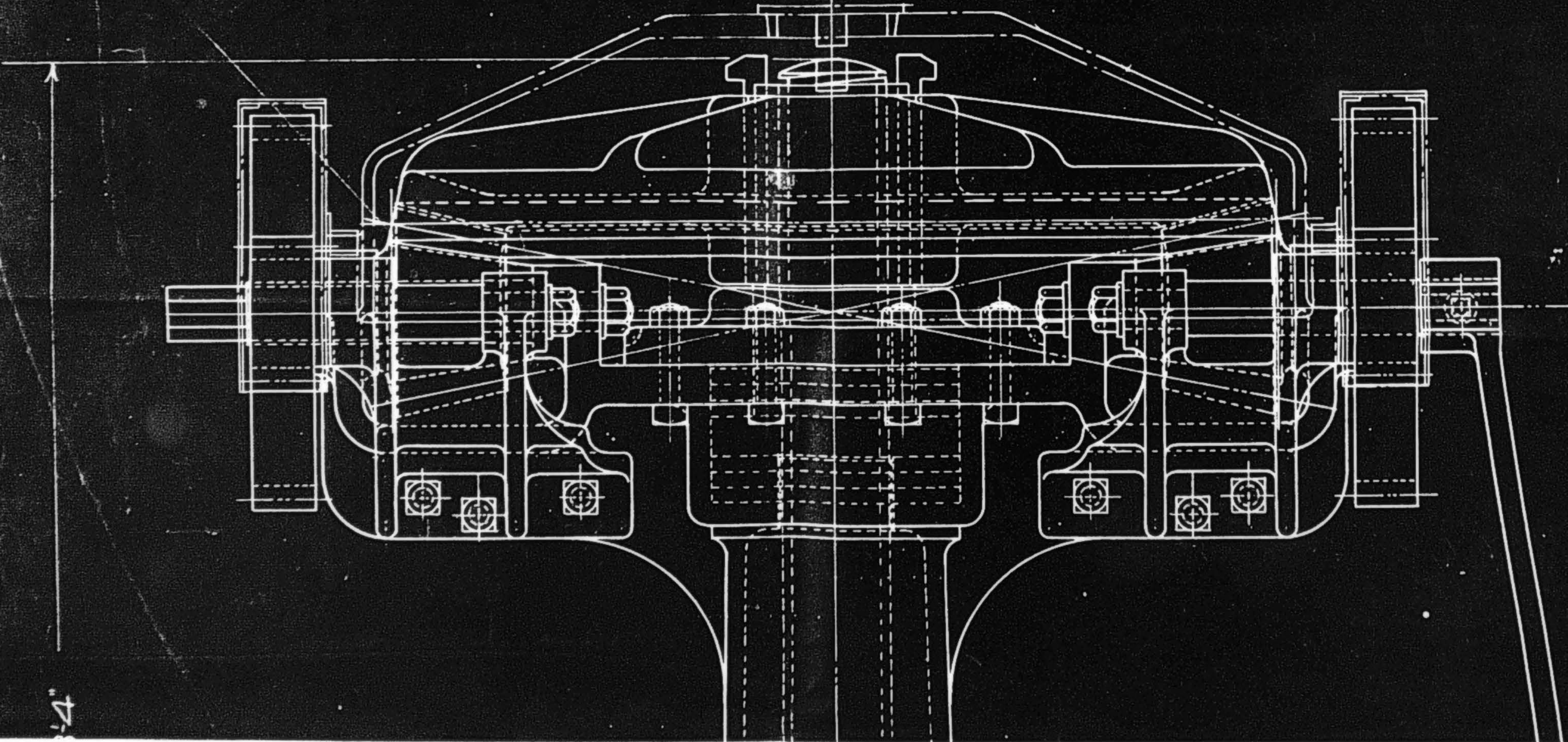
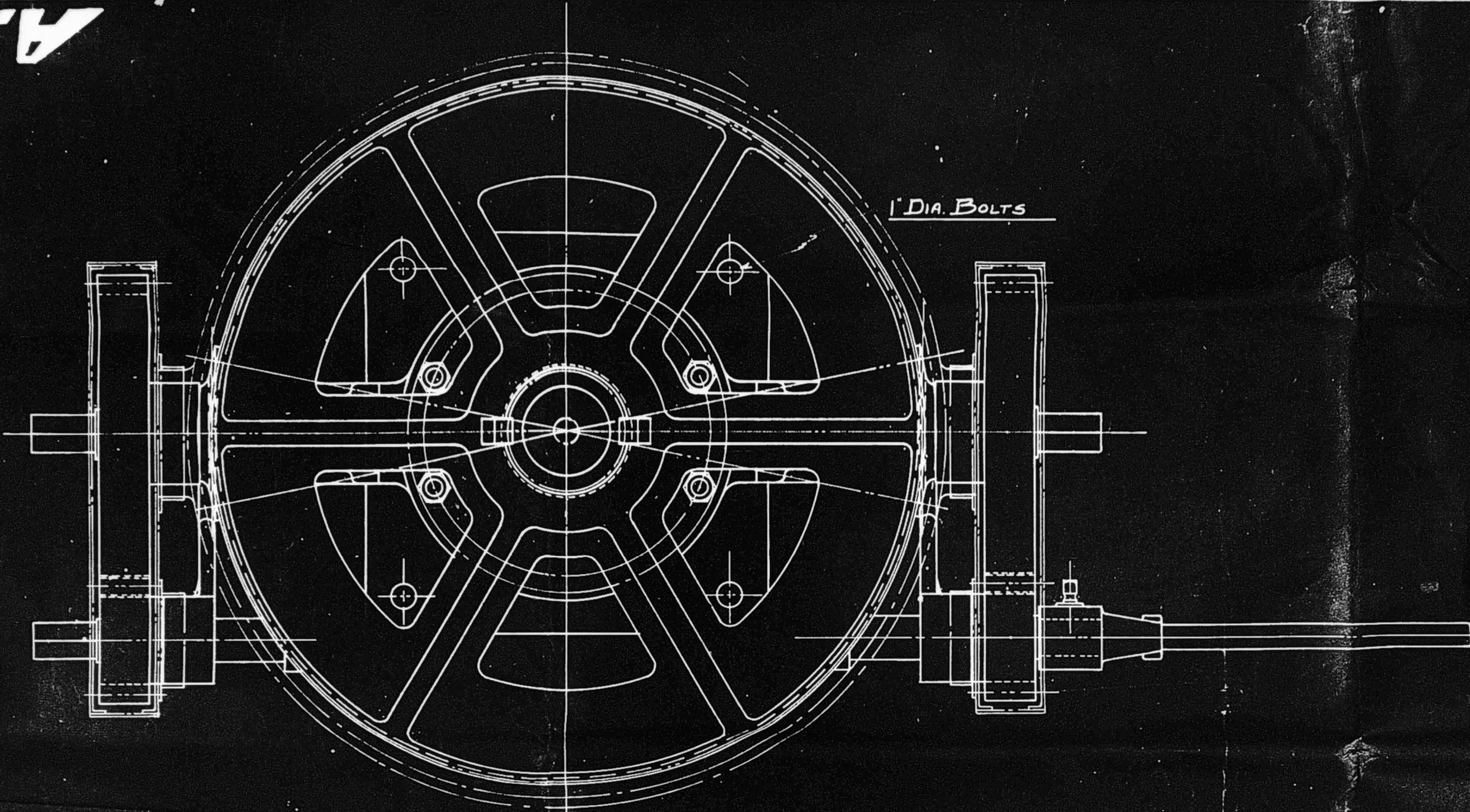
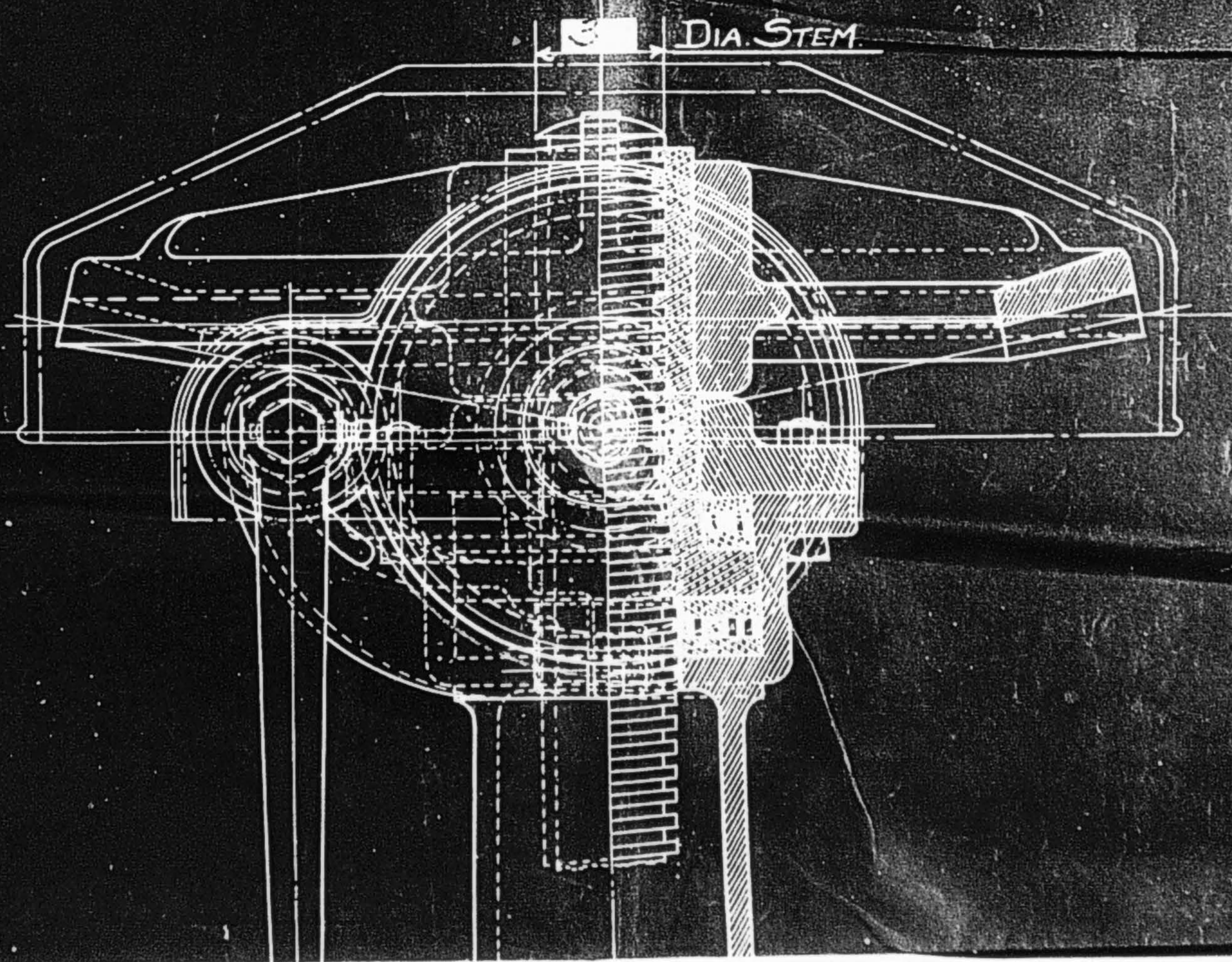
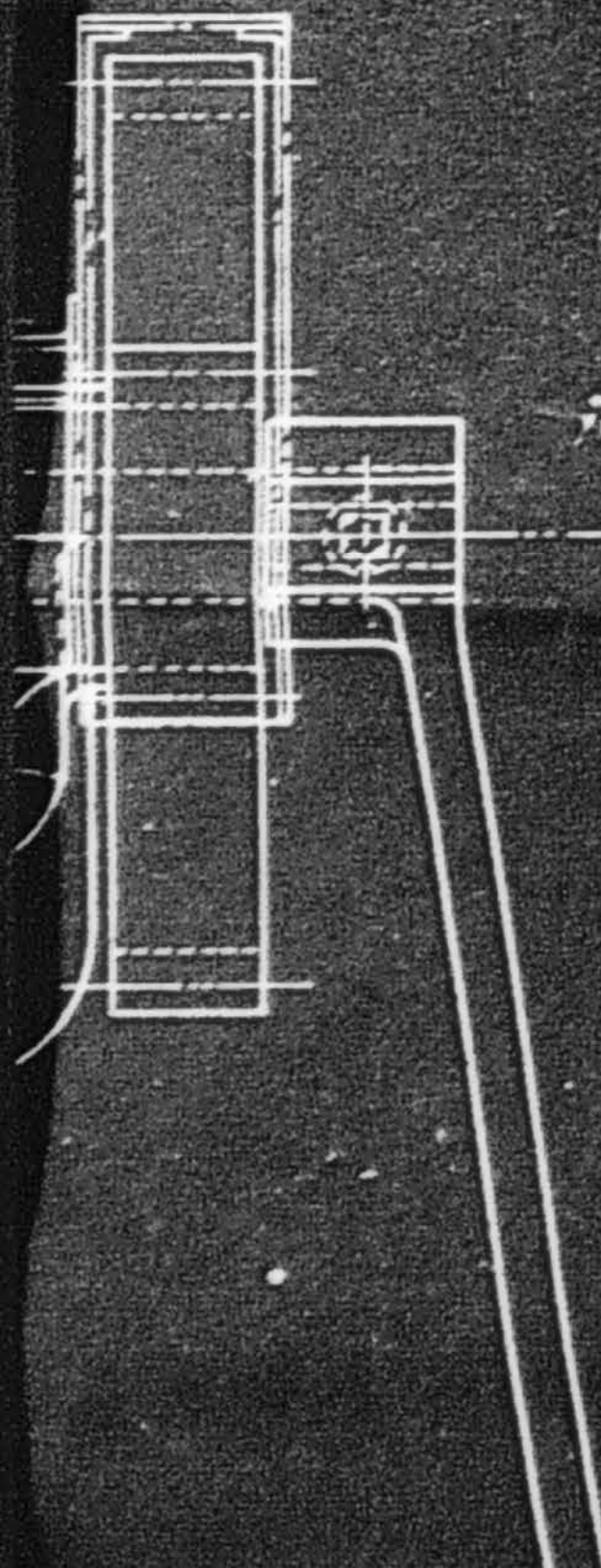
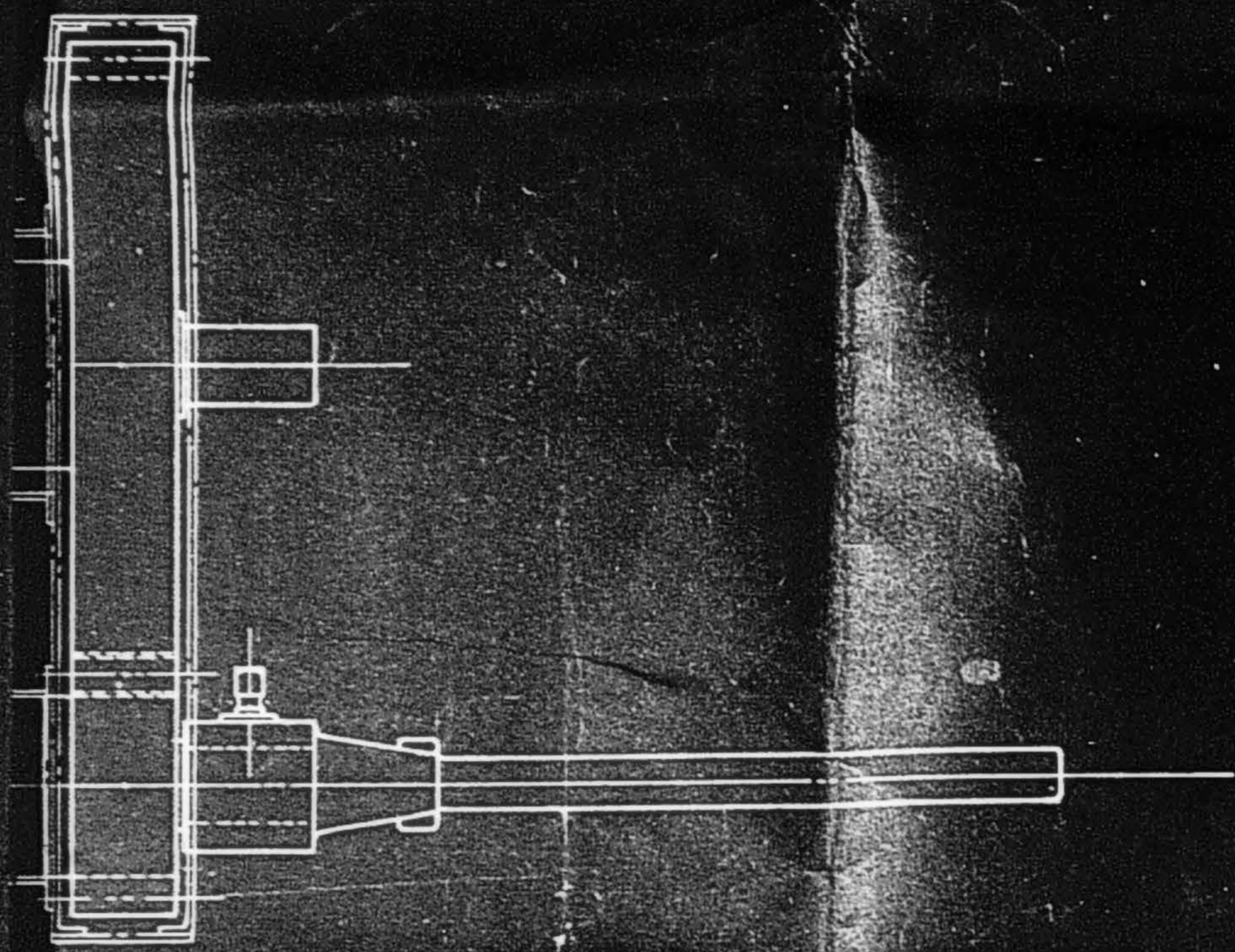


