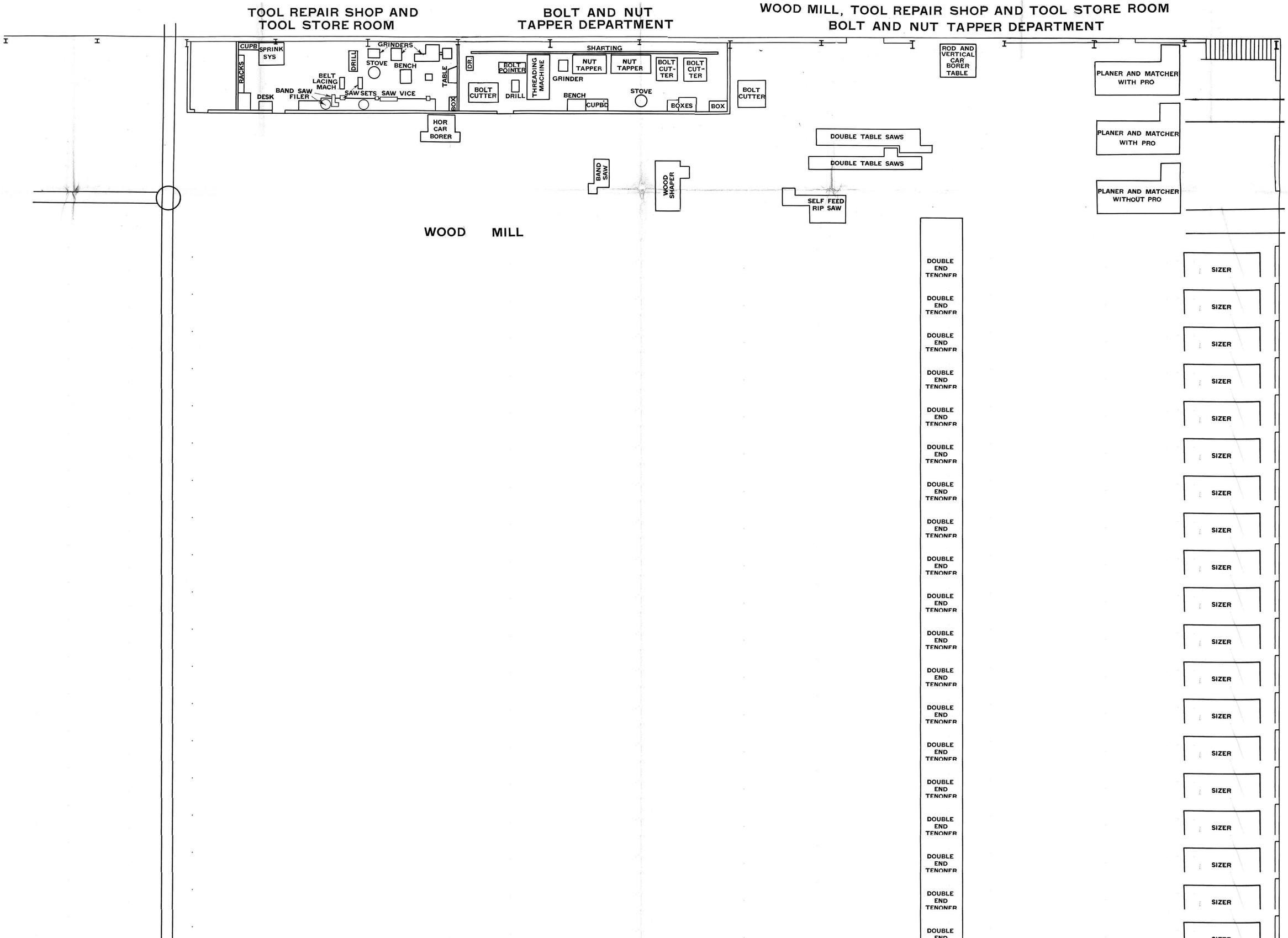


OLD LAYOUT OF WOOD SHOP

SHOWING

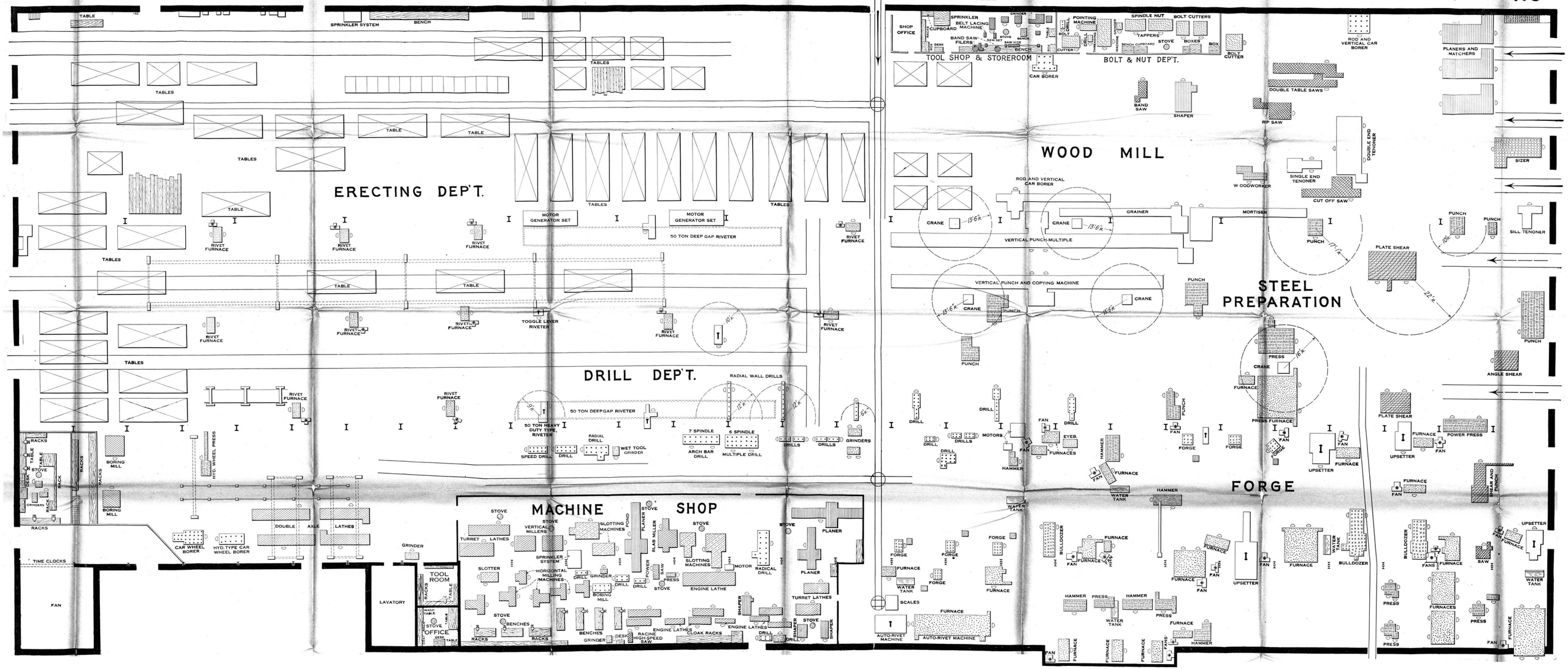
WOOD MILL, TOOL REPAIR SHOP AND TOOL STORE ROOM
BOLT AND NUT TAPPER DEPARTMENT

PLATE 13



OLD GENERAL LAYOUT BEFORE CHANGES

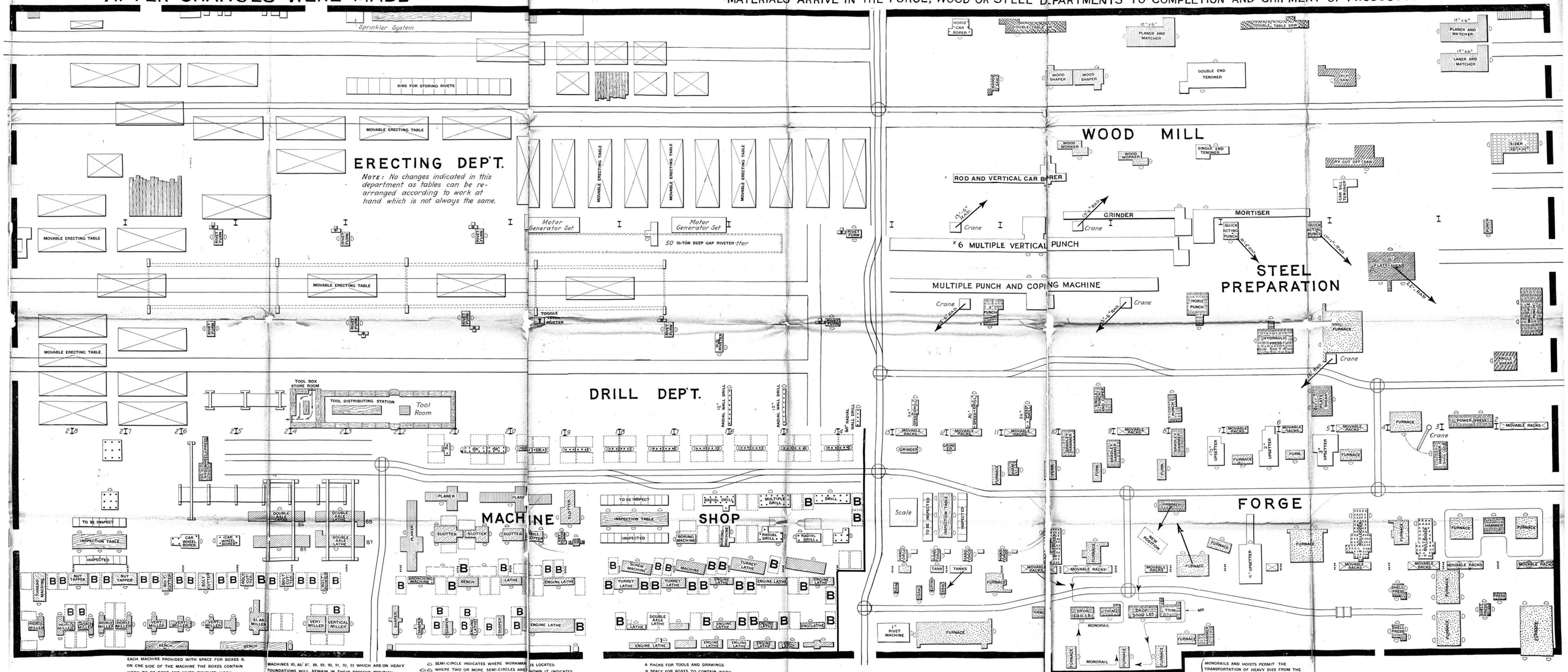
PLATE 20



NEW GENERAL LAYOUT
AFTER CHANGES WERE MADE

ADVANTAGES HAVE BEEN DESCRIBED WHEN CONSIDERING EACH DEPARTMENT SEPARATELY. THE SEQUENCE OF OPERATIONS AND ROUTING OF MATERIALS CAN BE FOLLOWED THROUGHOUT ENTIRE PLANT FROM THE MOMENT RAW MATERIALS ARRIVE IN THE FORGE, WOOD OR STEEL DEPARTMENTS TO COMPLETION AND SHIPMENT OF PRODUCTS.

PLATE 21



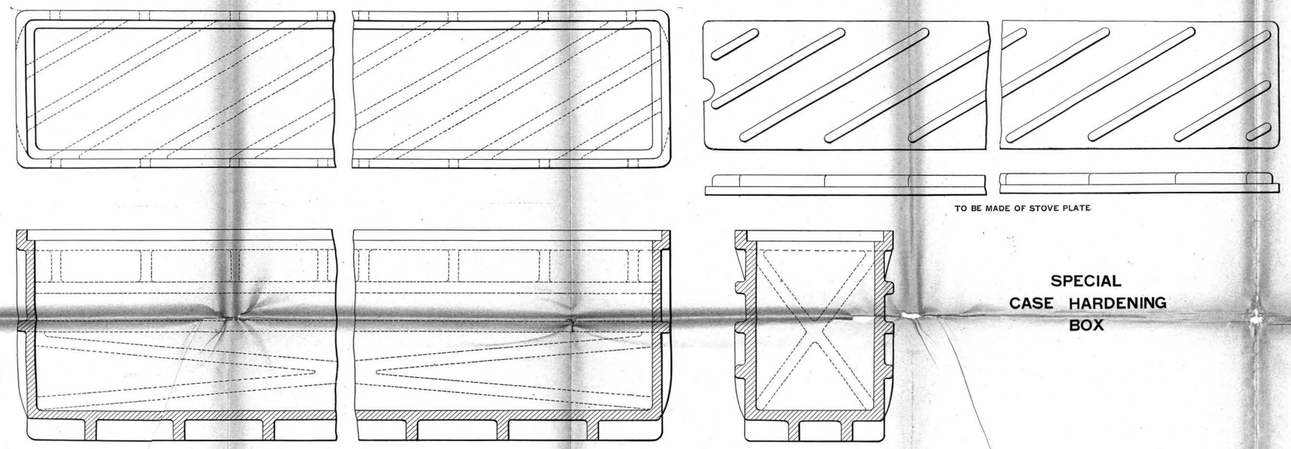
EACH MACHINE PROVIDED WITH SPACE FOR BOXES B. ON ONE SIDE OF THE MACHINE THE BOXES CONTAIN WORK TO BE DONE AND WHEN FINISHED WORK WILL BE PLACED IN A BOX ON THE OTHER SIDE THE MACHINES, EACH MACHINE IS ALSO PROVIDED WITH A RACK, A, IN WHICH TO LOCATE TOOLS. DRAWINGS. ETC.

