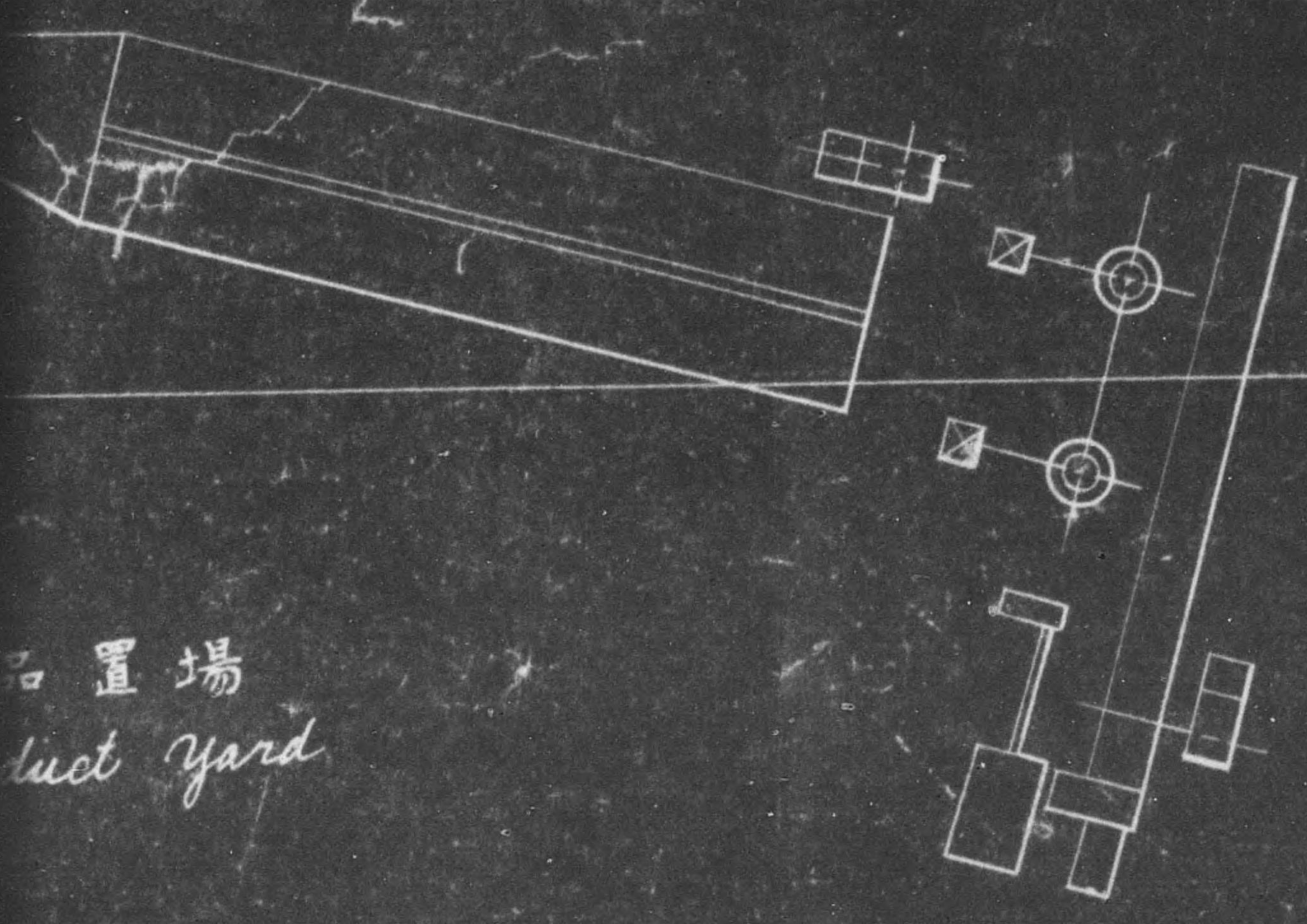
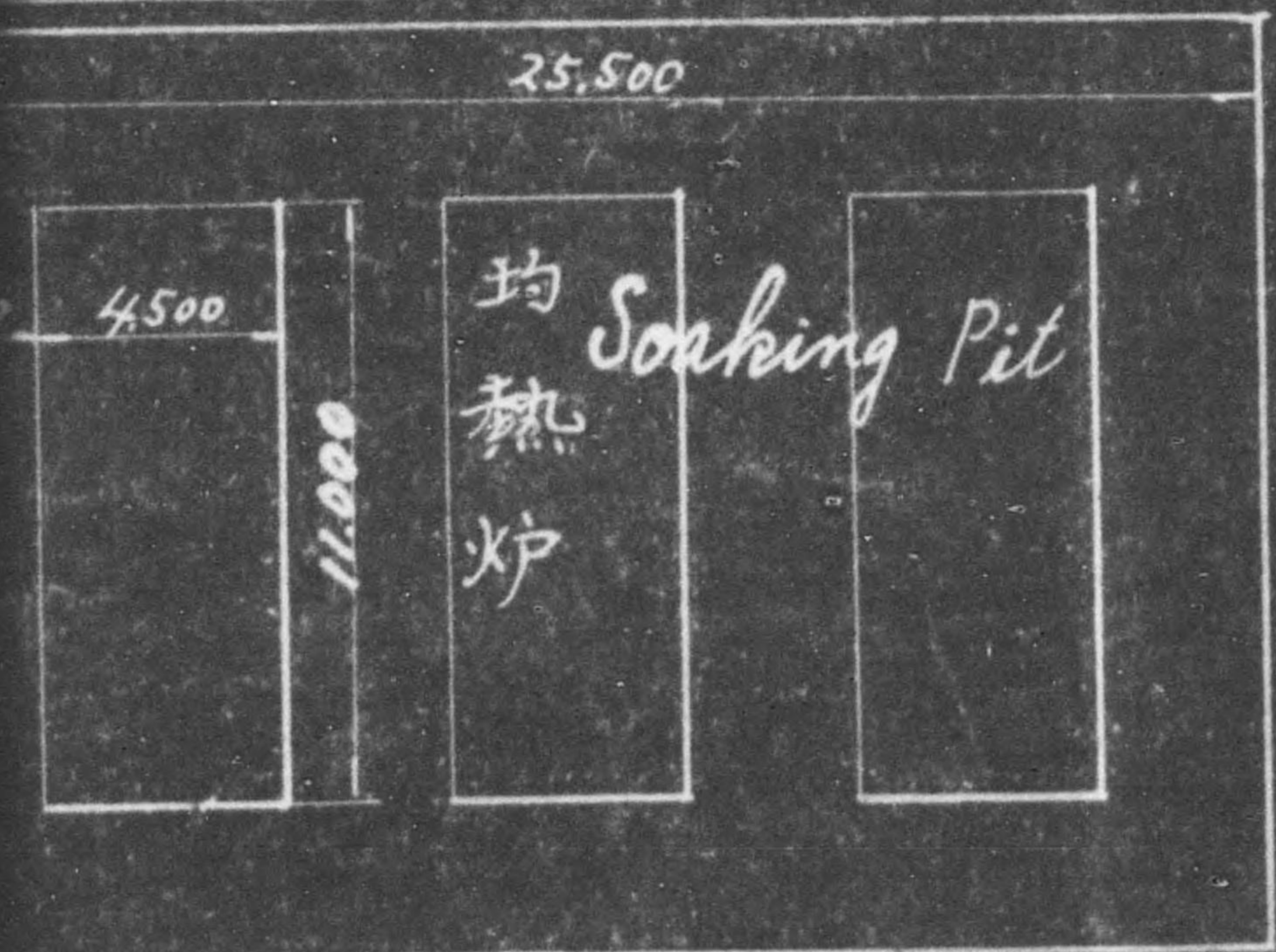


duct yard  
品置場

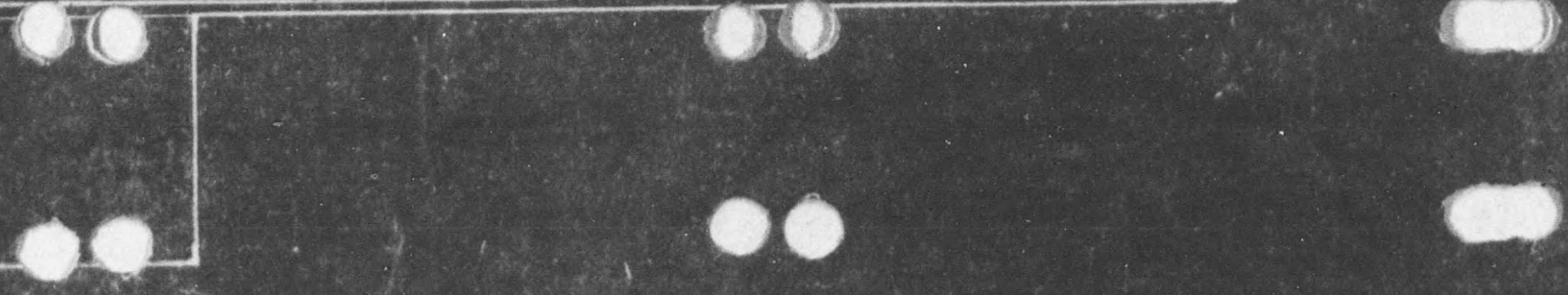
Private track  
引込線



品置場  
duct yard



材料置場  
Ingot yard



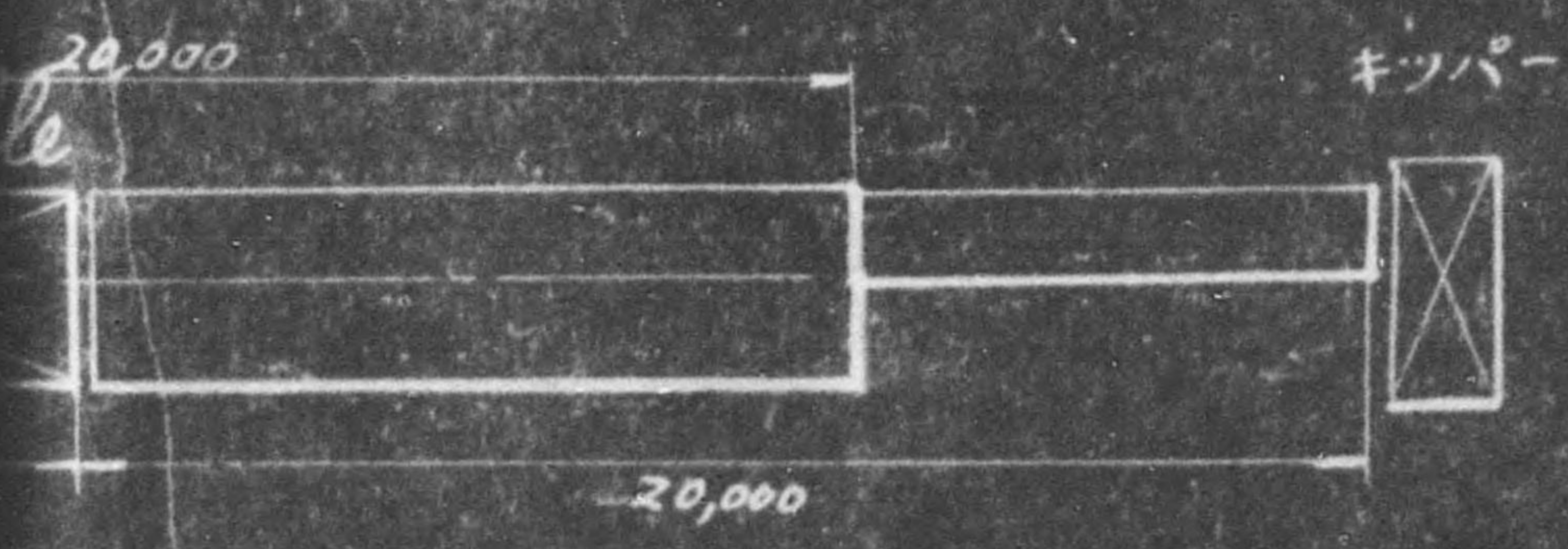
Product yard  
成品置場

Private track  
引込線

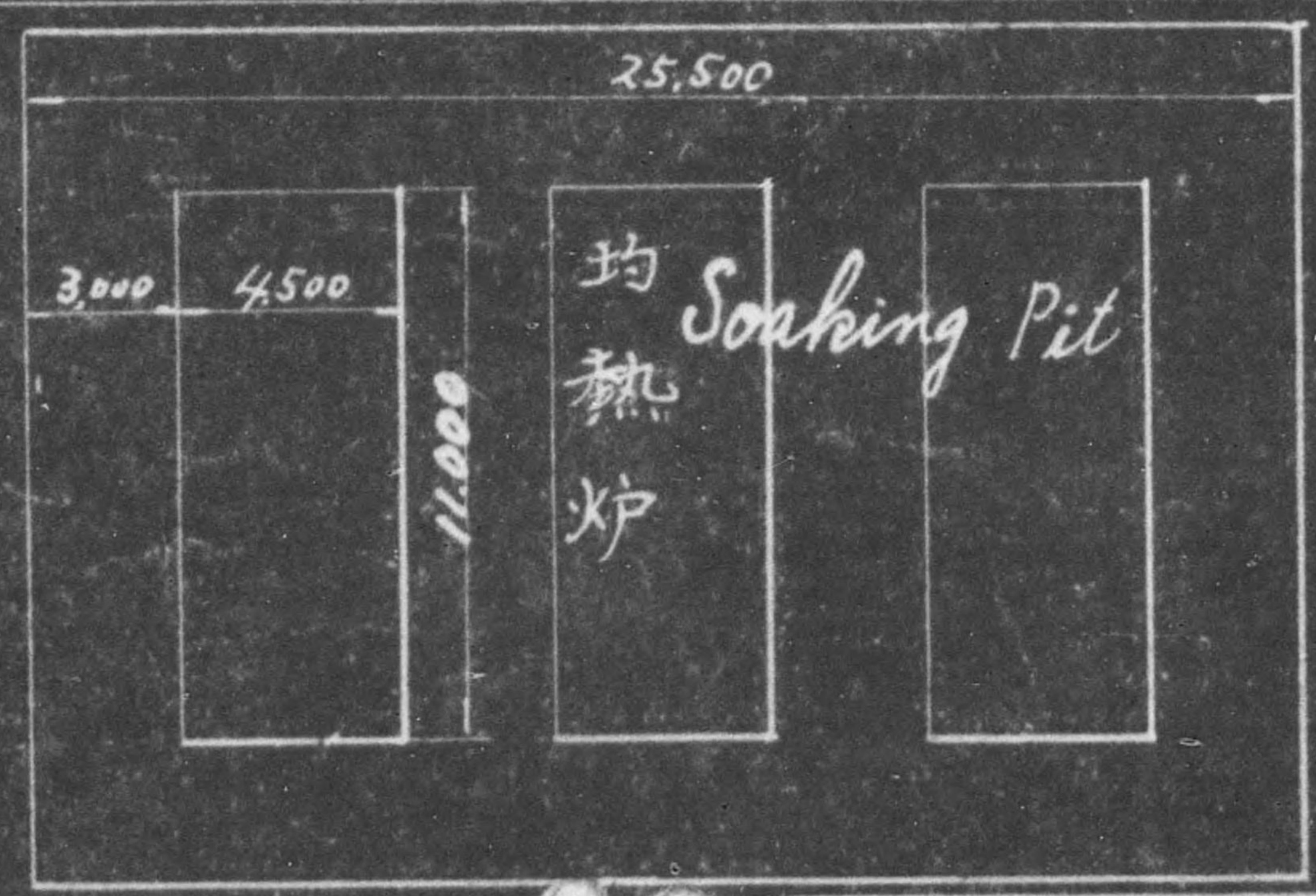
5,500 5,500 13,000

ing Mill

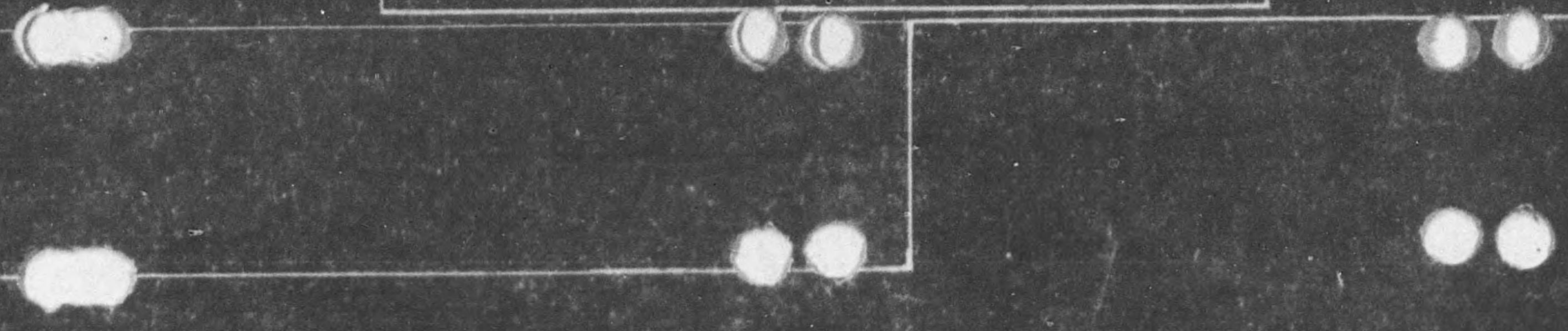
成品置場  
Product yard



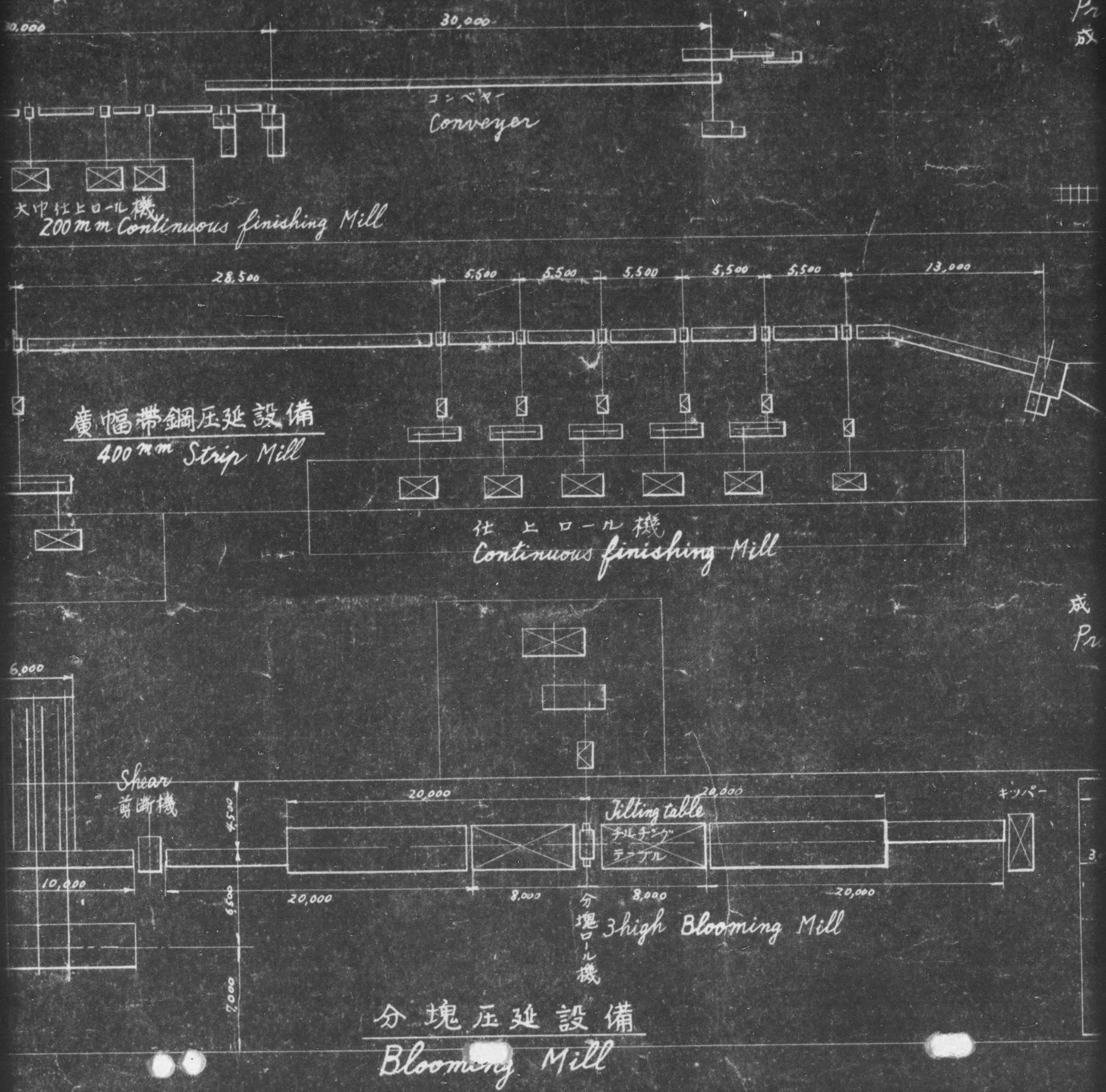
rolling Mill



材料置場  
Ingot yard

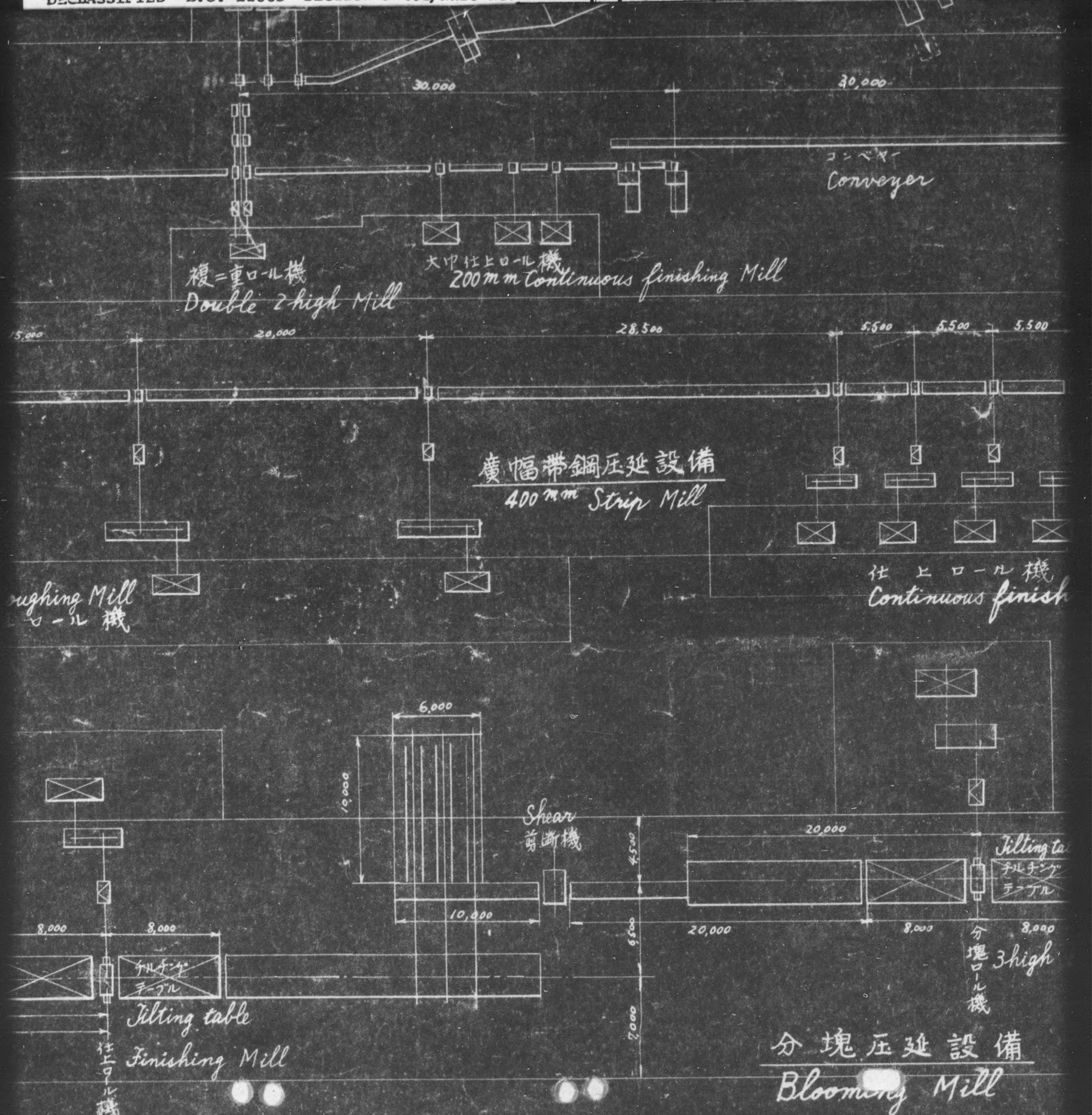


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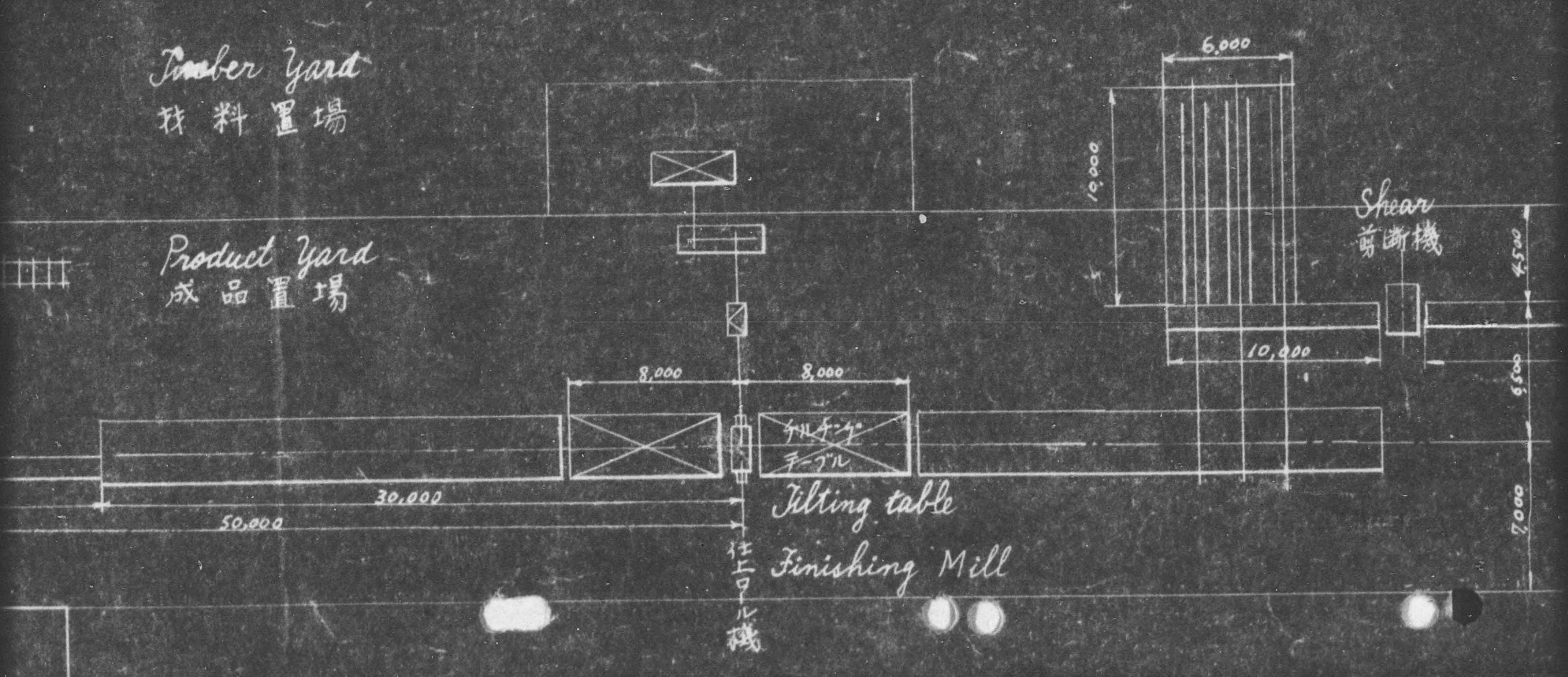
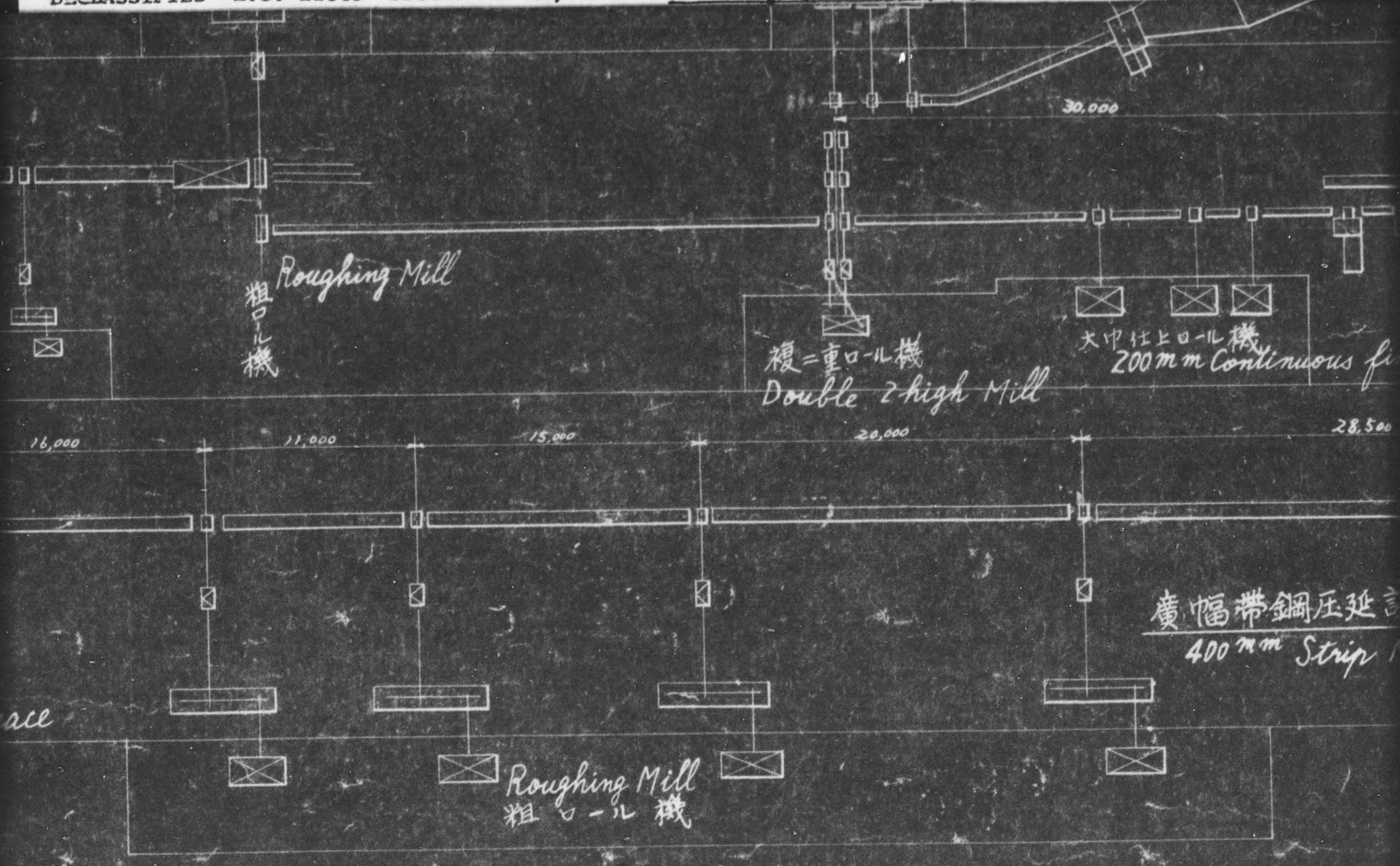
成  
Pr

angement of each mill  
置図 (No. 2) scale 1/300

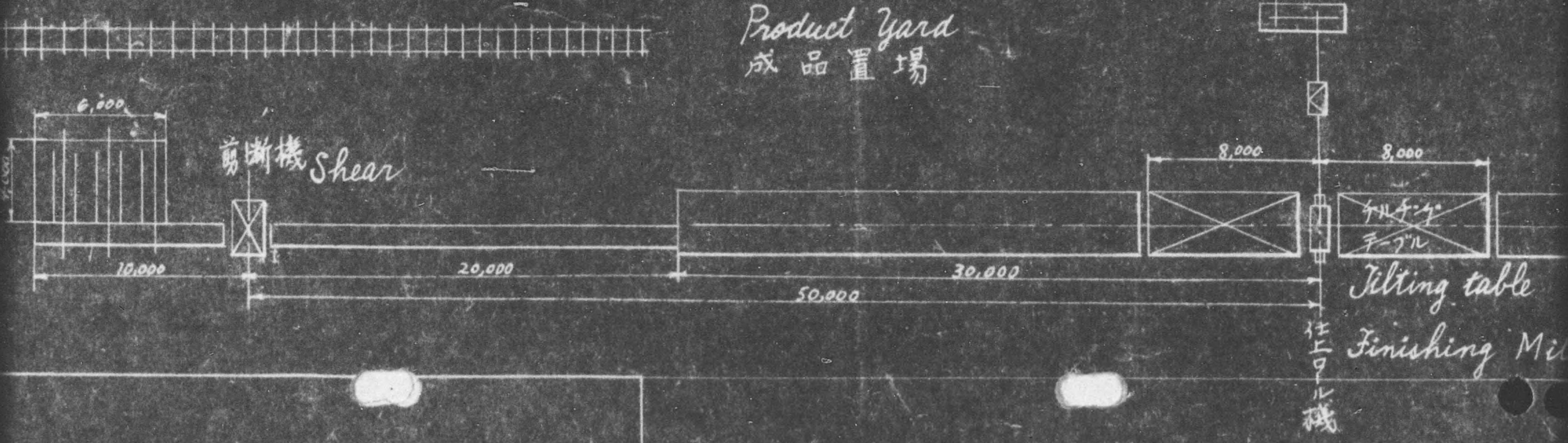
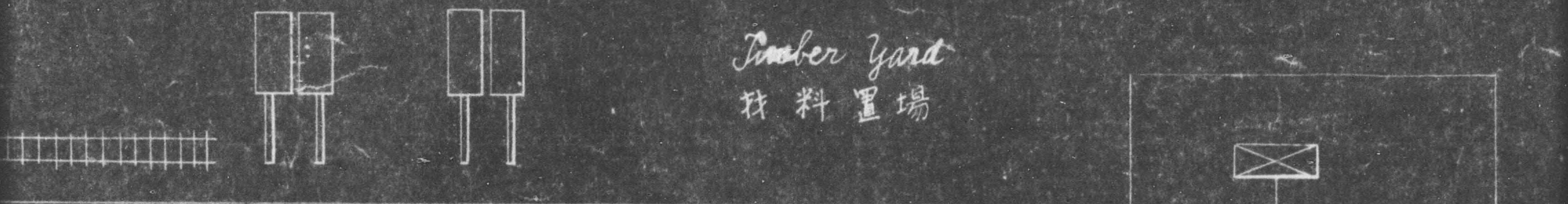
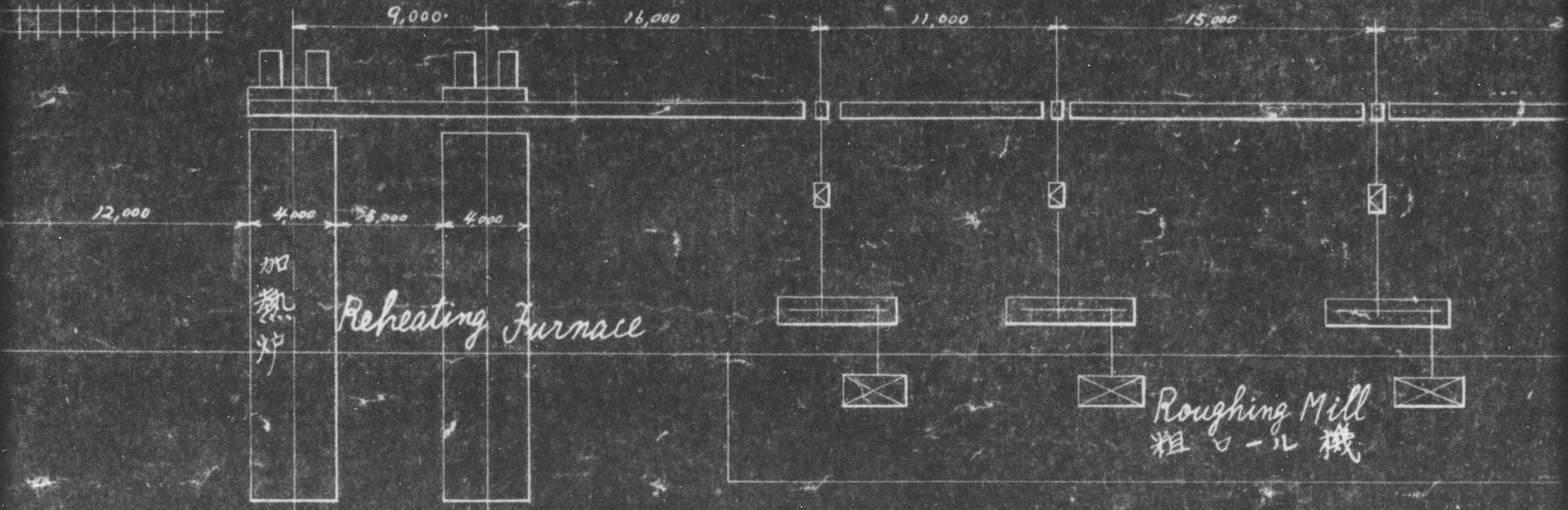
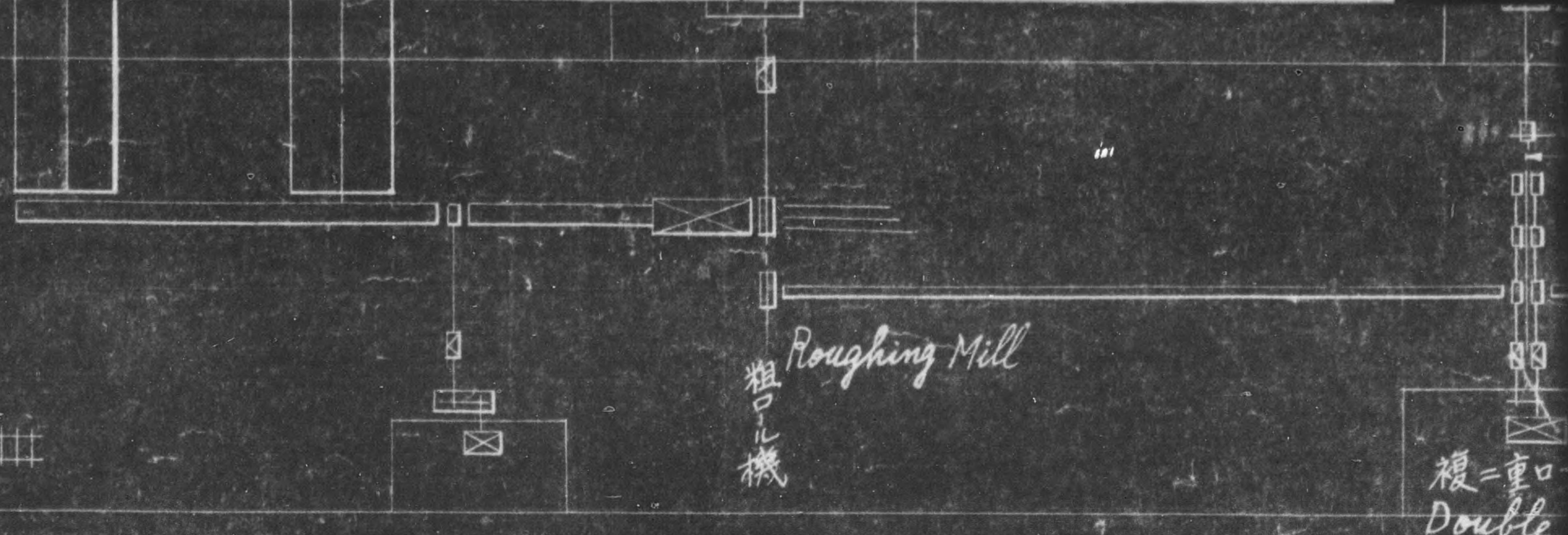


General arrangement of each mill  
工場配置図 (No. 2)

scale 1/300



General arrangement of  
 工場配置図 (NO.