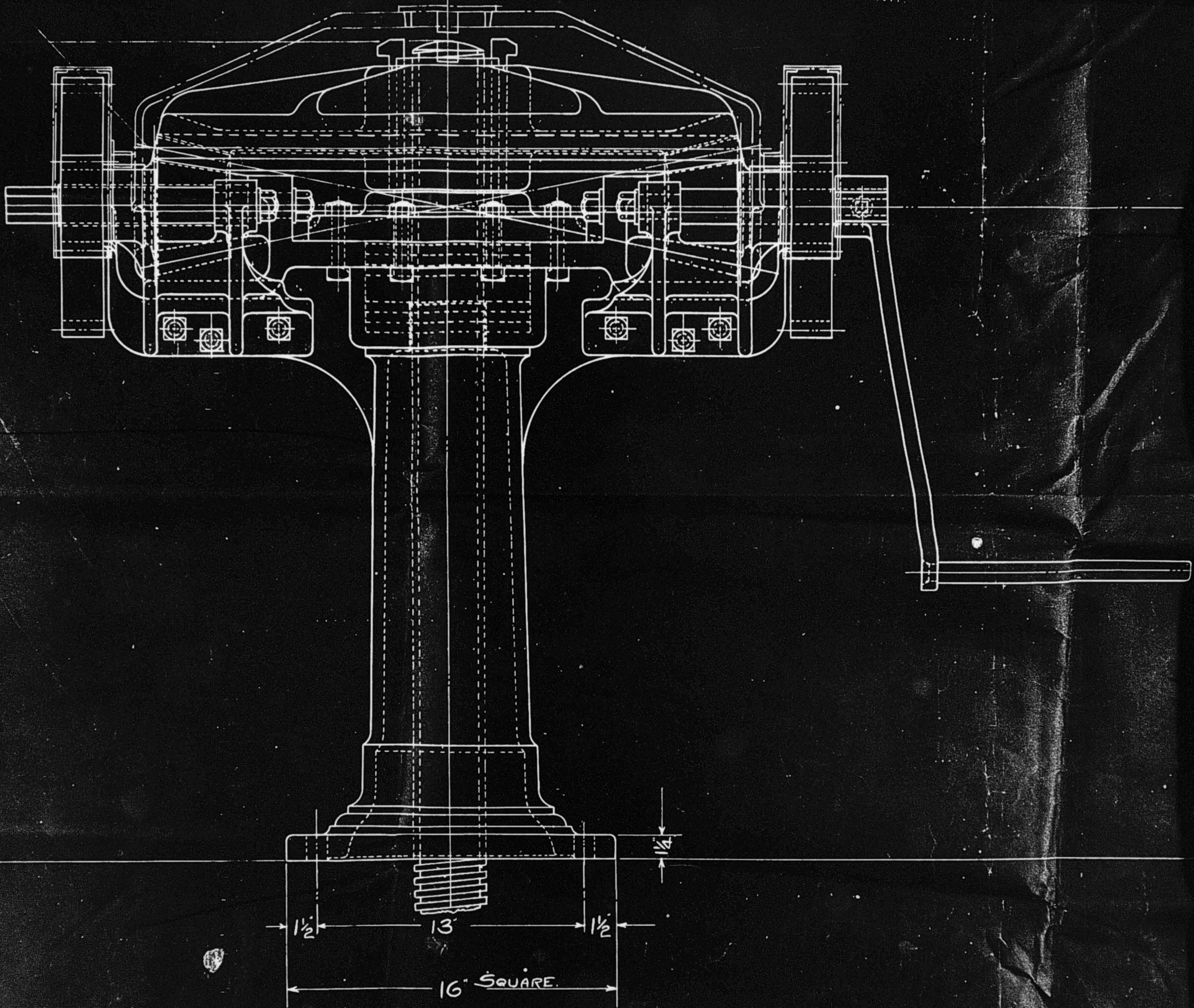
A.697.