MACHINES 85, 86, 87, 88, 89, 90, 91, 92, 93 WHICH ARE ON HEAVY FOUNDATIONS WILL REMAIN IN THEIR PRESENT POSITION

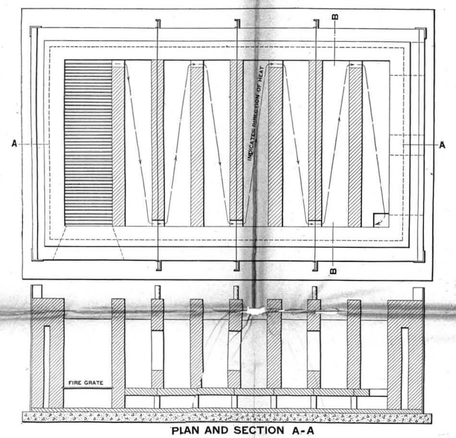
SEMI-CIRCLE INDICATES WHERE WORKMAN IS LOCATED. WHERE TWO OR MORE SEMI-CIRCLES ARE SHOWN IT INDICATES THAT THERE ARE TWO OR MORE OPERATORS, OR THAT ROOM MUST BE PROVIDED FOR OPERATING AT THE DIFFERENT POINTS

A RACKS FOR TOOLS AND DRAWINGS
B SPACE FOR BOXES TO CONTAIN WORK TO BE DONE AND FINISHED WORK
MACHINES INDICATED BY DOTTED LINES ARE NOT IN EXISTENCE. SPACE TO BE PROVIDED FOR MACHINES TO BE ADDED

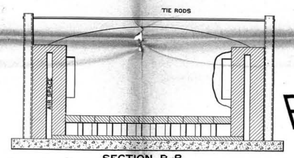
MONORAILS AND HOISTS PERMIT THE TRANSPORTATION OF HEAVY DIES FROM THE MOVABLE RACKS TO THE HAMMERS AND CONVERSELY; ALSO HEAVY FORGINGS FROM THE FURNACES TO THE HAMMERS, ETC.