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I

126,000

18,000

Rough  
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18,000

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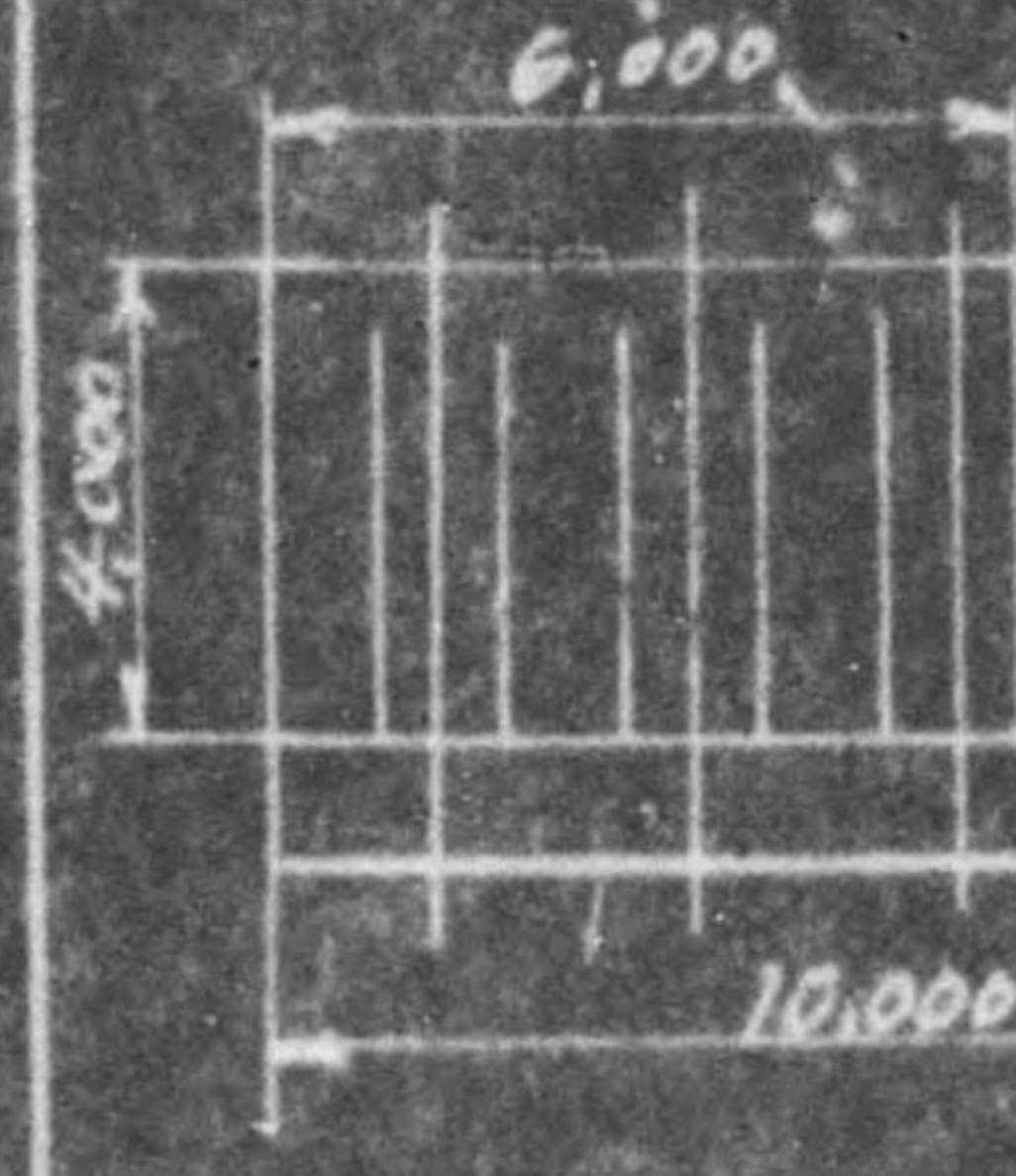
Reheating Furnace

Timber Yard  
材料置場

18,000

Product Yard  
成品置場

18,000



剪断机 Shear

20,000

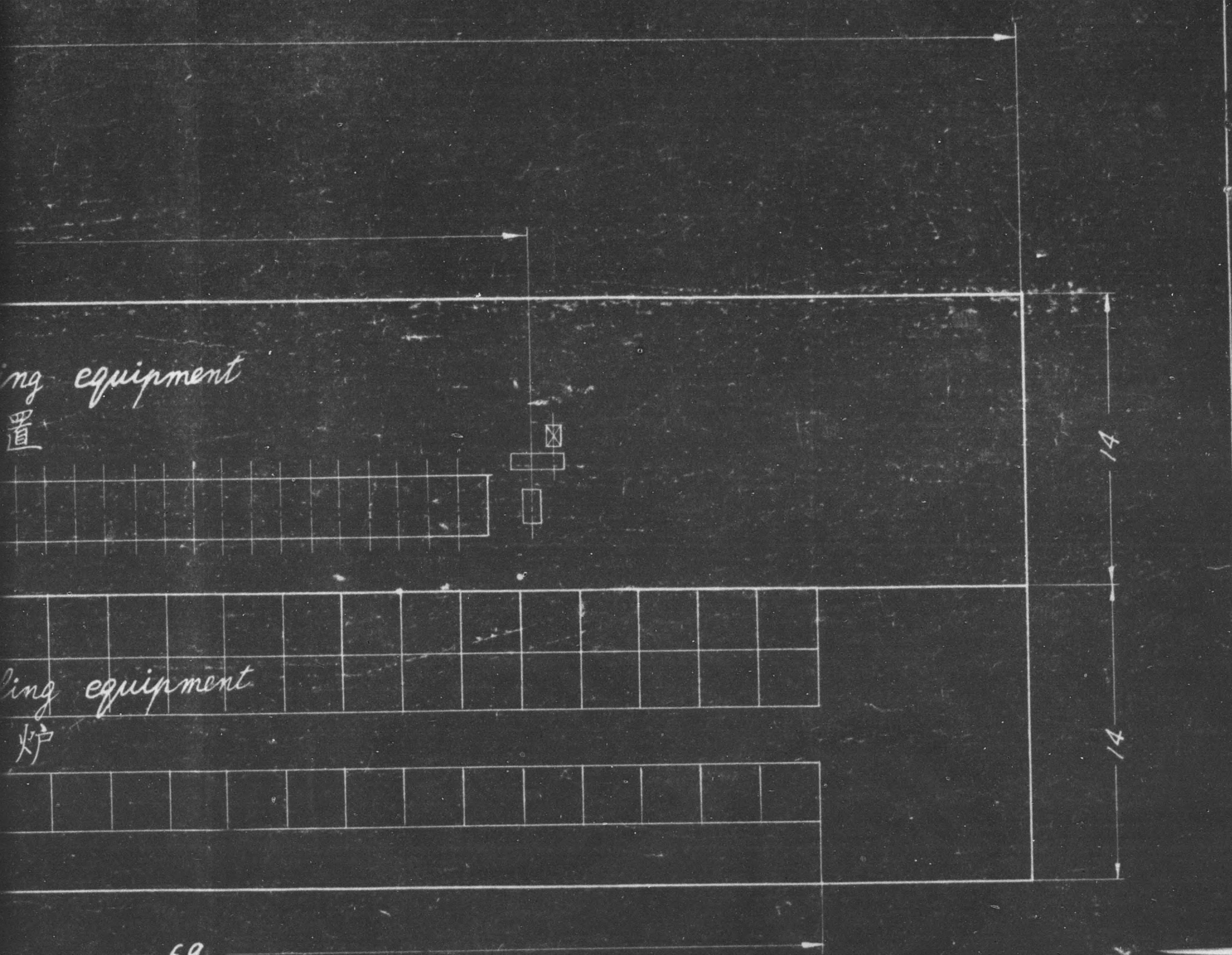
50,000



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ing equipment  
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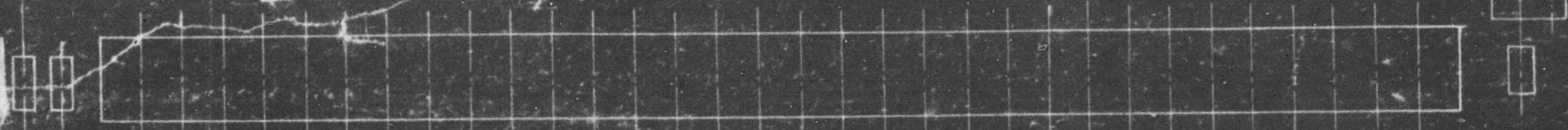
69





55

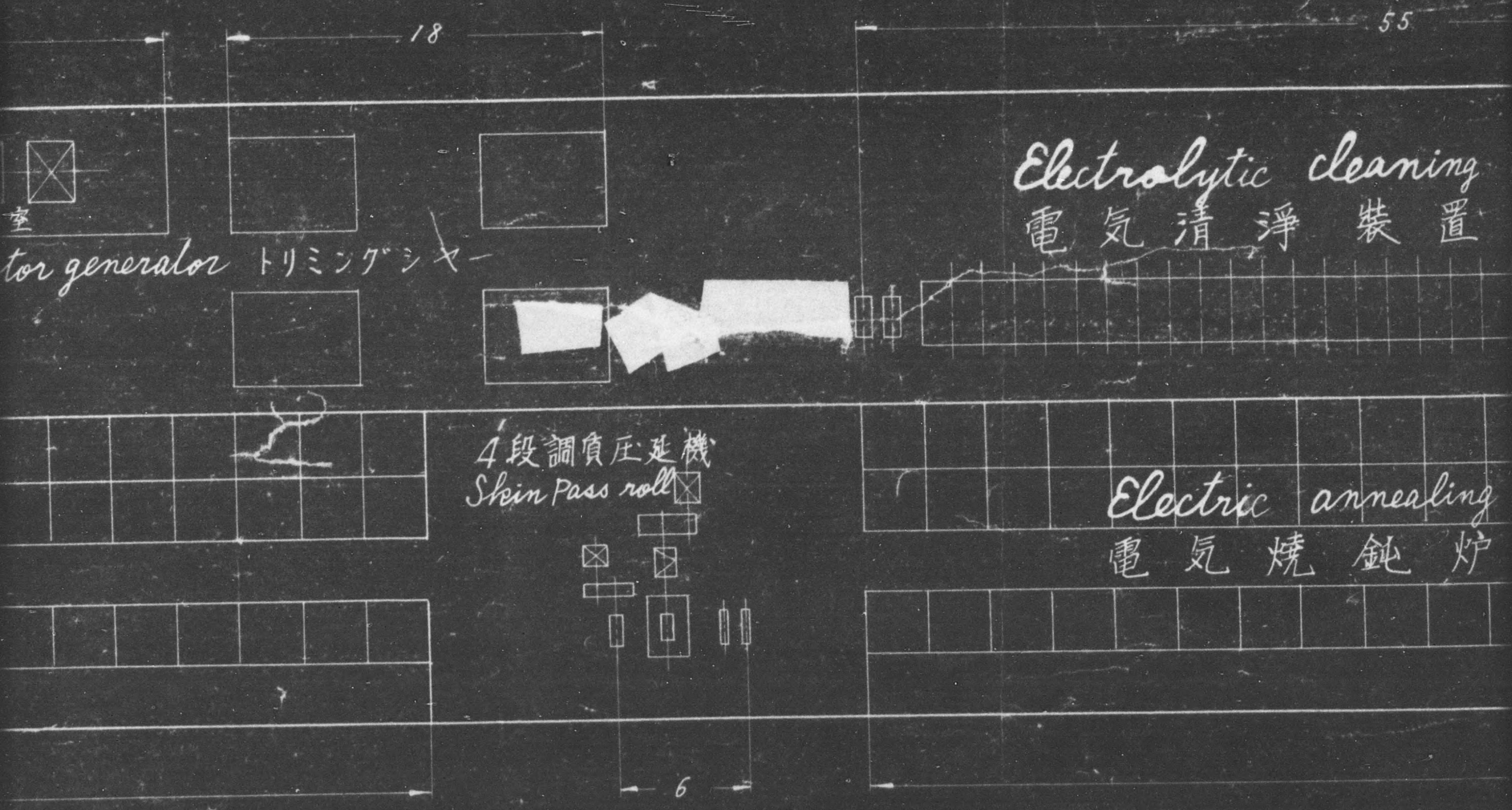
*Electrolytic cleaning equipment*  
電気清淨装置



*Electric annealing equipment*  
電気焼鈍炉

69

1  
300

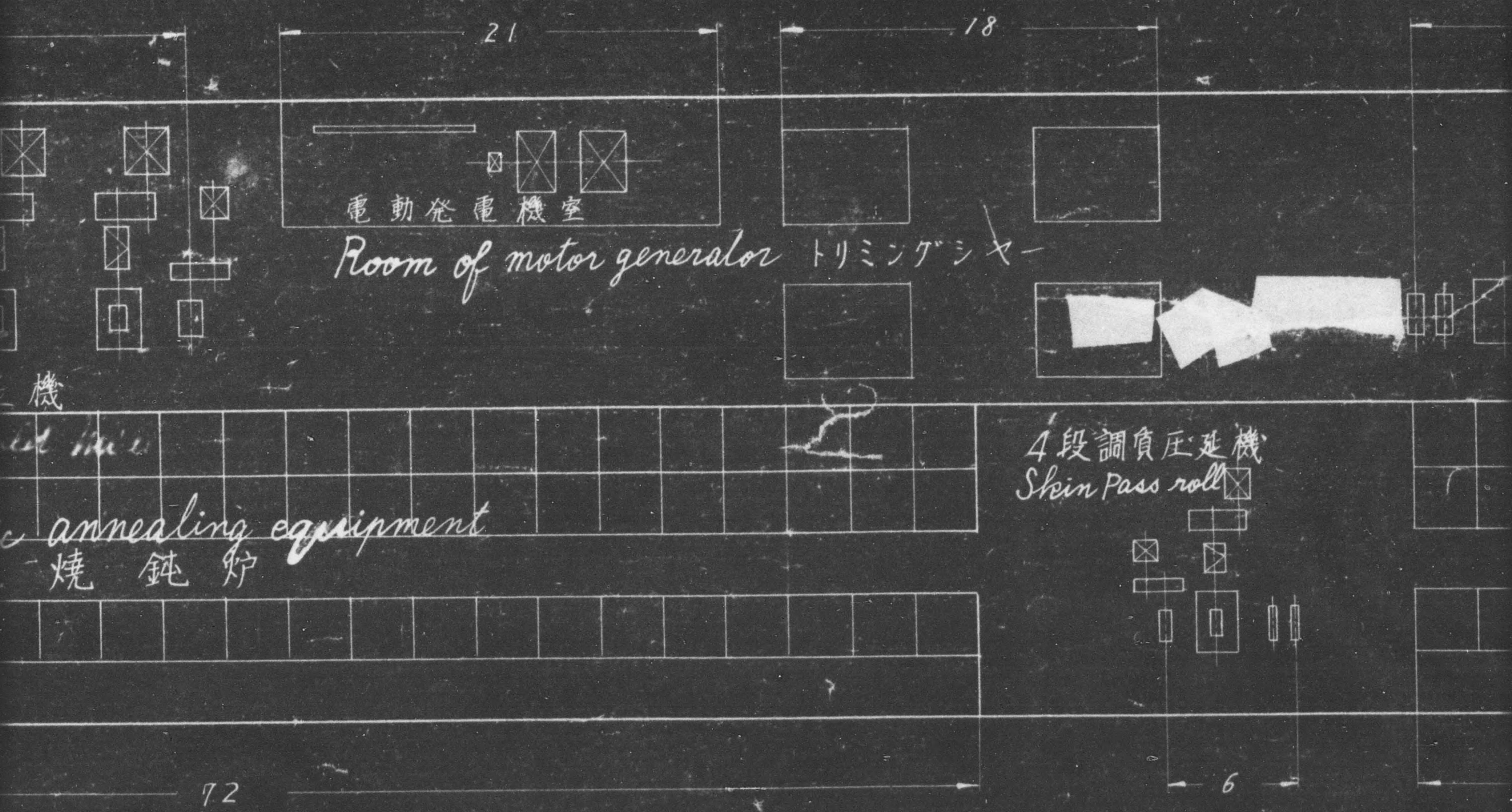


$\frac{1}{300}$

N0.4)



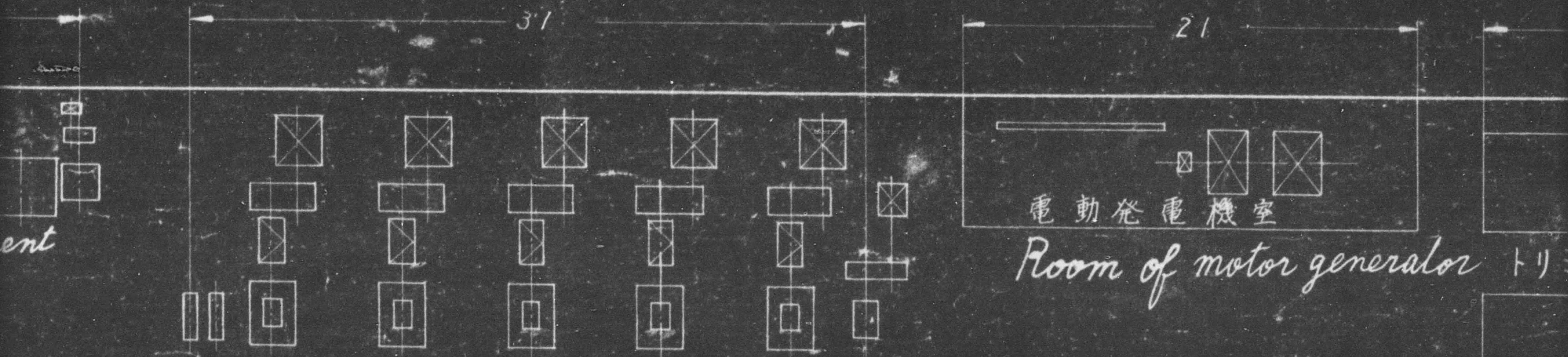
260



ip mill equipment

製造設備配置図 (NO.4)

1/300



4段連續冷間壓延機

4 High Precision Cold Mill

Electric annealing equipment  
電氣燒鈍爐

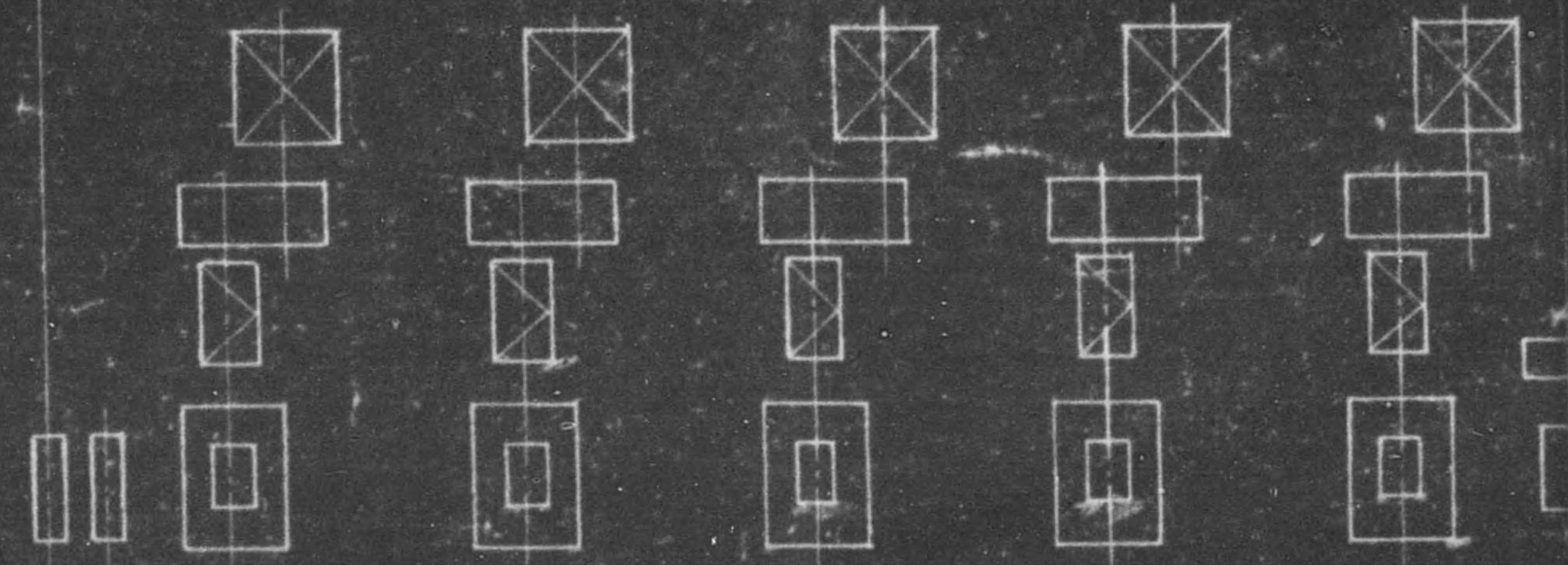
strip mill and tin strip mill equipment

壓延設備及帶鋇力製造設備配置圖 (NO.4)

37

酸洗及洗滌裝置  
Acid washing cleaning equipment

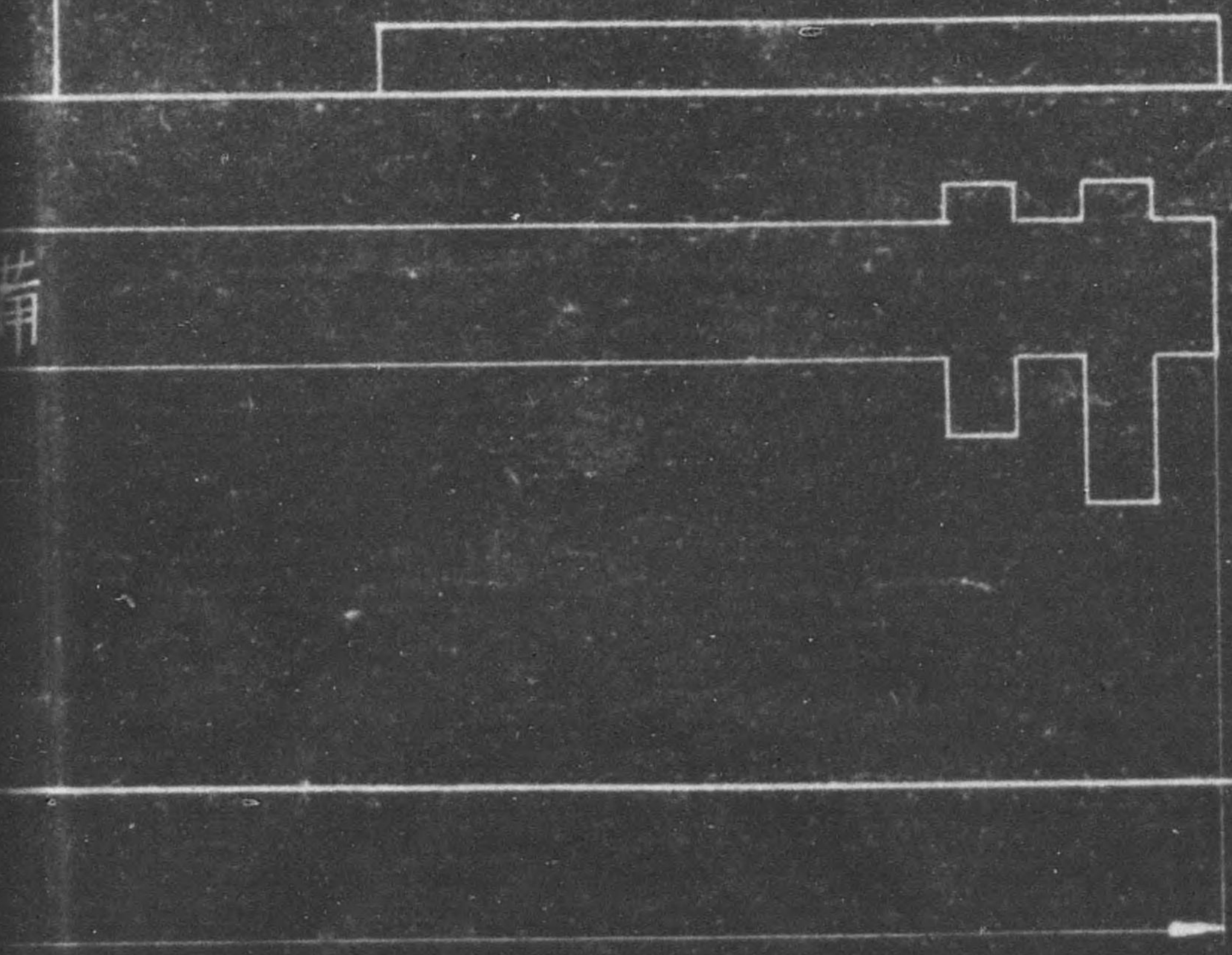
37



4 段連續冷間壓延機

4 High tandem cold mill

Electric anneal  
電氣燒鈍



400mm Cold strip mill and tin strip mill  
帶鋼冷間壓延設備及帶鋇力製造設

37

酸洗及洗滌裝置

Acid washing cleaning equipment

4 段連

4 段連

ment of Tin strip

trip equipment

錫力製造設備

70

400mm Cold strip mill and  
帶鋼冷間壓延設備及

37

材料 成品置場

酸洗及洗絲裝  
Acid washing cleaning

Switch board equipment of Tin strip

帶鉍力配電盤

Tin strip equipment

帶鉍力製造設備

70

400mm  
帶鉍

材料. 成品置場

*Switch board equipment of Jin strip*

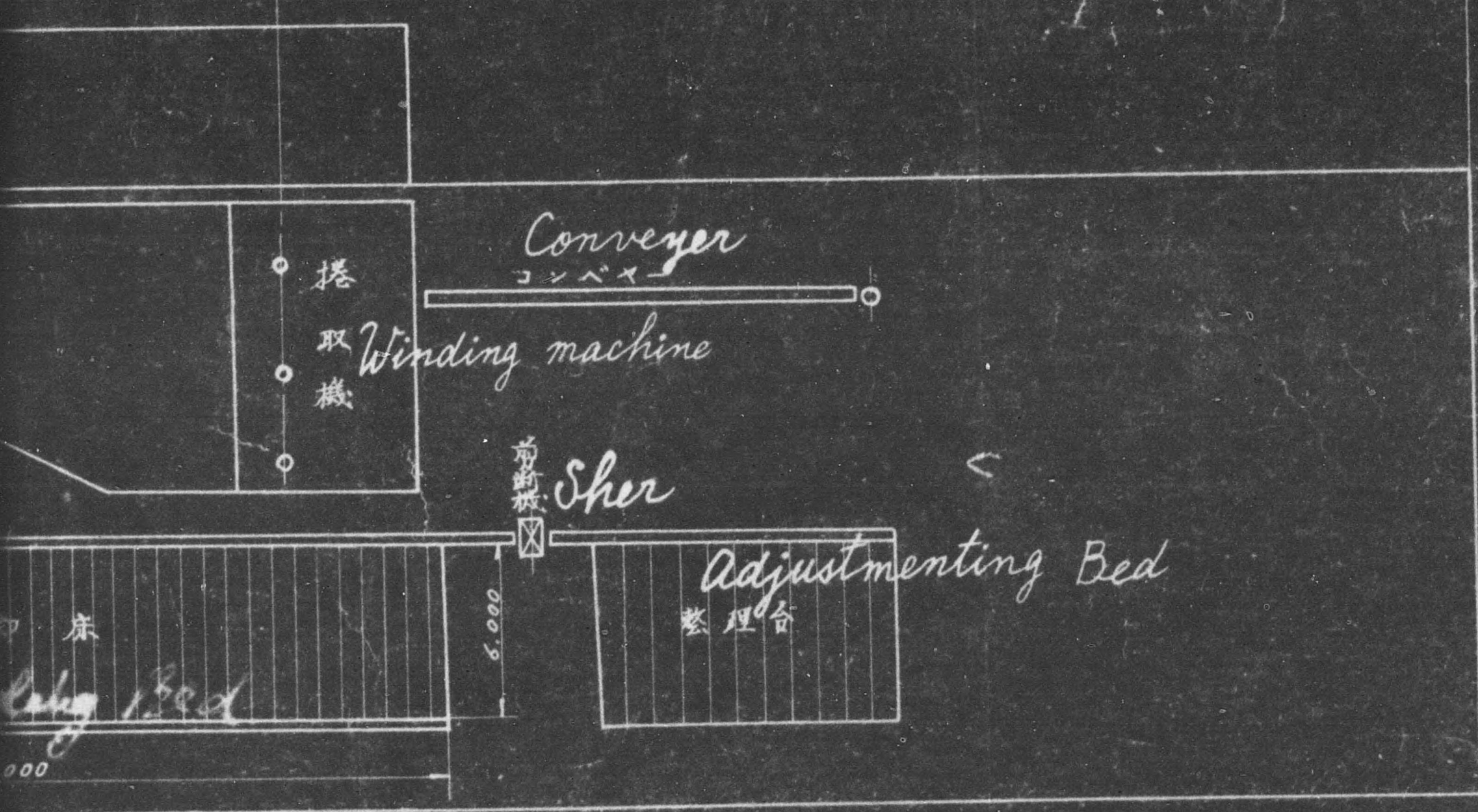
帶鋸力配電盤

*Jin strip equipment*

帶鋸力製造設備



52.500

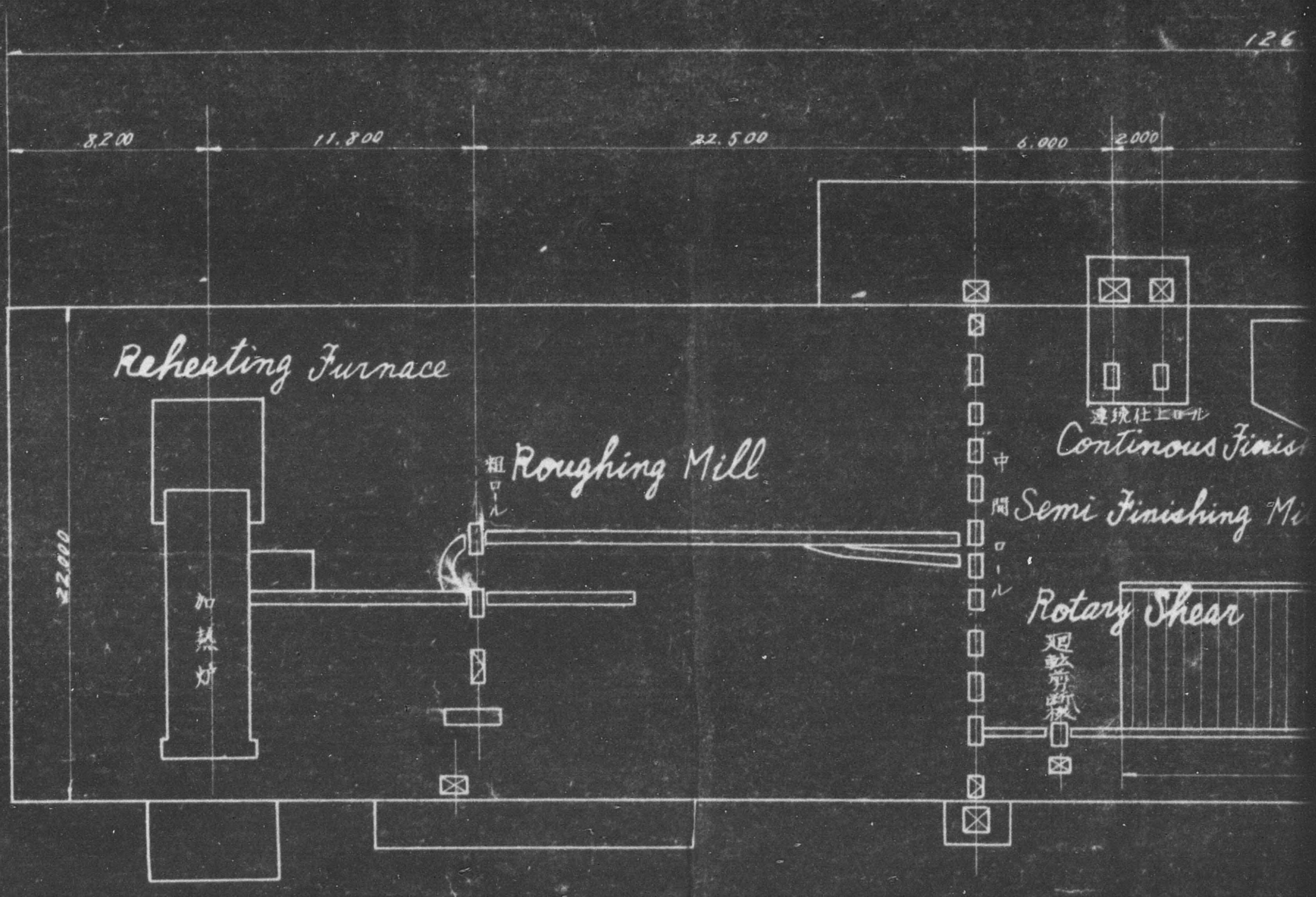


配置図 (No 3)