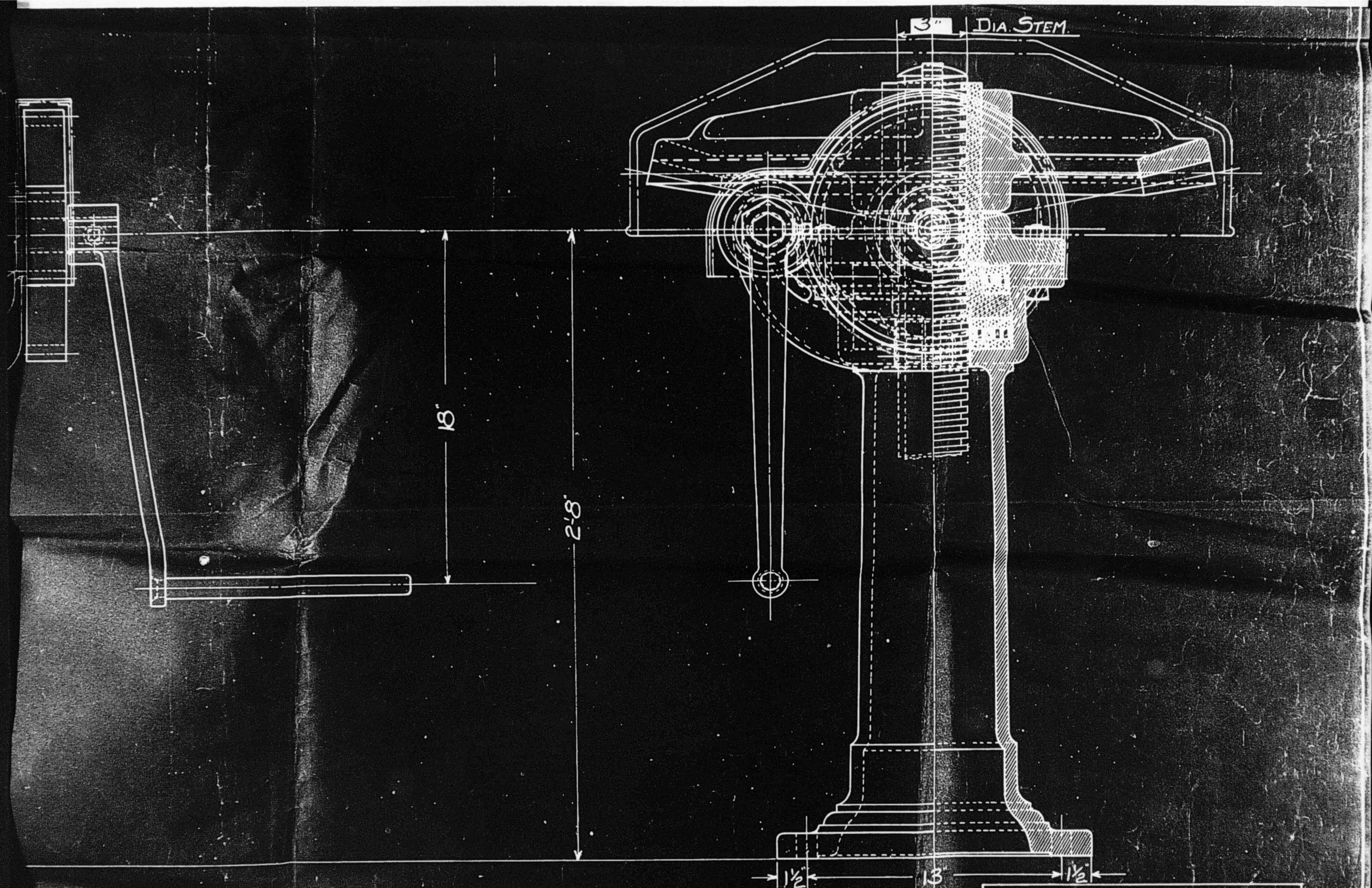


BOLTS



18"





GENERAL ARRANGEMENT OF N^o 6.
 TWO SPEED SINGLE REDUCTION PEDESTAL
 FOR
 WATER WORKS SUPPLY CO.
 COLDWELL-WILCOX CO.
 NEWBURGH N.Y.
 SCALE 3-1' FEB 13 1913

A.697.

126" V

CAST IRON CAP

IF RISING STEM
IS REQUIRED THIS
TOP WILL NOT BE
REQUIRED -

CAST IRON

CAST IRON
GUIDES

2 1/4" DIA. STEM
BRONZE

6 1/2"

9 3/8"

3'-0"

4'-2 1/2"

7 1/2"

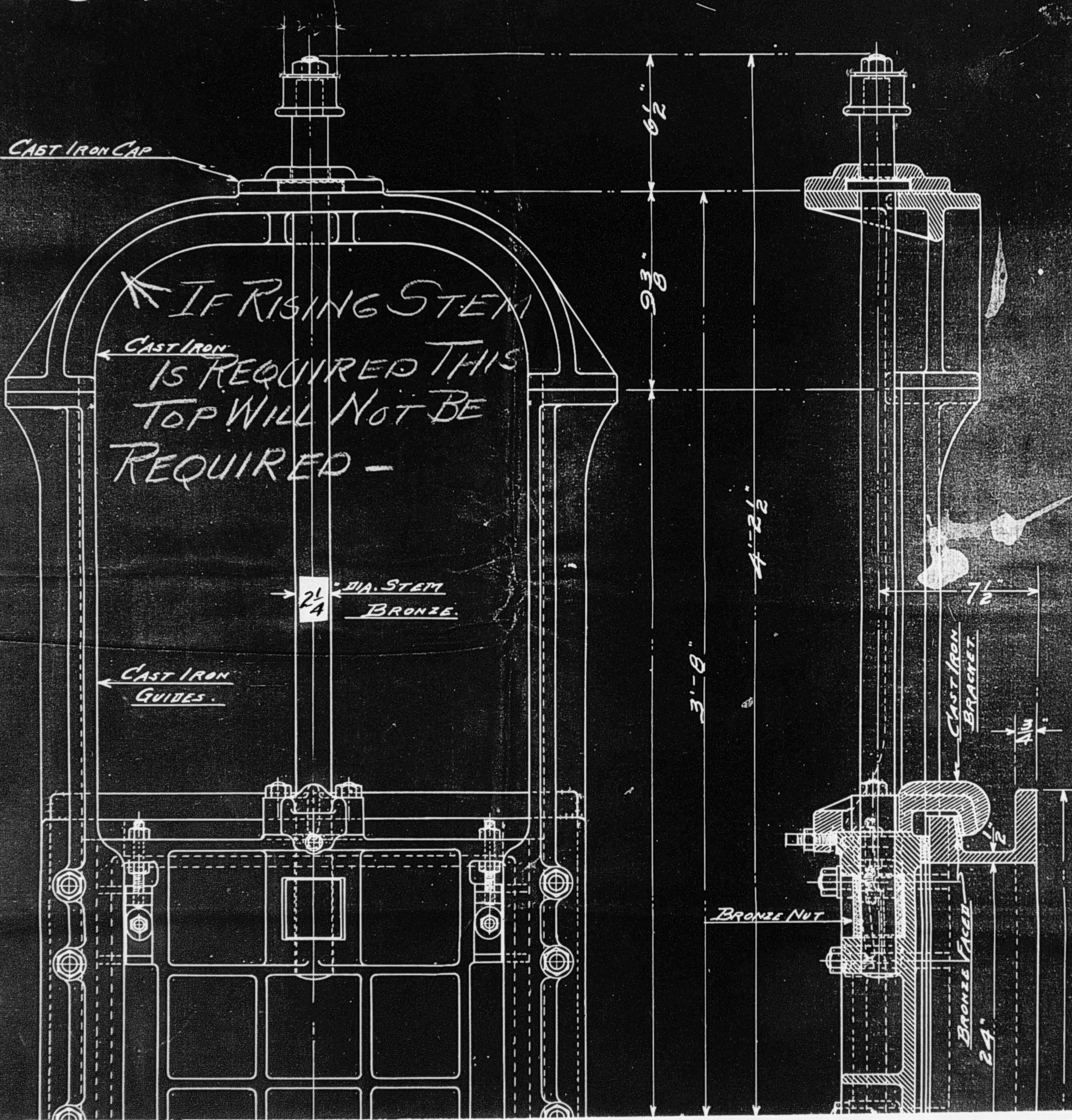
CAST IRON
BRACKET

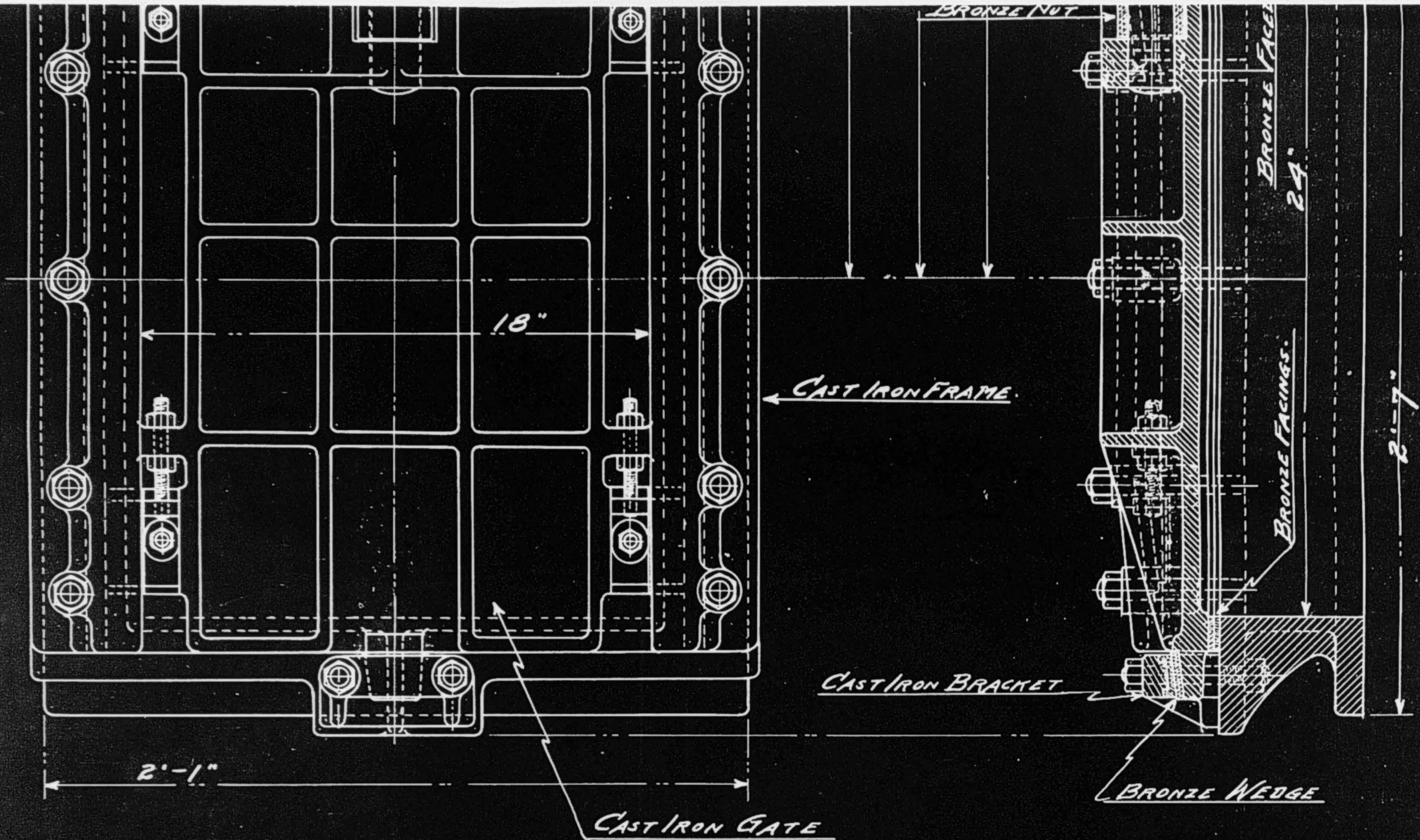
1/16"

BRONZE NUT

BRONZE FACED

2 1/4"