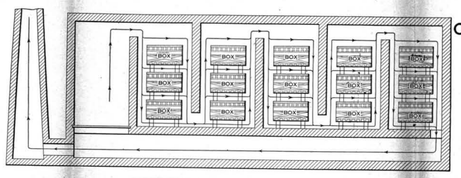
SPECIAL
CASE HARDENING
BOX



PLAN AND SECTION A-A



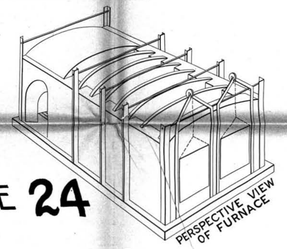
SECTION B-B



DISTRIBUTION OF HEAT
AROUND BOXES

SPECIAL
CASE HARDENING FURNACE
FOR
LARGE OUTPUT

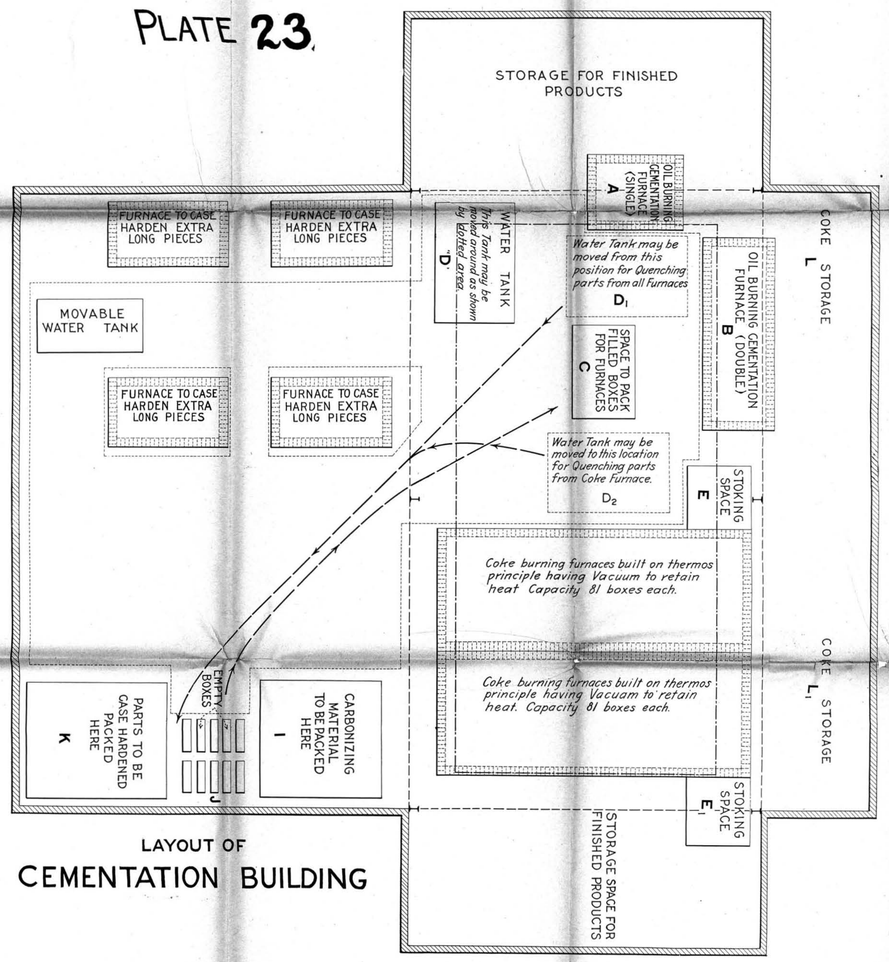
REMOVABLE
ARCH SECTION



PERSPECTIVE VIEW
OF FURNACE

PLATE 24

PLATE 23



LAYOUT OF
CEMENTATION BUILDING

PLATE 25

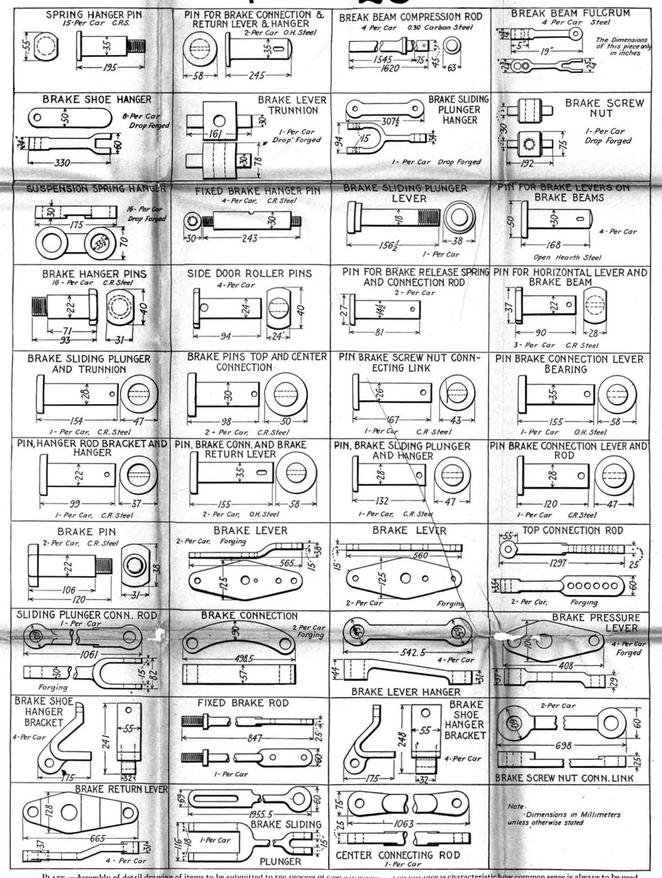


PLATE.—Assembly of detail drawing of items to be submitted to the process of case hardening. This instance is characteristic how common sense is always to be used. Although as I said before, only one item as a general rule, should be given on a drawing, however this drawing contains many detail sketches and yet I give it as a good instance to be followed. Why? To understand this it is necessary to remember that we have ***always to bear in mind, the purpose*** (or the goal) ***to be reached in every case.*** I will prove the utility of putting many items on the same drawing in the following manner:—The 39 items to be case hardened and here represented belong to a freight car. The French Government, when giving an order of freight cars to an American Company sends hundreds of drawings giving the various items comprising the car. The 39 items to be case hardened have been given in at least 39 different drawings which (in their turn) have been spread over hundreds of drawings. Thus when they wanted to know which items have to be case hardened, they had to search in piles of drawings, thus, besides loss of time and money, mistakes occurred constantly. The value of my advanced system in this particular case appears very clearly now. ***One drawing only gives all the information.***