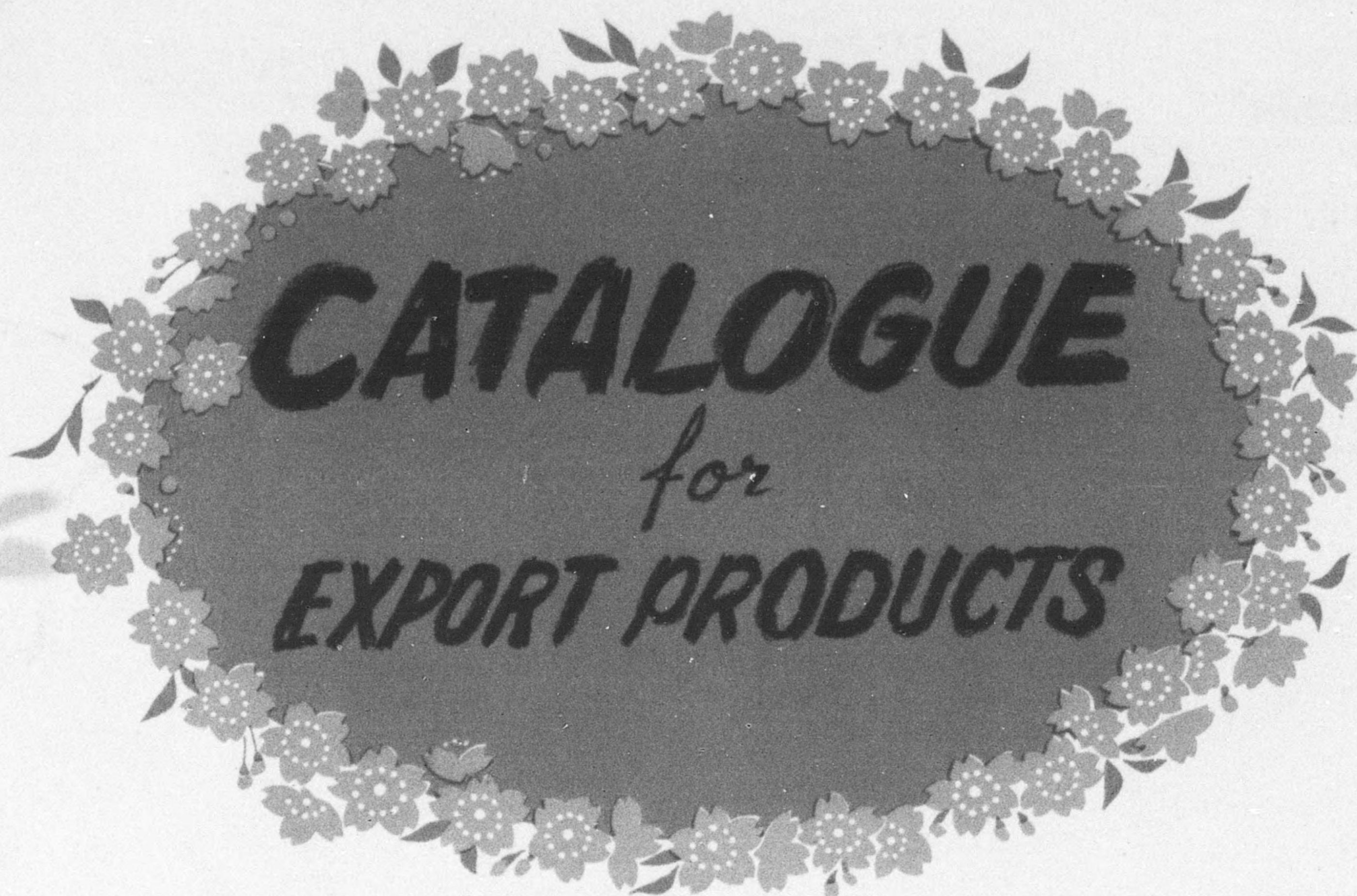
$$S = \frac{1}{300}$$



45 mm Hoop Mill  
 小巾帯鋼圧延設備配置図 (No 3)



45 mm Hoop Mill  
 小巾帯鋼圧延



**CATALOGUE**  
*for*  
**EXPORT PRODUCTS**



**NICHIA STEEL WORKS, LTD.**

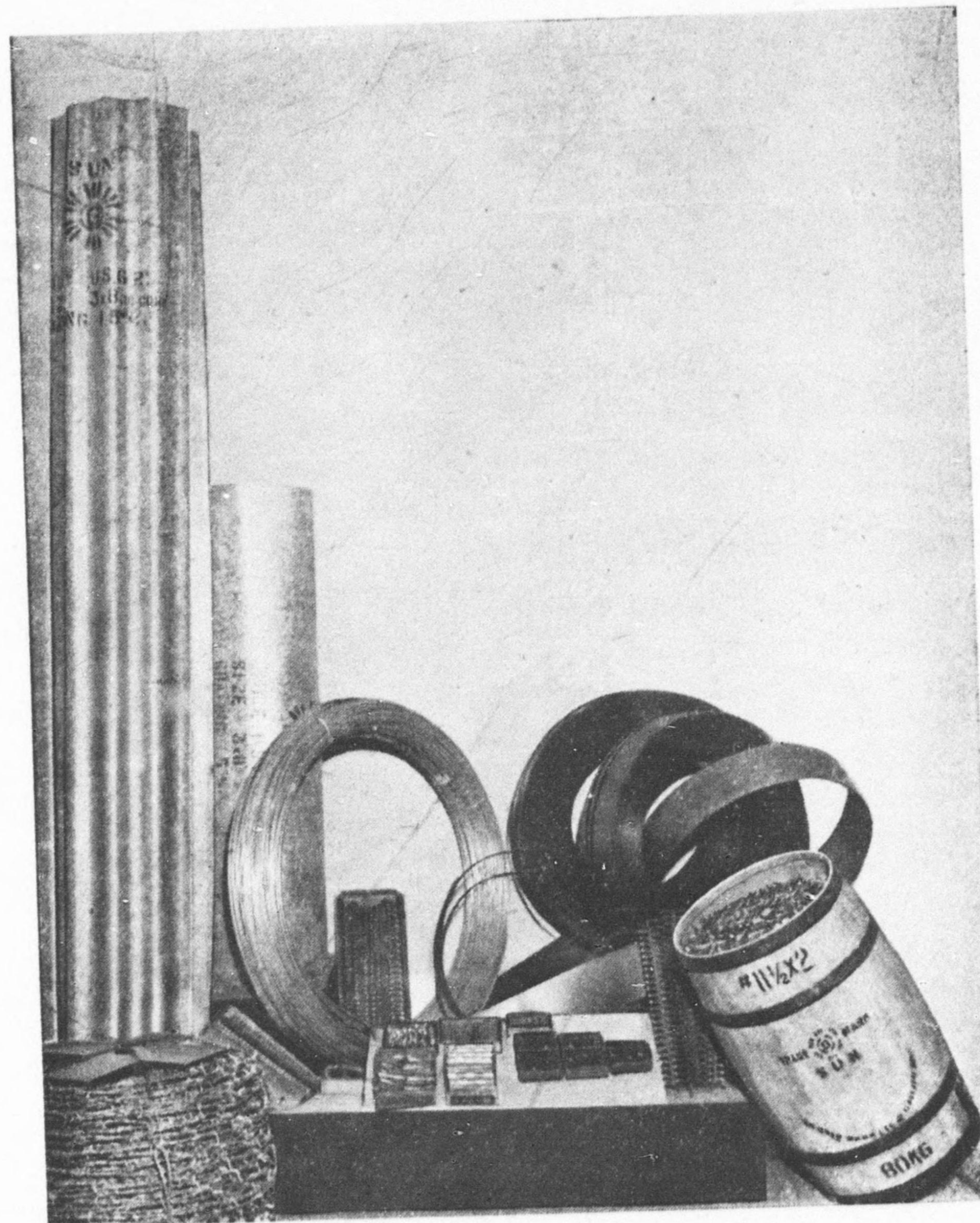
AMAGASAKI & OSAKA

JAPAN

DECLASSIFIED E.O. 12958 SECTION 5-402/NRDS NO. 17000

# NICHIA STEEL WORKS, LTD.

Established in 1918.



BUSINESS OFFICE:

1, BINGOMACHI NICHOME,  
OSAKA.

## FORWARD

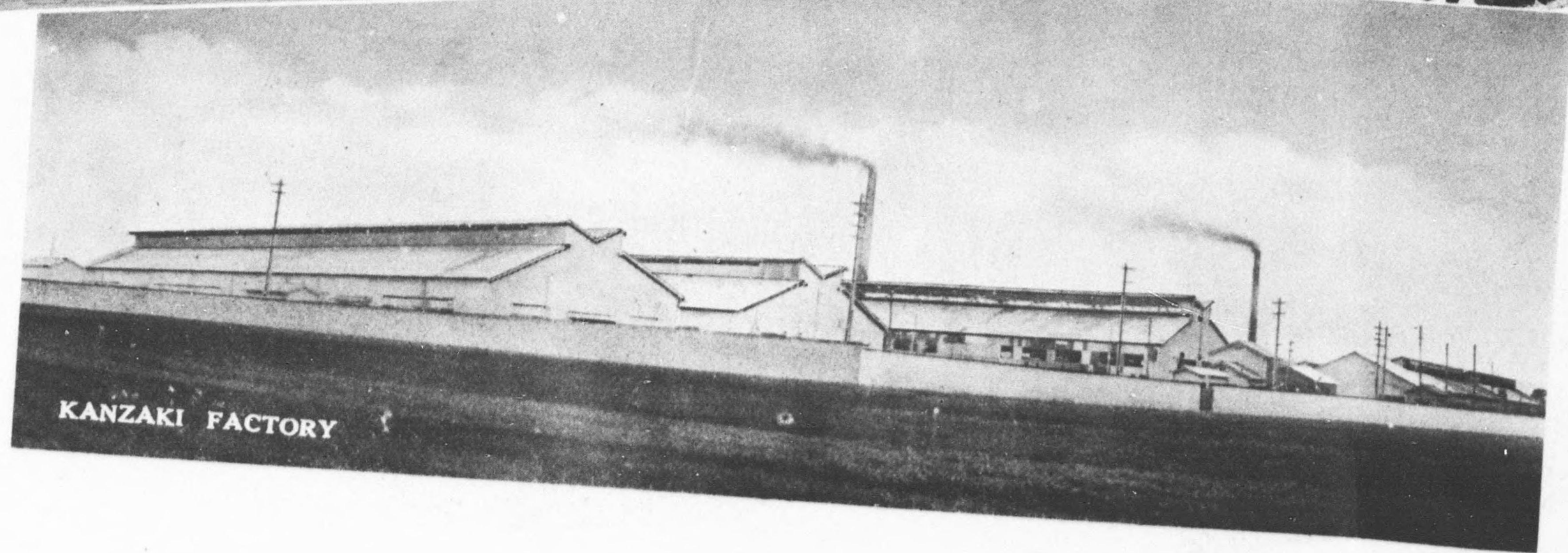
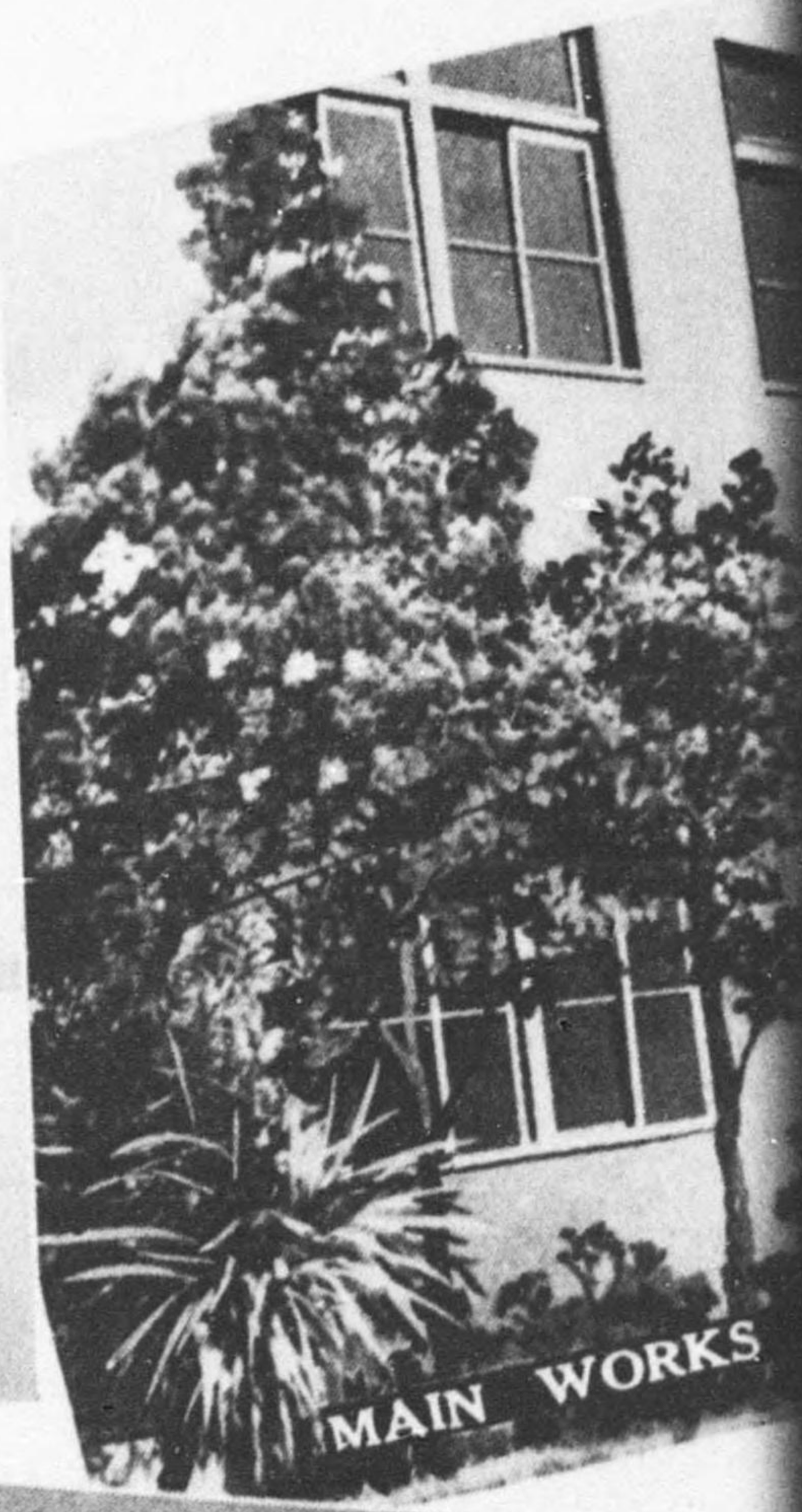
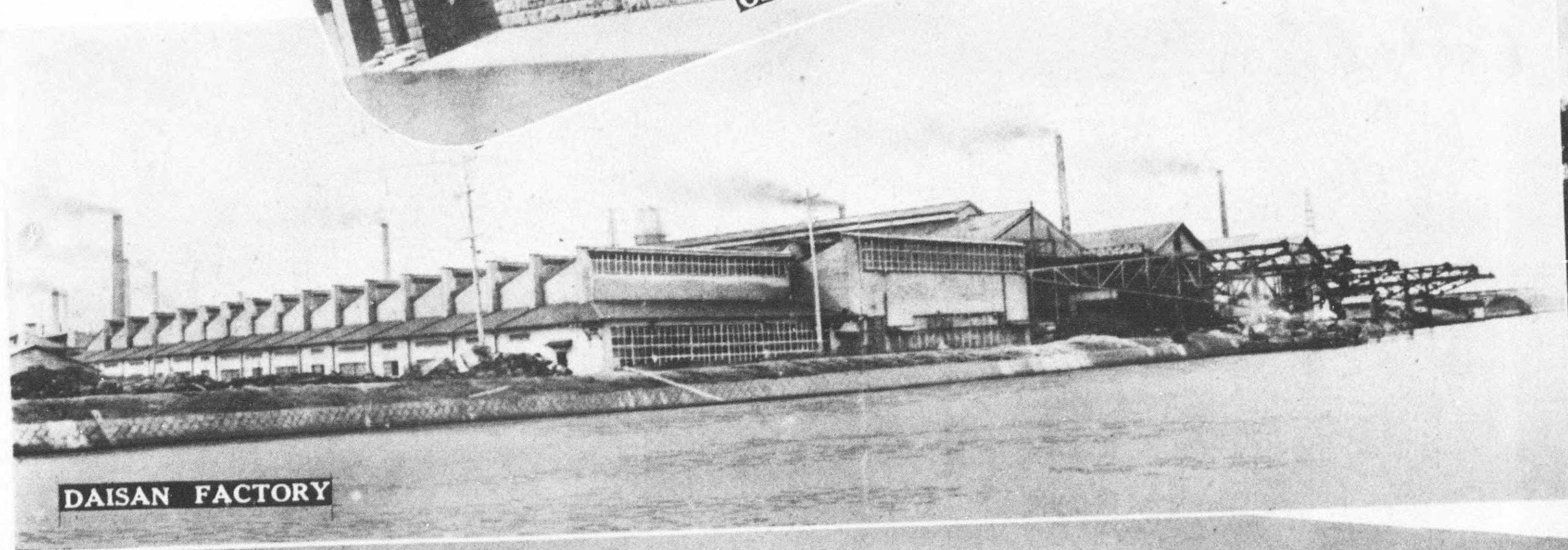
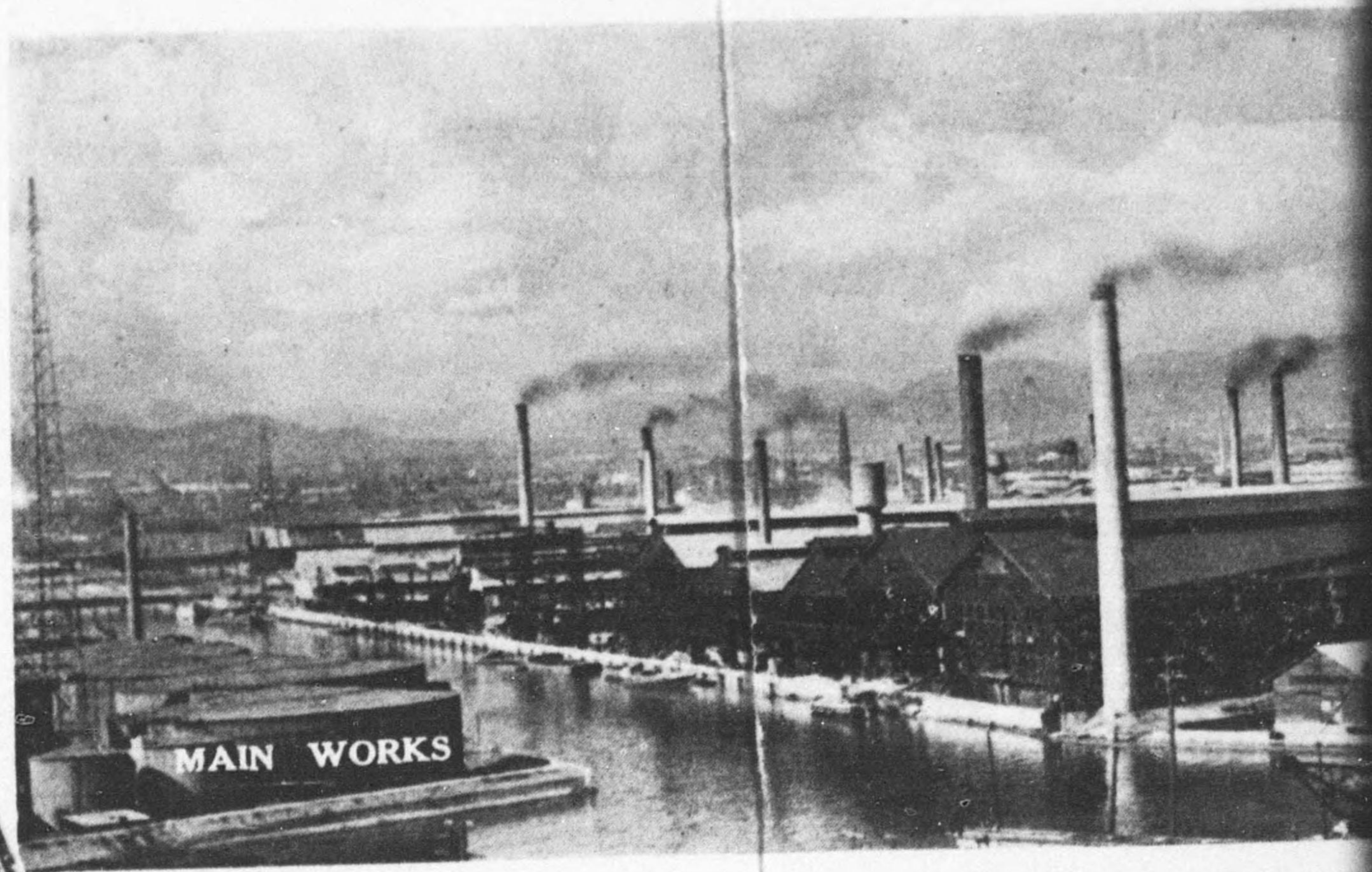
Manufacturing of Galvanized Iron Sheets, Galvanized Iron Wires, Wire Nails has long been the main activities of Nichia Steel Works. The Works was originally founded in March, 1918 as Galvanized Iron Sheets maker and has now developed into one of the prominent steel and steel goods producing units in this country. Experience in manufacturing and selling to domestic, as well as overseas market, covers as long as over thirty years.

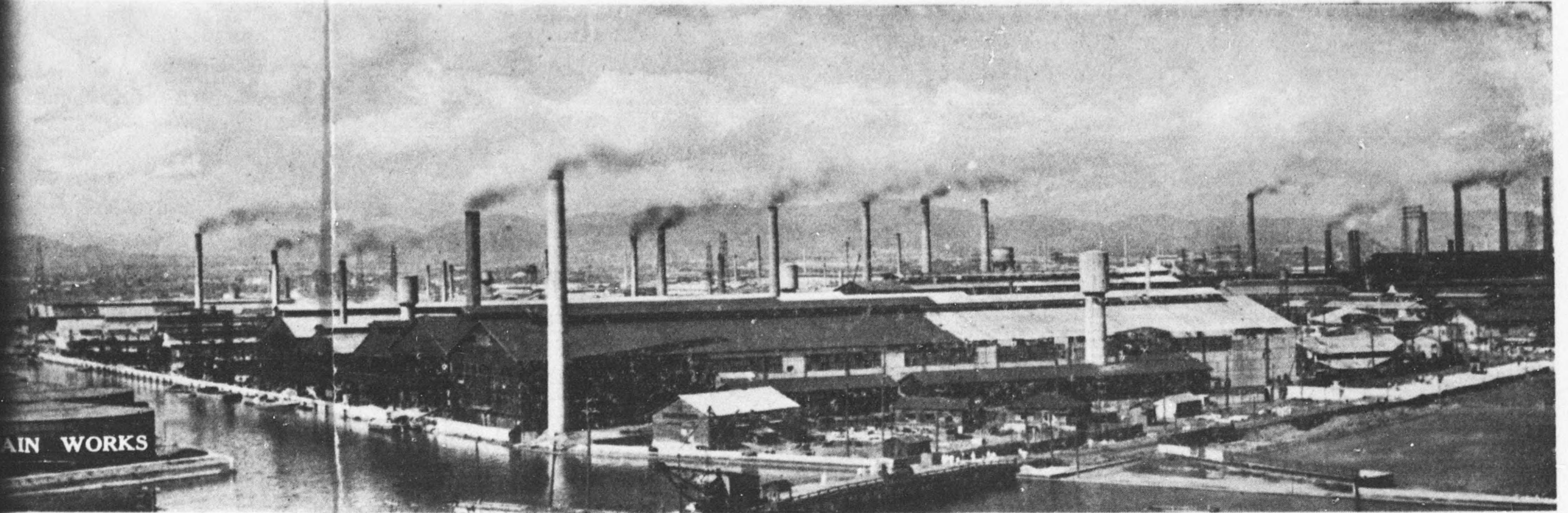
The Main Works is equipped with the units of Open hearth and Electric furnace. It produces Steel Ingots, Steel Bars, Steel Billets through which the steel goods such as Steel Strips, Steel Hoops, Conduit Pipes, Galvanized Steel Sheets, Galvanized Steel Wires, Steel Wire, Wire Nails, Barbed Wires and other Hoop and Wire products as listed in this catalogue are produced.

The Main Works and Branch Factories are all equipped with the most up-to-date and efficient machineries in large and spacious compound, and, coupled with experienced mechanics, they save the manufacturing cost to the minimum, gaining more of the output and superior quality. The system as to assure with the inherent advantage of self supply of steel materials from Head to Branches.

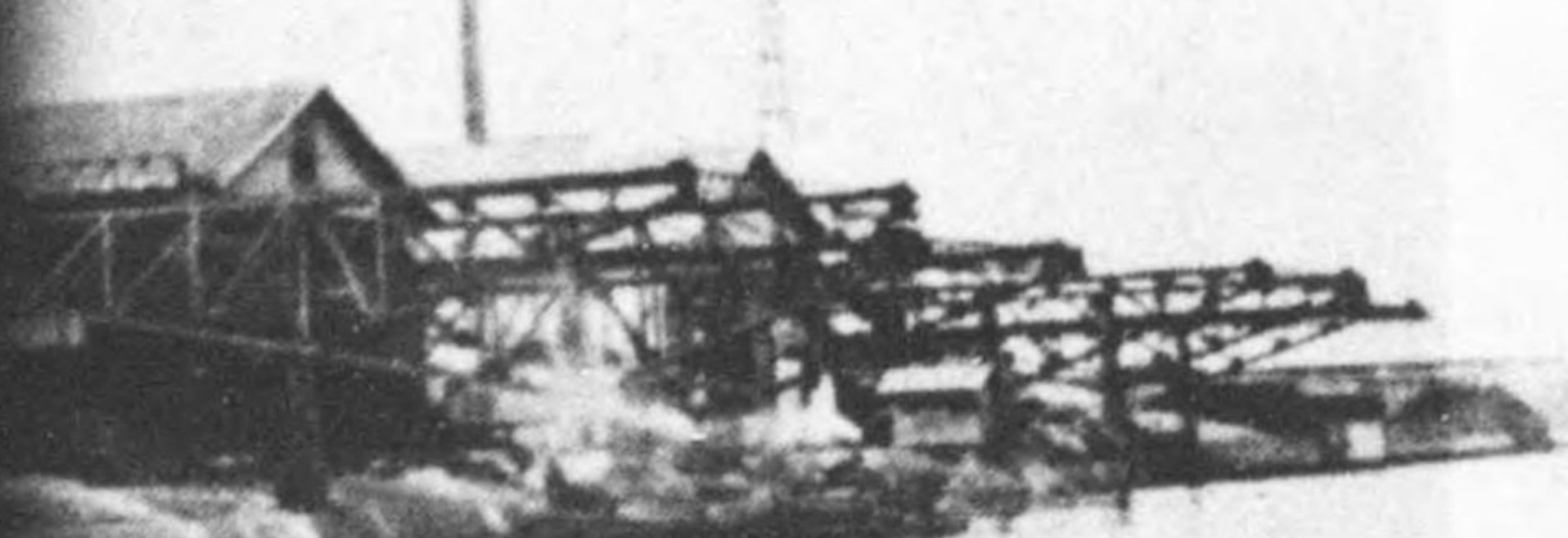
The high standard of quality of Nichia production is possible because of long experience in manufacturing, complete and efficient equipment, and close supervision maintained over all operations under one principle of factory management. The buyers may always be rest assured in all respects as long as they make purchase of goods bearing "Sun Brand", which is the registered trade mark used on all Nichia production.

Constant and continued patronage is solicited.

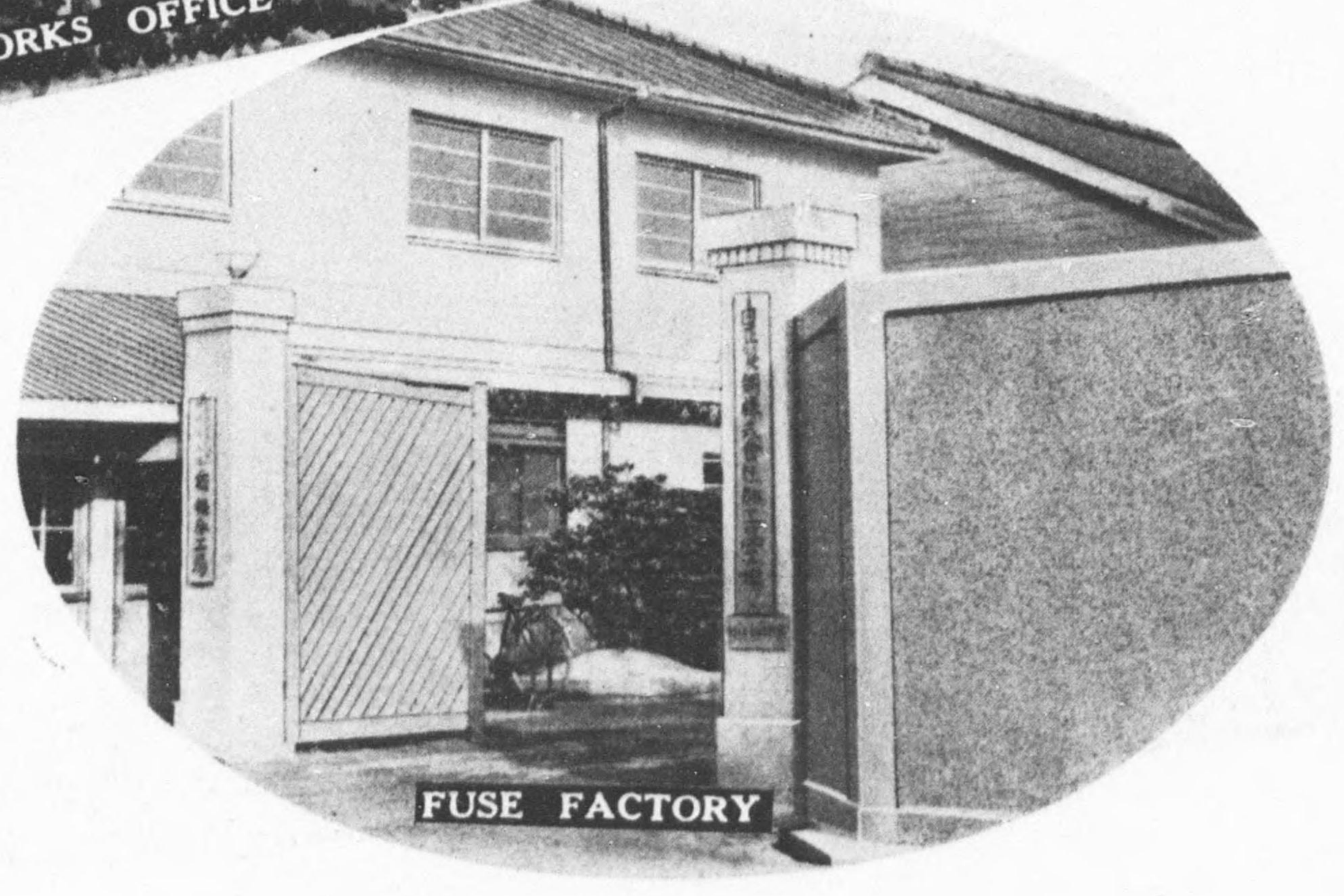
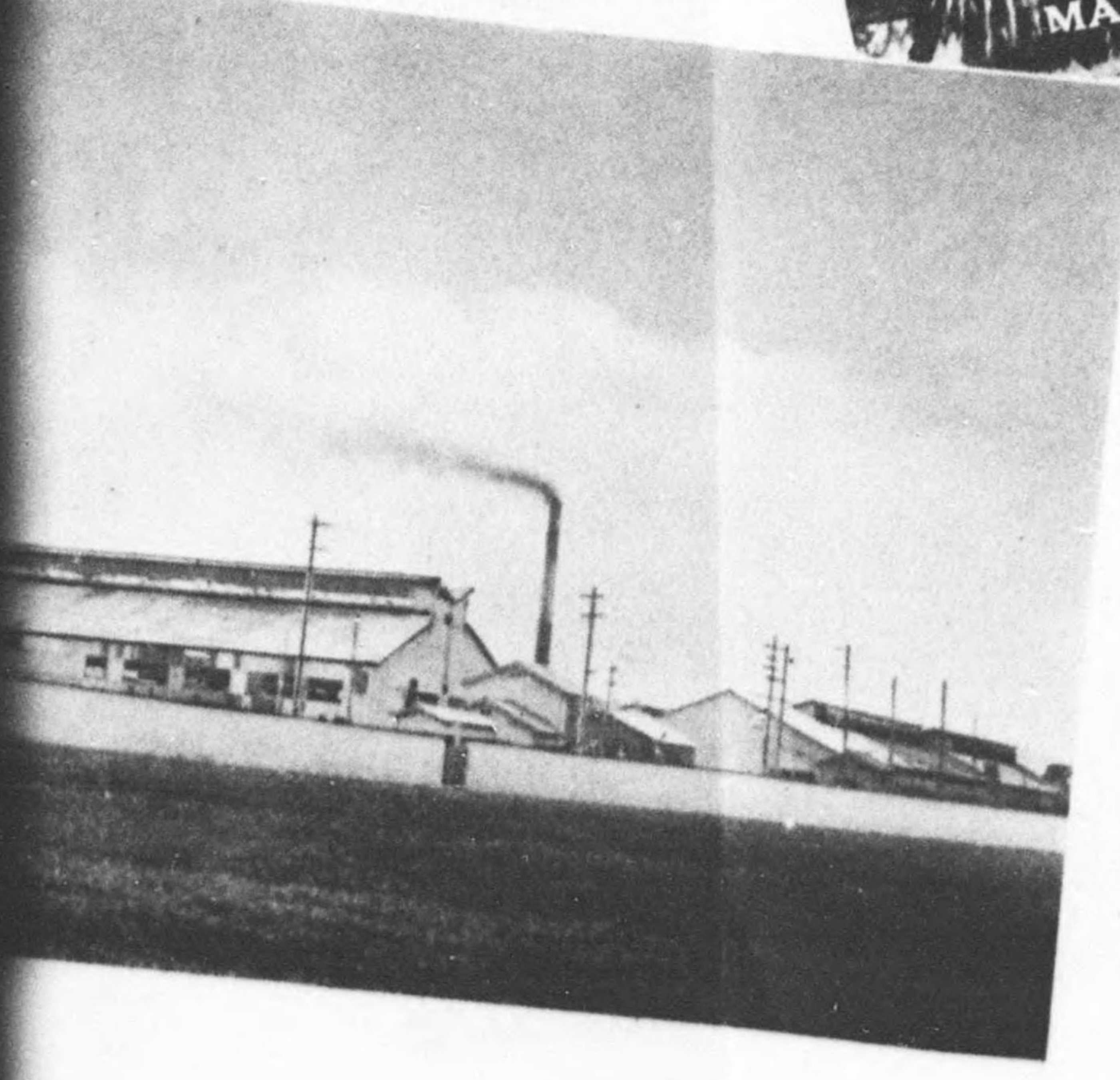




MAIN WORKS



MAIN WORKS OFFICE



FUSE FACTORY



DECLASSIFIED E.O. 12958 SECTION 5 102/ARBS 101

## Growth and historical development outlined.

Established in March 1918 under the style of Nippon Aento Kabushiki Kaisha, with a view to manufacture and sell Galvanized Steel Sheets.