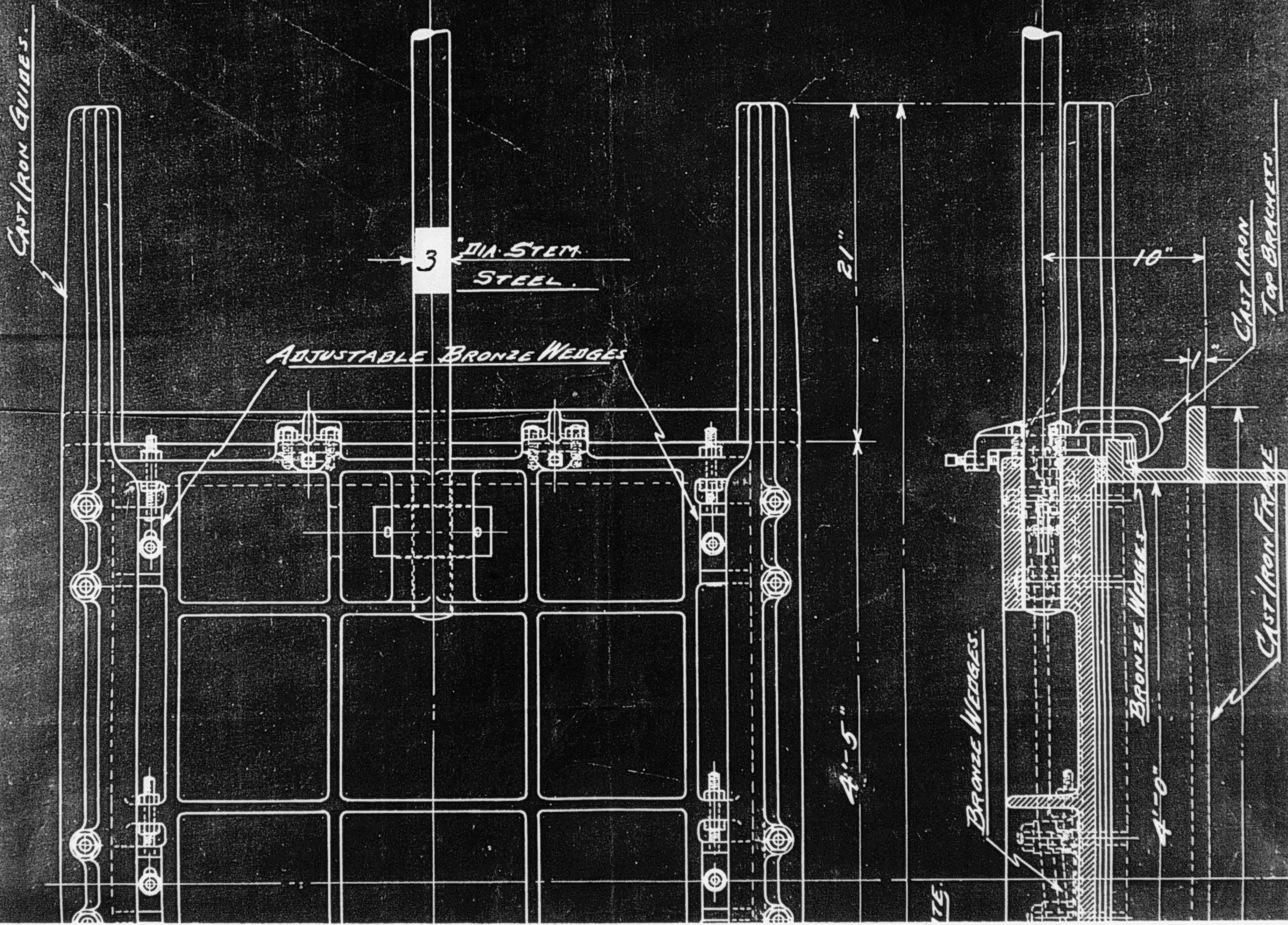


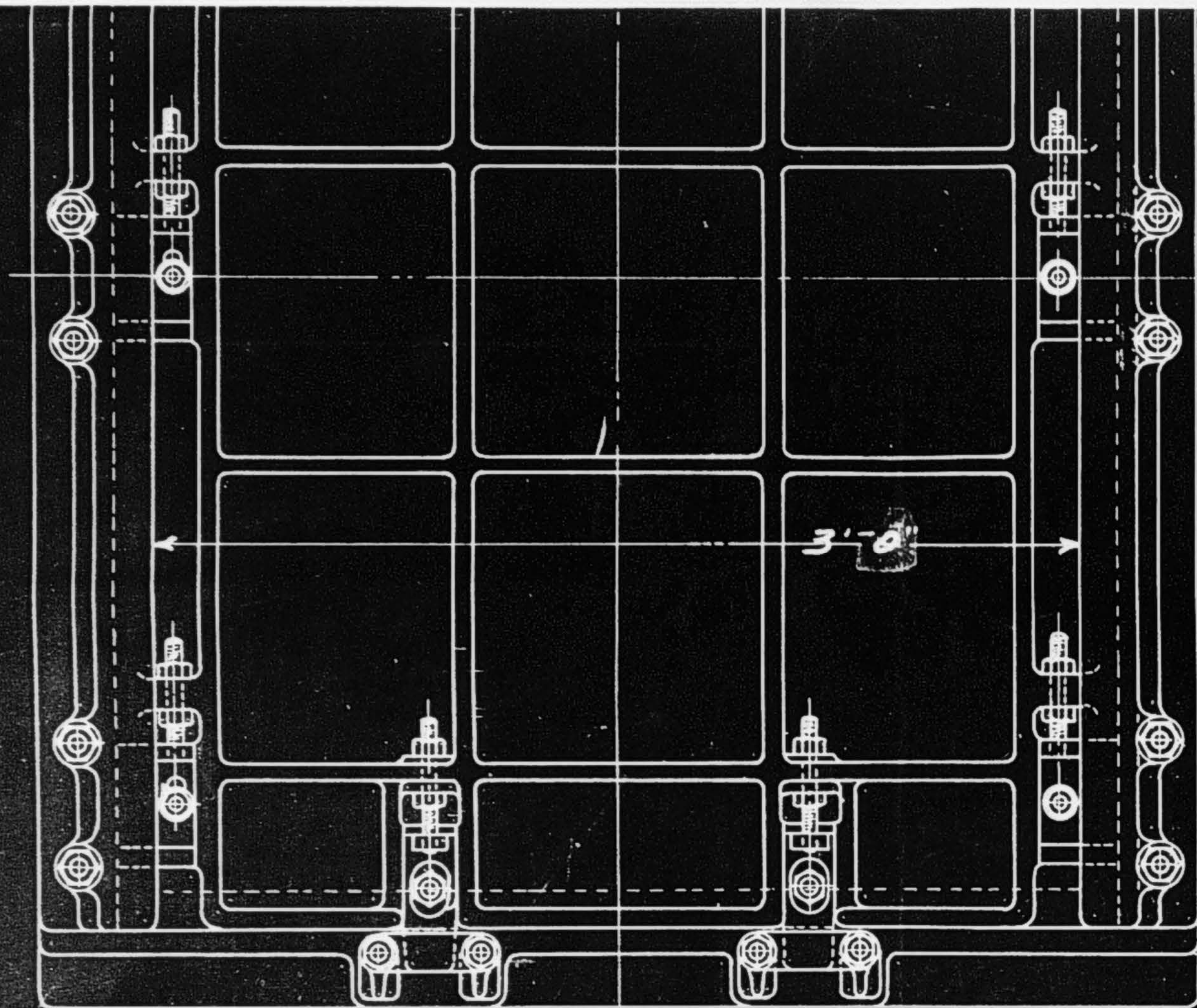


GENERAL ARRANGEMENT OF 18" X 24"
 SELF CONTAINED SLUICE GATE.
 FOR
 WATER WORKS SUPPLY CO.
 COLDWELL-WILCOX CO.
 NEWBURGH, N.Y.
 SCALE 3" = 1 FT. FEB. 23, 1914

A.921.

7-939

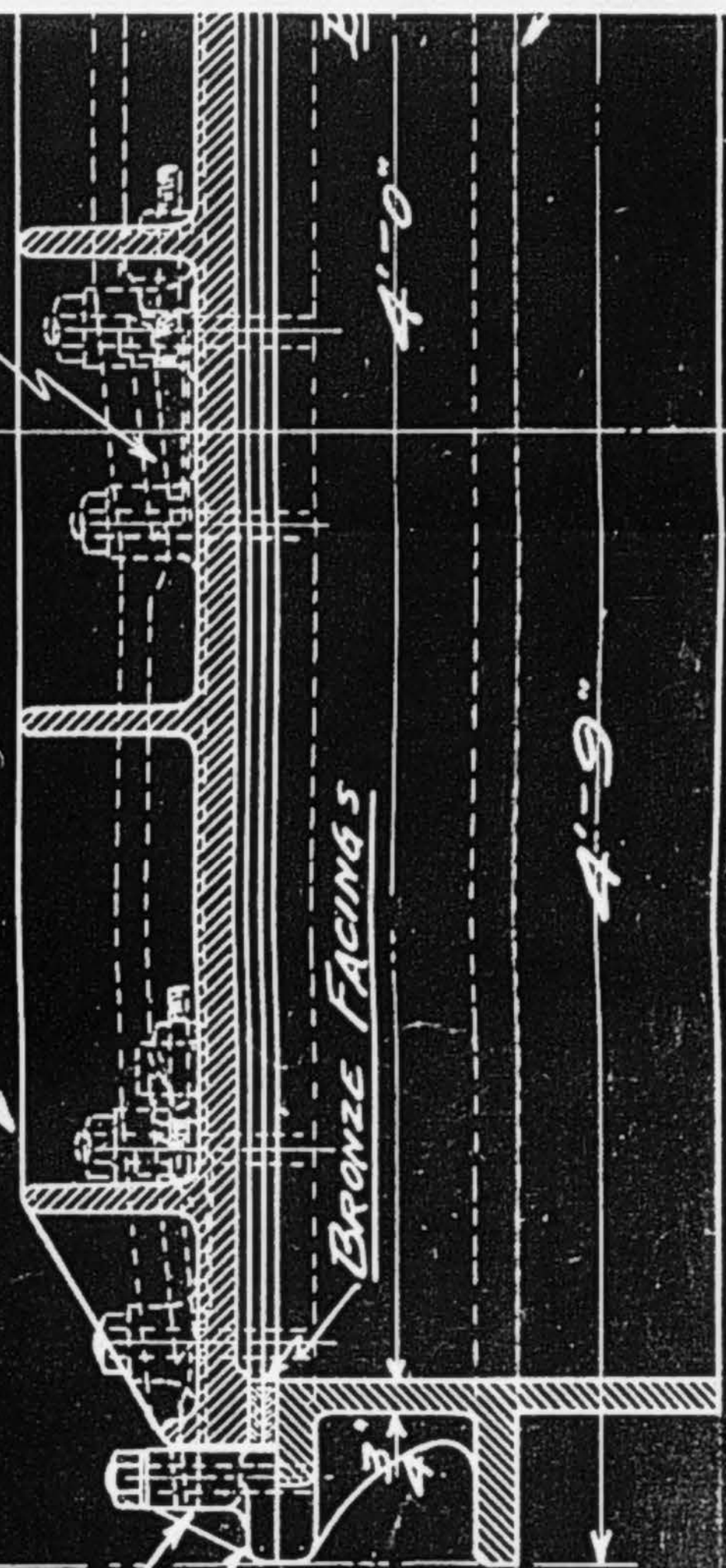




4'-5"