WELDING DEPT.
SHOWING
POSITION AND ROUTINE OF
MATERIALS

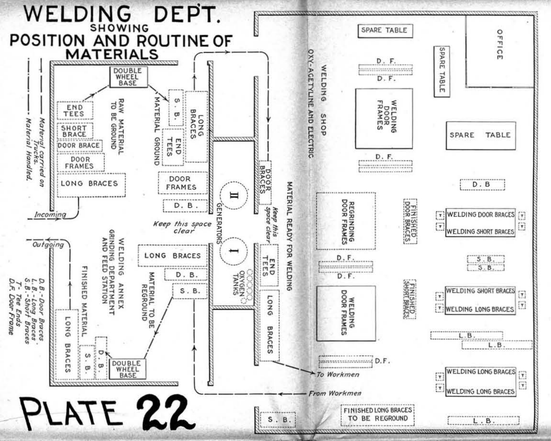


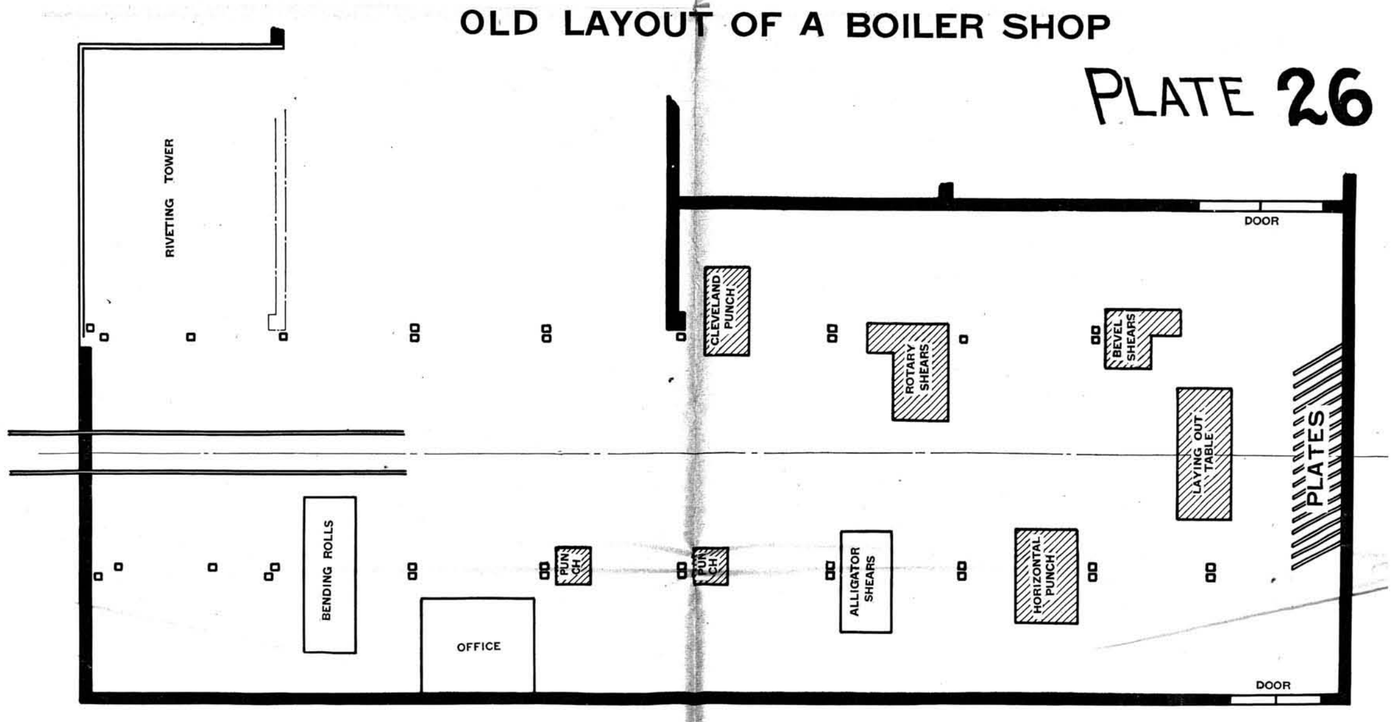
PLATE 22

NO. OF MACH	NAME OF MACHINE AND MAKE	CAPACITY	DRIVE	H.P.	SPACE REQUIRED: MACHINE	SPACE REQUIRED: WORK	ALLOTTED TIME PER MACHINE PER DAY OF CURRENT JOBS BUSY PER DAY IN HOURS: STEEL SHELL EVAPORATORS HOURS	STEEL SHELL EVAPORATORS REMARKS	BRONZE SHELL EVAPORATORS HOURS	BRONZE SHELL EVAPORATORS REMARKS	GALVANIZED SHELL EVAPORATORS HOURS	GALVANIZED SHELL EVAPORATORS REMARKS	MISCELLANEOUS HOURS	MISCELLANEOUS REMARKS	TOTAL HOURS
1	HORIZONTAL PUNCH		SHAFT	7½	7' x 10½	6 x 24	6		2¼		2¼		1½		12
2	ALLIGATOR SHEARS		SHAFT		6' x 12'	8 x 12	2½		0		1		2		5½
3	ROTARY SHEARS		MOTOR	7½	6½ x 12'		5		1		1		1		8
4	CLEVELAND PUNCH		MOTOR	10	5 x 10	6 x 12 PLATE 30 L.	2½		½		½		3		7½
5	BEVEL SHEARS	¾" PLATE	MOTOR	7½	5 x 7	12 x 12	2½		1		½		0		4
6	VERTICAL PUNCH	¾" HOLES ½" PLATE	SHAFT	3	4 x 4	4 x 12	6		2½		1½		2		12
7	VERTICAL PUNCH						4½			RES.		RES.		RES.	4½
8	BENDING ROLLS		SHAFT		19 x 6	15 RAD.	4½		1½		1½		2		9½
9	LAYING OUT TABLE				8 x 12	12' EACH SIDE	9		1		1		2		13
10	LAYING OUT TABLE				6 x 12	12' EACH SIDE	9			RES.		RES.		RES.	9
11	WORK TABLE														
12	LARGE BULL RIVETER		AIR		12 x 12	12 x 16	9		0		2		0		11
13	SMALL BULL RIVETER		AIR		8 x 12	8 x 16	2½		4		0		2		8½
14	6 FT. RADIAL DRILL		SHAFT		4 x 14	6" RAD.	9		1½		5		2	RES.	17½
15	6 FT. RADIAL DRILL		SHAFT		7 x 11	8" RAD.	9			RES.		RES.		RES.	9
16	6 FT. RADIAL DRILL		SHAFT		6½ x 12	8" RAD.	6			RES.		RES.			6
17	FLANGE FIRE		MOTOR BLAST	2½	4 x 8	10 x 22	9		1		3		3		13
18	FLANGE FIRE		MOTOR BLAST	2½	4 x 8	10 x 22	0			RES.		RES.		RES.	
19	FLANGE FIRE		MOTOR BLAST	2½	4 x 8	10 x 22		RESERVE		RES.		RES.		RES.	
20	FORGE FIRE		MOTOR BLAST	2½	3 x 6	8 x 12	6		1		3		2		12
21	LATHE		SHAFT		3 x 12	6 x 20		RES.		RES.		RES.		RES.	
22	30 x 30 x 12 PLANER		SHAFT			10 x 18		RES.		RES.		RES.		RES.	
23	23" UPRIGHT DRILL		SHAFT			5' RAD.	6				1		2		9½
24	GRINDING WHEEL														
25	GRINDING WHEEL														
26	BRAKE CLAMPS														
27	ACETYLENE GEN.														
28	ELECTRIC SET														
29	AIR COMPRESSOR														
30	BOILER														