In 1925, licenced by Japanese Government as a Private Bonded Factory, and launched to make a good deal of efforts toward increase in export business.

In 1929, started to manufacture Steel Wires, Galvanized Steel Wires, Barbed Wires, Wire Nails, in addition to Galvanized Steel Sheets.

In 1935, started to manufacture Hoop Irons.

In 1937, constructed Mill of Open Hearth Furnaces and Steel Billets Plant, and thereby started to manufacture Steel Ingots and Steel Billets.

In 1941, bought whole plant of Amagasaki Steel Works of Nippon Soda K. K. and the Company proceeded into the field of manufacturing Special Steel.

With a view to make finished hardwares, partly because of controlling production in Main Works and partly because of utilizing misrolled hoops or sheets, or wires of rejected class, established Branch Factories in Osaka. Fukae Branch Factory was established in 1942, while Fuse and Hiraoka Branch Factories were established in the following year respectively. These branch factories get self-supply of materials from their Main Works and produce so called third stage steel goods, such as Special Nails, Rivets, Nuts, Wood Screws, Machine Screws, Hinges, Cycle Mudguard, Belt Lacing, Wire Netting, etc.

With the development of the Company's activities, the capital was gradually increased as shown below:

Y	250,000.00	in	1918 (at the time of establishment)
Y	350,000.00	in	1918
Y	700,000.00	in	1920
Y	1,500,000.00	in	1925
Y	5,000,000.00	in	1937
Y	10,000,000.00	in	1939
Y	17,500,000.00	in	1943
Y	27,500,000.00	in	1945
Y	60,000,000.00	in	1948
Y	120,000,000.00	in	1949

The name of Company was changed as Nippon Aento Kogyo K. K. in 1935, and the present name was adopted since 1939.

## Present activities.

The Company is equipped with mills to produce from primary steel

DECLASSIFIED E.O. 12958 SECTION 3 4027MMDS NS.

products to the secondary and third steel products. In other words, Company makes from steel ingot to the various kinds of finished steel goods under one principle of factory operation.

The followings are some of the characteristics of the Company. Production of Steel Hoops, which is one of the main products of the Company, had been considered very difficult among Japanese specialists at large, and left aside of Japanese steel industry for many years. However, the Company initiated this industry as the pioneer in Japan. Although there now exist a few other steel hoop makers in this country, the Company is the only one who can make so wide ranges in width from 19 mm to 200 mm. Steel hoops for making Conduit Pipes require a superior quality one. This type of steel hoop, as well as cotton baling hoops for export, are well known as one of the main characteristic products of the Company.

Production of Galvanized Steel Sheets stands on the Company's long years' experience for last thirty years. Amount of yearly production of this Company occupies the greater part of whole amount of production in Japan. Also greater part of whole export amount of Galvanized Sheets from Japan had long been occupied by this Company in pre-war time. After War, the Company supplied these articles in large quantity to Allied Powers under P. D. Export is also being made, first to philippines and, subsequently, to various parts of overseas countries.

Galvanized Steel Wires, Steel Wires, Barbed Wires, Wire Nails are other main products of the Company. They were also exported a great deal of quantity in pre-war days, and in post-war, supplied to Allied Powers, as well as Japanese Government. As one of the biggest wire products makers in this country, the Company has long been widely known and reputed well both abroad and in home market. The Company has already shipped and contracted to ship wire products for export on a large scale after war.

Production of steel in Open Hearth Furnace kept ceased after the War was finished. However, re-opening of this Mill was permitted and began operation from October 1948. With high efficiency and, at the same time, at low cost, this Mill is raising the highest result in steel making circles in this country.

In March 1948, started production of Steel Sheet Bars in the Bar Mill. Out of many sheet bar makers whose Mills are still closed, or are working at a loss, the Mill of this Company is working to full capacity, raising a good result.

Regarding Directorate of the company, Mr. Tokumatsu Tanaka, President,

presides over the Company for last thirty years, while Mr. Hikoji Isaka, Mr. Yoshitomo Uchinami, Managing Directors, work with the Company for last twenty years. All of these people command a long years' experience in steel industry. Mr. Takesaburo Matsubara, Managing Director, who acts as technical director, possesses thirty years' experience in steel making and, as far as open hearth furnace technic is concerned, he is one of the highest authorities in Japan.

**Production Capacity (per a year)**

	(Unit ton)
Steel Ingot (Open Heath Furnace)	132,000
— do — (Electric Furnace)	21,000
Steel Billet	120,000
Broad Steel Strip	72,000
Narrow Steel Hoop	30,000
Steel Sheet Bar	108,000
Steel Bar	21,600
Forged Steel	6,000
Steel Ball	2,400
Welded Steel Pipe	4,100
Cold Rolled Steel Hoop	6,000
Cold Rolled Steel Plate	1,500
Galvanized Steel Sheet	84,000
Galvanized Steel Wire	37,000
Steel Wire	45,000
Wire Nail	8,000
Special Nail	1,300
Barbed Wire	9,600
Wire Ruth	1,400
Welding Rod	900
Rivet	500
Iron Wood Screw	200
Steel Hinges	480
Steel Belt Lacing	180
Galvanized Steel Staple	120

Out of many of our products, items mentioned below suit for export and we compiled this catalogue, for the guidance to our overseas customers, covering only those items. Further information in general or on specific item can be obtained from us on request.

DECLASSIFIED E.O. 12958 SECTION 5 402/RMS NO.

### Export Products

Steel Sheet Bar, Steel Billet, Steel Reinforcing Bar, Steel Crushing Ball, Electric Conduit Pipe, Gass Pipe, Welded Pipe for Bicycle, Hot Rolled Mild Steel Hoop, (Broad & Narrow Width), Cold Rolled Steel Hoop, (Broad & Narrow Width) Galvanized Steel Sheet, (Plain and Corrugated), Galvanized Steel Wire, Steel Wire, Barbed Wire, Wire Nail & Panel Pin, Pin and Special Nail, Galvanized Wire Netting, Iron and Brass Wood Screw, Machine Screw, Rivet, Wrought Iron Narrow Butt, Steel Belt Lacing, Bicycle Mudguard.

### Board of Directors

Director & President : Mr. T. Tanaka  
Managing Directors : Mr. H. Isaka  
Mr. T. Matsubara  
Mr. Y. Uchinami  
Directors : Mr. S. Kikuyama  
Mr. M. Tokieda  
Mr. F. Kakiuchi  
Mr. Y. Yoneda  
Auditors : Mr. K. Morinobu  
Mr. S. Todai  
Mr. E. Kaede

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### Bankers

The Sanwa Bank, Ltd., Head Office	Imabashi Nichome, Osaka
The Sanwa Bank, Ltd., Kawaramachi Branch	Kawaramachi Nichome, Osaka
The Sanwa Bank, Ltd., Amagasaki Branch	Showadori Sanchome, Amagasaki
The Daiichi Bank, Ltd., Osaka Branch	Koraibashi Yonchome, Osaka
The Industrial Bank of Japan, Ltd., Osaka Branch	Koraibashi Yonchome, Osaka

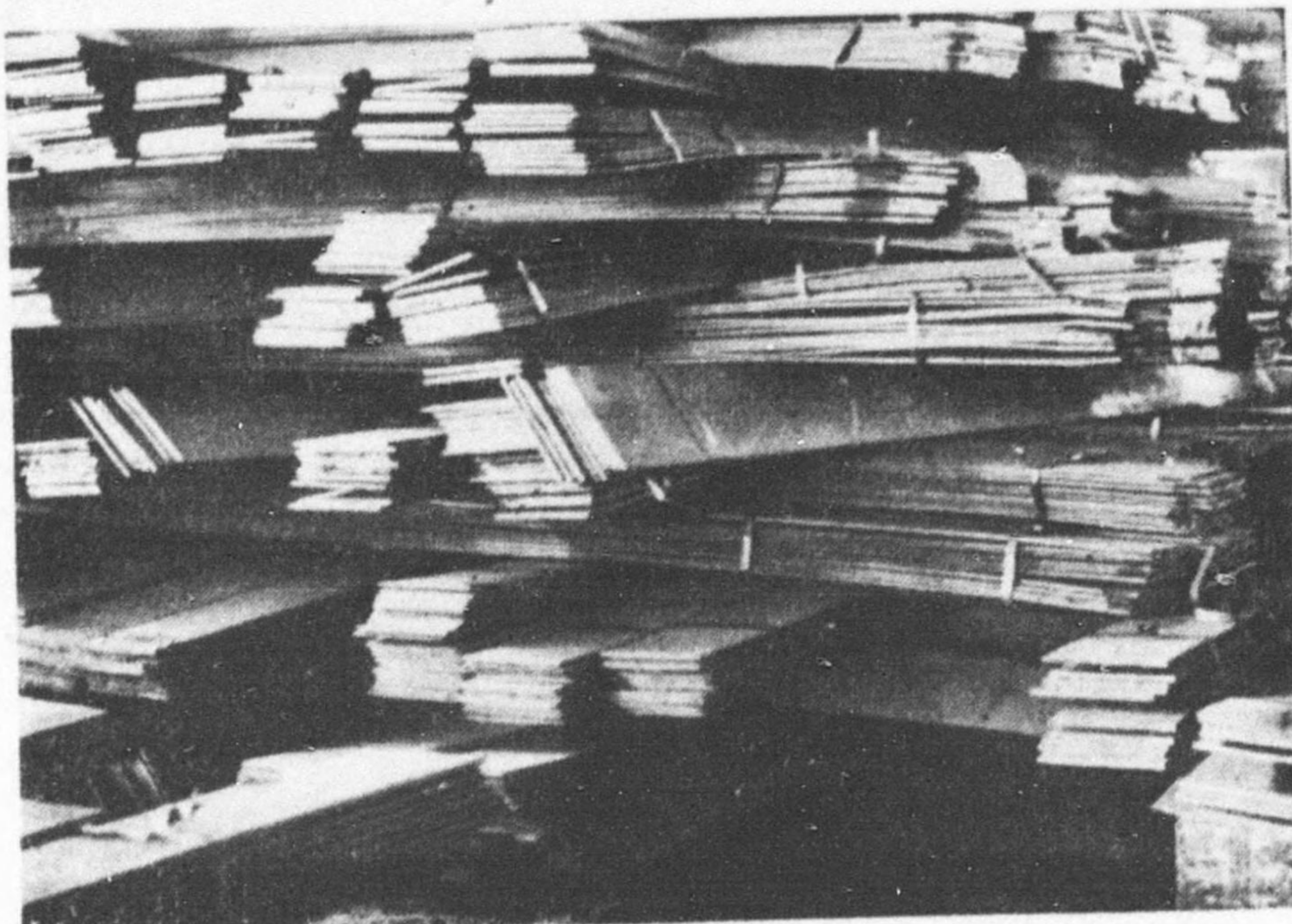
Also reference :

The National City Bank of New York, Osaka  
The Chase National Bank of the City of New York, Osaka

### Steel Sheet Bar

#### A. Size

Thickness	8.1 $\frac{m}{m}$ - 13.8 $\frac{m}{m}$	Allowance	$\pm 4\%$
Width	250 $\frac{m}{m}$		
Length	736 $\frac{m}{m}$ - 950 $\frac{m}{m}$		
Weight	11.8 kgs - 25.7 kgs		



#### B. Chemical Composition

C	< 0.12 %
Mn	0.30 - 0.45 %
Si	< 0.08 %
P	< 0.08 %
S	< 0.04 %

Above is J. E. S. We can make in these composition.  
However, we are, at present making at

C	< 0.10 %
Si	0.05 - 0.08 %
P	0.05 - 0.08 %
S + P	0.10 - 0.15 %

Any adjustment can be made on your requirement.



## Steel Billet

### A. Size

- (1) Sq. 50  $\frac{m}{m}$  - 170  $\frac{m}{m}$  Allowance  $\pm 4\%$

Thickness                  Width  
 50  $\frac{m}{m}$   $\times$  100  $\frac{m}{m}$  - 200  $\frac{m}{m}$         "

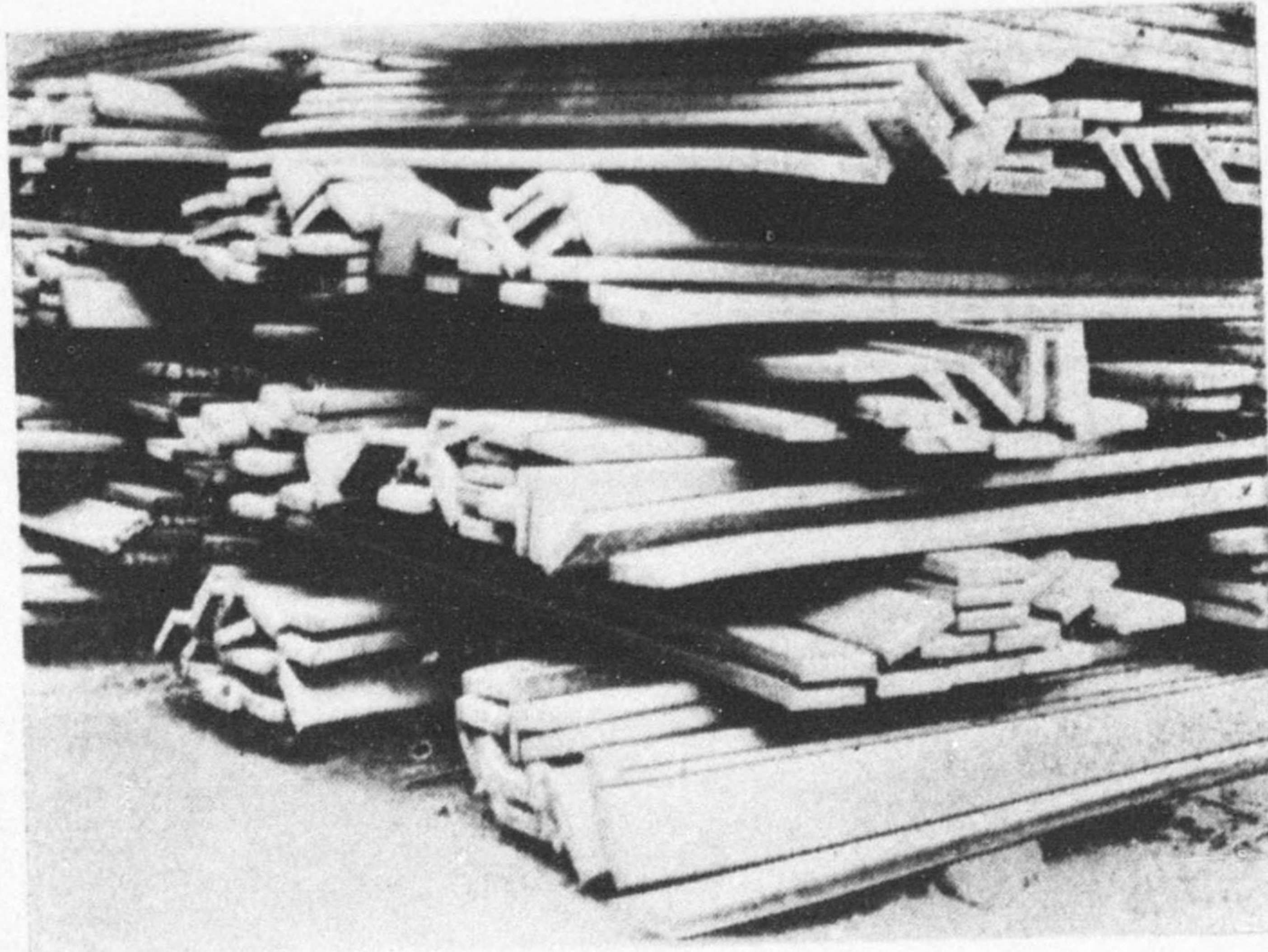
Length    2.0  $m$  - 3.5  $m$

Weight    39 kgs - 1,010 kgs

- (2) Sq. 50  $\frac{m}{m}$  - 85  $\frac{m}{m}$  Allowance  $\pm 4\%$

Length    1.0  $m$  - 6.5  $m$

Weight    19.5 kgs - 480 kgs



### B. Physical Property

	C	Si	Mn	P	S	Tensile Strength kg/mm <sup>2</sup>	Elongation
Special Dead Soft Steel <b>A</b>	< 0.08	tr.	< 0.6	< 0.04	< 0.04	34 - 41	> 25%
Special Dead Soft Steel <b>B</b>	< 0.10	"	"	"	"	"	"
Dead Soft Steel	0.1 - 0.18	< 0.35	< 0.75	< 0.05	< 0.06	40 - 47	> 21%
Soft Steel	0.18 - 0.2	"	"	"	"	"	"
Half Soft Steel	0.3 - 0.4	"	"	< 0.05	< 0.05	45 - 60	> 15%
Half Hard Steel	0.4 - 0.5	"	"	"	"	60 - 70	> 12%
Hard Steel	0.5 - 0.6	"	"	"	"	"	"
Extreme Hard Steel	> 0.6	"	"	"	"	> 70	> 8%

### C. Packing

10 - 20 billets in one bundle.

## Mild Steel Reinforcing Bar

(by Japanese Engineering Standard SS-41)

### A. Size and Weight

	Weight per foot	Length per 1,000 kgs		Weight per foot	Length per 1,000 kgs
$\frac{3}{8}$ "	0.152 kgs	6.579 feet	$1\frac{1}{4}$ "	1.92 kgs	521 feet
$\frac{1}{2}$ "	0.271	3.690	$1\frac{3}{8}$ "	2.44	410
$\frac{5}{8}$ "	0.482	2.075	$1\frac{1}{2}$ "	2.71	369
$\frac{3}{4}$ "	0.680	1.471	$1\frac{5}{8}$ "	3.32	301
$\frac{7}{8}$ "	0.908	1.101	$1\frac{3}{4}$ "	3.63	275
1"	1.17	855	$1\frac{7}{8}$ "	4.33	231
$1\frac{1}{8}$ "	1.47	680	2"	4.69	213

(2)

# NICHIA

**B. Chemical Composition & Physical Property.**

Composition: Sulphur & Phosphorus Max. 0.06 %  
 Tensile Strength: 41/50 kgs per sq. mm  
 Elongation: Over 20 per test piece length 8 x dia.  
 Cold bend: Without fracture 180 radius of Pin 1.5 x dia.

**C. Tolerance**

Diameter:  $\pm 2\%$  min. value  $\pm 0.5\%$   
 Length: 7 meters & less  $\pm 40\%$   
 Over 7 meters add  $+5\%$  to  $40\%$  per additional meter.  
 Weight: To be invoiced by scale weight per above listed.

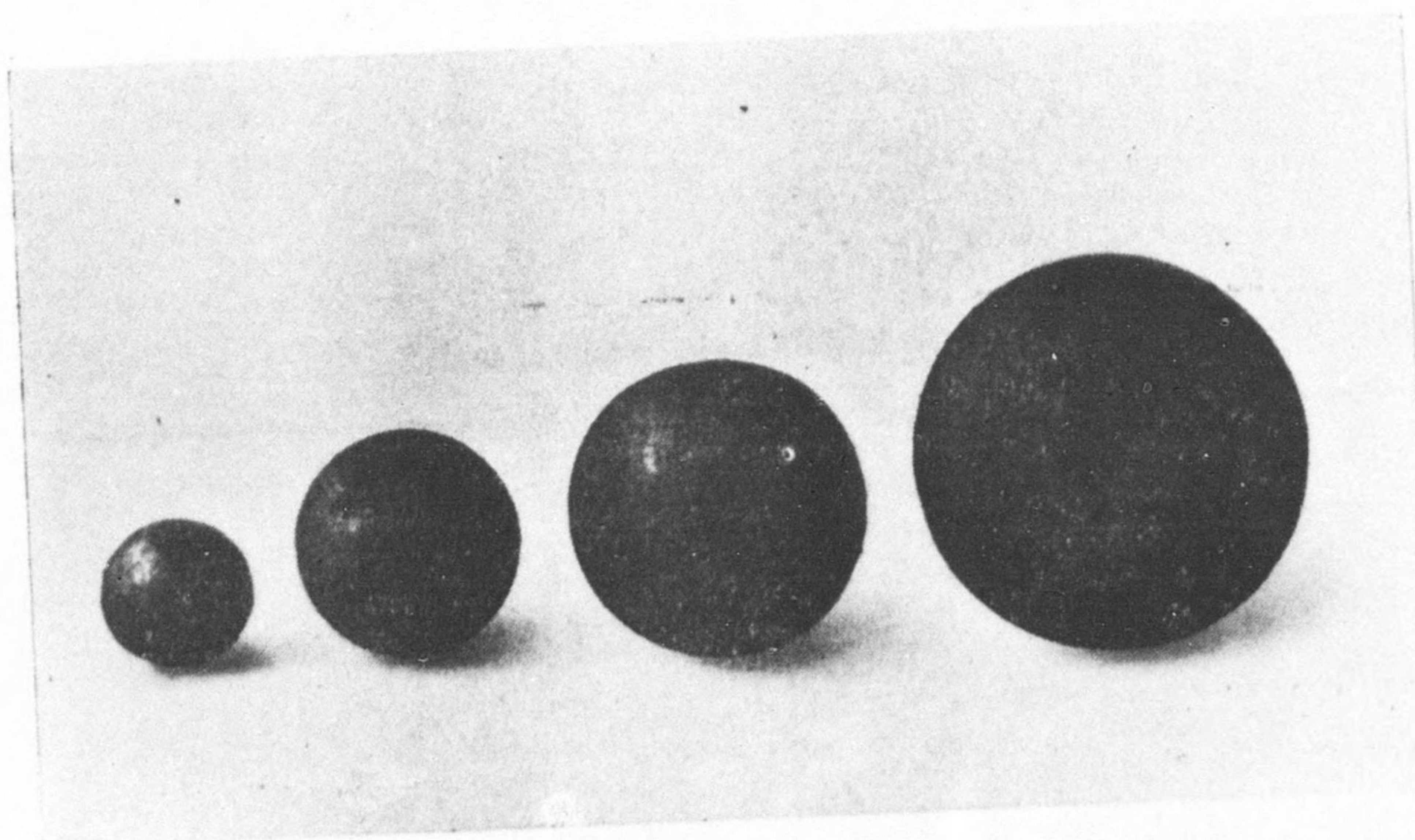
**D. Packing**

- Cut in any length per your requirement.
- One bundle about 50 kgs nett, tied with wire at several points.

**Steel Crushing Ball**

**A. Size and Weight**

Size		Weight per piece	No. of balls per 1,000 kgs.	Size		Weight per piece	No. of balls per 1,000 kgs.
Dia.				Dia.			
5"	125 <sup>m</sup> / <sub>m</sub>	8,027 gr.	124	2.36"	60	888 gr.	1,126
4"	100	4,110	243	2"	50	514	1,948
3.92"	90	2,996	334	1.57"	40	263	3,802
3"	75	1,734	577				



**B. Chemical and Physical characters**

Composition:  
 Carbon 0.35/70 %  
 Hardness:  
 35/55 by Shore.

**C. Packing**

In wooden case containing 50/60 kgs.

**D. Use of Steel Crushing Ball**

- For crushing coal, used in fire power station.
- For crushing ores and other similar purpose.

## Electric Conduit Pipe

( Black enamelled &/or Sherardized, both ends screwed, and one end with coupling. )

BLACK ENAMELLED Conduit Pipe is made of the best material made by ourselves and by excellent technic, after Japanese Engineering Standard (J. E. S.) in quality, style and workmanship.

It is 12 feet in length and has clean cut, firm and sharp threads on both ends and perfect coupling. In the process of manufacture, the pipe is dipped in bath of black enamel and then dried, afterwards fixed by baking.

This substantial coating of black enamel preserves the pipe from all corrosive actions, damp, acid and alkali.

SHERARDIZED Pipe is made same as above except that it is put into an iron drum with zinc dust, and then heated by a furnace providing an even substantial coating of zinc throughout the entire length of the interior as well as the exterior of the pipe.

### A. Size and Weight

#### (1) Thin Wall (Pipe for ordinary use)

Nominal dia.	Outside dia.	Tolerance in Outside dia.	Thickness	Inside dia.	Nett Weight with coupling per 12 feet.
5/8"	15.9 <sup>m/m</sup>	± 0.2 <sup>m/m</sup>	1.2 <sup>m/m</sup>	13.5 <sup>m/m</sup>	1.6195 kgs
3/4"	19.1	"	1.6	15.9	2.5604
1"	25.4	"	"	22.2	3.4940
1 1/4"	31.8	"	"	28.6	4.4444
1 1/2"	38.1	"	"	34.9	5.3828
2"	50.8	"	"	47.6	7.2842

#### (2) Thick Wall (Used when pipe is to be laid down in concrete wall)

Nominal dia.	Outside dia.	Tolerance in Outside dia.	Thickness	Inside dia.	Nett Weight with coupling per 12 feet.
1/2"	21.0 <sup>m/m</sup>	± 0.3 <sup>m/m</sup>	2.3 <sup>m/m</sup>	16.4 <sup>m/m</sup>	3.9338 kgs
3/4"	26.5	"	"	21.9	5.1149
1"	33.3	"	2.5	28.3	7.0869
1 1/4"	41.9	"	"	36.9	9.1851
1 1/2"	47.9	"	"	42.8	10.5061
2"	59.6	"	"	54.6	13.3220

Weight mini less 10%

(4)

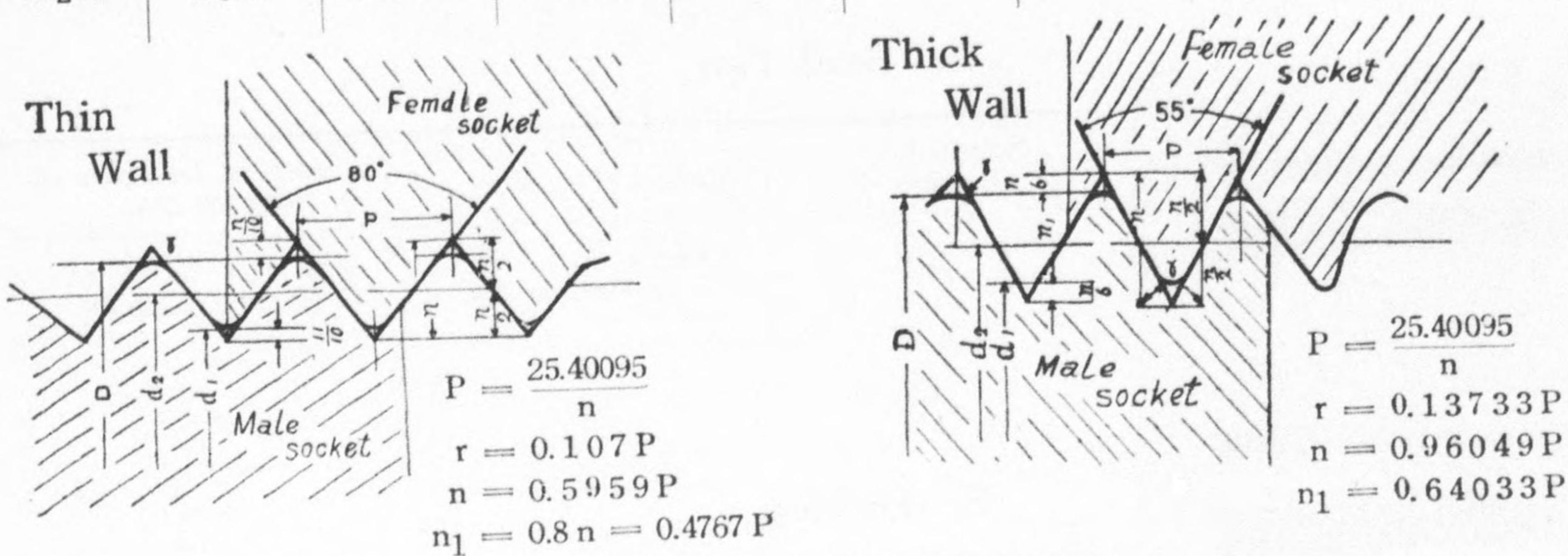
# NICHIA



**B. Threads**

**(1) For Thin Wall Conduit Pipe.**

Nominal Outside dia.	D	d <sub>1</sub>	d <sub>2</sub>	n	r	p	n	Length of the part at effective dia.	
	Major dia.	Root dia.	Effective	Depth of thread	Roundness	Pitch	No. of thread per inch	max.	min.
3/8"	15.9 <sup>m/m</sup>	14.55 <sup>m/m</sup>	15.23 <sup>m/m</sup>	0.67 <sup>m/m</sup>	0.15 <sup>m/m</sup>	1.411	18	13	11
3/4"	19.1	17.59	18.34	0.76	0.17	1.588	16	14	12
1"	25.4	23.89	24.64	"	"	"	"	17	15
1 1/4"	31.8	30.29	31.04	"	"	"	"	19	17
1 1/2"	38.1	36.59	37.34	"	"	"	"	21	19
2"	50.8	49.29	50.04	"	"	"	"	24	22



**(2) For Thick Wall Conduit Pipe &/or Thin Wall Gas Pipe.**

Nominal Outside dia.	D	d <sub>1</sub>	d <sub>2</sub>	n	r	p	n	Length of the part at effective dia.		Distance between position of major dia. of cone thread and the end of pipe.	
	Major dia.	Root dia.	Effective dia.	Depth of thread	Roundness	Pitch	No. of thread per inch	max.	min.	max.	min.
1/2"	20.96 <sup>m/m</sup>	18.63 <sup>m/m</sup>	19.79 <sup>m/m</sup>	1.16 <sup>m/m</sup>	0.25 <sup>m/m</sup>	1.814	14	18.5 <sup>m/m</sup>	16 <sup>m/m</sup>	9 <sup>m/m</sup>	6 <sup>m/m</sup>
3/4"	26.44	24.12	25.28	"	"	"	"	21.5	19	11	7
1"	33.25	30.29	31.77	1.48	0.32	2.309	11	25.0	22	13	8.5
1 1/4"	41.91	38.95	40.43	"	"	"	"	28.0	25	16	11
1 1/2"	47.80	44.85	46.32	"	"	"	"	"	"	"	"
2"	59.61	56.66	58.14	"	"	"	"	31.5	28	18	13

**C. Coupling**

**(1) For Thin wall Conduit Pipe.**

Nominal dia.	Outside dia.	Length	Weight
3/8"	19.5 <sup>m/m</sup>	26 <sup>m/m</sup>	0.0235 kgs
3/4"	23.0	28	0.0334
1"	30.0	34	0.0615
1 1/4"	36.5	38	0.0846
1 1/2"	43.0	42	0.1178
2"	56.0	48	0.1872

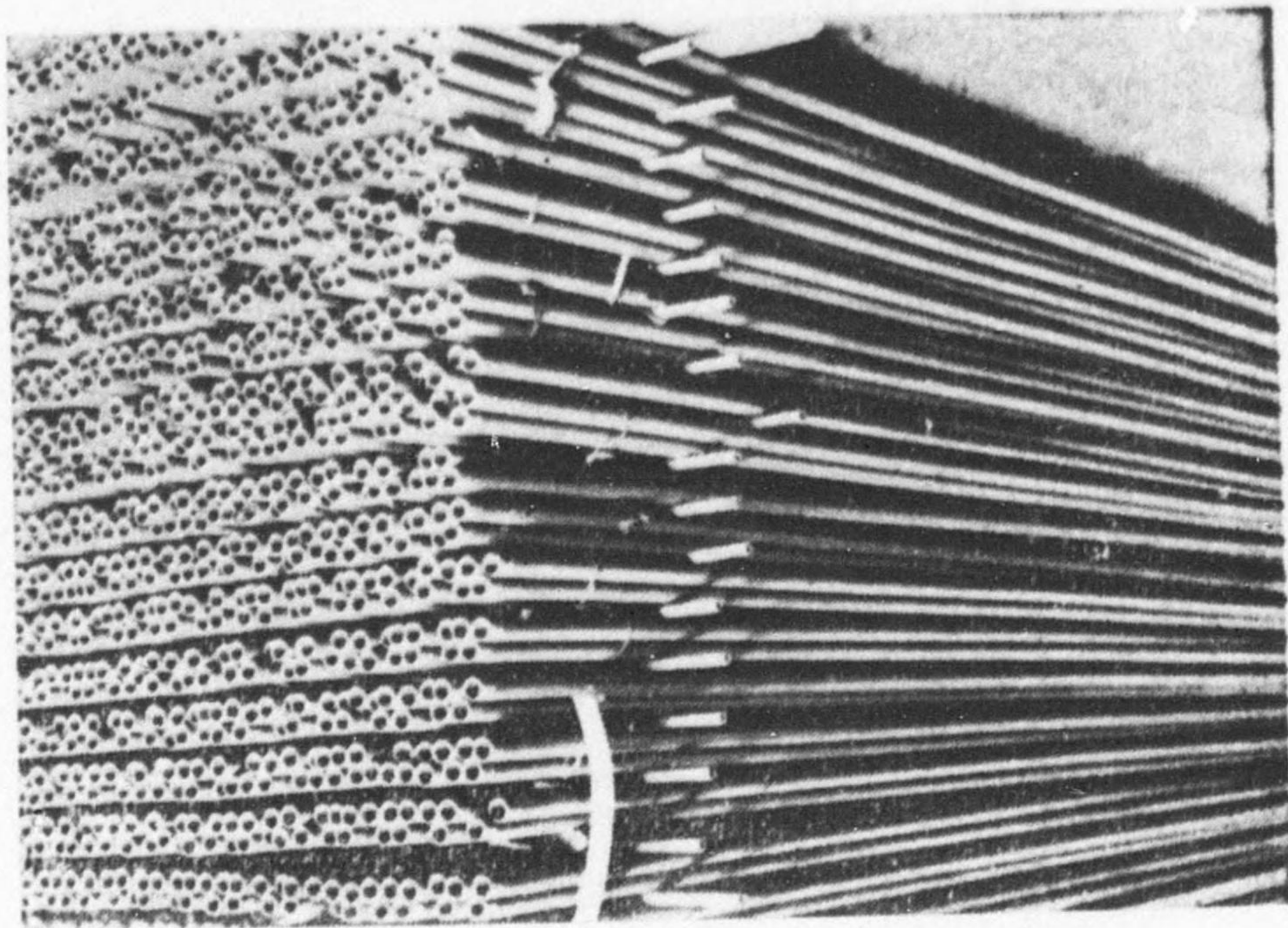
**(2) For Thick Wall Conduit Pipe &/or Thin Wall Gas Pipe.**