6'-4"
CAST IRON GATE

BRONZE W

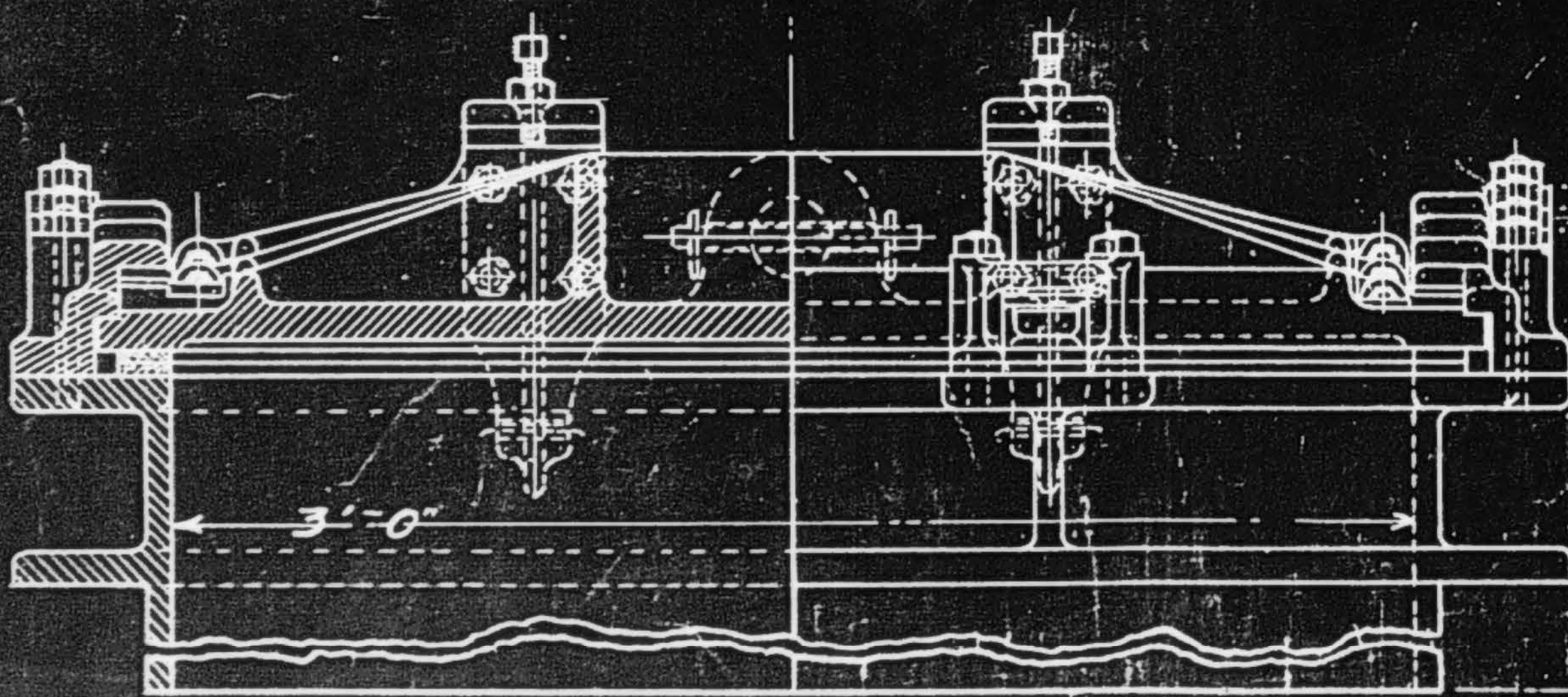


4'-0"

4'-9"

CAST IRON
BOTTOM BRACKET

BRONZE WEDGES



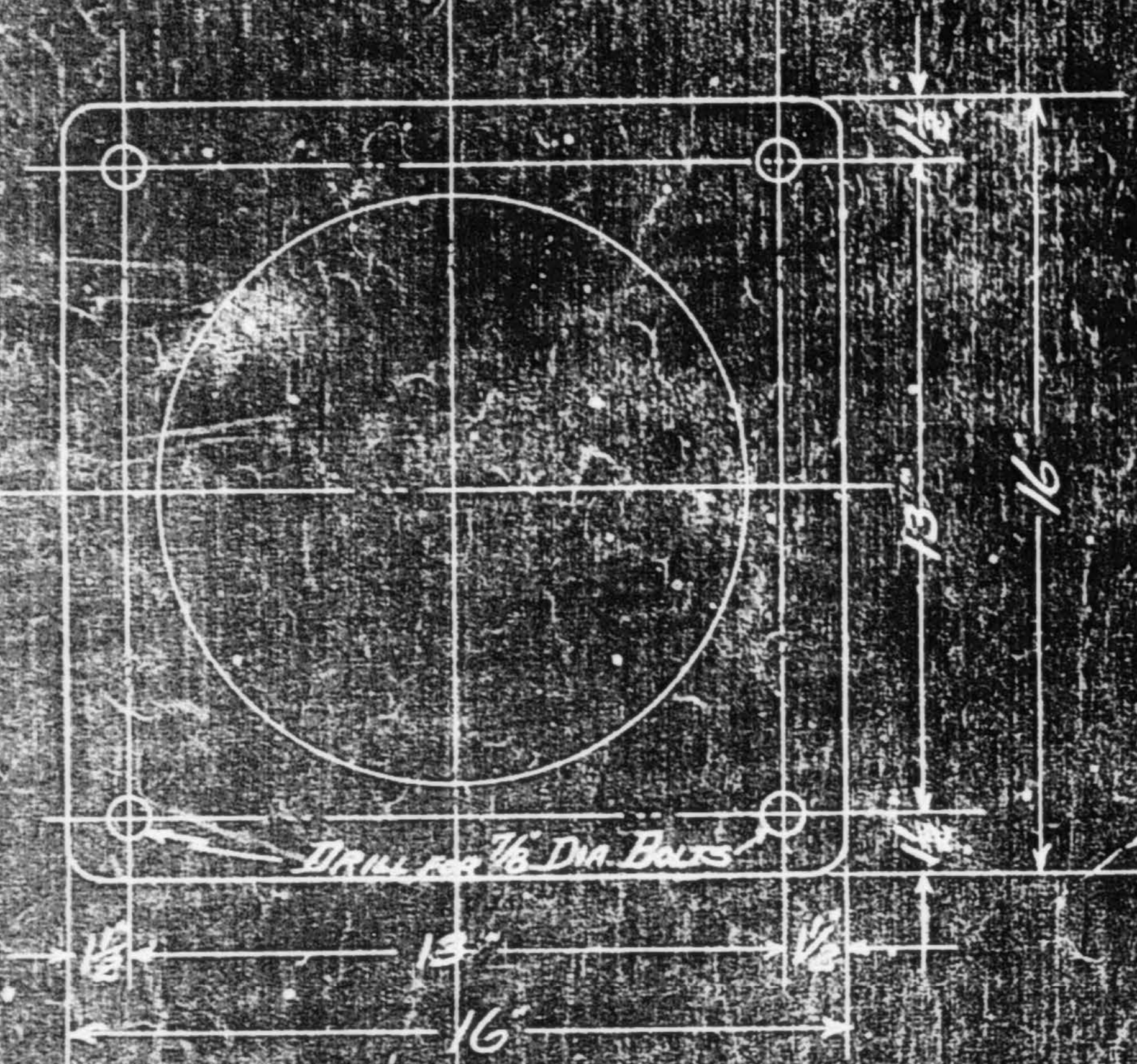
3'-0"

6"
5"

GENERAL ARRANGEMENT OF 3'0" X 4'0"
BACK PRESSURE SLUICE GATE
FOR
WATER WORKS SUPPLY CO.
COLDWELL-WILCOX CO.
NEWBURGH, N.Y.
SCALE 2"=1 FT. MARCH 14, 1914

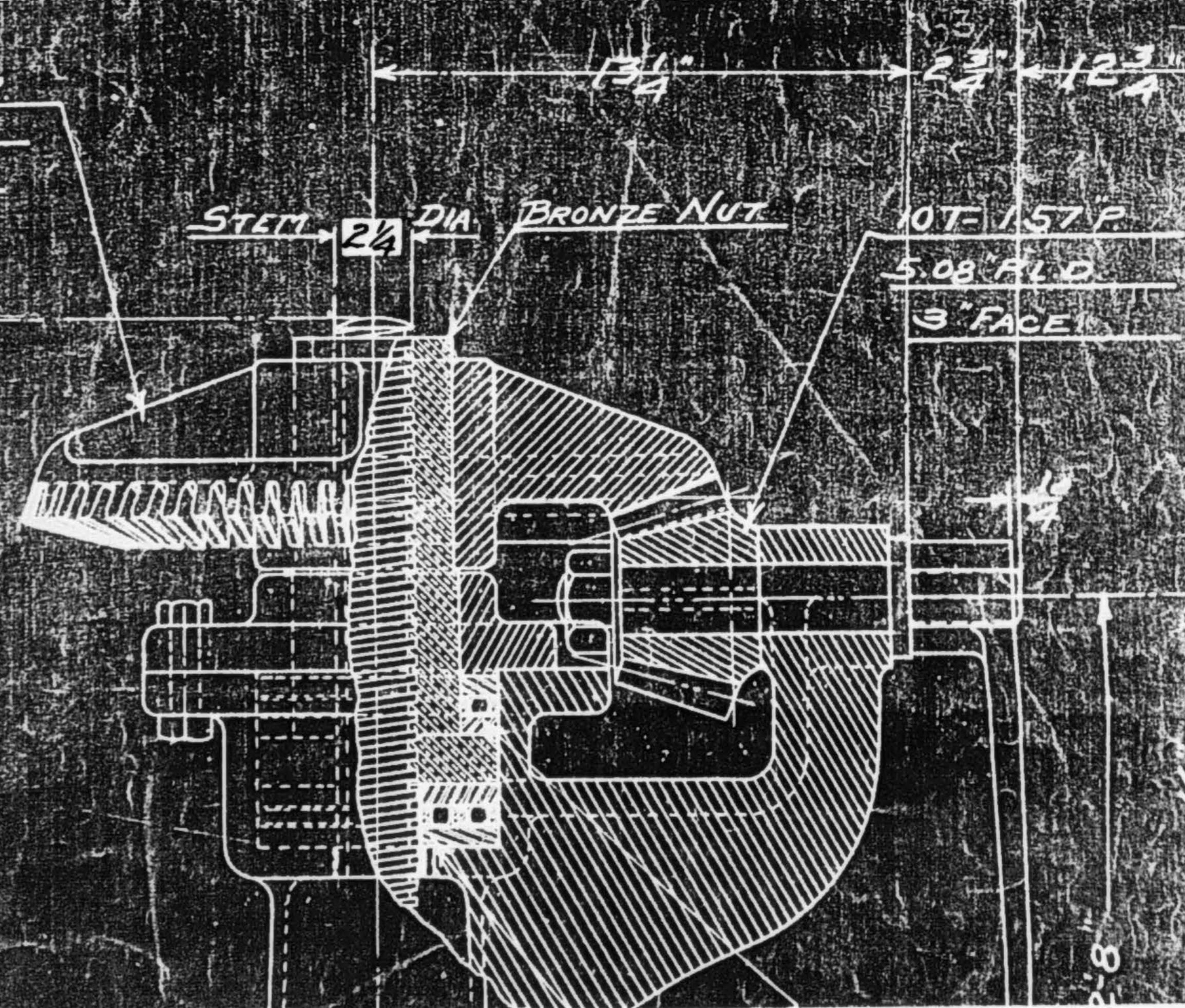
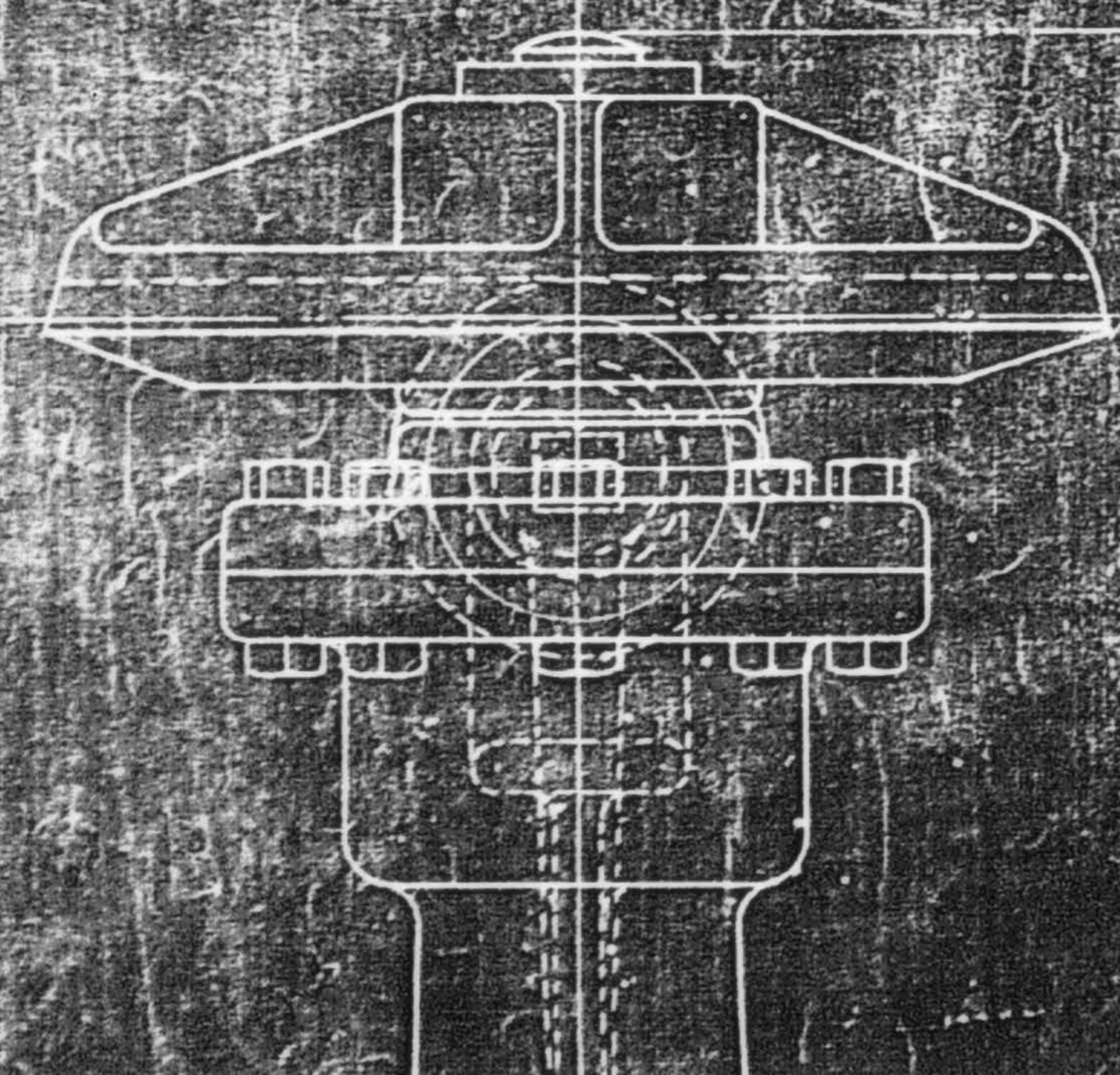
A-939.