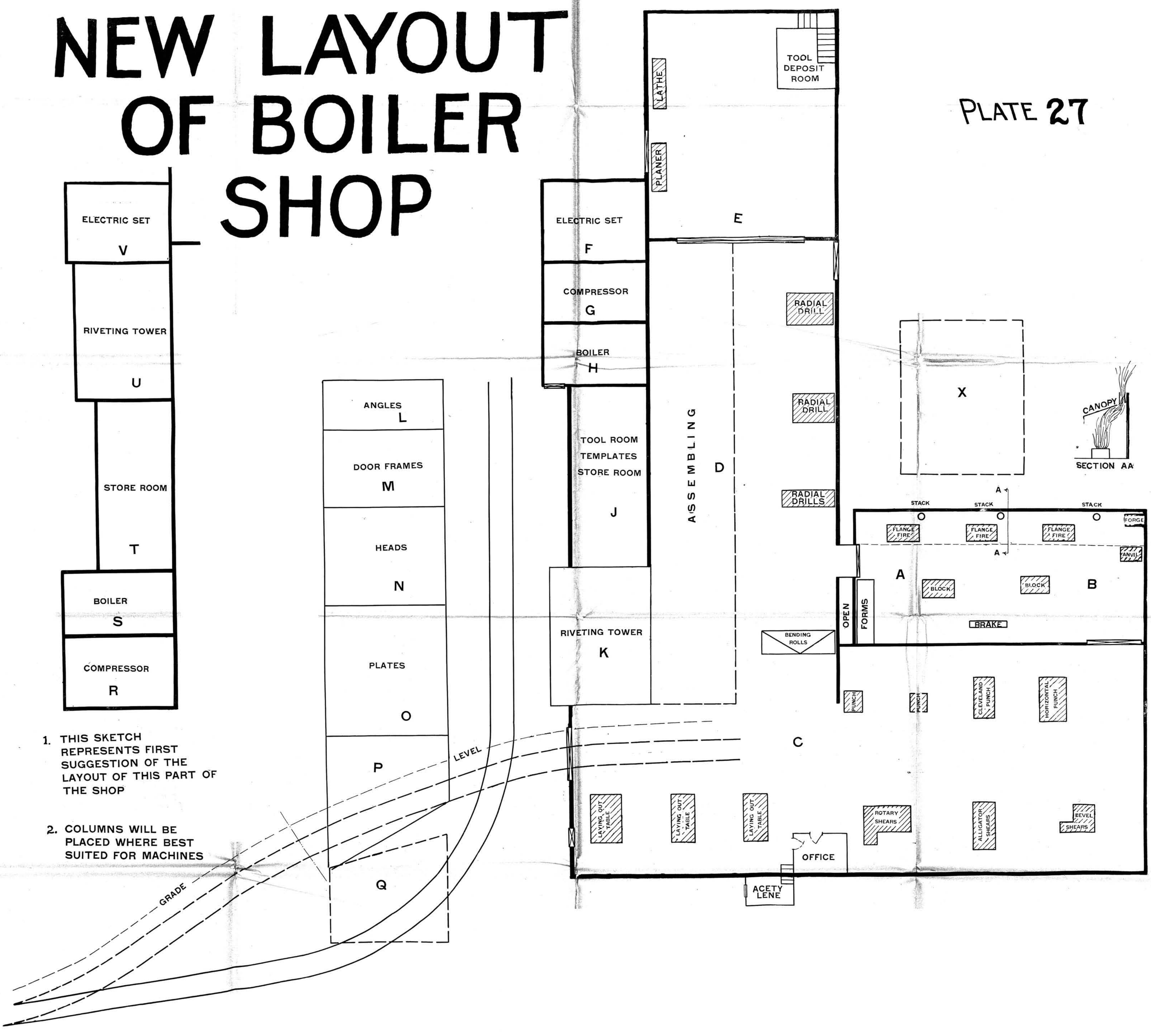
PLATE 28

OLD LAYOUT OF A BOILER SHOP

PLATE 26



NEW LAYOUT OF BOILER SHOP



1. THIS SKETCH REPRESENTS FIRST SUGGESTION OF THE LAYOUT OF THIS PART OF THE SHOP

2. COLUMNS WILL BE PLACED WHERE BEST SUITED FOR MACHINES

PLATE 27

PLATE 29

OLD LAYOUT OF FIRST FLOOR

SHOWING

WOOD DEPARTMENT AND
RUBBER DEPARTMENT

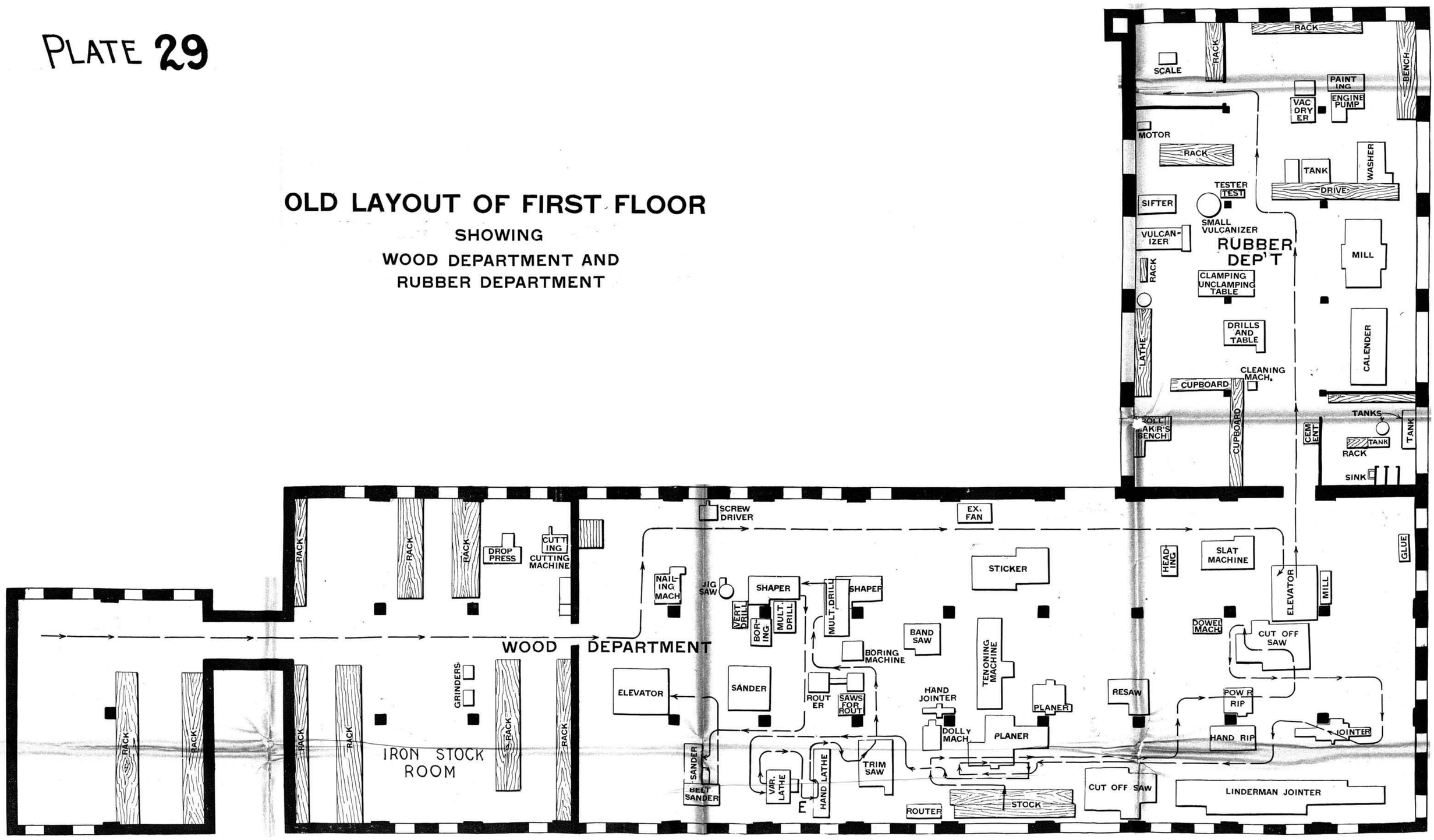


PLATE 32

NEW LAYOUT OF FIRST FLOOR

SHOWING

WOOD DEPARTMENT AND
RUBBER DEPARTMENT

THIS INDICATES WHERE WORKMAN IS LOCATED. WHERE TWO OR THREE SEMI-CIRCLES ARE SHOWN IT INDICATES THAT EITHER TWO OR THREE WORKMEN ARE NECESSARY, OR THAT ONE WORKMAN MUST BE PROVIDED WITH ROOM TO OPERATE AT THE DIFFERENT POINTS.

THIS INDICATES COLUMNS SUPPORTING FLOOR

MACHINES INDICATED BY DOTTED LINES ARE NOT IN EXISTENCE. SPECIAL STUDY WILL DETERMINE IF IT IS NECESSARY TO BUY

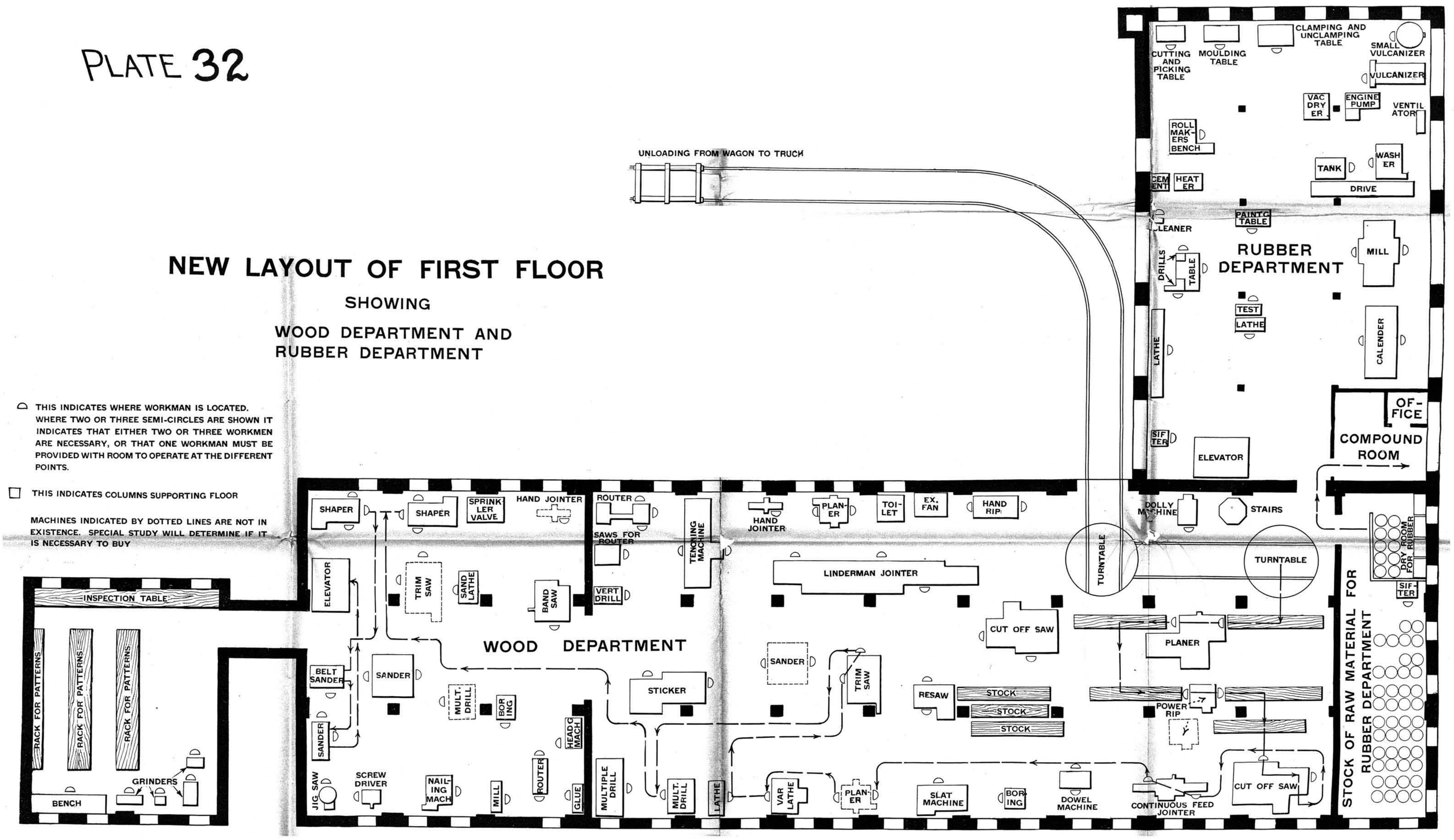


PLATE 30

OLD LAYOUT OF SECOND FLOOR

SHOWING

LOCATION OF MACHINES, STORAGE
SHIPPING DEPARTMENT, OFFICE,
TUB AND ROUND MACHINERY
ASSEMBLING DEPARTMENT
IRON WORKING DEPARTMENT.