Nominal dia.	Outside dia.	Length	Weight
1/2"	26 <sup>m/m</sup>	35 <sup>m/m</sup>	0.058 kgs
3/4"	33	40	0.102
1"	40	50	0.158
1 1/4"	50	55	0.300
1 1/2"	56	55	0.323
2"	70	60	0.488



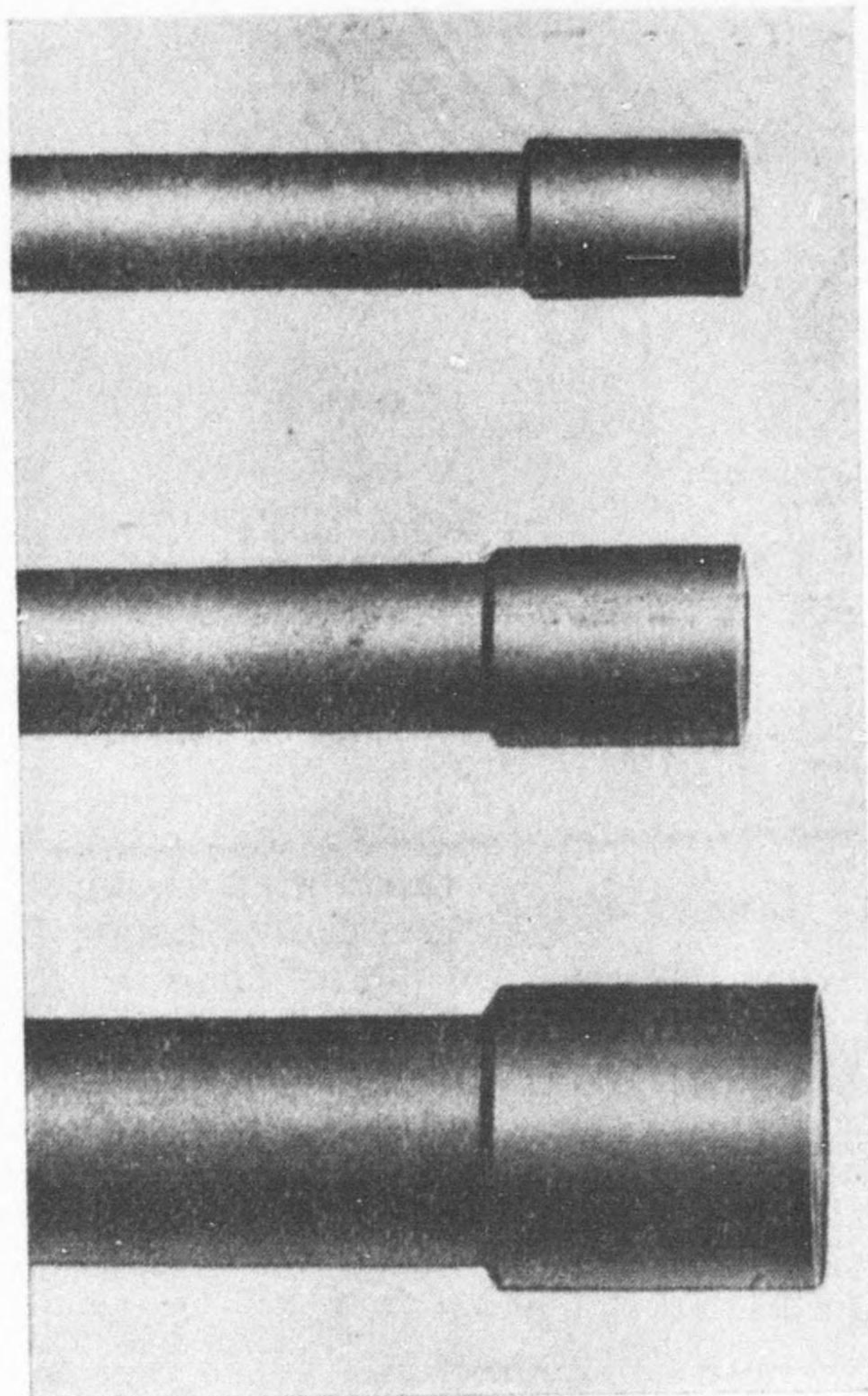
**D. Chemical Analysis**

Carbon	Not more than	0.12 %
Silicon	Trace	
Manganese	Not more than	0.4 %
Phosphorus		0.05 %
Sulphur		0.05 %
Copper		0.21 %
Tensile Strength	Not less than	35 kgs per $\frac{m}{m}^2$
Elongation	(50 $\frac{m}{m}$ )	30 %



**E. Bend Test**

Nominal outside dia.	Radius of bending	Increase or Decrease of outside dia.
$\frac{5}{8}$ "	4 times of outside dia.	Not over 20 % of Original outside dia.
$\frac{3}{4}$ "	"	"
1 "	"	"



**F. Packing**

Nominal outside dia.	No. of pipes per bundle	Nett weight with coupling per bundle	Packing style
$\frac{5}{8}$ "	30	51.58 kgs	9 points wrapped with tarpaulin paper and then gunnycloth, tied with wire. Packing in wooden case can be made, if so required, at an extra charge.
$\frac{3}{4}$ "	22	56.33	
1 "	15	52.41	
1 $\frac{1}{4}$ "	12	53.33	
1 $\frac{1}{2}$ "	10	53.83	
2 "	8	58.27	

**Weight List of Conduit Pipe (Approx)**

**Thin Wall**

Nominal outside dia.	Without coupling				With coupling			
	Nett Weight		No. of Pipes per 1,000 kgs	Length of Pipe per 1,000 kgs	Weight of Coupling	Nett weight per 12 feet	No. of Pipes per 1,000 kgs	Length of Pipe per 1,000 kgs
	per foot	per 12 feet						
$\frac{5}{8}$ "	0.1325 kgs	1,591 kgs	629	7,548 feet	0.023 kgs	1,619 kgs	617	7,404 feet
$\frac{3}{4}$ "	0.2105	2,527	396	4,752	0.033	2,560	391	4,692
1 "	0.2861	3,433	296	3,492	0.062	3,494	286	3,432
1 $\frac{1}{4}$ "	0.3632	4,358	229	2,748	0.086	4,444	225	2,700
1 $\frac{1}{2}$ "	0.4387	5,265	190	2,280	0.118	5,383	186	2,232
2 "	0.5914	7,097	141	1,692	0.187	7,284	137	1,644

(6)

**NICHIA**

### Thick Wall

Nominal outside dia.	Without Coupling				With Coupling			
	Nett Weight		No. of Pipes per 1,000 kgs	Length of pipe per 1,000 kgs	Weight of Coupling	Nett Weight per 12 feet	No. of Pipes per 1,000 kgs	Length of Pipe per 1,000 kgs
	per foot	per 12 feet						
1/2"	0.3230	3,876	258	3,096	0.058	3,934	254	3,048
3/4"	0.4174	5,013	199	2,388	0.102	5,115	196	2,352
1"	0.5774	6,929	144	1,728	0.158	7,087	141	1,692
1 1/4"	0.7404	8,885	113	1,356	0.300	9,185	109	1,308
1 1/2"	0.8486	10,183	98	1,176	0.323	10,506	95	1,140
2"	1.0695	12,834	78	936	0.488	13,322	75	900

### Gass Pipe (Thin Wall)

Black &/or Sherardized, both ends screwed, one end with coupling. These pipes are widely used for making machines, transportation of gass, vapour or water of low pressure (up to 10 kgs/cm<sup>2</sup>) and other general purpose.

#### A. Size and Weight

Nominal dia.	Outside dia.	Tolerance of Outside dia.	Thickness	Inside dia.	Nett Weight with coupling per 12 feet	Length of coupling
1/2"	21.4 <sup>m</sup> / <sub>m</sub>	± 0.2	2.3 <sup>m</sup> / <sub>m</sub>	16.8 <sup>m</sup> / <sub>m</sub>	4,007 kgs	35 <sup>m</sup> / <sub>m</sub>
3/4"	26.9	"	"	22.3	5,440	40
1"	33.7	"	2.8	28.1	7,946	50
1 1/4"	42.4	"	"	36.8	10,319	55
1 1/2"	48.3	"	"	42.7	11,804	55
2"	60.2	"	"	54.6	14,967	60

#### B. Coupling

Couplings for Thick Wall Conduit Pipes can be used for Gass Pipes (Thin Wall).

Please refer to the table of Conduit Pipe (Thick Wall).

Weight List of Gas Pipe (Thin Wall)

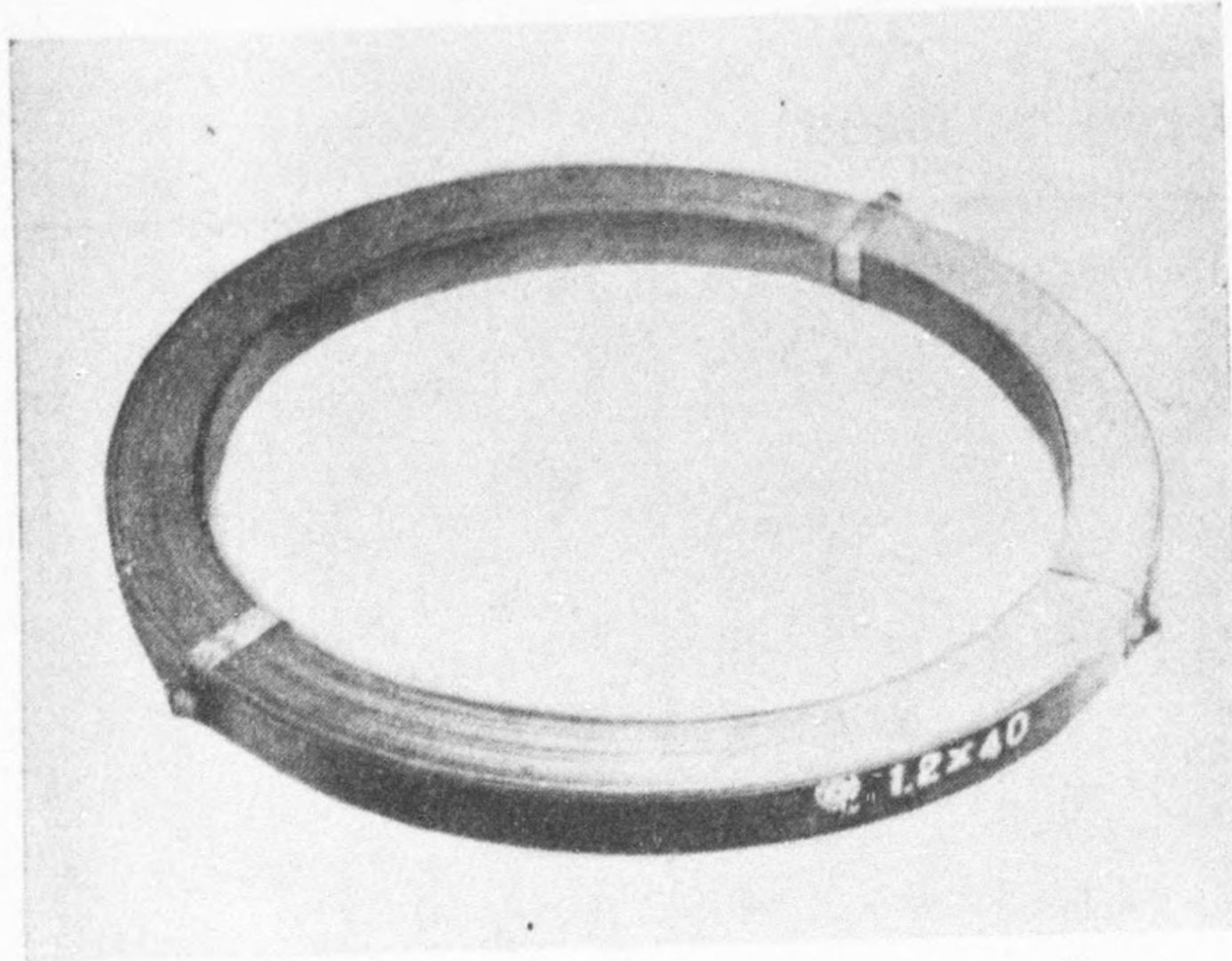
Nominal outside dia.	Without Coupling				With Coupling				
	Nett Weight		No. of Pipes per 1,000 kgs	Length of Pipe per 1,000 kgs feet	Weight of Coupling kgs	Nett Weight		No. of Pipes per 1,000 kgs	Length of Pipe per 1,000 kgs feet
	per foot	per 12 feet				per 12 feet	per 12 feet		
1/2"	0.32907	3.9489	253	3,036	0.058	4.0069	250	3,000	
3/4"	0.44486	5.3383	187	2,244	0.102	5.4403	184	2,208	
1"	0.64901	7.7881	128	1,536	0.158	7.9461	126	1,512	
1 1/4"	0.83487	10.0185	100	1,200	0.300	10.3185	97	1,164	
1 1/2"	0.95676	11.4811	87	1,044	0.323	11.8041	85	1,020	
2"	1.20661	14.4793	69	828	0.488	14.9673	67	804	

Welded Pipe for Bicycle

Size and Weight

Nominal dia.	Outside dia.	Tolerance in Outside dia.	Thickness	Tolerance in Thickness	Inside dia.	Weight per 12 feet
1 5/8"	41.0 <sup>m</sup> / <sub>m</sub>	± 0.2	4.0 <sup>m</sup> / <sub>m</sub>	+0.5 - 0	33.0 <sup>m</sup> / <sub>m</sub>	13.339 kgs
1 1/2"	38.0	± 0.2	2.6	+0.3 - 0	32.8	8.296
1 3/8"	35.0	± 0.2	2.6	+0.3 - 0	29.8	7.591
1 1/4"	31.8	+0.2 - 0.1	1.2	+0.3 - 0	29.4	3.309
1 1/8"	28.6	+0.2 - 0.1	1.2	+0.3 - 0	26.2	2.954
1"	25.4	+0.2 - 0.1	1.6	+0.2 - 0	22.2	3.426
1"	25.4	+0.2 - 0.1	1.2	+0.3 - 0	23.0	2.619
7/8"	22.2	+0.2 - 0.1	1.6	+0.3 - 0	19.0	2.973
7/8"	22.2	+0.2 - 0.1	1.2	+0.3 - 0	19.8	2.271
3/4"	19.0	± 0.2	2.0	+0.3 - 0	15.0	3.064
3/4"	19.0	± 0.2	1.2	+0.3 - 0	16.6	1.927
5/8"	17.5	± 0.15	2.0	+0.3 - 0	13.5	2.794
5/8"	17.5	± 0.15	1.2	+0.3 - 0	15.1	1.759
5/8"	16.0	± 0.15	2.0	+0.3 - 0	12.0	2.523
5/8"	16.0	± 0.15	1.0	+0.3 - 0	14.0	1.353
1/4"	6.3	± 0.1	1.2	+0.2 - 0	3.9	0.552

## Steel Hoop



In Japan, manufacture of Hoop Iron had long been considered difficult from technical point of view. With the increase in demand, our country relied on import a considerable amount each year.

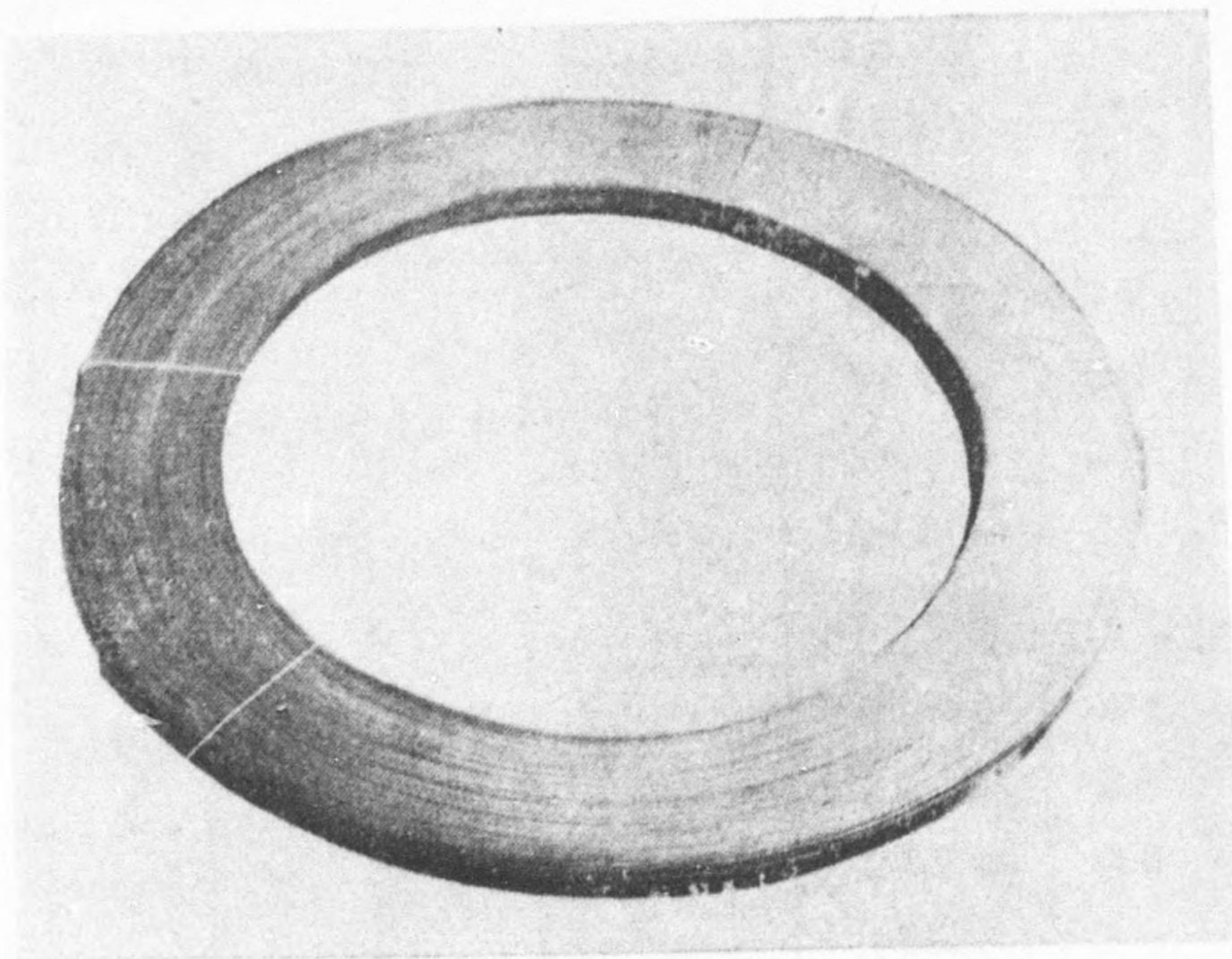
We thought it regrettable and launched a study the possibility of inaugurating manufacture of this type of steel.

We dispatched our staff technician

to America and Europe and finally bought necessary equipments from Germany.

Employing German mechanics for technical guidance, we started in 1935 the manufacture in our Mill as the pioneer maker of steel hoop in this country.

After overcoming a great deal of hardships, we finally succeeded to produce hoop iron of even better quality than



those of imported. We now produce steel hoops of so wide ranges in width and thickness as shown below, from 19  $\frac{m}{m}$  to 200  $\frac{m}{m}$  (thickness from 0.9  $\frac{m}{m}$  to 3.8  $\frac{m}{m}$ ) in case of Hot rolled, and from 8  $\frac{m}{m}$  to 195  $\frac{m}{m}$  (thickness from 0.2  $\frac{m}{m}$  to 2.5  $\frac{m}{m}$ ) in case of Cold rolled.



Since we started manufacture of Steel hoops in 1935, we supplied a great deal of quantity not only to home market but also to overseas including India, Brazil, Egypt, Finland and elsewhere.

## Hot Rolled Mild Steel Hoop

### A. Size

(Those marked 0 can be made)

Width	Thickness	BWG No. 20 0.9 $\frac{m}{m}$	19	18	17	16	15	14	13	11	10	10	9
			1.0	1.2	1.4	1.6	1.8	2.0	2.3	3.0	3.2	3.5	3.8
19	0.746"	0	0	0	0	0							
22	0.864	0	0	0	0	0	0						
25	1.000		0	0	0	0	0	0	0				
32	1.257			0	0	0	0	0	0	0	0		
44	1.729		0	0	0	0	0	0	0	0	0		
65	2.554			0	0	0	0	0	0	0	0		
68	2.672			0	0	0	0	0	0	0	0		
70	2.751			0	0	0	0	0	0	0	0		
73	2.868				0	0	0	0	0	0	0		
76	2.986				0	0	0	0	0	0	0		
77	3.026				0	0	0	0	0	0	0		
80	3.144				0	0	0	0	0	0	0		
82	3.222				0	0	0	0	0	0	0		
85	3.340				0	0	0	0	0	0	0		
89	3.497				0	0	0	0	0	0	0		
92	3.615				0	0	0	0	0	0	0		
95	3.733				0	0	0	0	0	0	0		
96	3.772				0	0	0	0	0	0	0		
98	3.851				0	0	0	0	0	0	0		
102	4.008				0	0	0	0	0	0	0		
104	4.087				0	0	0	0	0	0	0		
105	4.126				0	0	0	0	0	0	0		
107	4.205				0	0	0	0	0	0	0		
117	4.598				0	0	0	0	0	0	0		
120	4.716				0	0	0	0	0	0	0		
121	4.755				0	0	0	0	0	0	0		
125	4.912					0	0	0	0	0	0		
130	5.109					0	0	0	0	0	0		
140	5.502					0	0	0	0	0	0		
150	5.895					0	0	0	0	0	0		
160	6.288					0	0	0	0	0	0	0	0
165	6.484					0	0	0	0	0	0	0	0
170	6.681					0	0	0	0	0	0	0	0
180	7.074						0	0	0	0	0	0	0
200	7.860							0	0	0	0	0	0

B. Tolerance

Thickness :  $\pm 8\%$   $\pm 0.15 \frac{m}{m}$  min.  
 In case of  $19 \frac{m}{m}$  in width,  $\pm 0.1 \frac{m}{m}$  min.  
 Width :  $\pm 1\%$   $\pm 1.0 \frac{m}{m}$  min.

C. Chemical Analysis

Dense	Chemical Analysis %					Physical Properties	
	C	Si	Mn	P	S	Tensile Strength Kgs per $\frac{m}{m}^2$	Elongation %
SPH 1	< 0.12	< 0.04	< 0.40	< 0.05	< 0.05	34 - 41	725
SPH 2	0.13-0.23	< 0.04	< 0.50	< 0.05	< 0.05	40 - 47	721
SPH 3	0.24-0.35	0.15-0.35	< 0.60	< 0.05	< 0.05	45 - 60	715

Our Steel Hoops are made by Siemens - Martin Process and of Mild Steel of above analysis. Per centage of above chemical analysis can be changed according to your requirement. Tolerance, Tensile Strength and Elongation also can be changed if so required.

D. Finishing

Hoops are hot rolled, round edged and tied with steel band at four points.

E. Length & Weight

(Both for Hot Rolled & Cold Rolled)

BWG No.	Width $\frac{5}{8}$ "		Width $\frac{3}{4}$ "		Width $\frac{7}{8}$ "		Width 1 "		Width 1. $\frac{1}{4}$ "		Width 1. $\frac{1}{2}$ "	
	Weight per foot	Length per kgs 1,000	Weight per foot	Length per kgs 1,000	Weight per foot	Length per kgs 1,000	Weight per foot	Length per kgs 1,000	Weight per foot	Length per kgs 1,000	Weight per foot	Length per kgs 1,000
30	0.0116	86,207	0.0139	71,942	0.0162	61,728	0.0185	54,054	0.0231	43,230	0.0278	35,971
29	0.0125	80,000	0.0151	66,226	0.0176	56,818	0.0200	50,000	0.0251	39,841	0.0301	33,223
28	0.0135	74,074	0.0162	61,728	0.0189	52,908	0.0216	46,296	0.0270	37,037	0.0324	30,864
27	0.0154	64,935	0.0185	54,054	0.0216	46,296	0.0247	40,486	0.0306	32,680	0.0370	27,027
26	0.0174	57,471	0.0208	48,077	0.0243	41,152	0.0278	35,971	0.0347	28,818	0.0416	24,038
25	0.0193	51,813	0.0231	43,290	0.0270	37,037	0.0308	32,468	0.0386	25,907	0.0463	21,598
24	0.0212	47,169	0.0254	39,370	0.0297	33,670	0.0339	29,499	0.0426	23,585	0.0509	19,646
23	0.0241	41,493	0.0289	34,602	0.0337	29,674	0.0386	25,907	0.0482	20,747	0.0578	17,301
22	0.0270	37,037	0.0324	30,864	0.0378	26,455	0.0432	23,148	0.0540	18,519	0.0648	15,432
21	0.0303	33,003	0.0370	27,027	0.0432	23,148	0.0494	20,243	0.0617	16,207	0.0740	13,514
20	0.0337	29,673	0.0405	24,691	0.0472	21,186	0.0540	18,519	0.0675	14,815	0.0810	12,346
19	0.0405	24,692	0.0486	20,576	0.0567	17,637	0.0648	15,432	0.0810	12,345	0.0972	10,288
18	0.0472	21,186	0.0567	17,637	0.0661	15,129	0.0756	13,228	0.0945	10,582	0.1134	8,818
17	0.0559	17,889	0.0671	14,903	0.0783	12,771	0.0894	11,186	0.1118	8,945	0.1342	7,452
16	0.0625	15,975	0.0752	13,298	0.0877	11,403	0.1002	9,980	0.1253	7,981	0.1504	6,649

**F. Packing**

1. Wide Width Steel Strip
  - a) One length in one coil, tied with steel band at four points.
  - b) Other type of packing can be done, if so required.
2. Baling Hoop
  - a) Cut in 8', packed in bundle of about 56 lbs.
  - b) Cut in 24', folded in 8' and such 26 strips in one bundle.
  - c) Cut in 29', folded in 7' 3" and such 21 strips in one bundle.

**G. Use of Steel Hoop**

1. Wide Width Steel Strip
  - a) For making pipe.
  - b) For further cold rolling to make hoop for making cycle part, furniture, etc.
2. Baling Hoop
  - a) for baling cotton, wool or jute.
  - b) For hooping wooden case or barrel.

**Cold Rolled Steel Hoop**

(Those marked O can be made)

**A. Size**

Width	Thickness	B. W. G. No.	19-36
		12-18	
		0.1 $\frac{m}{m}$ - 1.2 $\frac{m}{m}$	1.0 $\frac{m}{m}$ - 0.1 $\frac{m}{m}$
8 $\frac{m}{m}$	0.314"	0	
10	0.393	0	
12	0.471	0	0
16	0.628	0	0
17-195	0.668-7.663	0	0
200	7.860	0	0

**B. Tolerance**

Thickness		Tolerance in Thickness		
B. W. G. No.	Milimeter	Width < 75 $\frac{m}{m}$	75 $\frac{m}{m}$ - 150 $\frac{m}{m}$	150 $\frac{m}{m}$ - 200 $\frac{m}{m}$
36-47	0.10-0.15	$\pm 0.015 \frac{m}{m}$	$\pm 0.02 \frac{m}{m}$	$\pm 0.025 \frac{m}{m}$
34-31	0.15-0.25	$\pm 0.02$	$\pm 0.025$	$\pm 0.03$
31-27	0.25-0.40	$\pm 0.025$	$\pm 0.03$	$\pm 0.04$
27-23	0.40-0.60	$\pm 0.03$	$\pm 0.04$	$\pm 0.05$
23-20	0.60-0.90	$\pm 0.04$	$\pm 0.05$	$\pm 0.06$
20-18	0.90-1.20	$\pm 0.05$	$\pm 0.06$	$\pm 0.07$
18-16	1.20-1.60	$\pm 0.07$	$\pm 0.07$	$\pm 0.08$
16-14	1.60-2.10	$\pm 0.08$	$\pm 0.08$	$\pm 0.09$
14-11	2.10-3.00	$\pm 0.10$	$\pm 0.10$	$\pm 0.10$
> 11	> 3.00	$\pm 0.10$	$\pm 0.12$	$\pm 0.12$



Thickness		Tolerance in Width		
B. W. G. No.	Milimeter	Width < 75 $\frac{m}{m}$	75 $\frac{m}{m}$ - 150 $\frac{m}{m}$	150 $\frac{m}{m}$ - 200 $\frac{m}{m}$
< 23	< 0.60	$\pm 0.10 \frac{m}{m}$	$\pm 0.10$	$\pm 0.15$
23-18	0.60-1.20	$\pm 0.15$	$\pm 0.20$	$\pm 0.20$
> 18	> 1.20	$\pm 0.20$	$\pm 0.25$	$\pm 0.30$

C. Chemical Analysis

Description	Chemical Analysis %					
	C	Si	Mn	P	S	
Carbon Steel No. 1	< 0.12	< 0.04	< 0.40	< 0.05	< 0.05	In case of killed steel S under 0.3 %
Gas Hardening Steel No. 1 - a	< 0.18	< 0.35	< 0.60	< 0.045	< 0.045	
do. 1 - b	< 0.18	< 0.35	< 0.60	< 0.030	< 0.03	
Dead Soft Steel a	< 0.08			< 0.04	< 0.04	
do. b	0.08-0.10			< 0.04	< 0.04	
Soft Steel	0.11-0.20			< 0.04	< 0.04	
Machine Tool Steel	0.8-0.9	< 0.35	< 0.5	< 0.03	< 0.03	

D. Physical Property

- Annealed ..... Tensile Strength: 28-37 kgs per square inch.  
Elongation: > 25 %
- Non - annealed.

Description	Tensile Strength	Elongation
Carbon Steel No. 1 SPMI - a	28-36 kgs/ $\frac{m}{m}^2$	> 30 %
"/ - b	34-42	> 25
"/ - c	40-50	> 5
"/ - d	48-64	> 2

E. Finishing

- Bright annealed.  
This type of finishing makes the surface of cold rolled hoop bright polishing and its quality is most suitable for deep drawing.
- Black or Blue coloured.  
Black or blue temper colour adds beauty and anti-rustic nature.

**F. Packing**

1. Wide Width Steel Strip
  - a) One length in one coil, tied with steel band at four points.
  - b) Other type of packing can be done, if so required.
2. Narrow Width Steel Hoop
  - a) In case of baling hoop, one length in one coil, nett weight about 14.5 kgs or 28 lbs and such two coils put together making one bundle, wrapped in oil paper and gunny cloth.
  - b) Other type of packing can be done, if so required.

**G. Use of Cold Rolled Steel Strip**

- a. Materials for bicycle and other light car as rim, pedal, stand, chain-ring plate or roller.
- b. For auto-cycle.
- c. For cable armouring.
- d. For case of portable lantern or coal lantern.
- e. For butt hinges and other building materials.
- f. For parts of lock nut.
- g. For belt lacing.
- h. For tacks.
- i. For deep drawing.
- j. For baling of wooden case, cask etc.

**Galvanized Steel Plain Sheet**

U.S.G. No.	Gauge		Size
	Thickness before Galvanization		
24	0.635 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'
26	0.476 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'
28	0.397 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'
29	0.357 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'
30	0.318 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'
31	0.278 $\frac{m}{m}$		3' x 8'
			3' x 6'
			2. 1/2' x 6'



**Remarks :-**

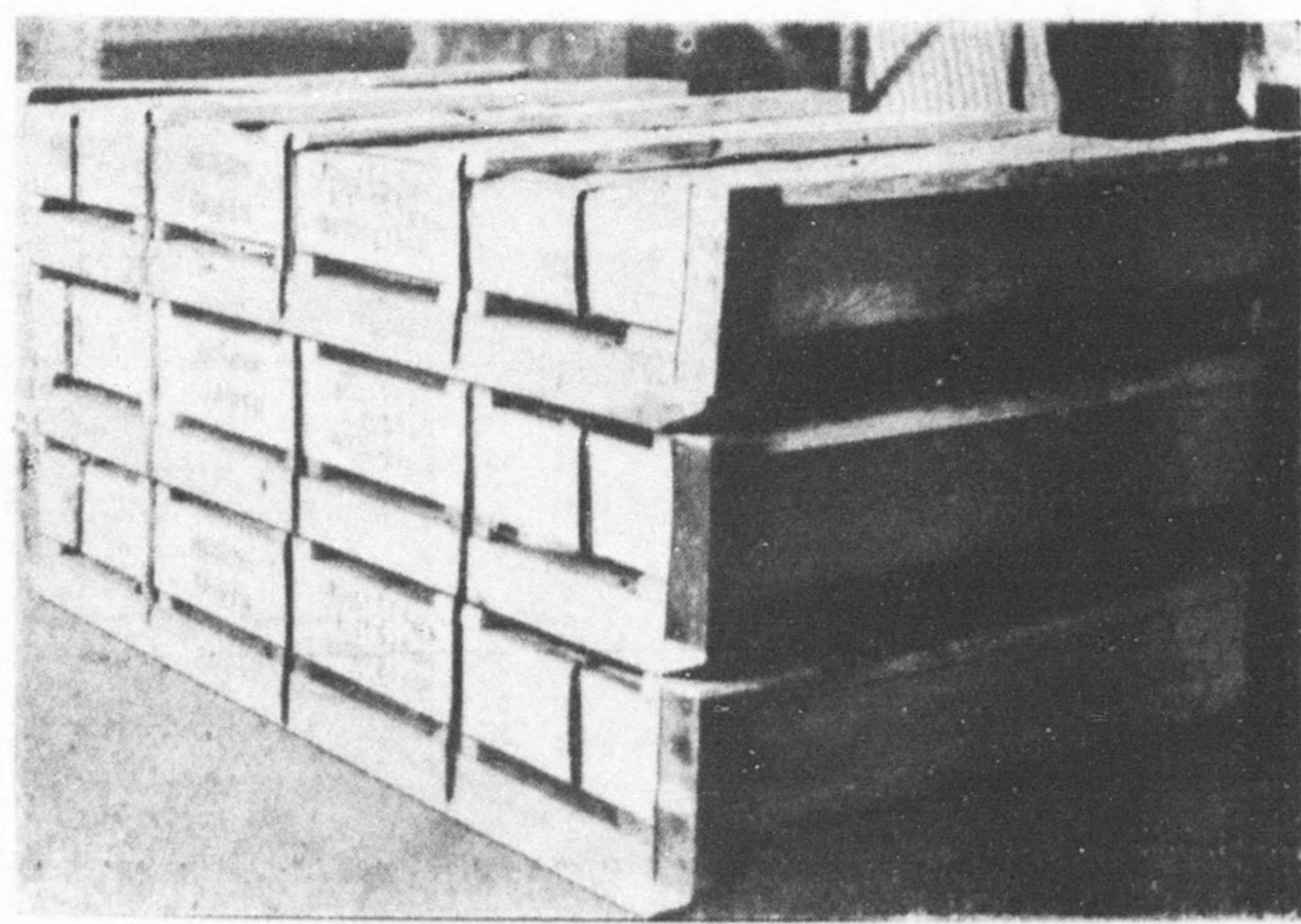
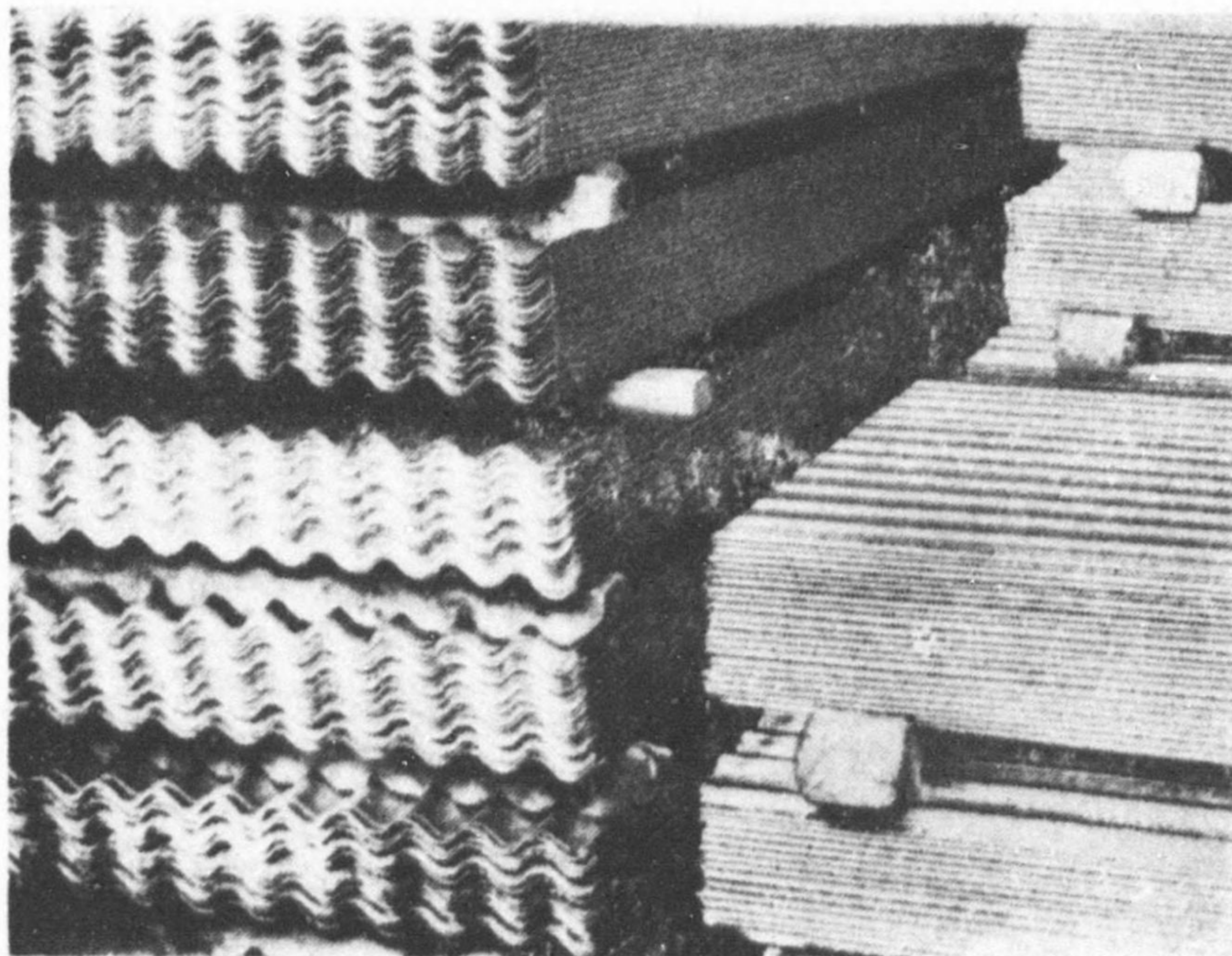
- a. Each size can be made of length 6', 7' & 8'.
- b. Zinc coating
 

0.07 oz/ft <sup>2</sup>	1.25
0.08	1.50
1.00	2.00
- c. Size in P. W. G. can also be made in case of order minimum 50 tons.