A-468



DRILL FOR 1/8 DIA BOLTS

35 T 1.57 P
17.514 P.L.D.
3 FACE

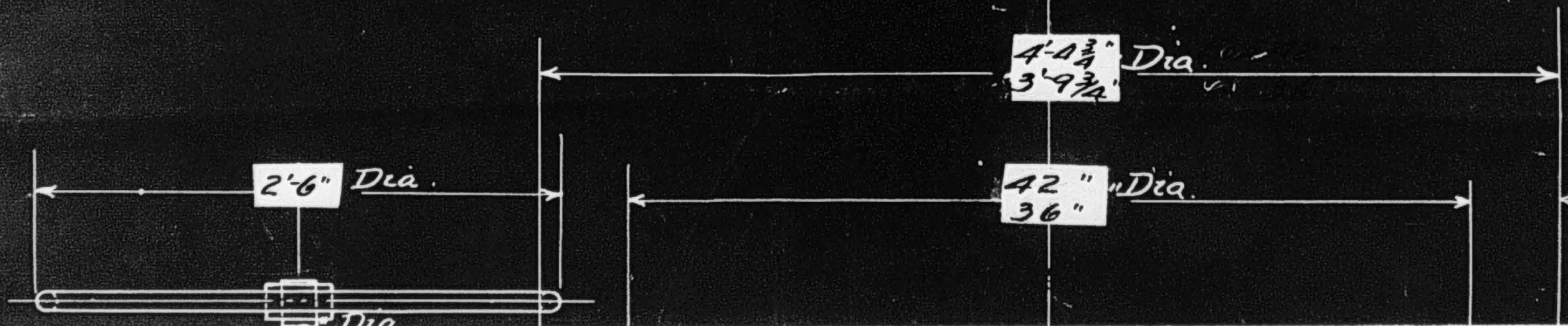
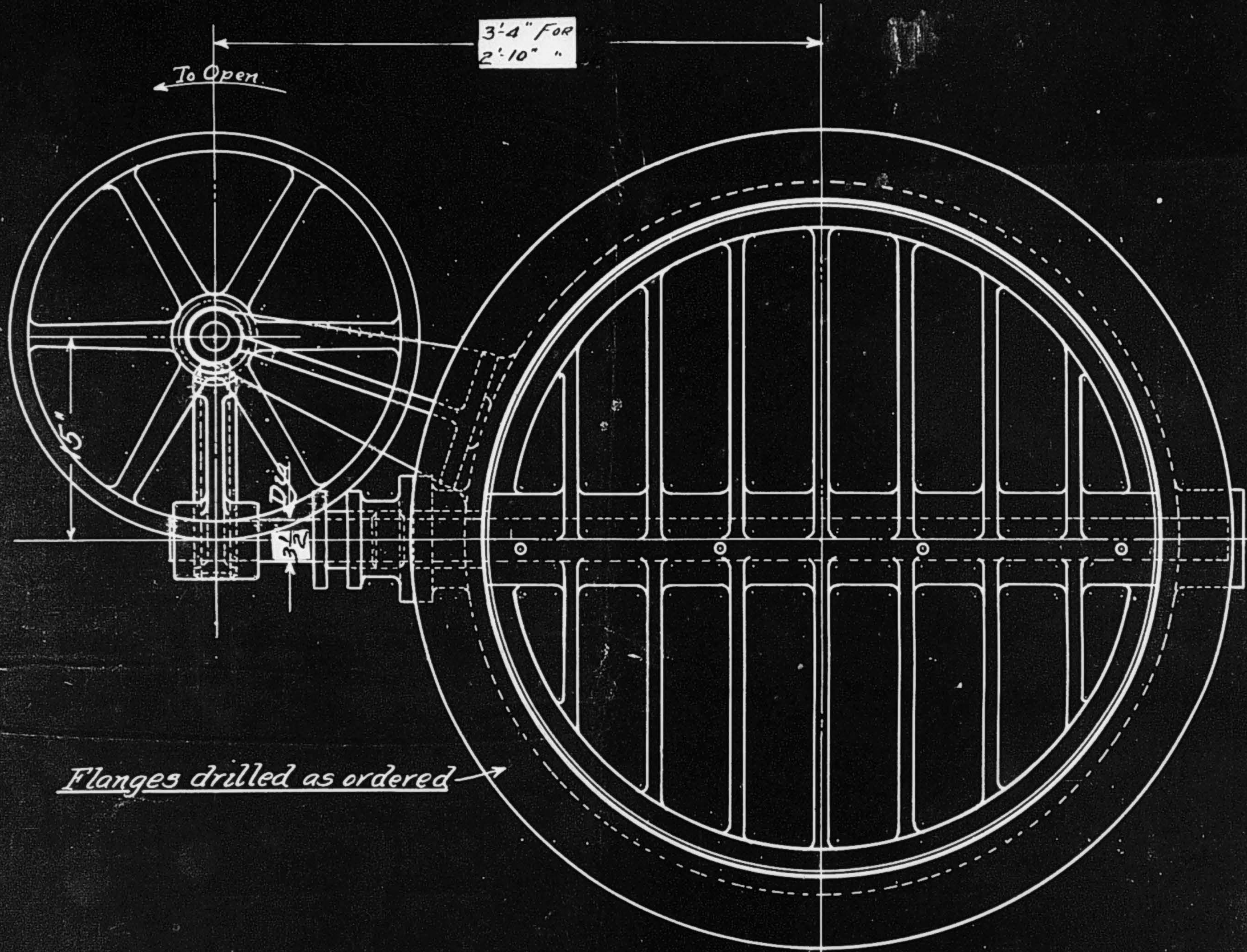


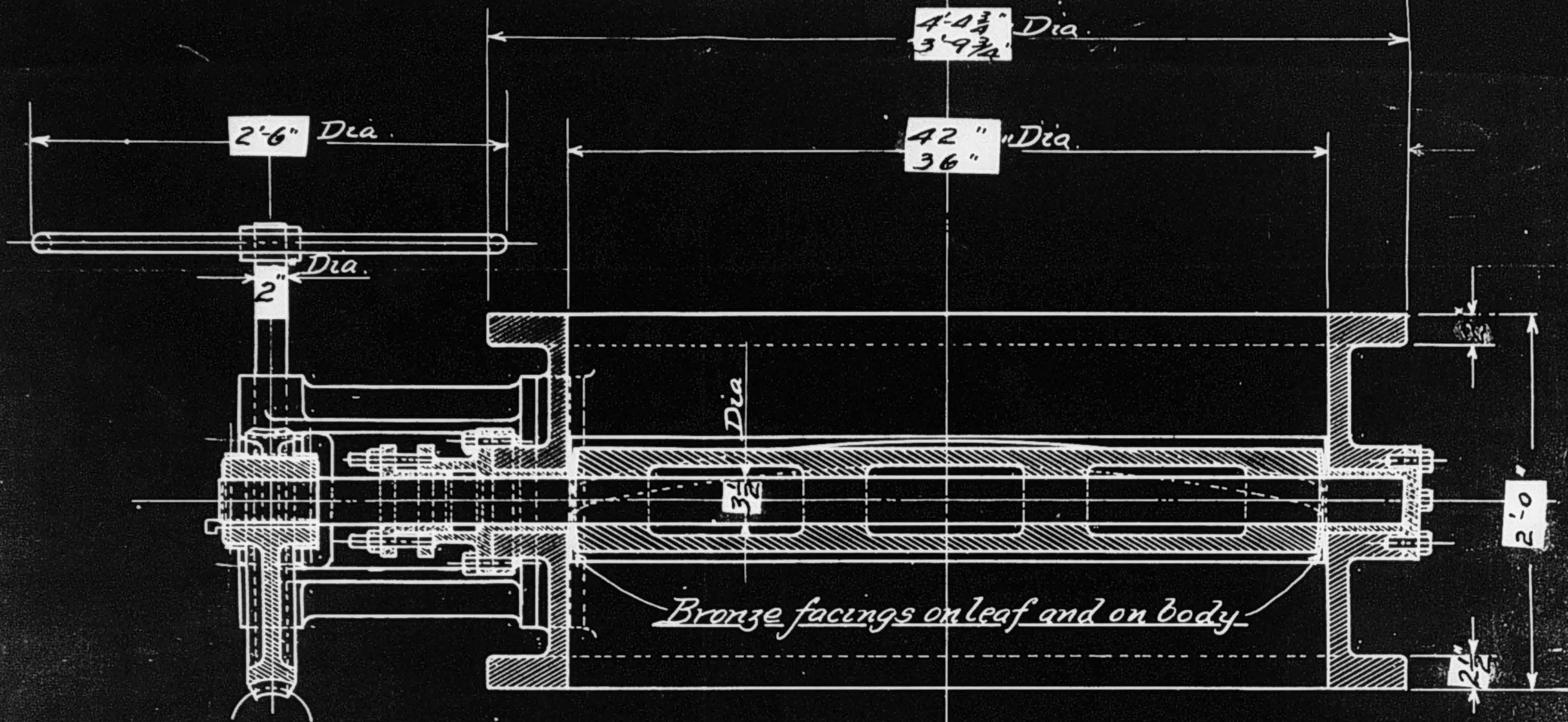
STEM 2 1/4 DIA BRONZE NUT

10 T 1.57 P
5.08 P.L.D.
3 FACE



GENERAL ARRANGEMENT
 OF
 No. 5 PEDESTAL
 FOR
 WATER WORKS SUPPLY CO.
 CORNWELL WILCOX CO.
 NEW BRUNSWICK
 N. J.





General Arrangement of
 36" AND 42" Dia. Butterfly Valve.
 FOR
 WATER WORKS SUPPLY CO.
 Coldwell-Wilcox Co.
 Newburgh, N.Y.
 Scale: 1/2" = 1'-0" Feb. 20, '15.

G.42.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 21, 1917.

Mr. C. W. Post, Eng.,
Ed. Fletcher Company,
San Diego, Cal.