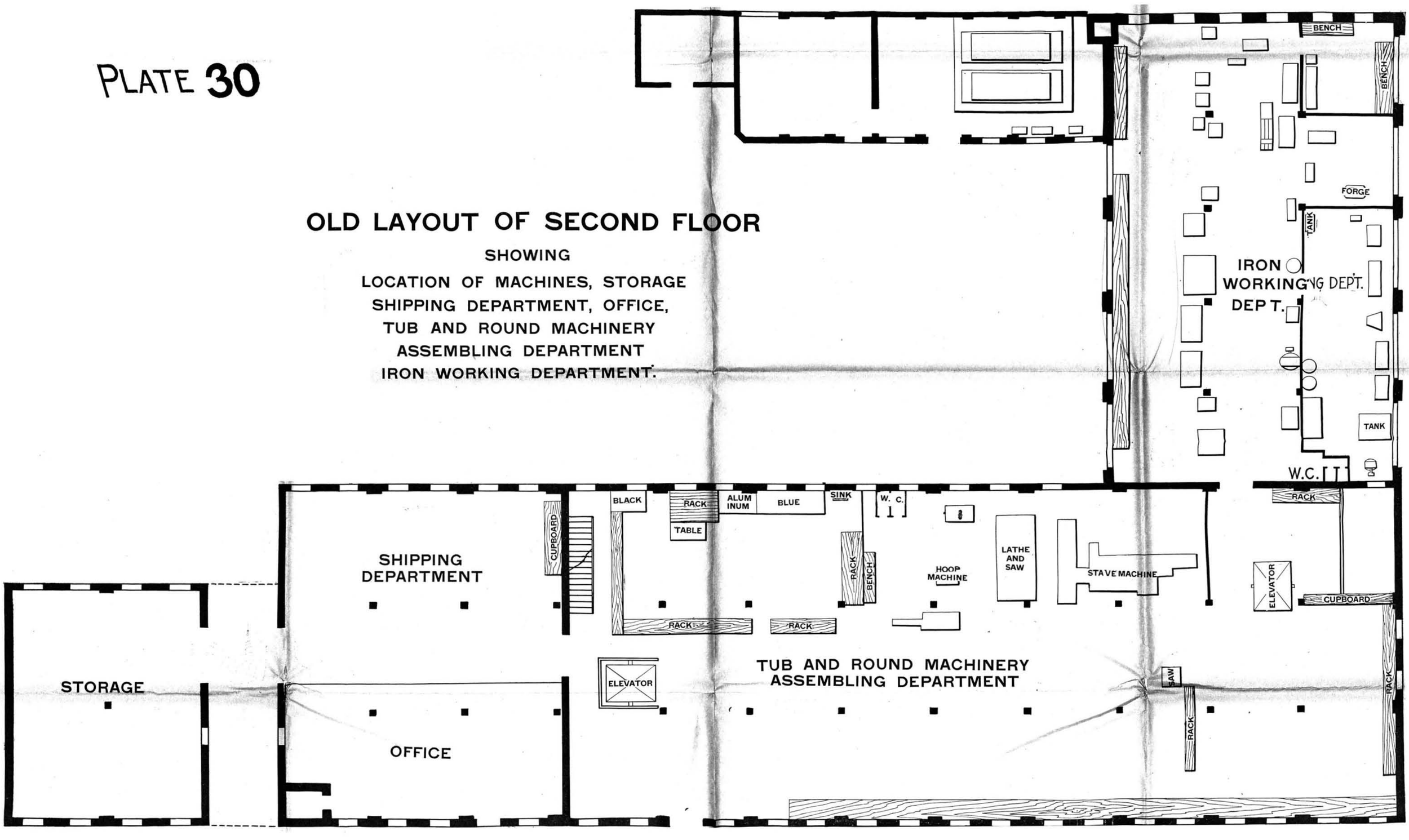


PLATE 33

NEW LAYOUT OF SECOND FLOOR

SHOWING

STORAGE OF RAW MATERIAL, SEMI-FINISHED
AND FINISHED WOOD AND METAL PARTS,
METAL DEPARTMENT, TUB MAKING DEPARTMENT,
AND PLATING DEPARTMENT.