### Galvanized Steel Corrugated Sheet

U.S.G. No.	Thickness before Galvanization	Size	Width before Corrugation	Width after Corrugation	Depth of Corrugation	Pitch
24	0.635 $\frac{m}{m}$	3' x 8'	915 $\frac{m}{m}$	800 $\frac{m}{m}$	17-20 $\frac{m}{m}$	73-78 $\frac{m}{m}$
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"
26	0.476 $\frac{m}{m}$	3' x 8'	915	800	"	"
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"
28	0.397 $\frac{m}{m}$	3' x 8'	915	800	"	"
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"
29	0.357 $\frac{m}{m}$	3' x 8'	915	800	"	"
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"
30	0.318 $\frac{m}{m}$	3' x 8'	915	800	"	"
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"
31	0.278 $\frac{m}{m}$	3' x 8'	915	800	"	"
		3' x 6'	"	"	"	"
		2 1/2' x 6'	765	670	"	"

Eight Corrugations for Width 2 1/2'  
 Ten " " " 3'



List of Standard Weight of Galvanized Steel Sheet ( Approx )

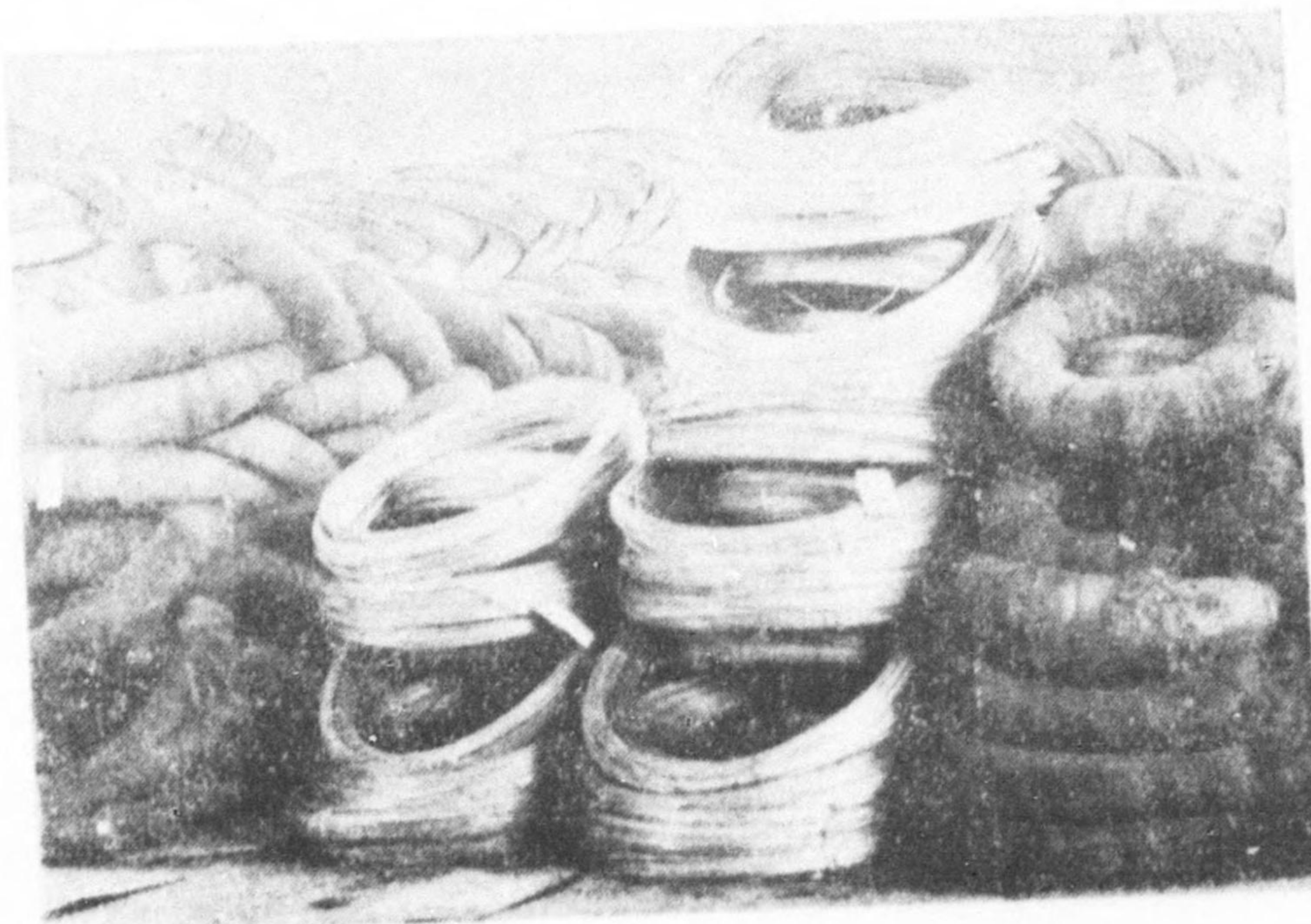
U. S. G. Gauge No. (Thickness) & Size	Original Sheet after Pickling	Zinc Coating oz/ft <sup>2</sup>															
		1.50				1.25				1.00				0.80			
		Kgs per Sheet	Weight of Galv. Sheet	Approx. No. of Sheet per 1,000 kg	Kgs per Sheet	Weight of Galv. Sheet	Approx. No. of Sheet per 1,000 kg	Kgs per Sheet	Weight of Galv. Sheet	Approx. No. of Sheet per 1,000 kg	Kgs per Sheet	Weight of Galv. Sheet	Approx. No. of Sheet per 1,000 kg	Kgs per Sheet	Weight of Galv. Sheet	Approx. No. of Sheet per 1,000 kg	
24 $\frac{m}{m}$ 0.635	3'x8'	11.11	12.13	82	0.851	11.96	84	0.680	11.79	85	0.544	11.65	86	0.476	10.21	98	
	3'x7'	9.73	10.26	94	0.744	10.47	96	0.593	10.33	97	0.476	10.21	98	0.408	8.75	114	
	3'x6'	8.34	9.11	110	0.638	8.98	111	0.510	8.85	113	0.408	8.75	114	0.340	7.29	137	
	2.5'x6'	6.95	7.59	132	0.532	7.48	134	0.425	7.38	136	0.340	7.29	137	0.340	7.29	137	
26 $\frac{m}{m}$ 0.476	3'x8'	8.34	9.36	106	0.851	9.19	109	0.680	9.02	111	0.544	8.88	113	0.476	7.77	129	
	3'x7'	7.29	8.18	122	0.744	8.03	125	0.595	7.89	127	0.476	7.77	129	0.408	6.67	150	
	3'x6'	6.26	7.03	142	0.638	6.90	145	0.510	6.77	148	0.408	6.67	150	0.340	5.55	180	
	2.5'x6'	5.21	5.85	171	0.532	5.74	174	0.425	5.64	177	0.340	5.55	180	0.340	5.55	180	
28 $\frac{m}{m}$ 0.397	3'x8'	6.95	7.97	125	0.851	7.80	128	0.680	7.63	131	0.544	7.49	134	0.476	6.56	152	
	3'x7'	6.08	6.97	143	0.744	6.82	147	0.595	6.68	150	0.476	6.56	152	0.408	5.62	178	
	3'x6'	5.21	5.98	167	0.638	5.85	171	0.510	5.72	175	0.408	5.62	178	0.340	4.69	213	
	2.5'x6'	4.35	4.99	200	0.532	4.88	205	0.425	4.78	209	0.340	4.69	213	0.340	4.69	213	
29 $\frac{m}{m}$ 0.357	3'x8'	6.25	7.27	138	0.851	7.10	141	0.680	6.93	144	0.544	6.79	147	0.476	5.95	168	
	3'x7'	5.47	6.36	157	0.744	6.21	161	0.595	6.07	165	0.476	5.95	168	0.408	5.10	196	
	3'x6'	4.69	5.46	183	0.638	5.33	188	0.510	5.20	192	0.408	5.10	196	0.340	4.25	235	
	2.5'x6'	3.91	4.55	220	0.532	4.44	225	0.425	4.34	230	0.340	4.25	235	0.340	4.25	235	
30 $\frac{m}{m}$ 0.318	3'x8'	5.56	6.58	152	0.851	6.41	156	0.680	6.24	160	0.544	6.10	164	0.476	5.35	187	
	3'x7'	4.87	5.76	174	0.744	5.61	178	0.595	5.47	183	0.476	5.35	187	0.408	4.58	218	
	3'x6'	4.17	4.94	203	0.638	4.81	208	0.510	4.68	214	0.408	4.58	218	0.340	3.82	262	
	2.5'x6'	3.48	4.12	243	0.532	4.01	249	0.425	3.91	256	0.340	3.82	262	0.340	3.82	262	
31 $\frac{m}{m}$ 0.278	3'x8'	4.86	5.88	170	0.851	5.71	175	0.680	5.54	181	0.544	5.40	185	0.476	4.74	211	
	3'x7'	4.26	5.15	194	0.744	5.00	200	0.595	4.86	206	0.476	4.74	211	0.408	4.06	246	
	3'x6'	3.65	4.42	226	0.638	4.29	233	0.510	4.16	240	0.408	4.06	246	0.340	3.38	296	
	2.5'x6'	3.04	3.68	272	0.532	3.57	280	0.425	3.47	288	0.340	3.38	296	0.340	3.38	296	

### Galvanized Steel Wire

Size		Length per 50 kgs. (Approx.) feet	Weight per 1,000 feet. (Approx.) kgs
B. W. G.	Dia. $\frac{m}{m}$		
6	5.4	1,012	49.125
7	4.5	1,290	38.775
8	4.0	1,526	32.625
9	3.5	1,905	26.250
10	3.2	2,330	21.525
11	2.9	2,896	15.000
12	2.6	3,510	14.250
13	2.3	4,840	10.818
14	2.0	6,051	8.250
15	1.8	8,050	6.274
16	1.6	9,775	5.063
17	1.4	12,475	4.031
18	1.2	17,526	2.880
19	1.0	23,978	2.123
20	1.9	34,038	1.485
21	0.8	41,052	1.211
22	0.7	53,336	0.941
23	0.65	67,066	0.758
24	0.6	85,742	0.578
25	0.5	107,518	0.484
26	0.46	132,817	0.375
27	0.4	167,251	0.300
28	0.35	218,505	0.225
29	0.3	246,314	0.187
30	0.3	301,051	0.150

Wrapped in oil paper and then gunny cloth in coil of:

Nett	Gross Weight
28 lbs.	29 lbs.
56 "	58 "
100 "	103 "
108 "	110 "
112 "	115 "
25 kgs.	25.8 kgs.
50 "	51.3 "
60 "	61.5 "

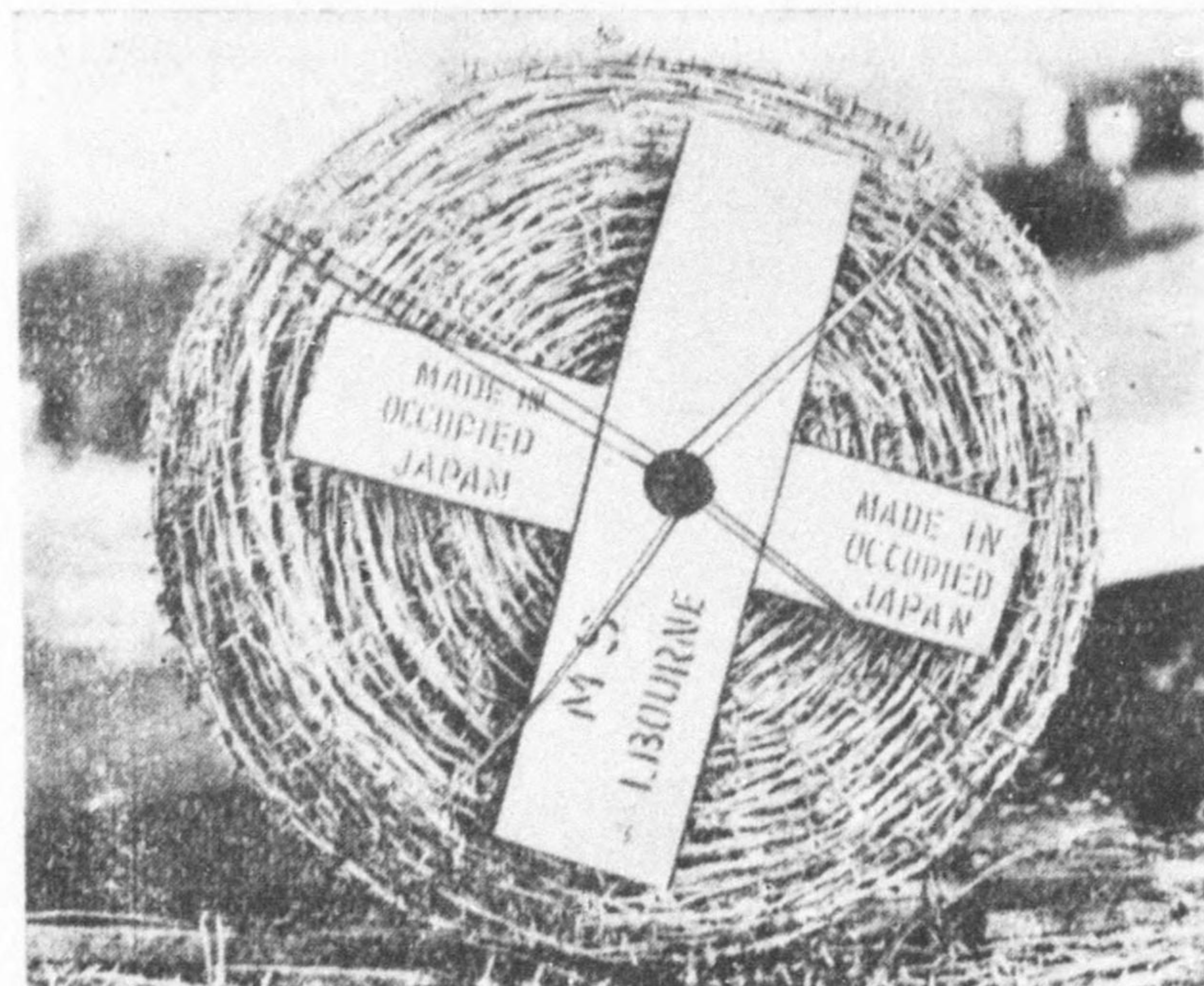
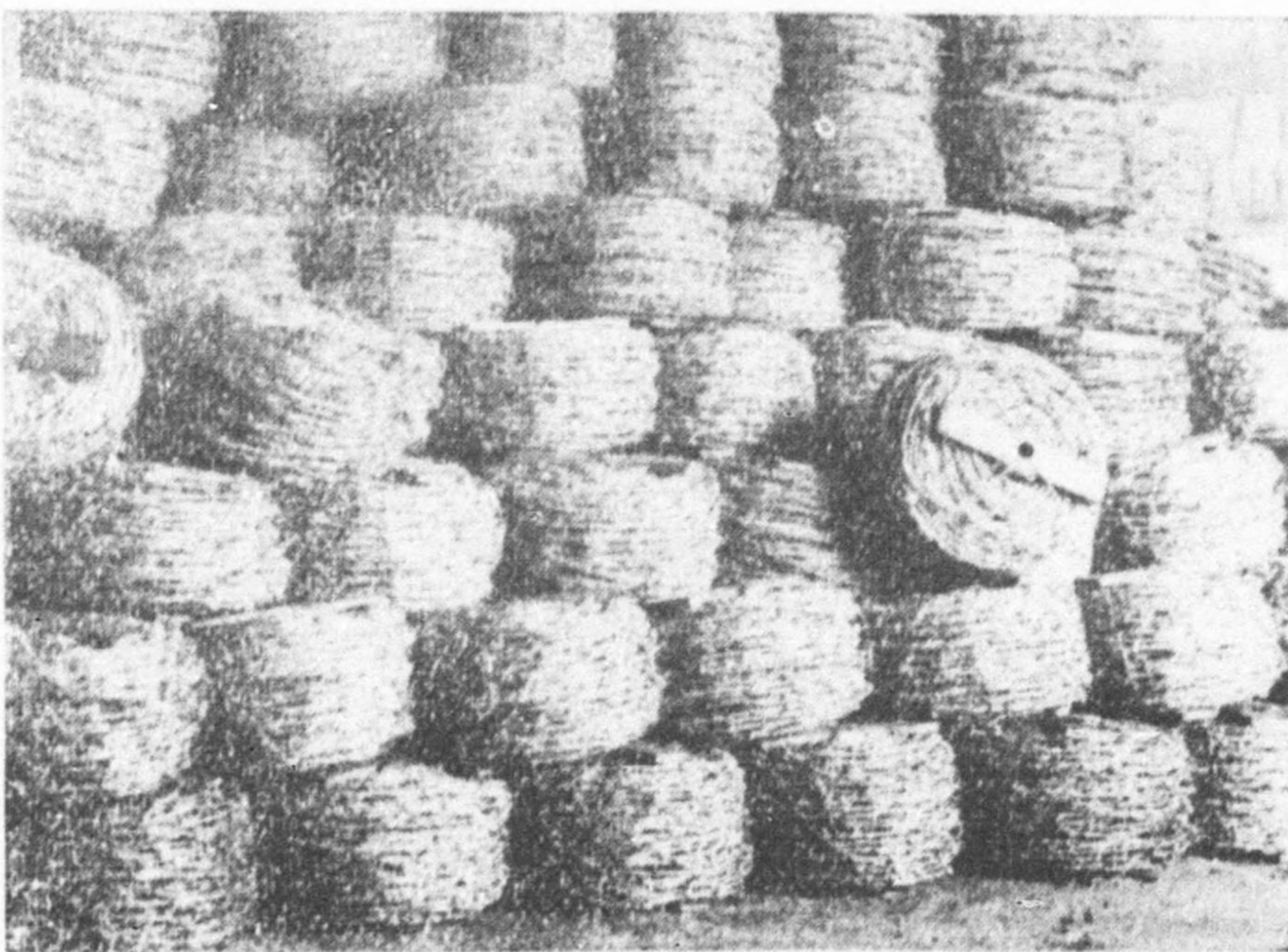


### Galvanized Barbed Wire (IOWA Type)

2 ply, 4 points, 3 inches apart.

Also 4", 5" or 6" can be made.

Size	Length per 50 kgs			Length per 112 lbs		
	4 Points, 3" meters	4 Points, 4" meters	4 Points, 5" meters	4 Points, 3" meters	4 Points, 4" meters	4 Points, 5" meters
B.W.G. No. 12	306	340	365	370	410	440
12 1/2						
13	340	390	426	410	470	515
13 1/2						
14	500	570	620	600	690	750



**Packing**

On wooden reel of 56 lbs, 25 kgs, 80 lbs, 50 kgs, etc.

	Nett weight	Gross weight	Measurement
G 12 4P x 3"	56 lbs	59 lbs	1.4 cft
	50	53	1.3
	70	74.5	1.9
G 12 1/2 4P x 3"	56	59	1.3
	50	53	1.2
	70	74.5	1.9
G 14 4P x 3"	56	59	1.2
	50	53	1.1
	70	74.5	1.7

## Bright Wire Nail

Chequered head, Countersunked

Size	Approx. No. of Nails per 60 kgs
B. W. G.	
5 × 7"	1,800
6 × 6"	2,500
7 × 5"	3,600
8 × 4½"	5,160
8 × 4"	5,880
9 × 3½"	8,700
10 × 3"	12,180
11 × 2½"	17,880
12 × 2"	27,480
13 × 1¾"	39,480
14 × 1½"	61,260
15 × 1¼"	89,580
16 × 1"	157,920
17 × ¾"	214,260
17 × ¾"	240,000

### Packing

In wooden keg of 100 lbs, 112 lbs, 50 kgs &/or 60 kgs nett.

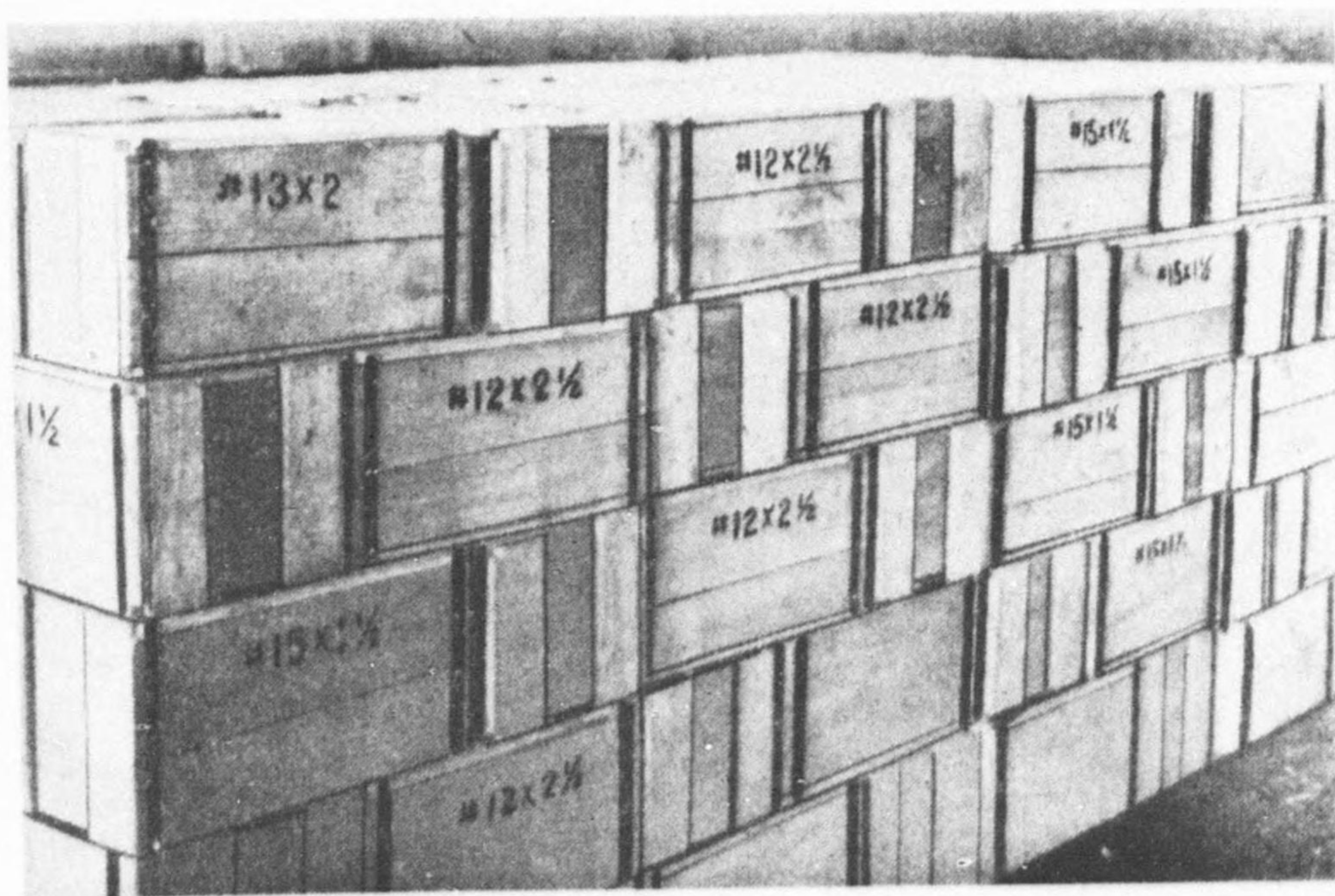
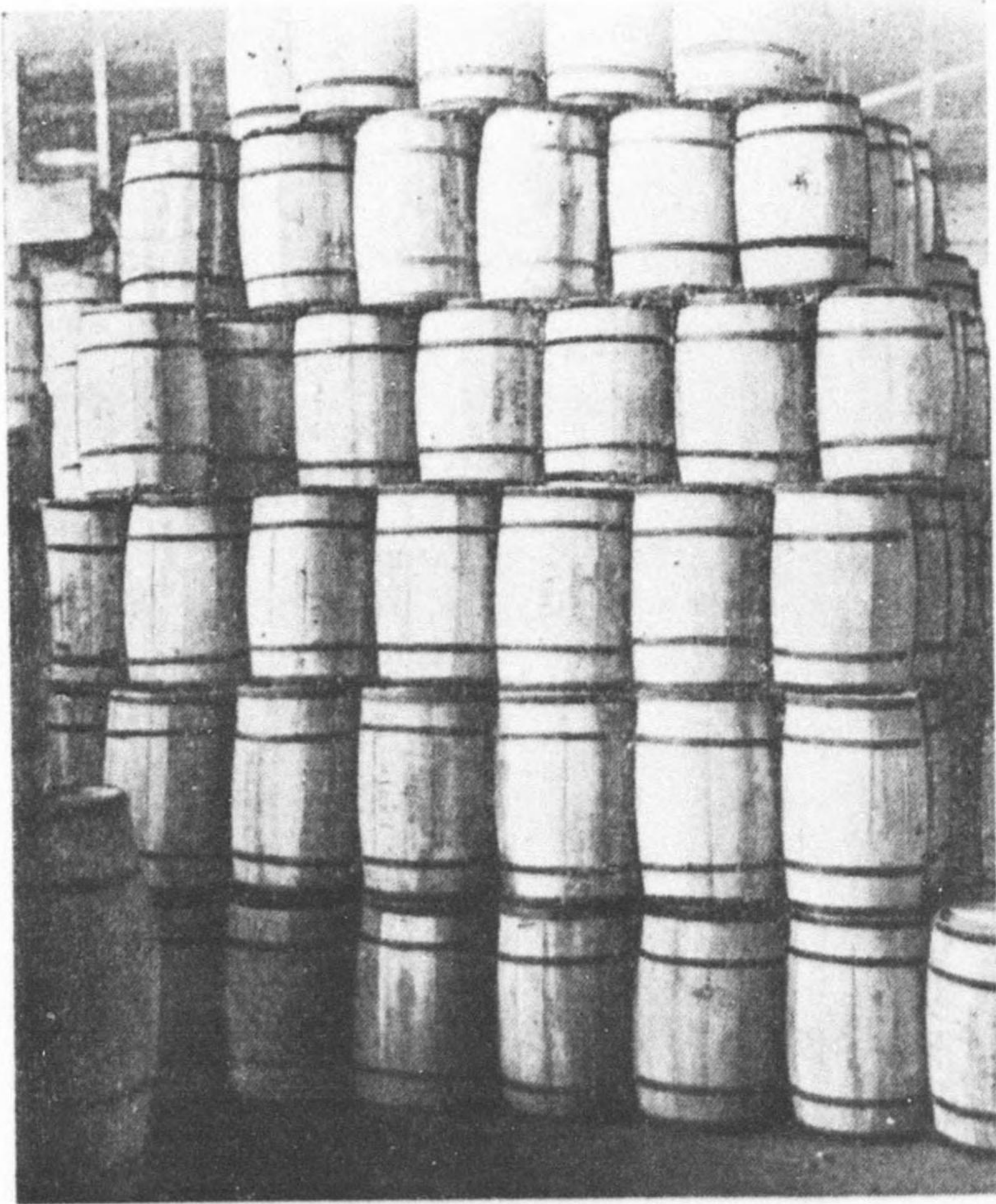
Also in wooden case can be made.

Nett	Gross weight	Measurement
100 lbs	110 lbs	1.603 cft
112 "	122 "	1.604 "
60 kgs	65.2 kgs	1.866 "

### Special Packing

7 lbs in paper packet and such 16 packets in wooden case.

Thickness and length can be changed according to requirement.



( 19 )

# NICHIA

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## Pin & Special Nail

(A) **TACKS**

Size  $\frac{3}{8}$ "  $\frac{1}{2}$ "  $\frac{5}{8}$ "  $\frac{3}{4}$ " 1" (Blued or tinned at your choice)

(B) **ROOFING NAILS** (With washer &/or spring head)

(C) **PANEL PINS**

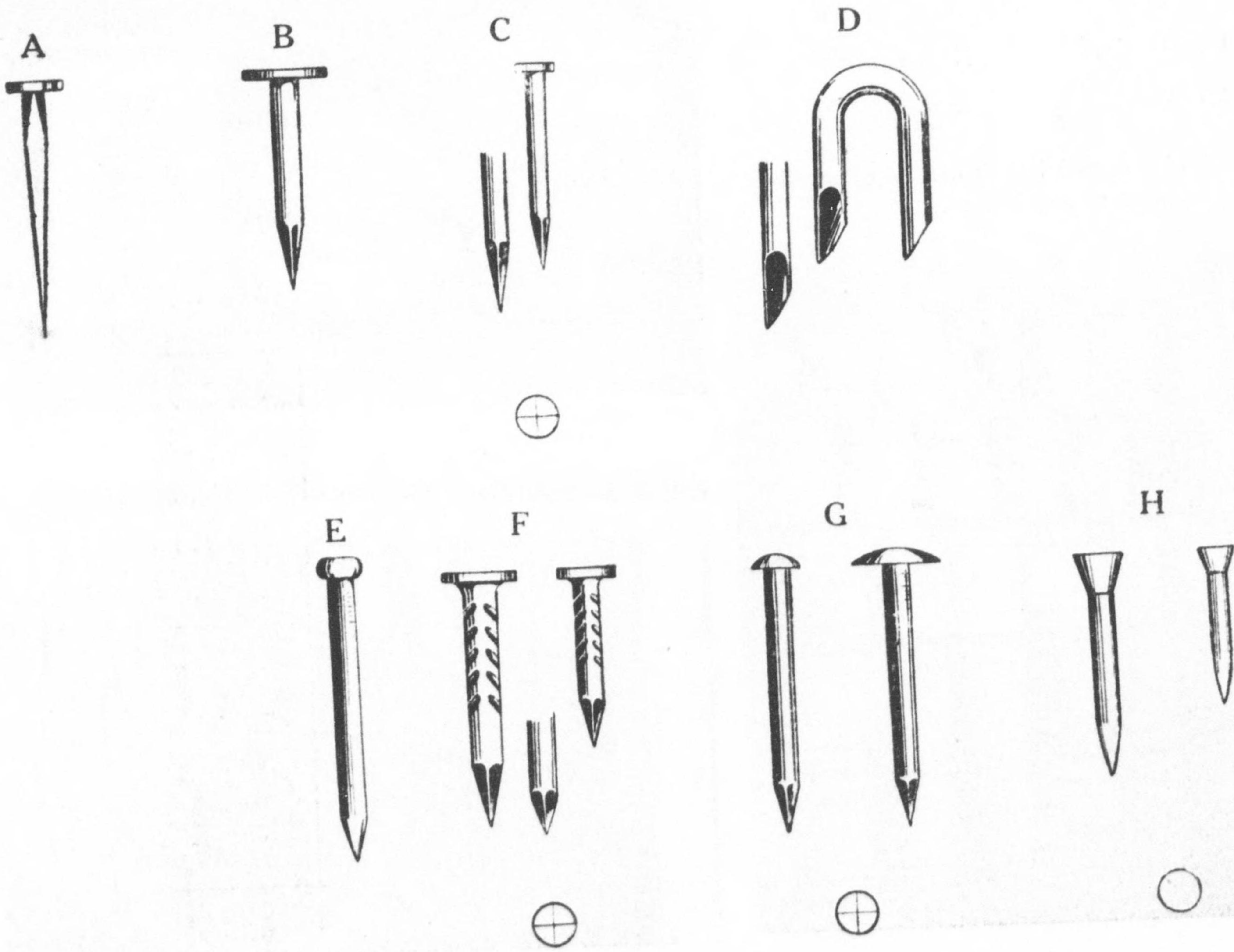
(D) **STAPLES** Bright &/or Galvanized,  
G 18  $\times$   $\frac{5}{8}$ " ~  $\frac{3}{4}$ ", G 14  $\times$  1", G 12  $\times$  1  $\frac{1}{2}$ ", etc.