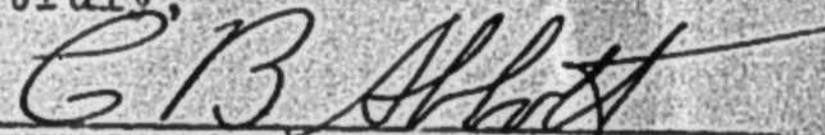
Dear Mr. Post:--

On going over the matter of giving you prices on the equipment outlined in our recent conversation I found it necessary to write to our principals, the Coldwell-Wilcox Company of Newburgh, New York, for information regarding sluice gates.

I incidentally asked them for prices and for blueprints with full data, such as measurements, etc., which I will promptly send to you just as soon as they are received.

I trust that this will reach you in ample time and thanking you for your favor, beg to remain,

Yours very truly,



WATER WORKS SUPPLY CO.

CBA.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 26th, 1917.

Mr. C. W. Post, Eng.,
Ed Fletcher Company,
San Diego, Cal.

Dear Mr. Post:---

I am able at this time to give you estimating prices on Rensselaer gate valves as per your request. As advised you in earlier correspondence I am arranging to secure for you promptly prices on sluice gates and butterfly valves which I expect to send to you in a few days.

We can quote you on the present market, price on 36" standard pressure, flanged, faced and drilled, upright geared, with 8" bypass, valves, same to be tested at 150# pressure for a working pressure of 60#, guaranteed for a period of five years against defects in manufacture or trouble due to ordinary use, valves to be of the Genuine Rensselaer manufacture, weighing about 5500# each, at a price of \$795.00 each, delivered f.o.b. cars San Diego.

We can furnish in connection with these valves, sections of riveted steel pipe 36" in diameter and 30 ft. in length, pipe to be 3/16" thick, flanged at both ends, flanges to be faced and drilled for connection with butterfly valves and Rensselaer valves as above quoted on, for an additional price of \$350.00 each (30 ft. section) f.o.b. cars San Diego.

On the 42" Rensselaer valves, specifications same as those given you on the 36", weighing about 8000# each, we can quote you a price of \$1095.00 each, f.o.b. San Diego. Thirty Foot sections of 42" riveted steel pipe, specifications same as given you on the 36" pipe, will cost you \$450.00 each (30 ft. section), f.o.b. cars San Diego.

It might be that you could use a lighter grade of pipe, but on account of the stress on the flanges, which are of a prescribed thickness to conform with those on the valves, we think it better to suggest that you use

SUBJECT:

Mr. C. W. Post, Eng -2-

3/26/17.

the 3/16" thickness of pipe.

This material could be shipped from the factory in approximately three (3) months, making ultimate delivery in San Diego in about fifteen (15) weeks. These prices naturally are subject to change under the present circumstances and we would be glad to go into the matter more fully with you whenever it will be your pleasure to take this matter up with us definitely. We will give you the best of service under any circumstances and hope to be favored with further communication from you shortly.

You will find specifications in detail covering the type of valve we are bidding upon in Rensselaer Valve Company Catalogue "E" which is on your shelves, pages 62 to 71, inclusive.

Yours very truly,

WATER WORKS SUPPLY COMPANY

C. B. Abbott

CBA.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 29th, 1917.

Mr. C. W. Post, Eng.,
Ed Fletcher Company,
San Diego, California.

Dear Mr. Post:--

Referring to our letter of March 26th, we have been notified that the prices on steel pipe quoted on should be changed to read as follows:-

- 4 - 30' lengths of 42" diameter, 3/16" thick, riveted steel pipe. . . \$445.00 ea.
- 4 - 30' lengths 36" diam. 3/16" thick, riveted steel pipe. . . 360.00 "

Above prices per thirty foot length.

These prices, of course, to be added to the prices quoted you on valves.

Yours very truly,

WATER WORKS SUPPLY COMPANY

C. B. Abbott

CBA.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

April 6th, 1917.

Mr. W. S. Post, C. E.,
Ed Fletcher Company,
San Diego, Cal.

Dear Mr. Post:---

In connection with your request for prices on sluice gates and butterfly valves as relates to your project known as the Carroll Dam, beg to advise that we can quote you as follows:-

- 6-18 x 24" self contained sluice gates as per blue prints attached, manufactured by the Coldwell Wilcox Company of Newburgh, N. Y., as follows:-
- 2-18" x 24" sluice gates fitted with #3 gear pedestals as per sheet #13, Gen. catalog. with 3 stem guides, and 56 ft. of 1 1/2" diameter cold rolled steel stem, weight about 1700# ea. \$285.00 ea.
- 2-18" x 24" as above, but with 40 ft. stem. 265.00 "
- 2-18" x 24" " " " " 30 ft. " 255.00 "

- 2 - 3' x 4' sluice gates, self contained, fitted with #6, two speed pedestals as per pages #13 and #16 Gen. catalog, with 76' 3/4" diam. steel stem, together with 4 stem guides, weight about 5400# ea.800.00 ea.

- 4 - 36" Butterfly valves as per blueprint attached, fitted with quadrant and worm, weight about 2500# ea.400.00 ea.

WATER WORKS SUPPLY CO.
LOS ANGELES OFFICE.

SUBJECT:

Mr. W. S. Post, C. E. 4-6-17.

Note:- If stem and pedestal are required to operate these valves we would furnish 120 ft. 2 1/2" diameter cold rolled steel stem and #6 two speed pedestal, each. \$500.00 extra.

If stem guides are required for the satisfactory operation of these valves add for same. 10.00 each

4 - 42" butterfly valves same as the 36" above quoted on. 1005.00 each

If stems are required for the satisfactory operation of these valves we would furnish 120 ft. 2 1/2" diam. cold rolled steel stem and #6 two speed pedestal, each. 500.00 extra

This amount to be added to prices on valves.

If stem guides are required add 10.00 each.

We are attaching to this quotation the following blueprints:-

- A-468, showing #5 Pedestal which is practically a duplicate of #3.
- A-921 showing 18" x 24" sluice gates
- A-939 showing 3'x4' sluice gate
- A-692 showing #6, two speed pedestal.
- G-42 showing both butterfly valves as indicated by dimensions.

Above prices are f.o.b. cars San Diego, California. It will probably take, as advised you in recent conversation, about three months for shipment of this material. By securing stems on this Coast we can probably reduce time shipment to 60 days. The prices we have quoted as relates to the stems are

WATER WORKS SUPPLY CO.
LOS ANGELES OFFICE.

SUBJECT:

Mr. W. S. Post, C. E. -3-

4/6/17.

Eastern prices. We believe we can secure prices on the Coast which will somewhat reduce this cost and would be glad of course to go into this with you if our proposition is favorable, and endeavor to secure lower prices on this part of the equipment.

In connection with the character of material on which we are quoting, for your information beg to advise that the Coldwell Wilcox Company are manufacturers of very high grade sluice gates making a specialty of this work. They furnished the 60' sluice gates for the City of New York on the Croton Dam which was one of the largest pieces of work of this character ever installed in the United States.

Here on the Coast we can refer you to the Spring Valley Water Company who used gates manufactured by the Coldwell Wilcox Company on their new Calaveras Dam. Also the Peoples Water Company of Oakland who used the same type of gates on their San Pablo Dams. For your information might say that Mr. Kempkey is Consulting Engineer of the Peoples Water Company and Mr. Elliott is Chief Engineer of the Spring Valley Water Company. We believe you are acquainted with both these gentlemen. Also you might refer to Mr. George Wilhelm, Engineer and General Manager of the Peoples Water Company. We have also enjoyed very pleasant relations with the Natomas Consolidated Water Company, Mr. Clifford, Engineer, of Sacramento, to whom we sold 60" butterfly valve. We would be glad to have you refer to them for their opinion on the quality and character of the valves furnished them for some large work they installed about a year ago.

Prices quoted you herewith are subject to change without notice and naturally if prices are reduced we will give you the benefit of such reduction. We hope for your favorable consideration of this proposition and will be glad to go into the matter in detail with you and give you all information possible.

Yours very truly,

WATER WORKS SUPPLY COMPANY

C. B. Abbott

CBA.

encl.

CONCRETE FOR PERMANENCE

PORTLAND CEMENT ASSOCIATION

DISTRICT OFFICES
ATLANTA
DALLAS
INDIANAPOLIS
KANSAS CITY

116 NEW MONTGOMERY STREET

TELEPHONE SUTTER 2691

SAN FRANCISCO

DISTRICT OFFICES
NEW YORK
HARRISBURG, P. VA.
PITTSBURGH
SAN FRANCISCO

April 7, 1917

GENERAL OFFICES
CHICAGO

Our file

Replying to yours of 3-30-17

Mr. William S. Post
924 Eighth Street
San Diego, Calif.

Dear Mr. Post:

Replying to your letter with reference to the aggregates at the Carroll dam site:

Concerning estimates as to the ultimate compressive stresses on 6-inch cubes of plastic wet consistency: I believe that a conservative estimate would be 2400 pounds per square inch for 1:2:4 concrete with $2\frac{1}{2}$ -inch crushed trap rock as the coarser aggregate, and 2100 pounds per square inch on 1:2 $\frac{1}{2}$:5 concrete with $2\frac{1}{2}$ -inch crushed rock as the coarser aggregate. Naturally, your rock plums from 1:2 $\frac{1}{2}$:5 concrete could not be judged on this same basis but I imagine that a conservative estimate regarding unit stresses of mass concrete in which crushed rock plums will be used would be 2000 pounds per square inch.

With these unit stresses as a basis, I believe that permissible compressive stresses would be conservatively 650 pounds on 1:2:4 concrete for beams; average shear on 1:2:4 without reinforcement 40 pounds and with reinforcement 120 pounds. For columns, plain concrete in compression 450 pounds per square inch and hooped columns 600 pounds per square inch, following the customary specifications of the Joint Committee on Concrete and Reinforced Concrete..

I believe that 80 percent of the above unit stresses would be consistent to be used for 1:2 $\frac{1}{2}$:5 concrete.

I agree with you in limiting the punching shear to 120 pounds.

Yours truly,

Hehlers

HEH-D

District Engineer

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

April 12th, 1917.

Mr. W. S. Post, C. E.,
% Ed Fletcher Company,
San Diego, California.

Dear Sir:---

Further in connection with your request for prices on gate valves for the proposed work at Carroll Dam, beg to advise that we can furnish you Genuine Rensselaer Valves as follows:--

48" tested at 150# for working pressure of 60#, spur geared with hand wheel, 8" bypass, flanged, faced and drilled, weight about 13,500#. . . \$1500.00

36" Hydraulically operated, same tests as above, 6" bypass, flanged, faced and drilled, weight about 7,500#. . . 1450.00

For Electrical control add. 50.00

For description of Hydraulic valves, see Pages #140-146 our General Catalogue "E".

For description of Electrically operated Hydraulic Rensselaer Valves, see pages #147-149 our General Catalogue "E".

Note:-Our Hydraulically operated valves have been installed in some of the largest Filter Systems in the United States, several of our smaller sizes being used in the New Filter system of the San Diego Water Department. Our Company has made a specialty of very large hydraulic valves.

We have requested the Rensselaer Valve Company to mail us blueprints which we will send to you as promptly as received, covering hydraulically operated valves.

We trust that we may be of further service.

Yours very truly,

CBA.	WATER WORKS SUPPLY COMPANY	
WATER METERS	RENSSELAER VALVES	COREY FIRE HYDRANTS
COLDWELL WILCOX SLUICE GATES	CLARK METER BOXES	GOLDEN ANDERSON PRESSURE REGULATING VALVES

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

April 10, 1919.

San Dieguito Land & Water Co.,
Fletcher Building,
San Diego, Calif.

Gentlemen: Attention Mr. King.

We have had up with the Hydrometric Company of this City your measuring problem, and they have submitted the enclosed sketch, recommending the use of their "E" 12 S.F. meters.