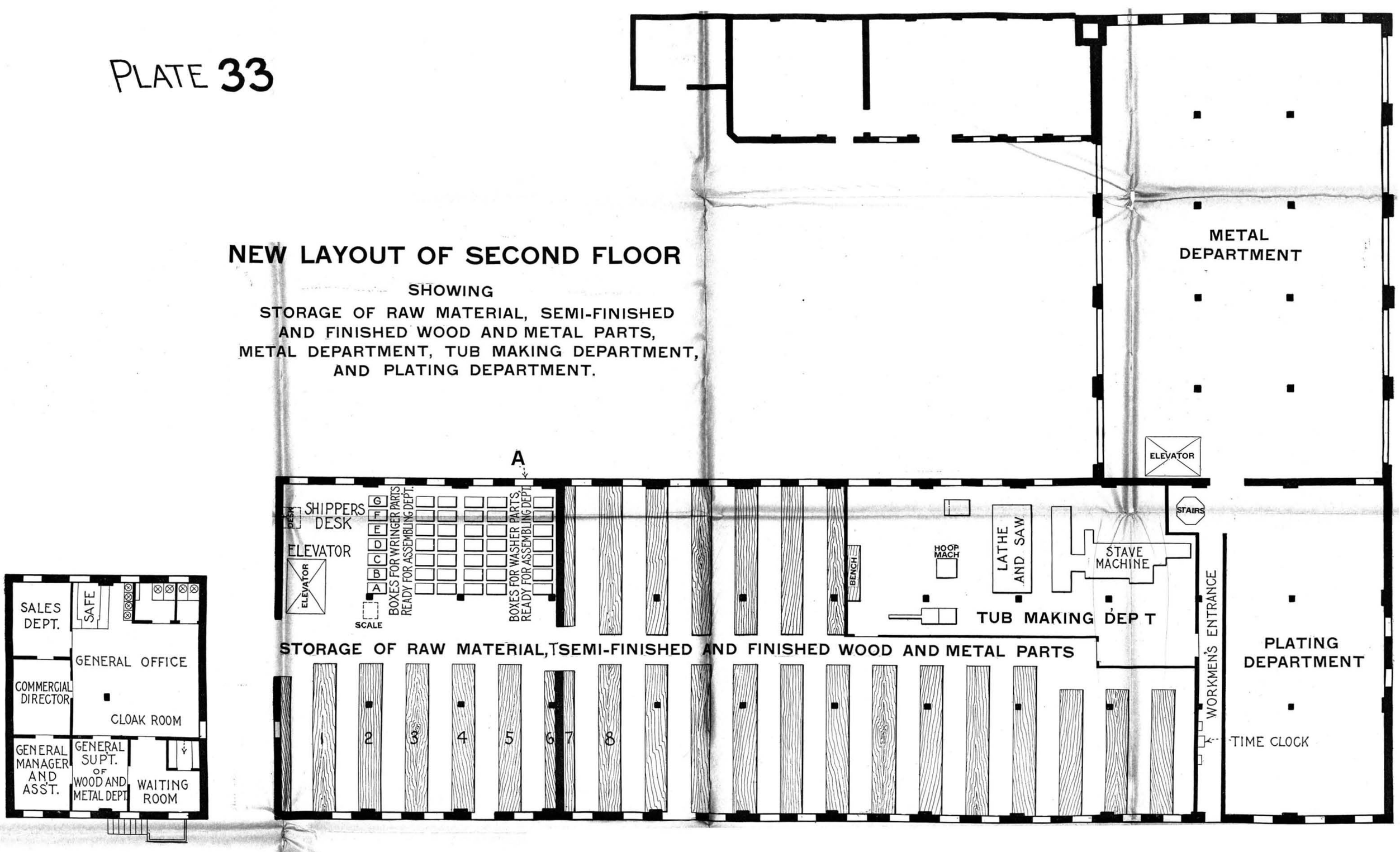


PLATE 31

OLD LAYOUT OF THIRD FLOOR

SHOWING

WRINGER ASSEMBLING DEPARTMENT

AND SQUARE MACHINERY ASSEMBLING

DEPARTMENT

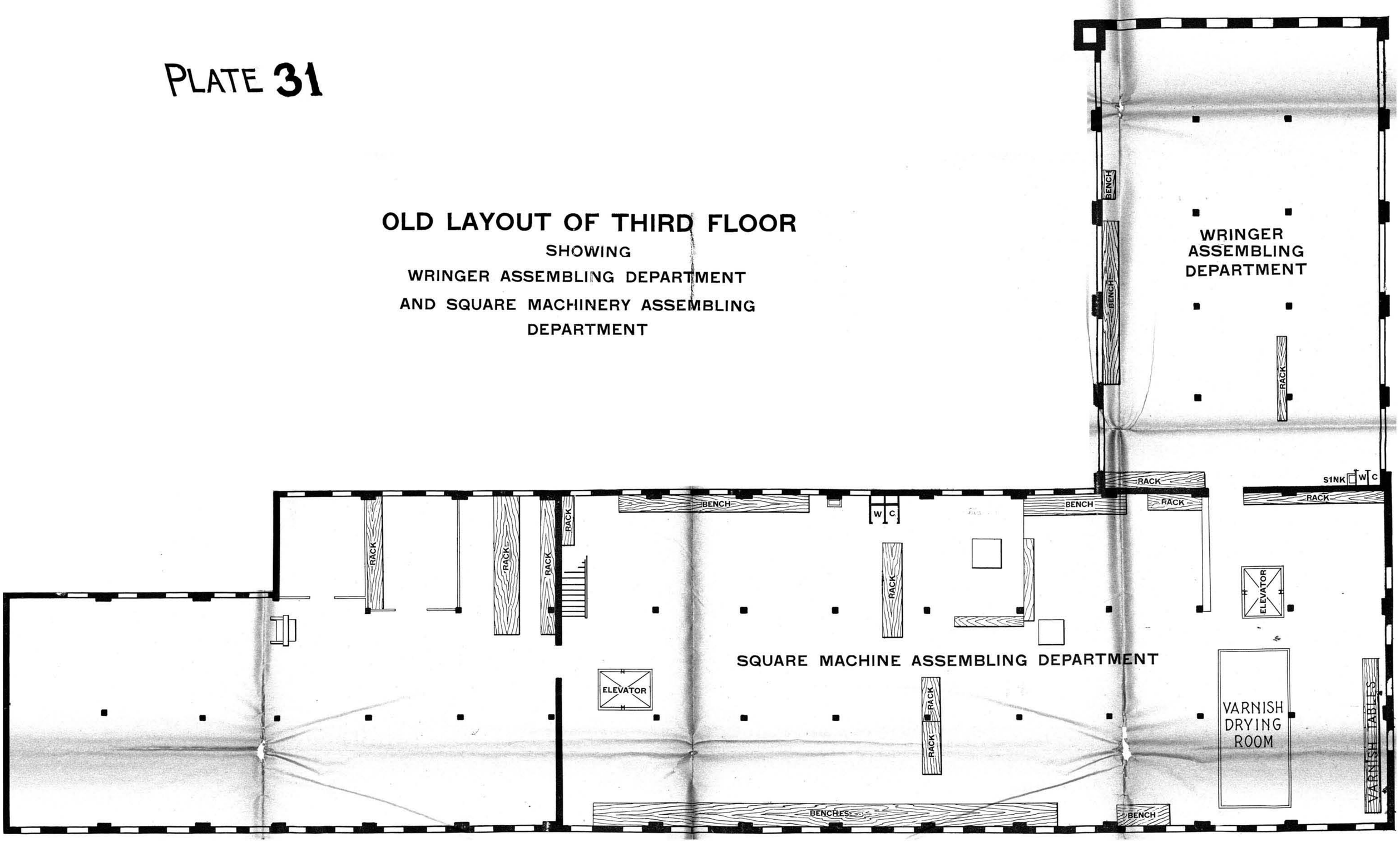
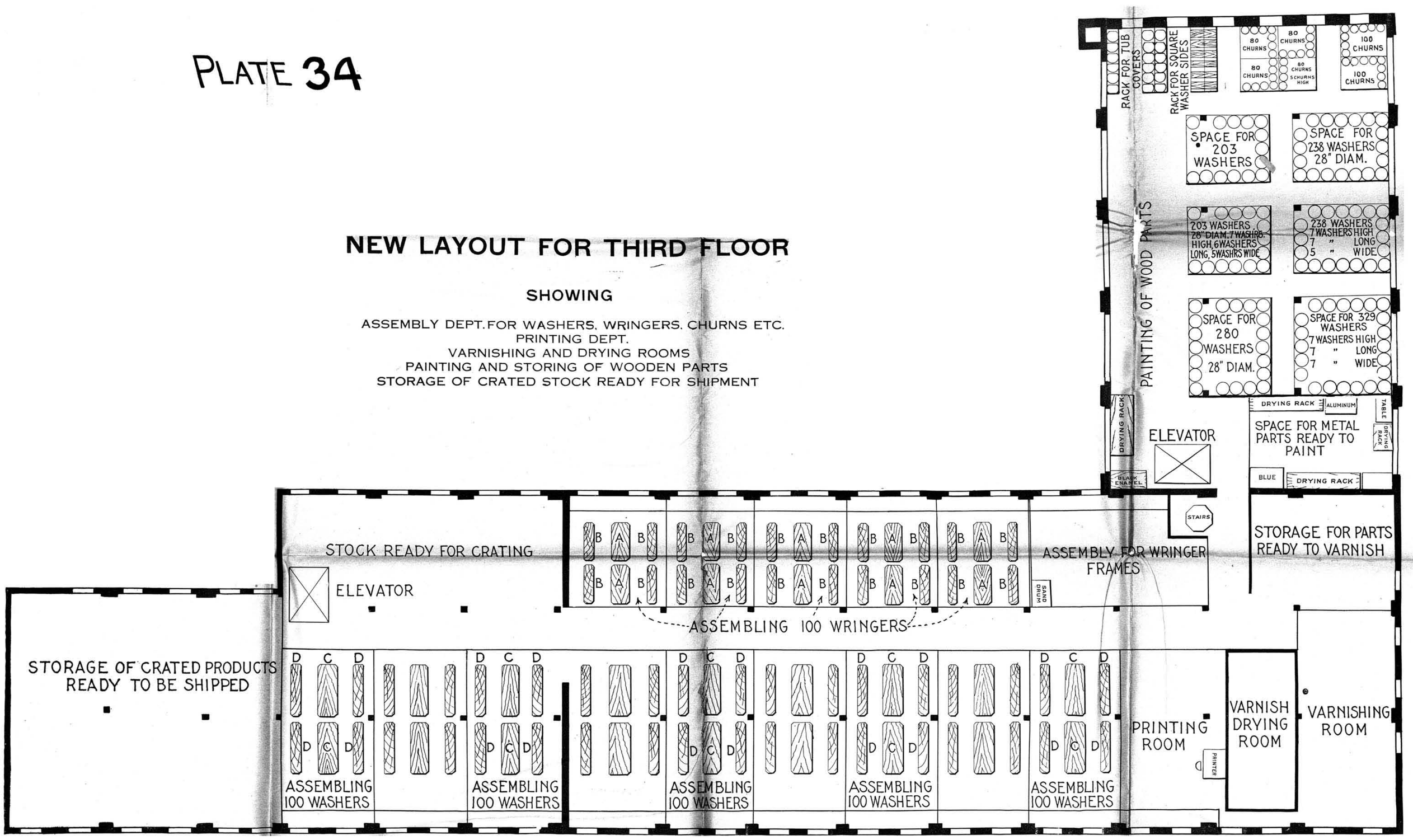


PLATE 34

NEW LAYOUT FOR THIRD FLOOR

SHOWING

ASSEMBLY DEPT. FOR WASHERS, WRINGERS, CHURNS ETC.
PRINTING DEPT.
VARNISHING AND DRYING ROOMS
PAINTING AND STORING OF WOODEN PARTS
STORAGE OF CRATED STOCK READY FOR SHIPMENT



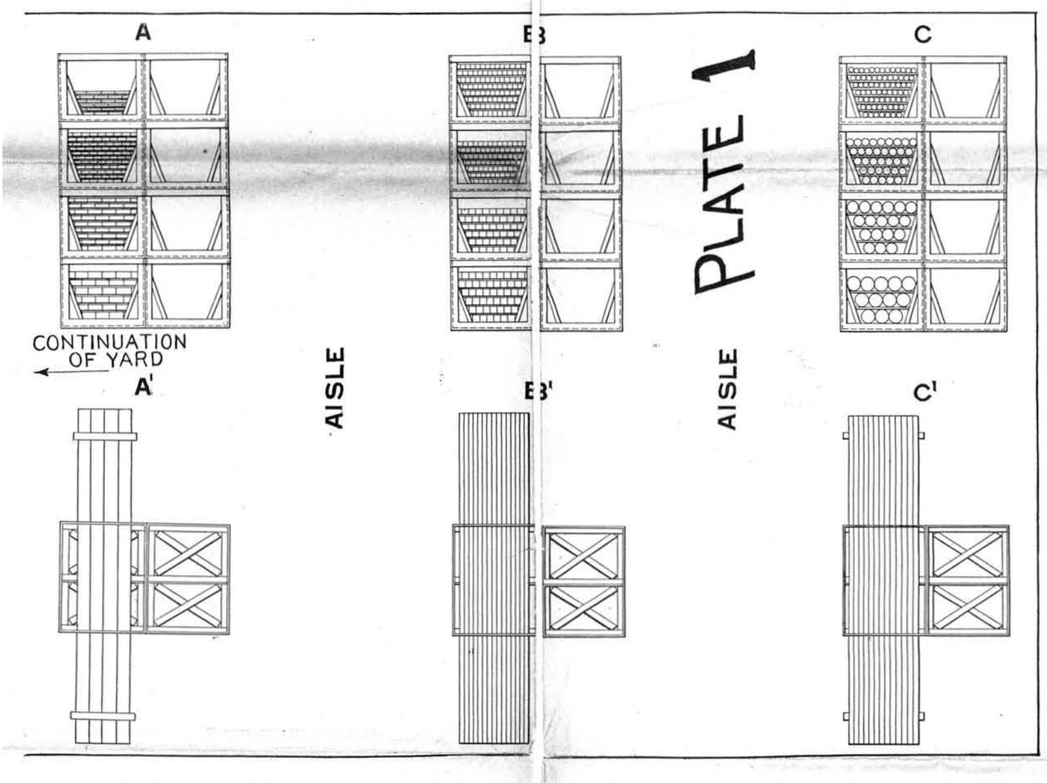
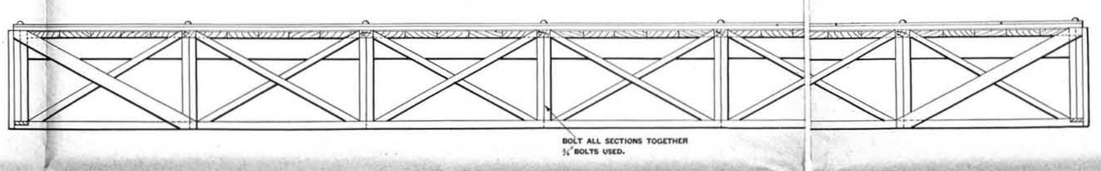