(E) **FINISHING NAILS**

(F) **NON SLIP NAILS**

(G) **SLATING NAILS**  
Length 2" to 3" Bright &/or Galvanized.

(H) **PIN PANEL**



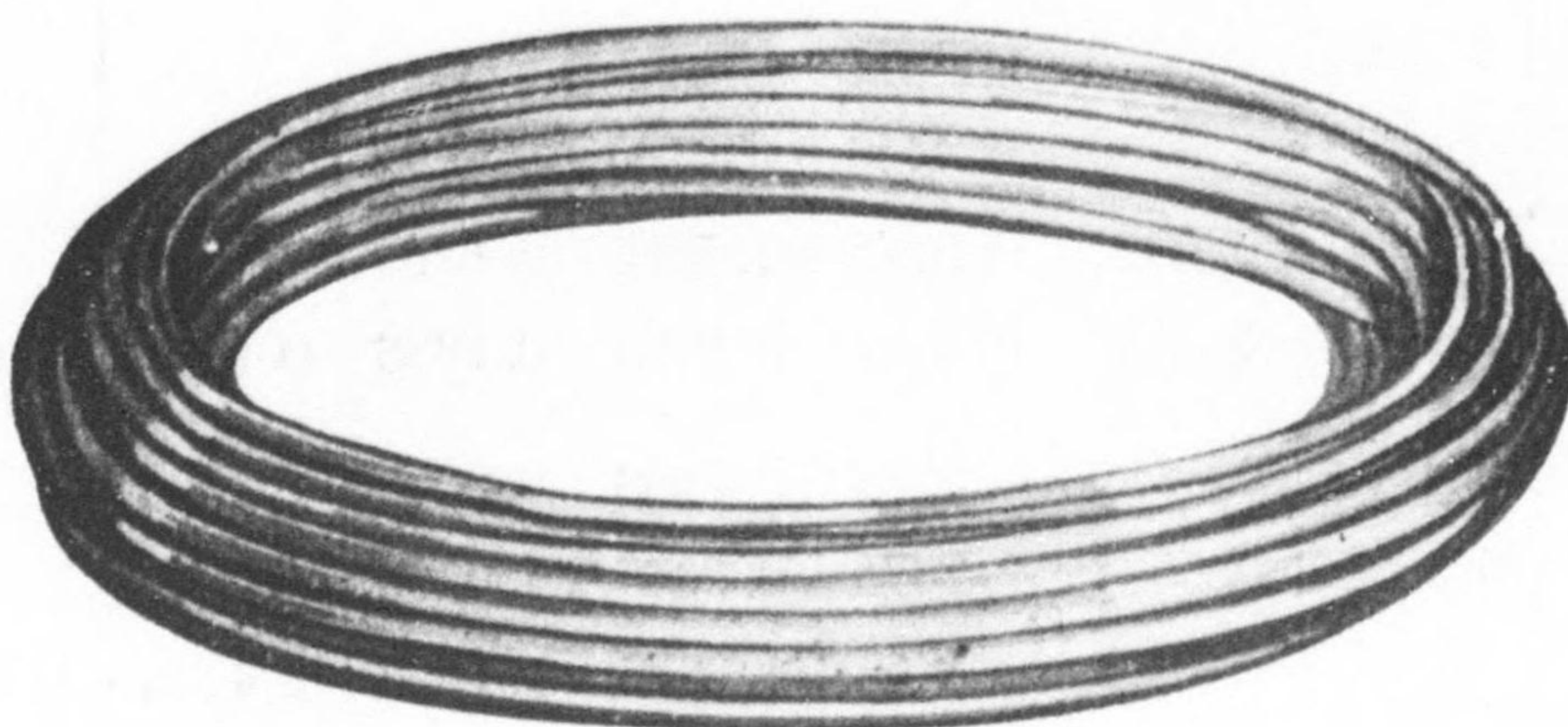


## Steel Wire

Wire for nail, Wire for packing purpose, Wire for redrawing purpose can be made in any size between B. W. G. No. 0/4 (11  $\frac{m}{m}$ ) to 32 (0.2  $\frac{m}{m}$ ). Also Chain Wire, Spring Wire in specification of A. S. T. M. can be made. Chemical composition and physical properties of those wires can be adjusted according to requirement.

## Steel Wire of Special Type

Flat, Half round, square, etc.



## Galvanized Wire Netting

Brass or green coloured can be supplied.

Standard Roll. 3 feet  $\times$  100 feet.

Mesh Per Inch	Gauge S. W. G.	Approx. Weight Per Roll
10	30	13.0 kg
12	31	10.0
14	33	12.0
16	33	13.5
18	33	15.0
20	33	17.0



Please write us for any type of wire netting.

### Iron &/or Brass Wood Screw

Countersunk Head

Weight List (Approx. kgs per gross)

	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{2}$ "	3"
	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs	kgs
1	0.0188												
2	0.0263	0.0375	0.0395										
3		0.0450	0.0713	0.0713	0.0828								
4		0.0600	0.0750	0.0900	0.1050								
5		0.0750	0.0938	0.1125	0.1313	0.1538	0.1725	0.2063					
6			0.1163	0.1388	0.1613	0.1833	0.2100	0.2550	0.3075				
7				0.1725	0.1988	0.2250	0.2550	0.3113	0.3575				
8				0.2025	0.2400	0.2700	0.3075	0.3750	0.4425	0.5100	0.5775		
9					0.2775	0.3188	0.3600	0.4350	0.5175	0.5960	0.6750		
10					0.3300	0.3750	0.4200	0.5100	0.6038	0.6938	0.7838	0.9675	1.1475
11							0.4800	0.5850	0.6938	0.7988	0.9000	1.1063	1.3200
12							0.5550	0.6600	0.7875	0.9065	1.0275	1.2263	1.5000
13								0.7613	0.8933	1.0275	1.1625	1.4250	1.6373
14								0.8550	1.0050	1.1588	1.3050	1.6013	1.8375

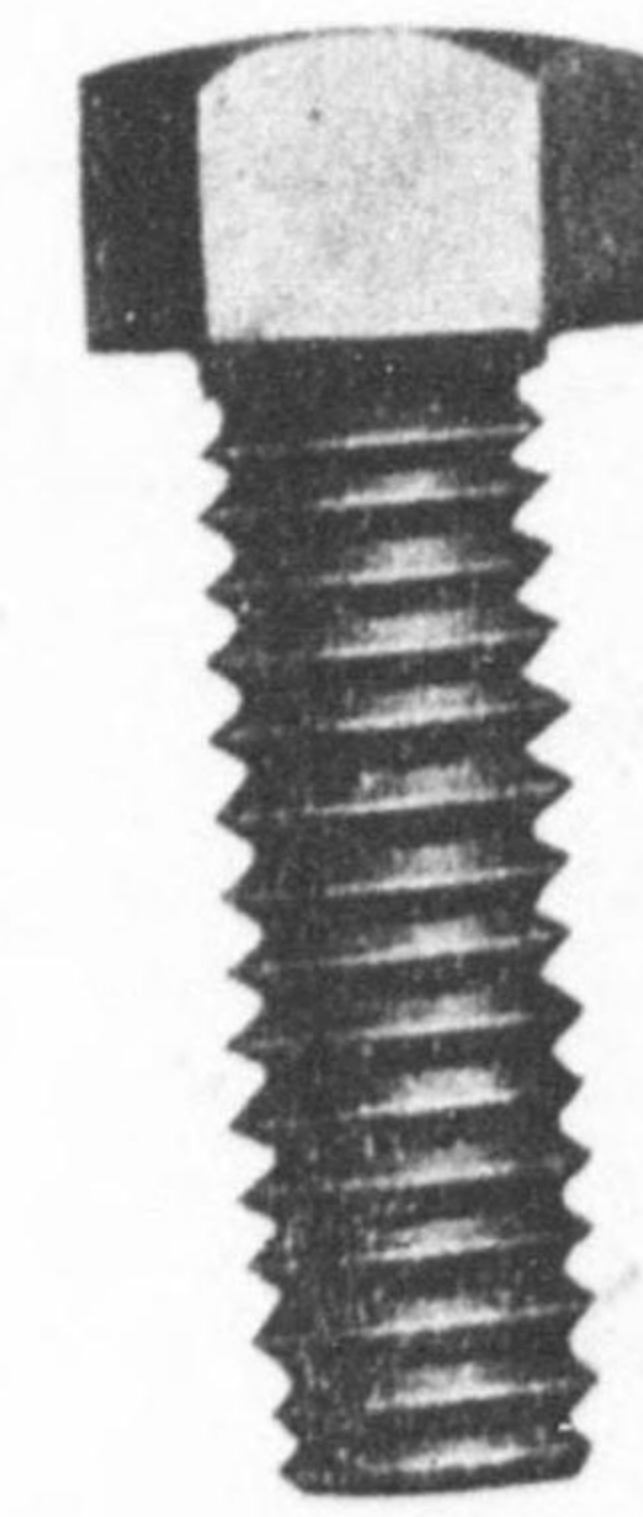


### Iron Machine Screw

Hexagon Head &/or Flat Head

Weight List (Approx. kgs per gross)

Length	Diameter.				
	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "
	kgs	kgs	kgs	kgs	kgs
$\frac{1}{2}$ "	0.276	0.830	1.470	2.340	
$\frac{5}{8}$ "	0.405	0.930	1.660	2.580	
$\frac{3}{4}$ "	0.470	0.980	1.780	2.700	
$\frac{7}{8}$ "	0.520	1.000	1.890	2.800	
1"	0.580	1.160	2.080	2.900	6.700
1 $\frac{1}{4}$ "	0.655	1.300	2.320	3.420	7.200
1 $\frac{1}{2}$ "	0.750	1.470	2.621	3.750	7.800
1 $\frac{3}{4}$ "		1.600	2.820	4.300	8.600
2"		1.730	3.060	4.700	9.400
2 $\frac{1}{2}$ "			3.620	5.200	
3"			4.100	6.150	

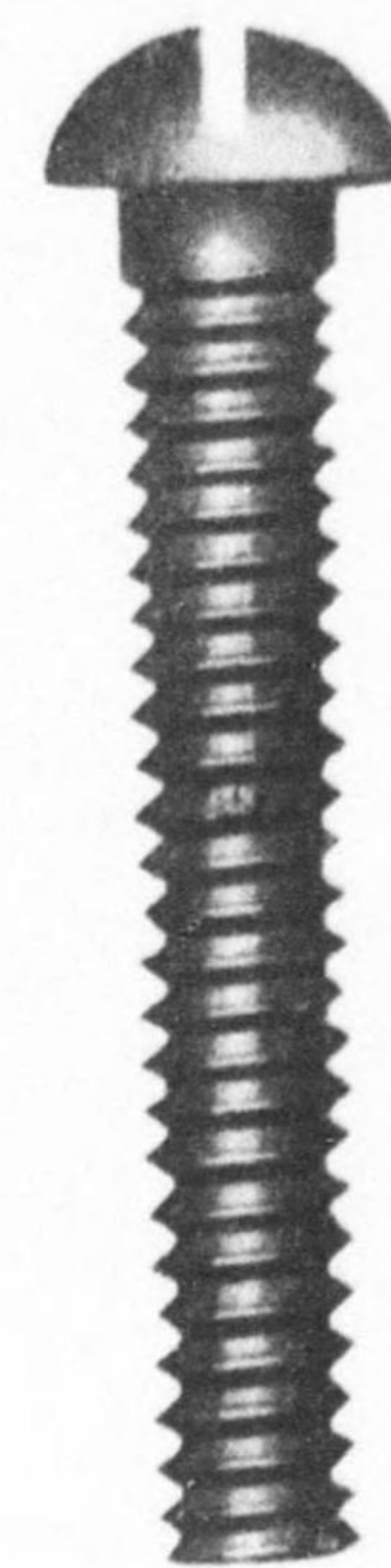


## Iron Machine Screw

### Round Head

Weight List (Approx. kgs per gross)

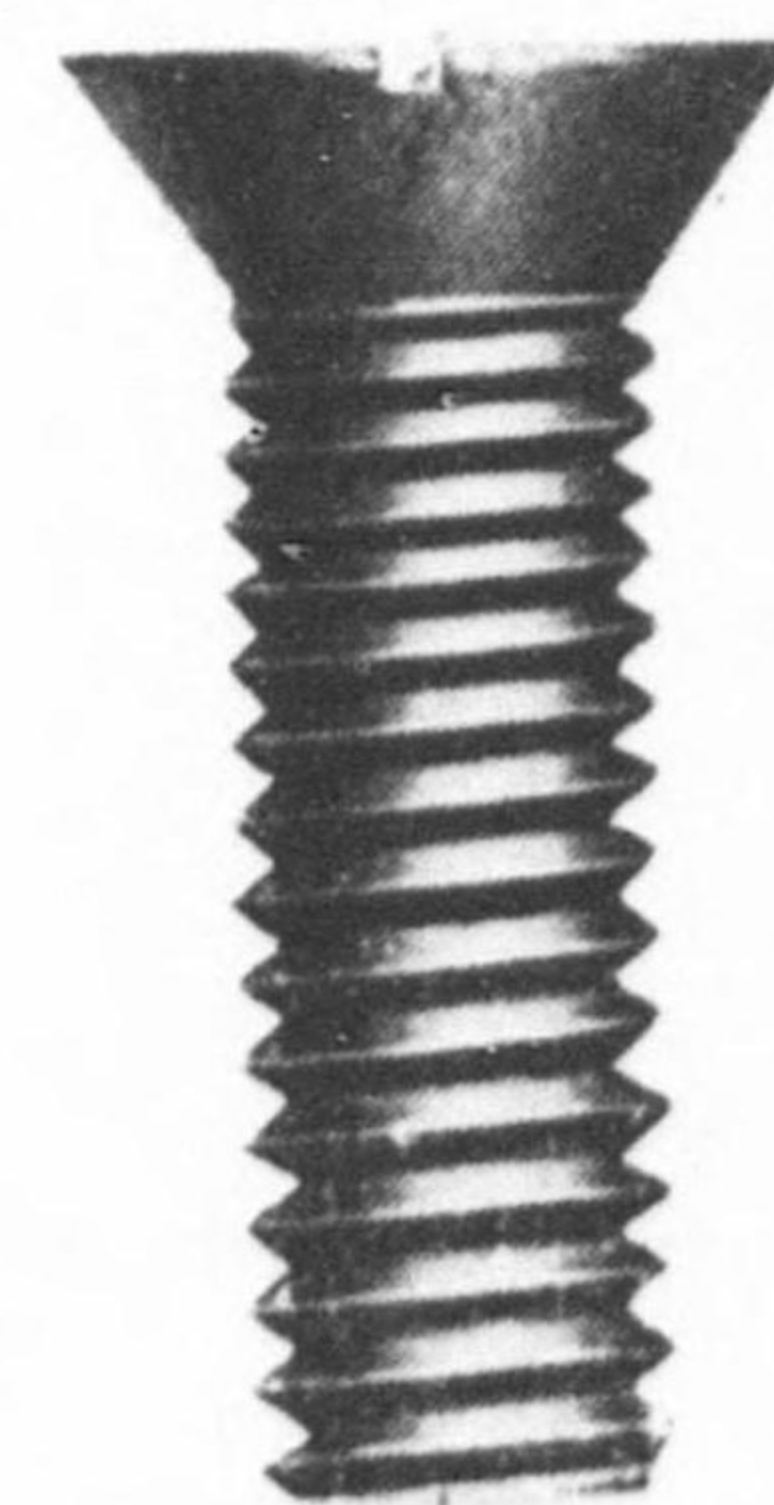
Length	Diameter.						
	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"
	kgs	kgs	kgs	kgs	kgs	kgs	kgs
3/16"	0.096						
1/4"	0.107	0.166	0.224				
3/8"	0.125	0.195	0.269	0.500	0.920		
1/2"	0.147	0.224	0.309	0.573	1.055	1.489	
5/8"	0.166	0.254	0.349	0.651	1.187	1.665	
3/4"	0.186	0.283	0.390	0.728	1.319	1.841	
7/8"	0.206	0.313	0.430	0.805	1.421	2.018	
1"	0.224	0.342	0.474	0.882	1.581	2.190	4.127
1 1/4"	0.261	0.405	0.555	1.033	1.845	2.543	4.753
1 1/2"	0.302	0.464	0.636	1.187	2.110	2.893	5.399
1 3/4"	0.342	0.522	0.769	1.343	2.371	3.242	6.035
2"	0.378	0.581	0.799	1.496	2.635	3.595	6.677
2 1/2"			0.966	1.801	3.161	4.296	7.838
3"			1.128	2.106	3.690	4.996	9.206



### Countersunk Head

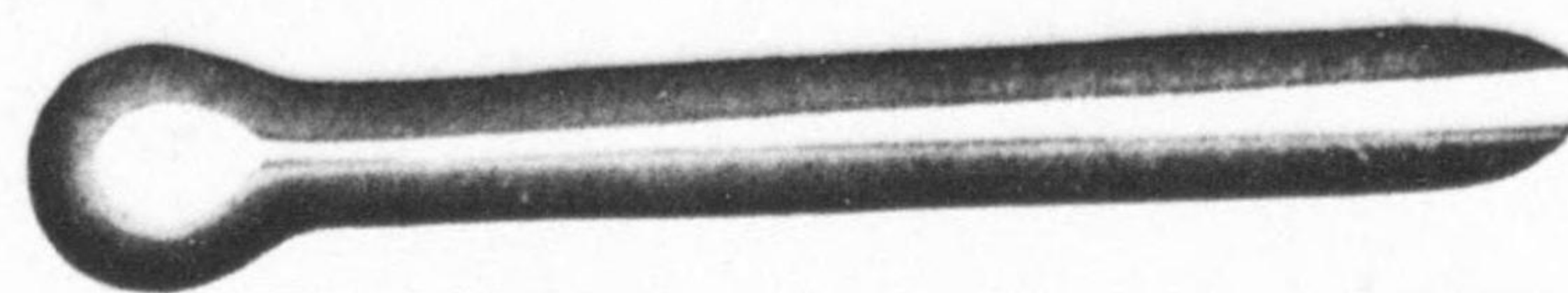
Weight List (Approx. kgs per gross)

Length	Diameter.						
	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"
	kgs	kgs	kgs	kgs	kgs	kgs	kgs
3/16"	0.096						
1/4"	0.118	0.149	206				
3/8"	0.136	0.180	246	0.460			
1/2"	0.155	0.210	287	0.537	0.989	1.404	
5/8"		0.239	327	0.613	1.121	1.577	
3/4"	0.176	0.269	371	0.691	1.258	1.753	
7/8"	0.195	0.298	412	0.763	1.382	1.930	
1"	0.214	0.327	452	0.842	1.514	2.102	3.969
1 1/4"	0.254	0.386	533	0.996	1.779	2.455	4.605
1 1/2"	0.254	0.449	617	1.151	2.043	2.804	5.241
1 3/4"	0.290	0.508	699	1.301	2.304	3.156	5.873
2"	0.336	0.566	779	1.455	2.569	3.506	6.507
2 1/2"	0.377		945	1.764	3.095	4.208	7.780
3"			1.110	2.062	3.624	4.900	9.048

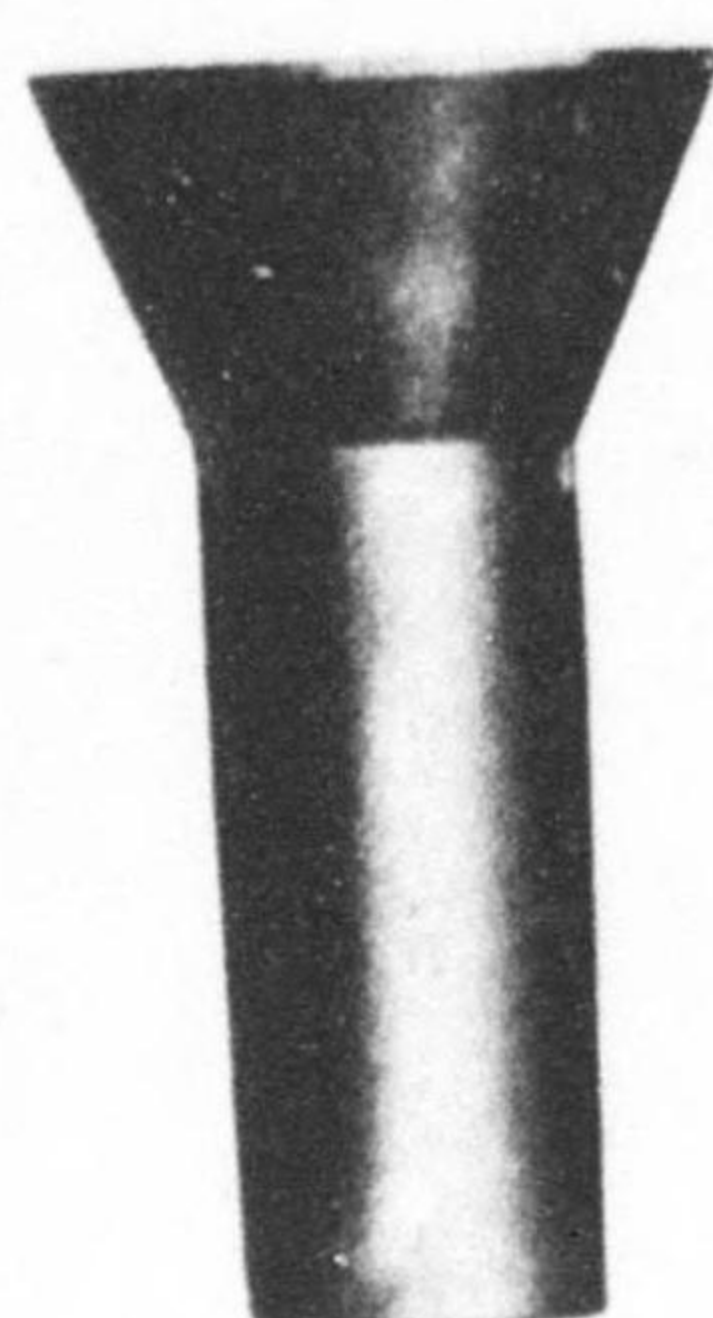


### Cotter Pin

Diameter:  $\frac{1}{16}'' \sim \frac{3}{4}'' \times \frac{3}{4}'' \sim 3\frac{1}{2}''$



### Steel Rivet

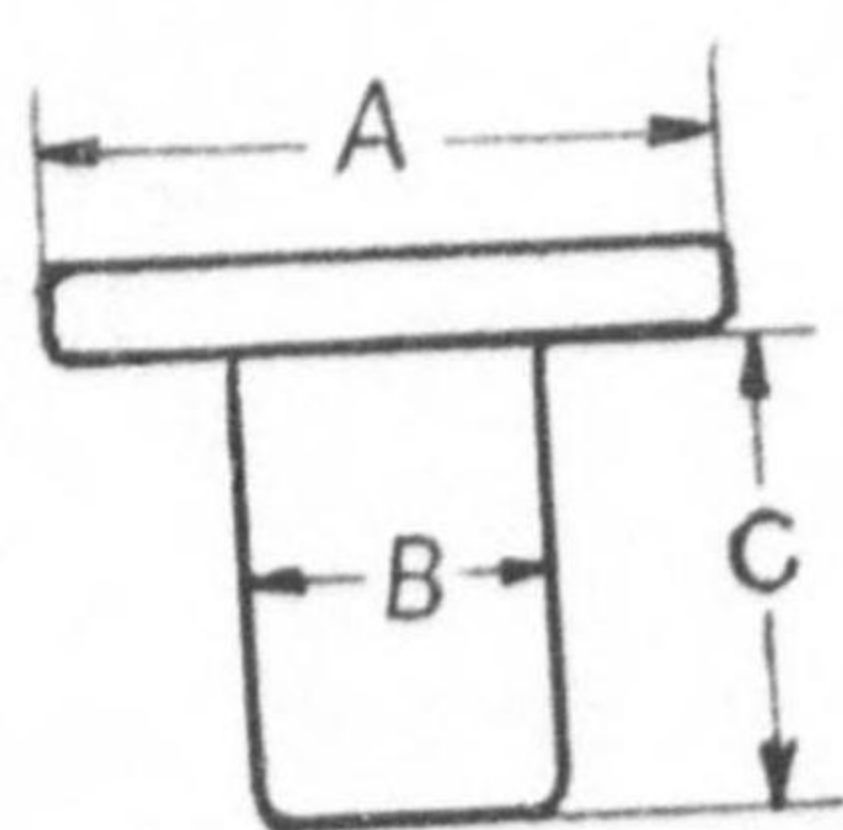


Brass, Copper &/or Aluminium

### Mild Steel Timmen's Rivet

Black &/or Tinned

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20
Weight per nominal thousand	oz	"	"	"	"	"	lb	lbs	"	"	"	"	"	"	"	"	"	"	"
	4	6	8	10	12	14	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10	14

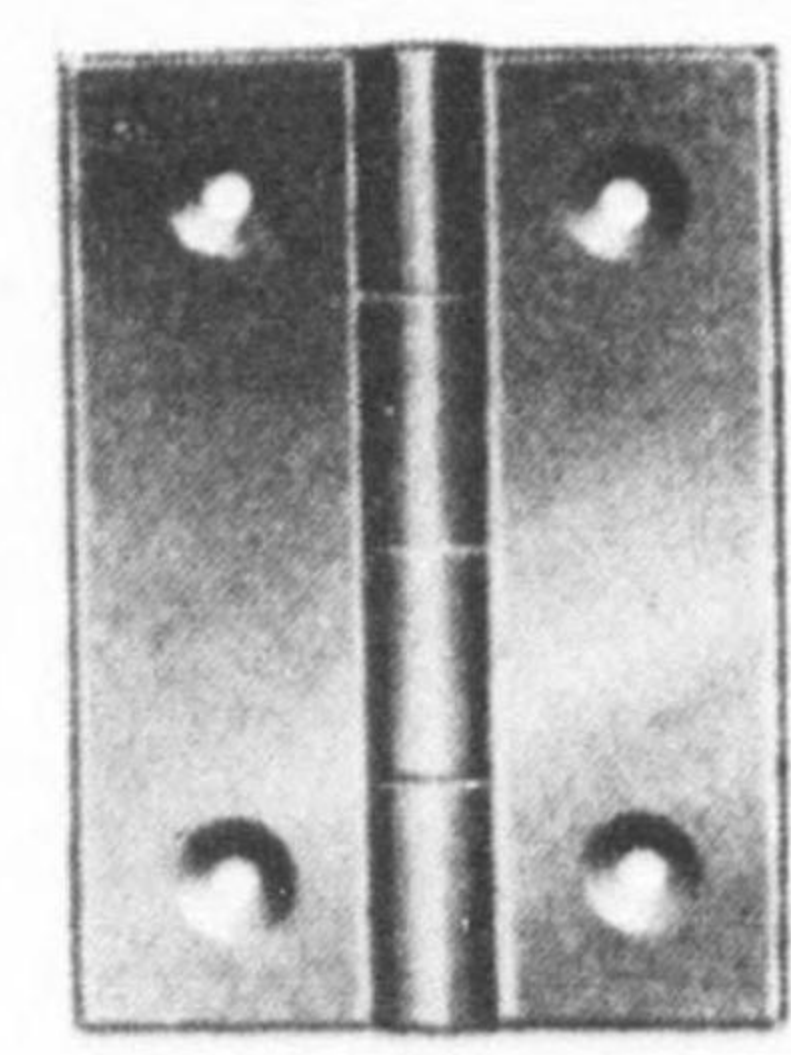
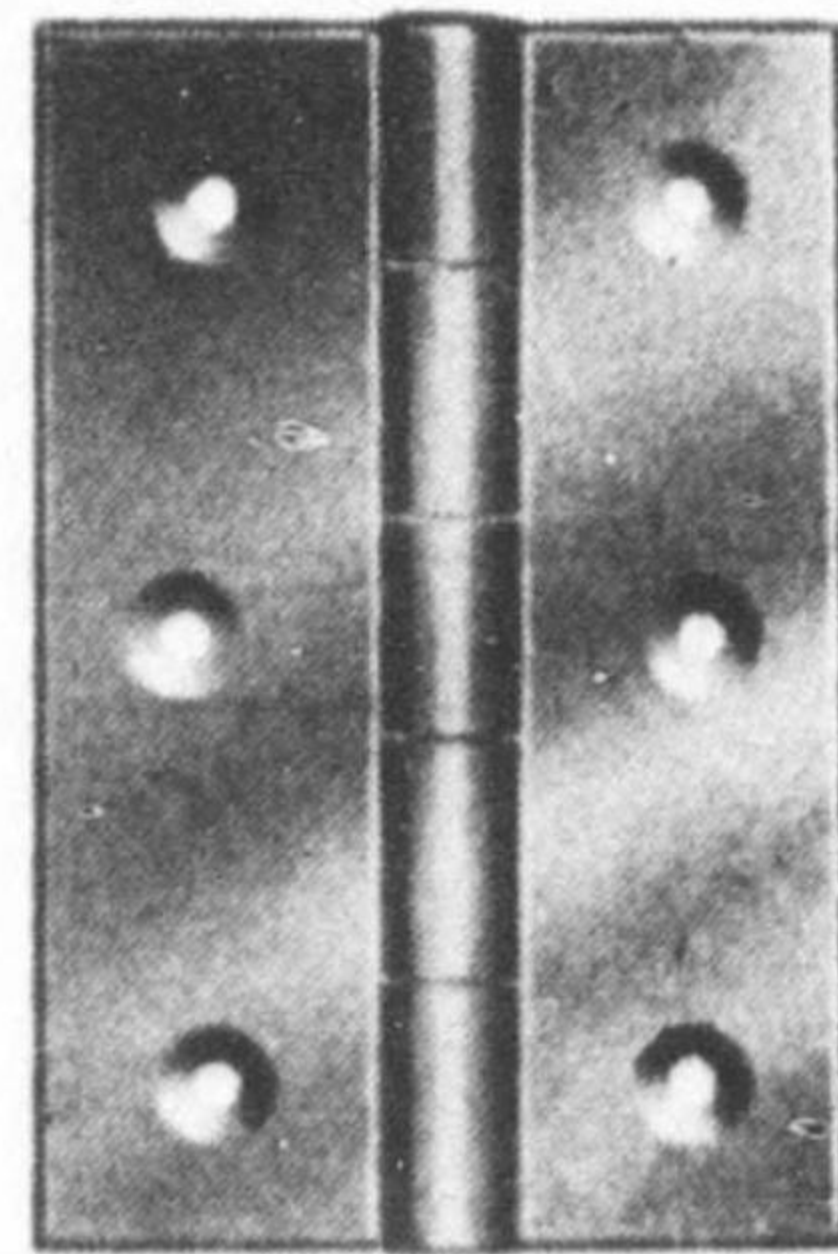
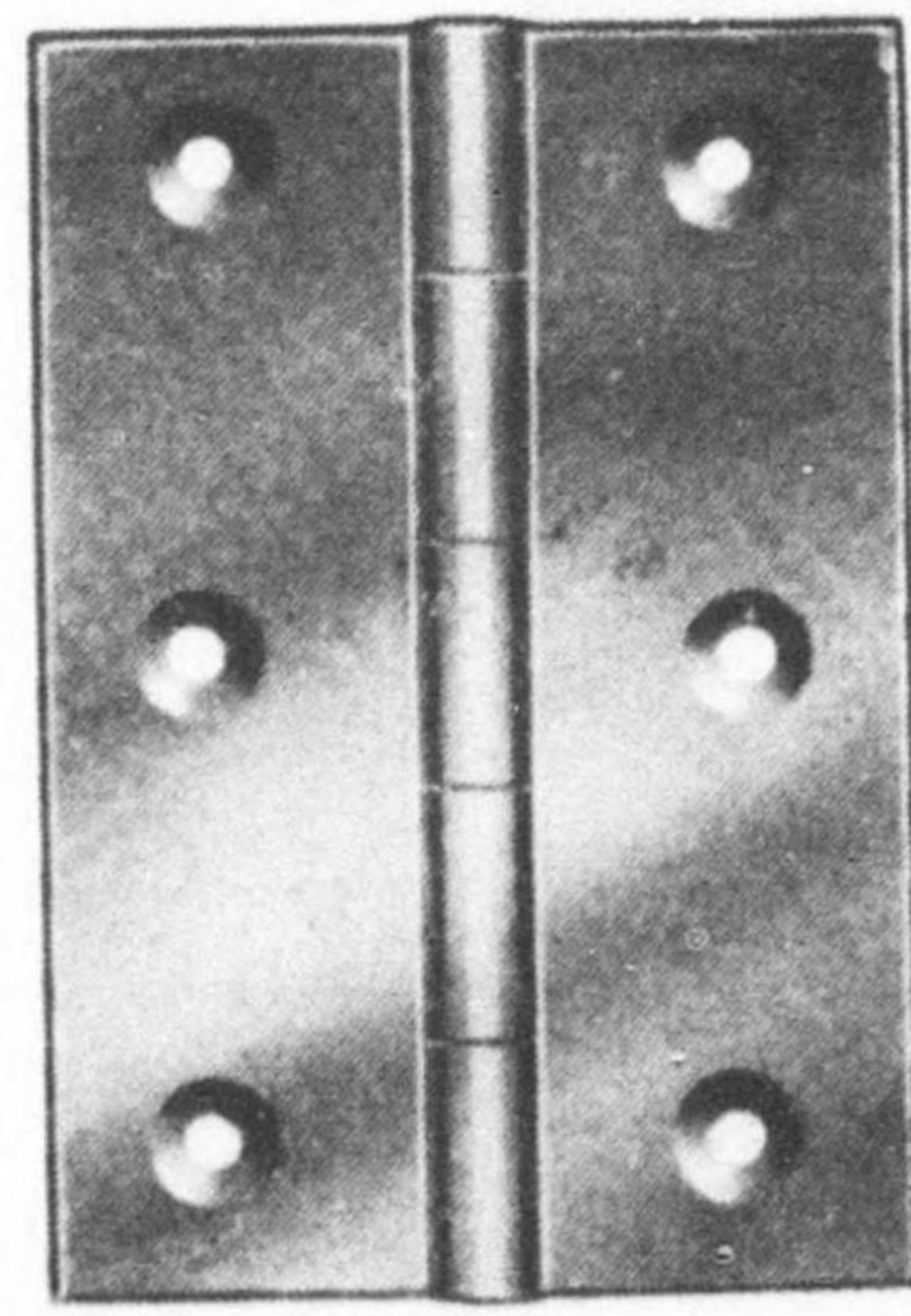
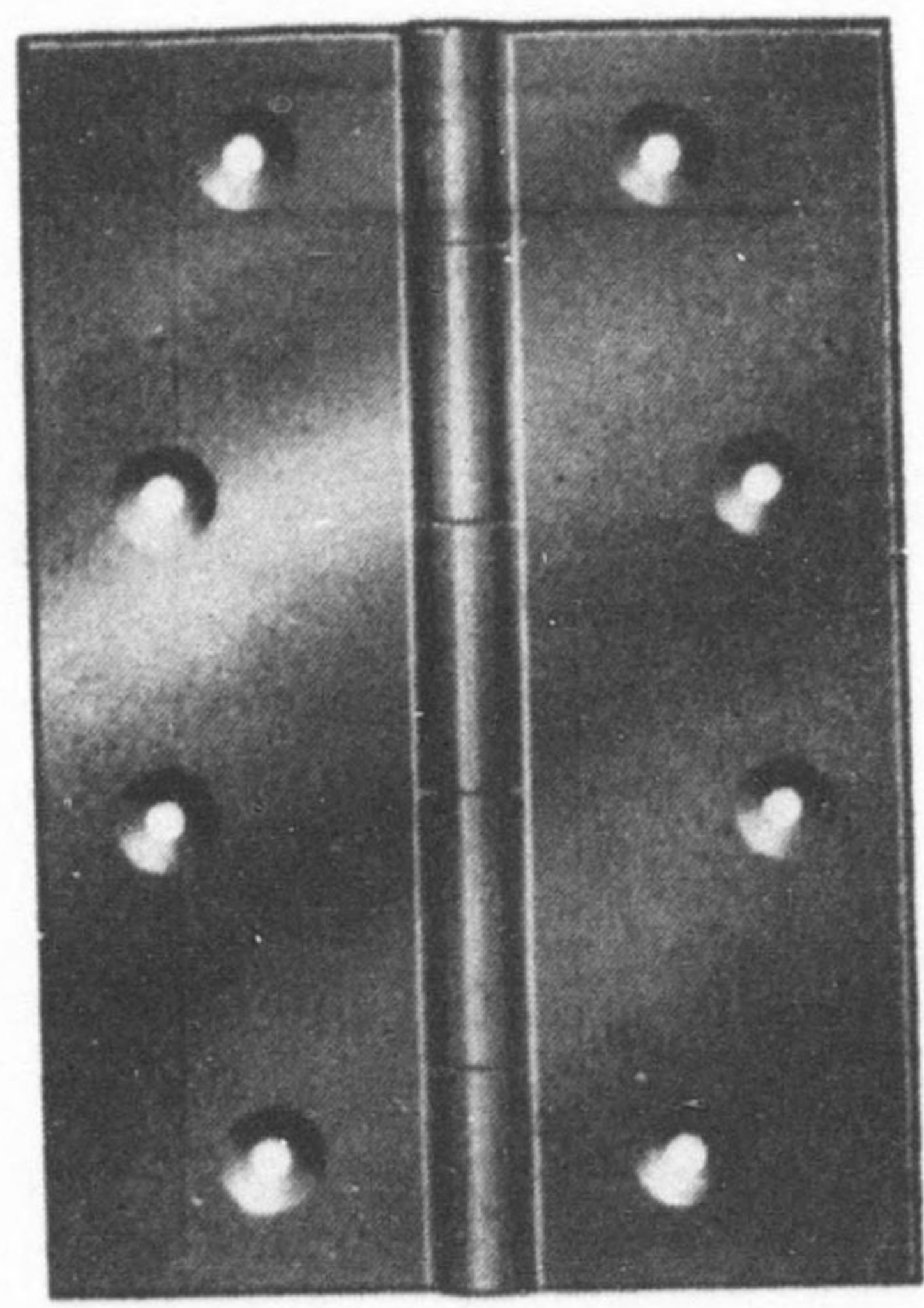


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18
<b>A</b>	4.1	4.1	4.6	4.6	5.5	5.6	6.2	6.2	7.2	7.5	7.5	8.3	9.2	10.3	10.3	11.1	12.8
<b>B</b>	2.1	2.1	2.4	2.8	2.8	3.0	3.1	3.1	3.4	3.8	3.8	4.2	4.2	5.2	5.2	5.4	6.4
<b>C</b>	3.4	3.9	4.1	4.6	4.6	4.9	5.9	5.7	6.2	6.7	7.4	7.8	8.5	9.0	10.0	11.3	12.5
<b>D</b>	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.5	1.8

## Wrought Iron Narrow Butt

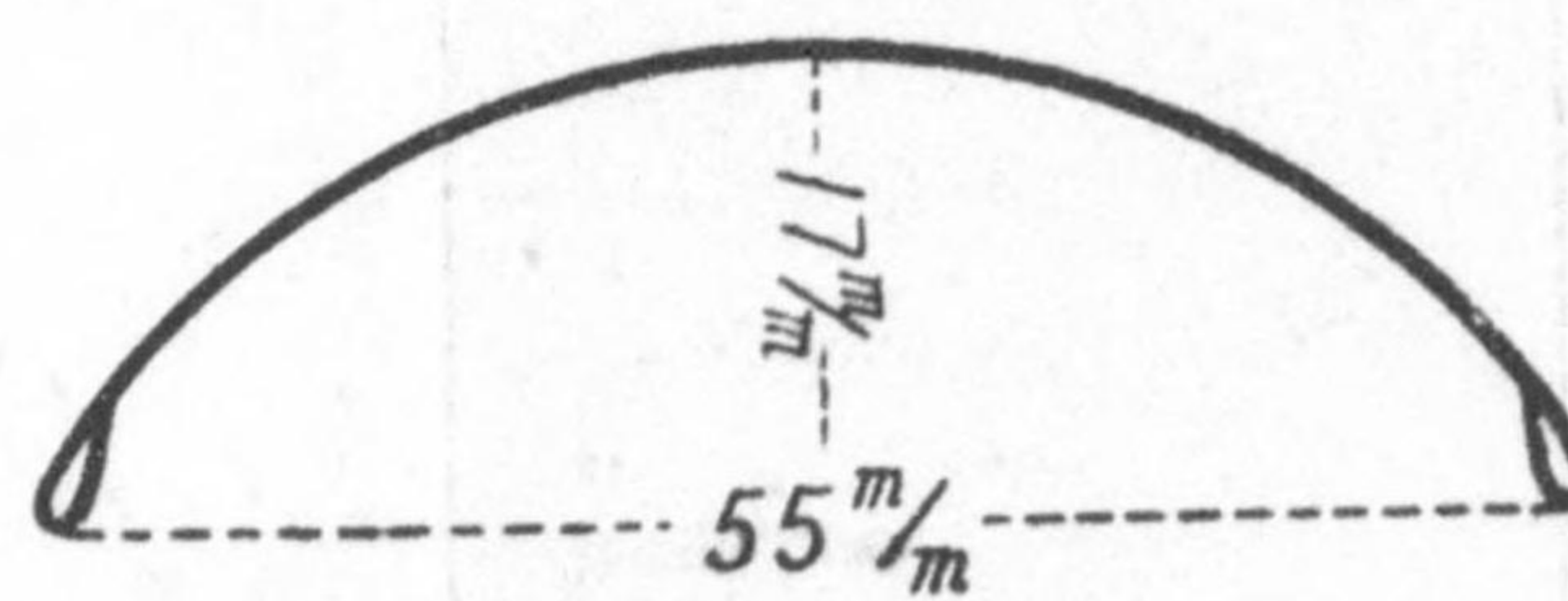
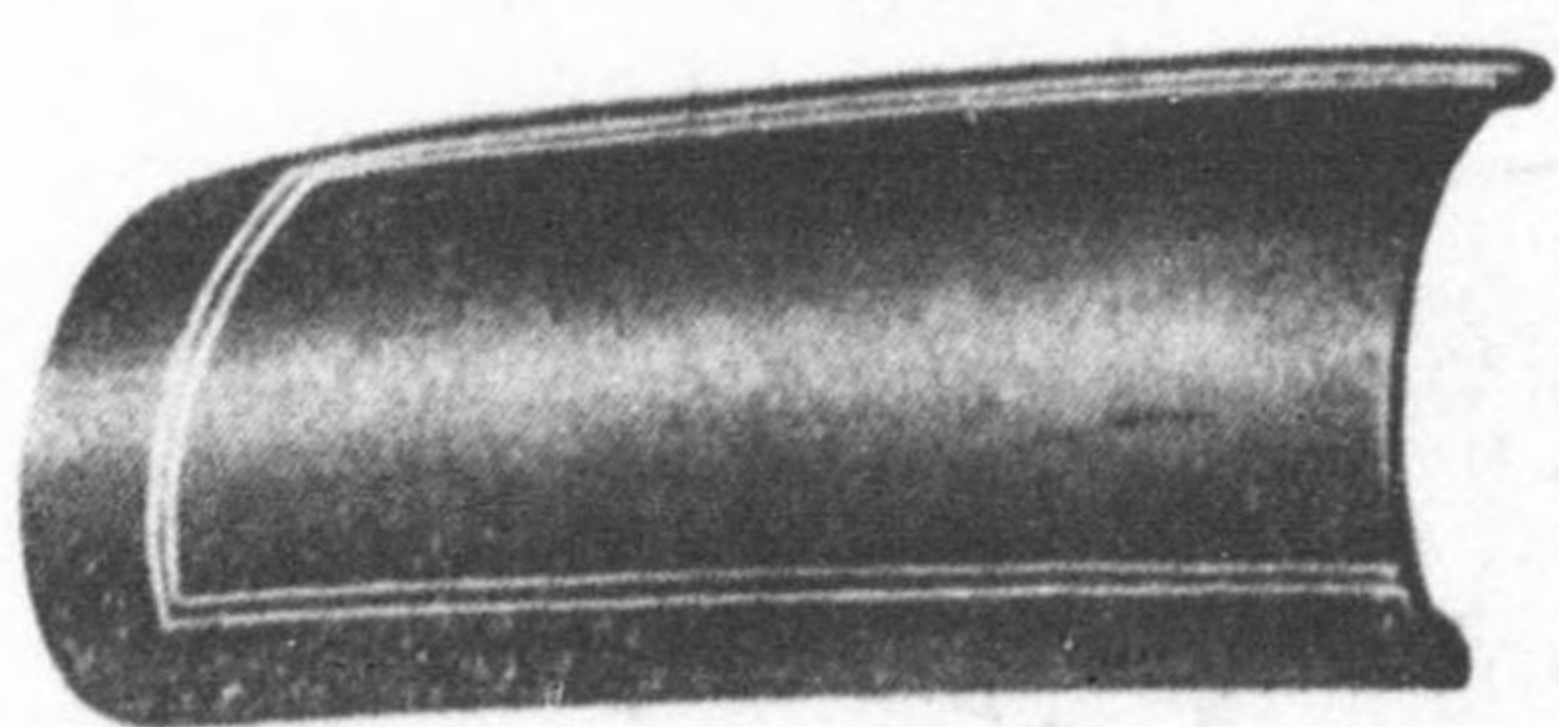
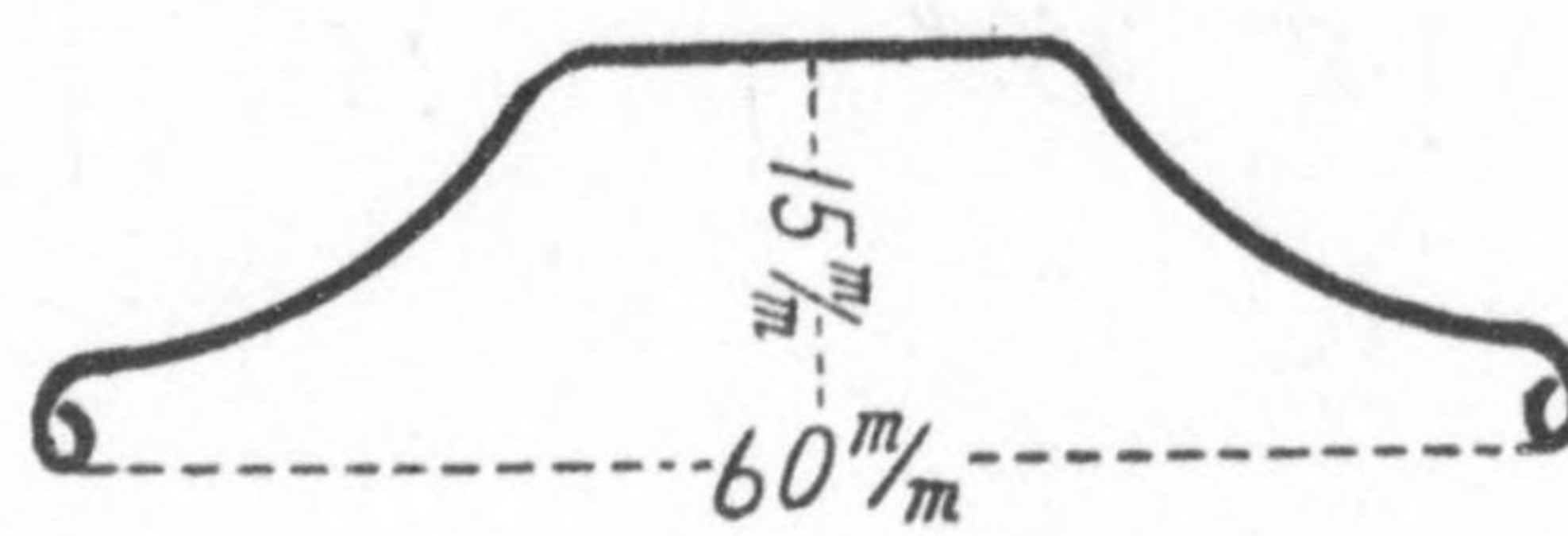
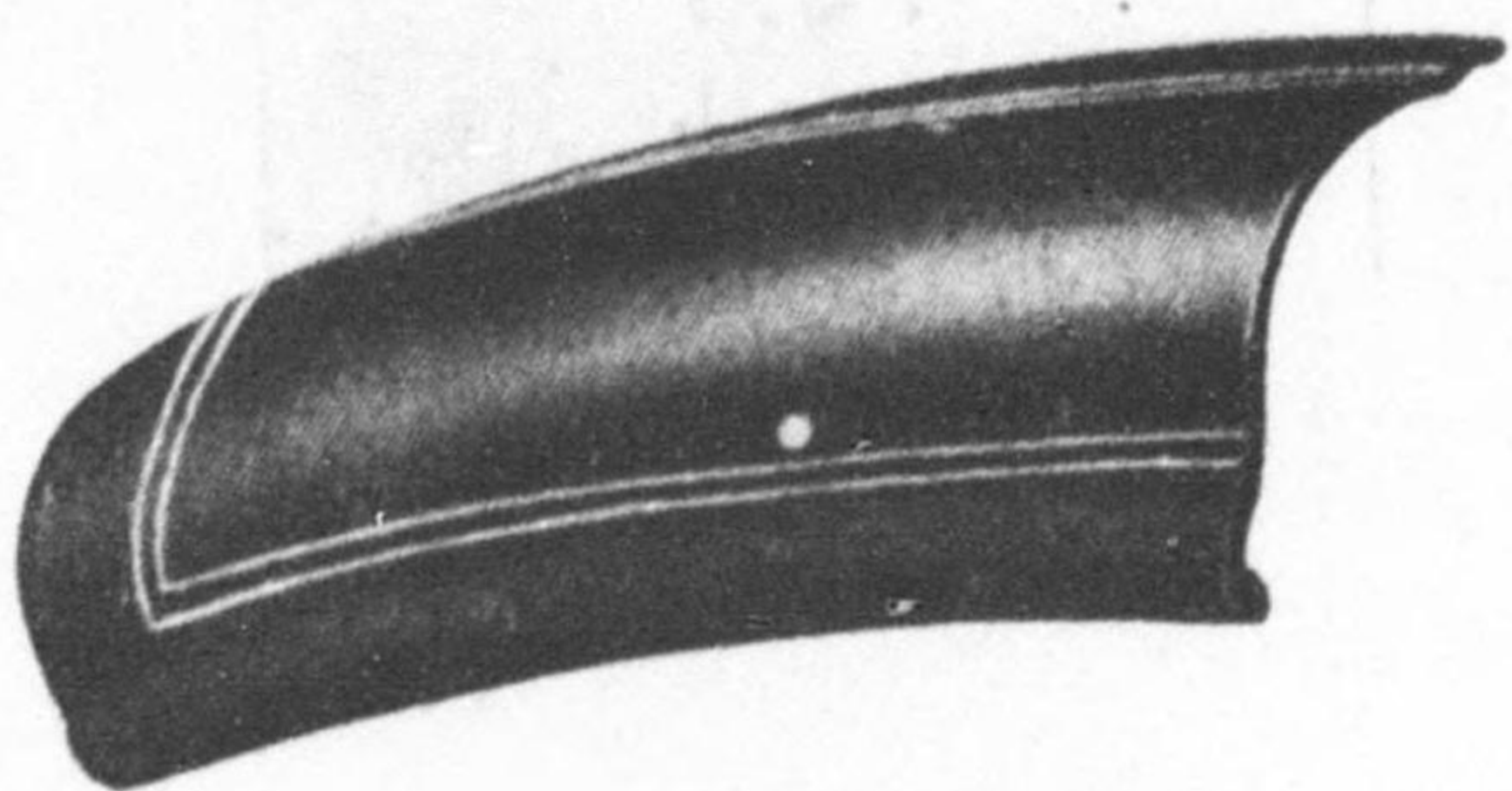
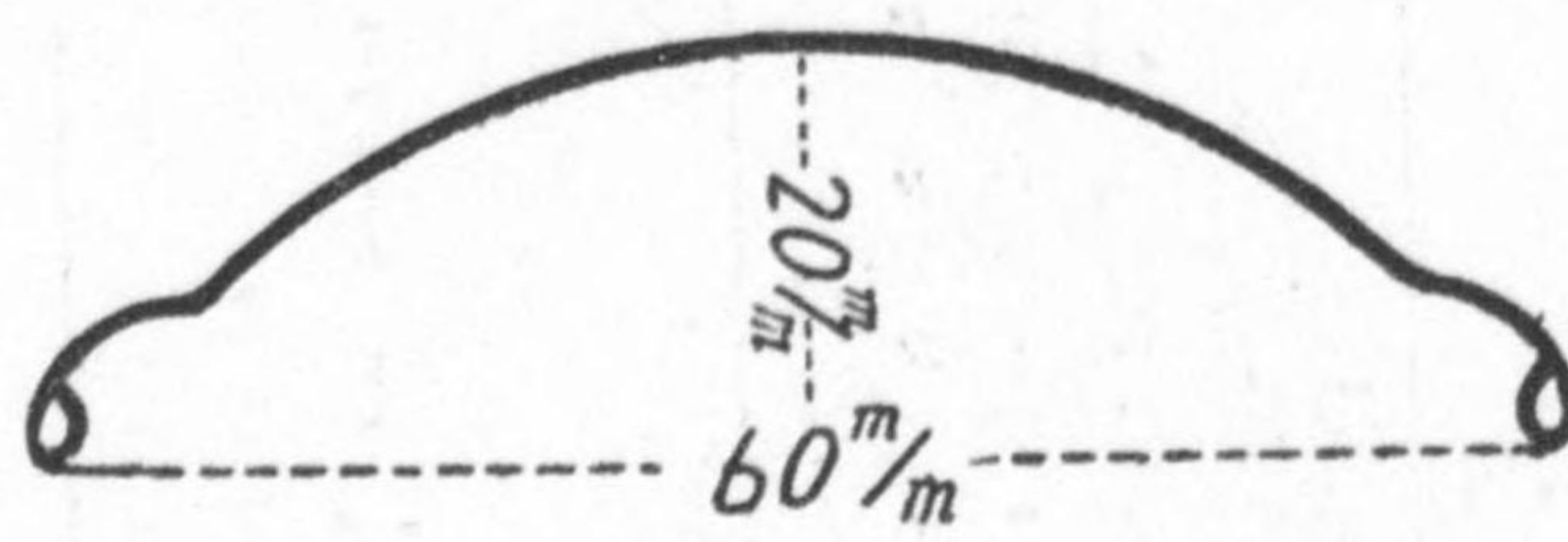
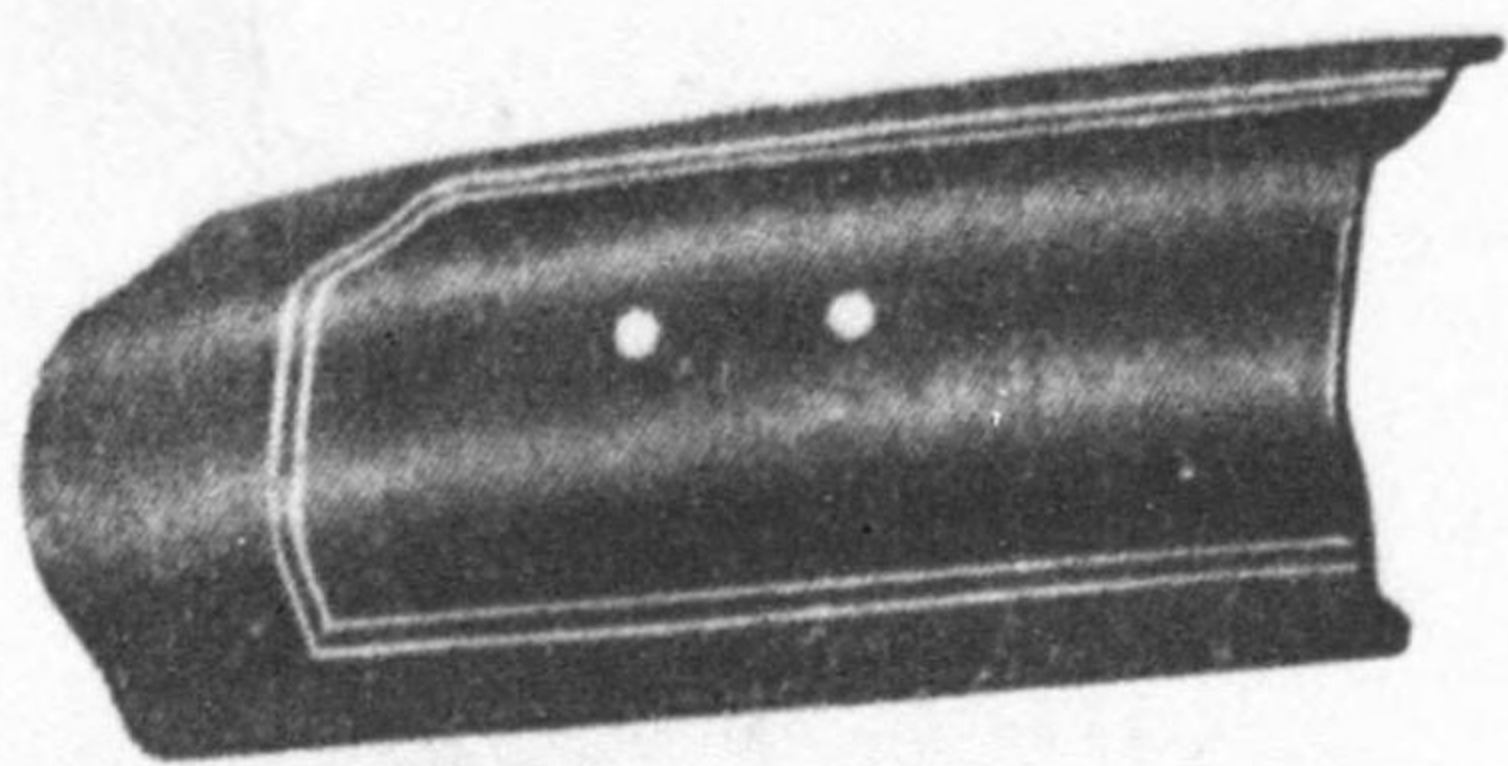
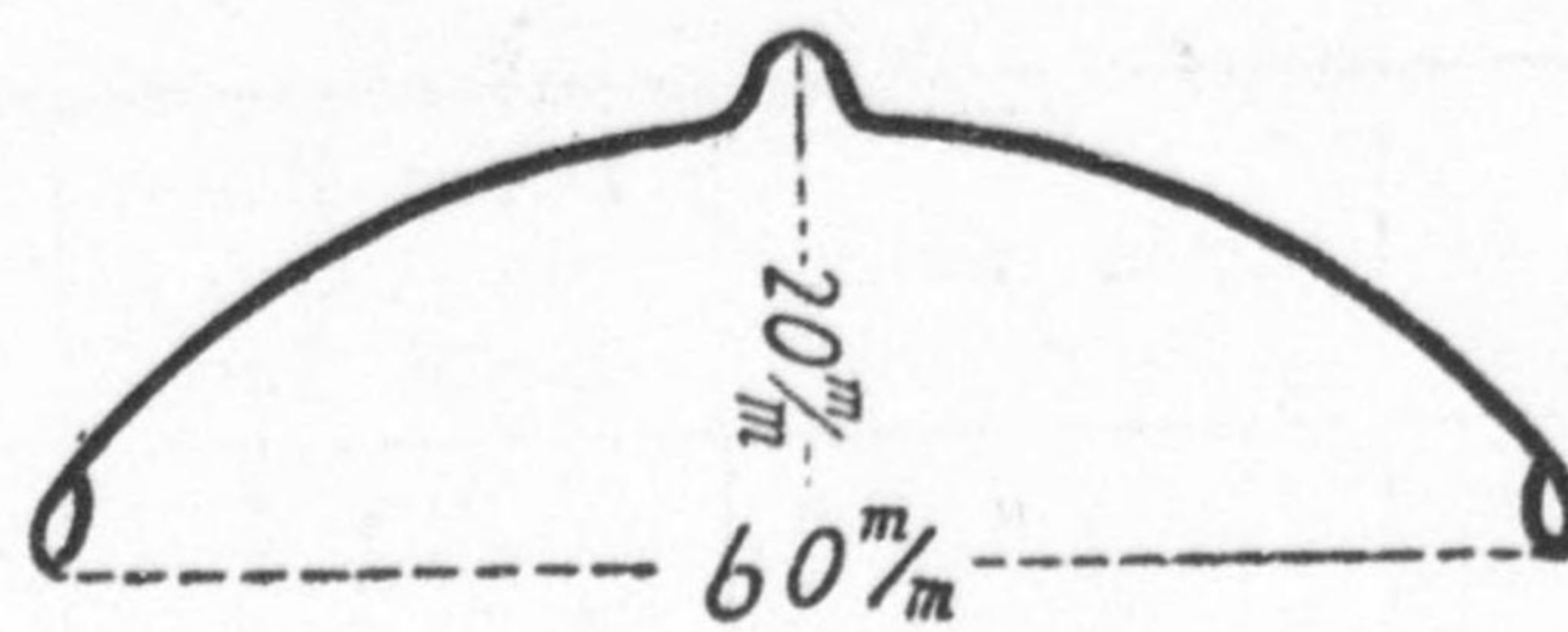
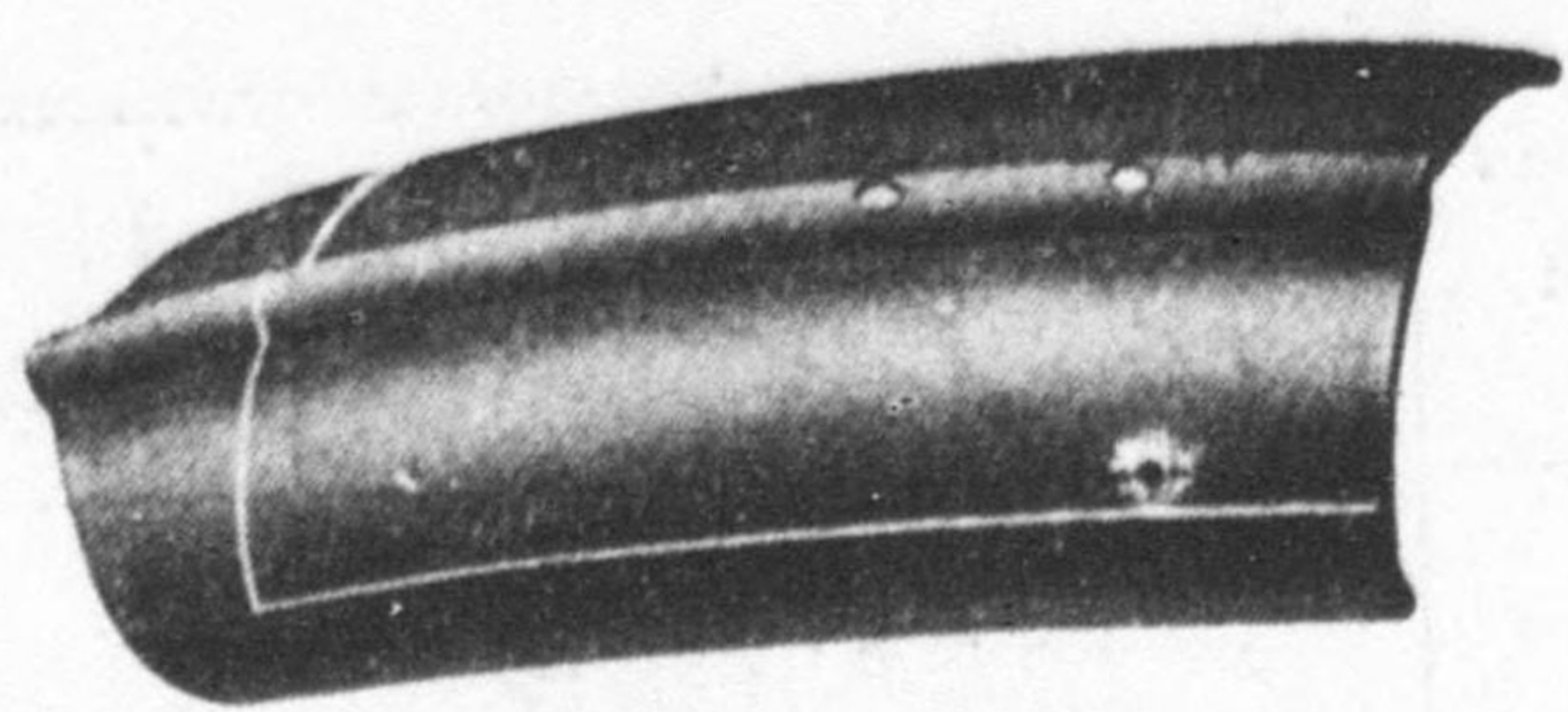
Bright Polished, Fixed Pins  
Made of Cold Rolled Steel

Length	Open width	Dozen Pairs in Card- board Box	Dozen Pairs in Wooden Case	Average Nett Weight per doz. pairs (without Screws.)	Meast. per Case.
1"	1"	1	100	20.8 kgs.	½ cft.
1½"	1 ⅜"	1	100	41.3	1
2"	1 ⅝"	1	100	81.0	2
2½"	1 ¾"	1	50	53.5	1 ½
3"	1 ⅞"	1	50	87.1	2
3½"	2 ¼"	1	30	76.2	2
4"	2 ⅞"	½	20	76.7	2
5"	3 ⅝"	½	15	79.7	2
6"	3 ⅞"	½	10	95.7	2



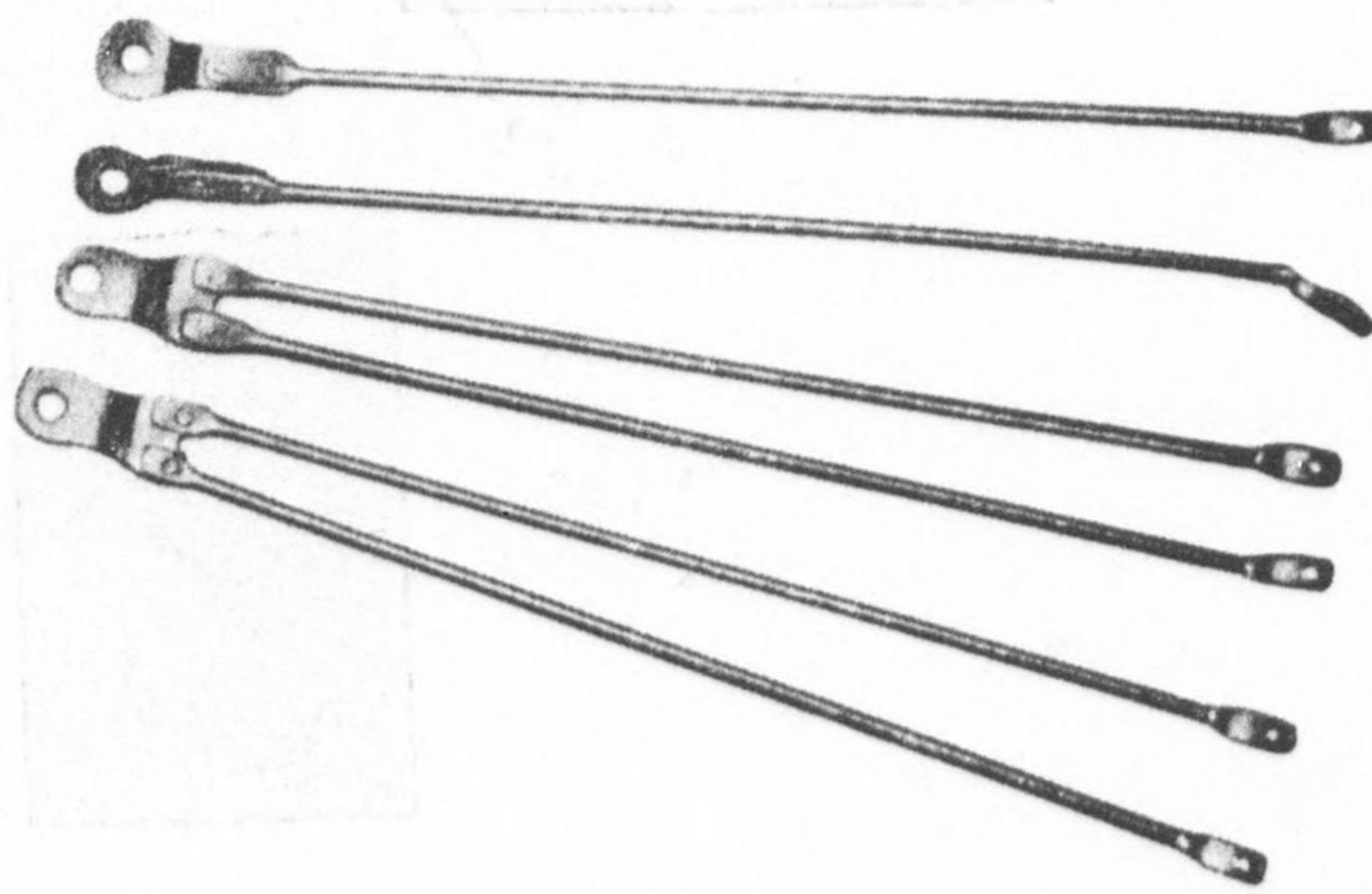
### Mudguard for Bicycle

Black enamelled with gold lines. Different colours of lines or thicker gauge can be supplied.



### Stay for Mudguard

Black enamelled &/or chromed.  
Round &/or half round.



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# NICHIA STEEL WORKS, LTD.

Telephone. SEMBA (Osaka) (25) 5631 ~ 8

Cable Address. NITIASEIKO OSAKA

CODE USED: ACME  
BENTLEY'S SECOND PHRASE  
ORIENTAL 3 LETTERS

BUSINESS OFFICE: Bingomachi Nichome, Osaka

TOKYO OFFICE: Mitsubishi Kyugokan, Nichome  
Marunouchi, Tokyo

MAIN WORKS: Tsurumachi, Amagasaki (Near Osaka)

## BRANCH FACTORIES:

DAISAN FACTORY	Nakahamashinden, Amagasaki
DENPO FACTRY	Minami Nichome, Denpo-cho, Osaka
FUKAE FACTORY	Higashi Sanchome, Fukae, Osaka
FUSE FACTORY	Hondori Nichome, Takaida, Fuse
HIRAOKA FACTORY	Nukata, Hiraoka, Nakagawachigun, Osaka
KANZAKI FACTORY	Tsugino, Amagasaki

This catalogue is submitted to you  
through

sep 50

PLAN FOR THE ESTABLISHMENT OF A STEEL INDUSTRY IN KURE BY  
THE NICHIIYA STEEL MFG. CO. LTD.

(1) Capacity of Facilities

Planning Term	Facilities to be establish	To be established or existing	Productivity per year.	Manufactured goods	
				Description of Products	Size (mm)
The 1st Term	Rolling Mill for Broad Hoop Iron	Bldgs... existing Machines... to be set up	150,000 ton	Broad Hoop Iron	Thickness - 1-5 Width 150-400
	(a) Cold Rolling Mill for Broad Hoop Iron	Bldgs... existing Machines... to be set up	100,000 ton	Finished High Class Hoop Iron	Thickness 0.1-3 Width 150-400
The 2nd Term	(b) Mfg. Machine for Broad Tin-Plate	Bldgs... existing Machines... to be set up	50,000 ton	Broad Tin-Plate	Thickness 0.1-1.2 Width 150-400

H-61-1

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