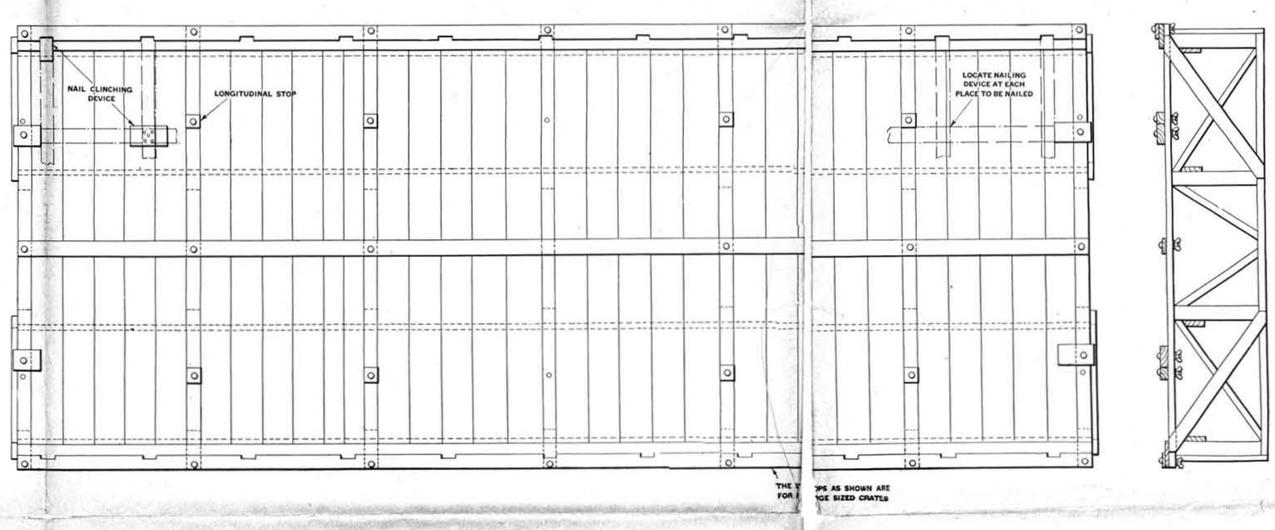
PLATE 1



THIS FIXTURE CAN BE ADJUSTED FOR ANY SIZE OF SLAT CRATE BY USING THE DIFFERENT STOPS AND CLAMPS AS SHOWN.
CRATE LUMBER SHOULD BE CUT WITH RIP SAW TO A GIVEN WIDTH AND TO EXTACT LENGTH NEEDED WITH A CUT OFF SAW.
FIXTURE WILL TAKE LUMBER OF ANY SUITABLE THICKNESS.
ALL MOVING PARTS SUCH AS STOPS AND CLAMPS SHOULD BE MADE OF SCRAP HARD PINE OR B. C. FIR AND PLANED SMOOTH.
USE ½" CARRIAGE BOLTS WITH WASHERS AND WING NUTS FOR CLAMPS AND STOPS.

PLATE 17

FIXTURE FOR MAKING CRATES



PAINT TANKS FOR DIPPING WOOD AND METAL PARTS

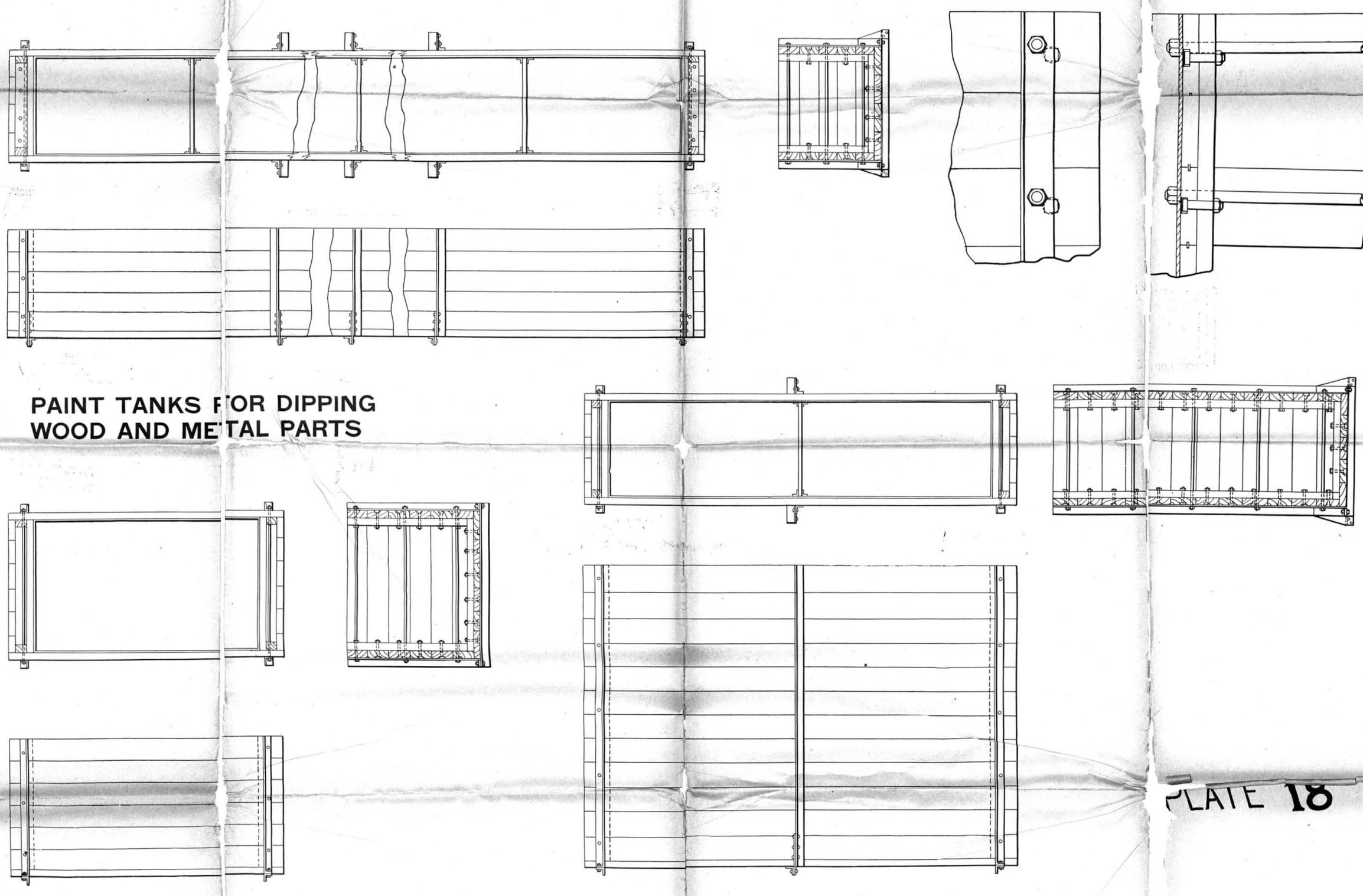


PLATE 18

CRATING DEPT.

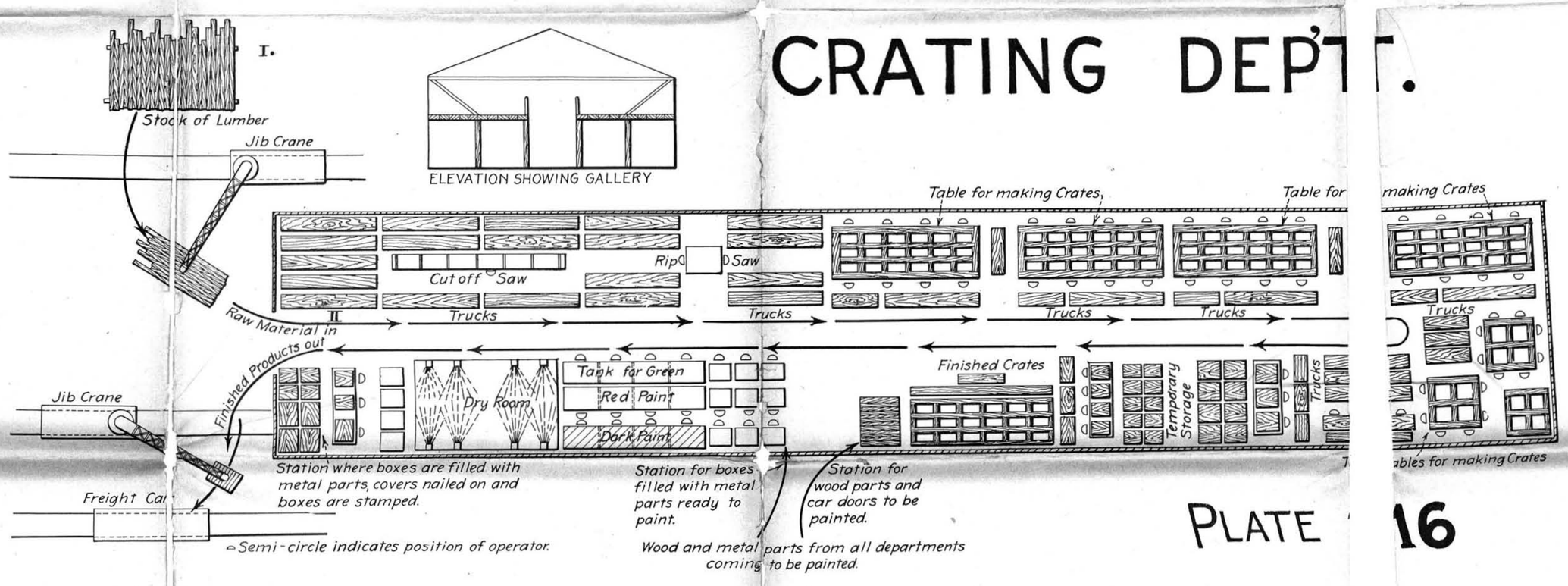


PLATE 16

x·rite ColorChecker® Color Rendition Chart