They will furnish the meter parts and you can make the walls as shown on the enclosed sketch. Our price on the equipment would be \$150.00 on all three of the meters.

The three meters would be placed in a row across the flume, which would have to be widened and deepened as shown on the sketch. The part in yellow shows the size of the flume you would need; the inner yellow lines show your present flume. The front edge of the meter would be placed in the bottom of your flume; so, consequently, your flume would have to be deepened to the sums of the dimensions I, H, and G.

If you would desire to use only one meter at a time, you could put plates in front of the other meters. The walls could be made of wood if you prefer.

We are enclosing, also, a booklet which describes the operation of the Hydrometric meter, and this will aid you in arriving at the operation of the plan as shown on the sketch. You understand what we propose to furnish would be the meter part itself, and you are to arrange the walls according to the sketch.

They suggested that two "F" meters could be used if you had a 6" drop in 30 feet, but the writer understands from his conversation with you that no such drop is available.

OHS/KF

Yours truly,
WATER WORKS SUPPLY CO.

WATER METERS	RENSSELAER VALVES	COREY FIRE HYDRANTS
COLDWELL WILCOX SLUICE GATES	CLARK METER BOXES	GOLDEN ANDERSON PRESSURE REGULATING VALVES

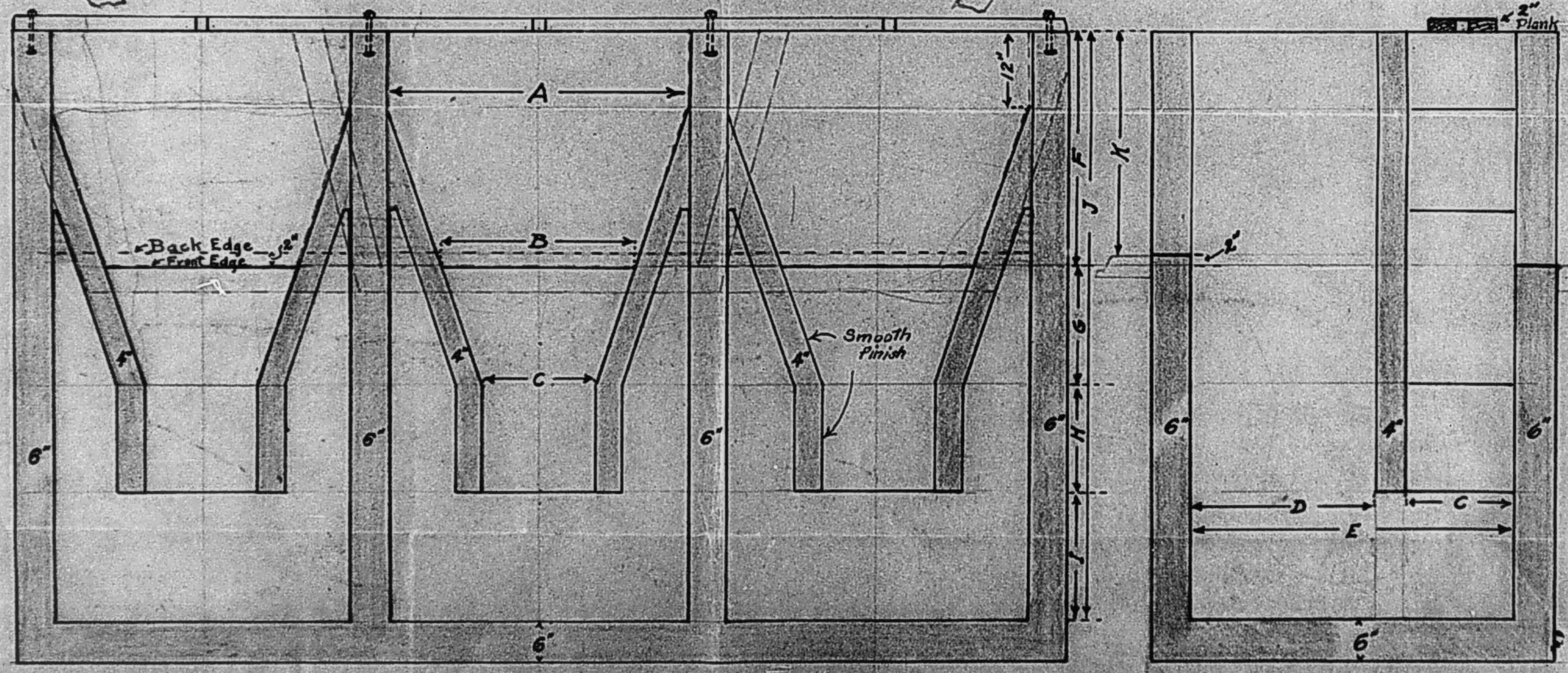
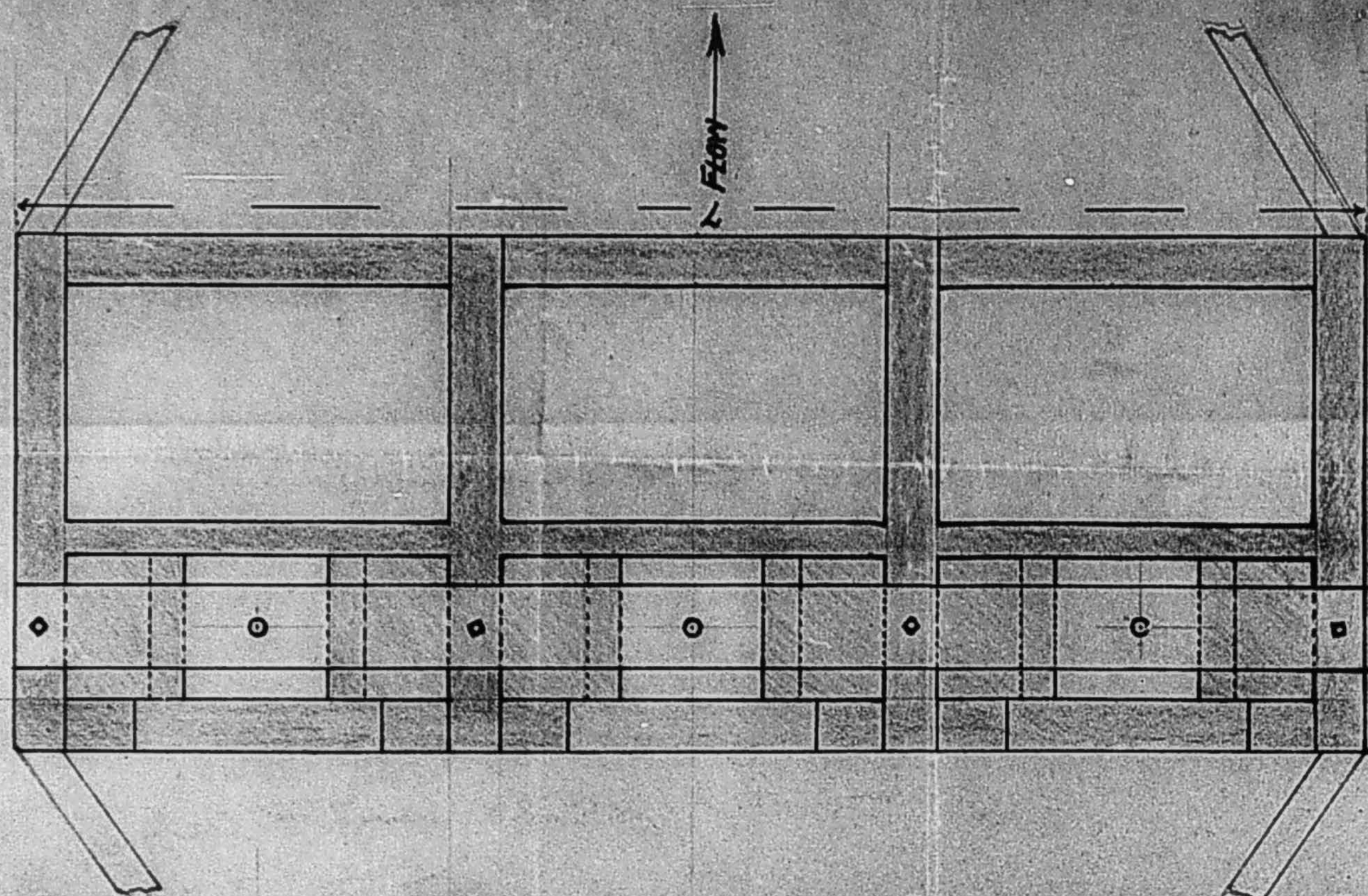
PLAN OF CANAL BATTERY

RELIANCE IRRIGATION METERS

HYDROMETRIC COMPANY
Los Angeles, Calif.

DIMENSIONS

SIZE	D	E	F
Sec. Ft.	12	24	48
A	36	45	72
B	24	29	48
C	12	17	24
D	17	28	35
E	33	49	63
F	30	36	48
G	18	18	36
H	12	16	24
I	14	20	26
J	6'2"	7'6"	11'2"
K	28	34	46
L	11'0"	13'3"	20'0"



HYDROMETRIC COMPANY
 953-955 NORTH MAIN STREET LOS ANGELES
RELIANCE IRRIGATION METER PRICE LIST

All Meter Boxes Made from Galvanized Arco Iron.

TYPE	SIZE A		B		C		D		E	
	BOX	18 GA.	18 GA.	18 GA.	16 GA.	14 GA.	16 GA.	16 GA.	14 GA.	
1 Meter and complete box ready for gravity pipe line installation		\$65.00	\$77.00							
2 Meter and box for concrete setting in gravity pipe line or for installation in flume or ditch	58.00	64.00	\$70.00	\$110.00	\$125.00	\$165.00	\$195.00			
3 Meter and box (box without bottom) for setting in concrete in gravity pipe line	56.00	61.00	67.00	98.00	115.00	150.00	175.00			
4 Meter and measuring chamber for installation in weir boxes, or where existing structures can be used	50.00	55.50	58.00	75.00	95.00	105.00	135.00			
5 Meter parts only. Stand, wheel and diaphragms			37.50	42.50		47.00	50.00			
Special E for 12 sec. ft.							75.00			
Special F for 16 sec. ft.										

DIMENSIONS OF METER BOXES

Size	DEPTH	WIDTH		LENGTH	
		ABOVE BOTTOM OF INLET	BELOW BOTTOM OF INLET	ACROSS STREAM	UP & DOWN STREAM
A Oval Box	32"	7"	25"	14"	26"
B Oval Box	37"	10"	27"	18"	34"
C Rectangular Box	44"	14"	30"	22"	13½"
D Rectangular Box	60"	18"	42"	35"	24"
E Rectangular Box	76"	24"	52"	45"	37"

CAPACITIES

SIZES	A	B	C	D	E	E-Special	F
SEC. FT.	½	1	2	4	8	12	16

Special Boxes can be furnished to conform to Special Conditions.
 Prices Subject to Change Without Notice

The Water Watch



Hydrometric Company
~~Central Building~~
 Los Angeles, California

NEW ADDRESS:
 953-5 North Main Street

THE WATER WATCH

HYDROMETRIC COMPANY
(INCORPORATED.)

Central Building

Los Angeles

THE WATER WATCH

THE RACE is on; gold and currency are piled high; excitement reigns; world's records are covered by the dust of the speed maniacs as they race against time.

But what of all this without the most perfect mechanism man can produce to time the race?

Necessity here produced the "stop watch."

Since time before history water has been racing through the lanes of the earth.

And even in our time the "old mill race" commanded the attention of the multitudes. But who ever thought to time this historic race, and yet upon its running was staked the grinding of the grist; the life of the community.

And so to this very day the "course" is open and water is running as it always did.

There is also much gold and currency put up on this modern race and everything depends upon how fast it goes.

An event of so much importance demands a mechanism so wonderfully constructed that it will accurately and instantaneously register the speed of the flow.

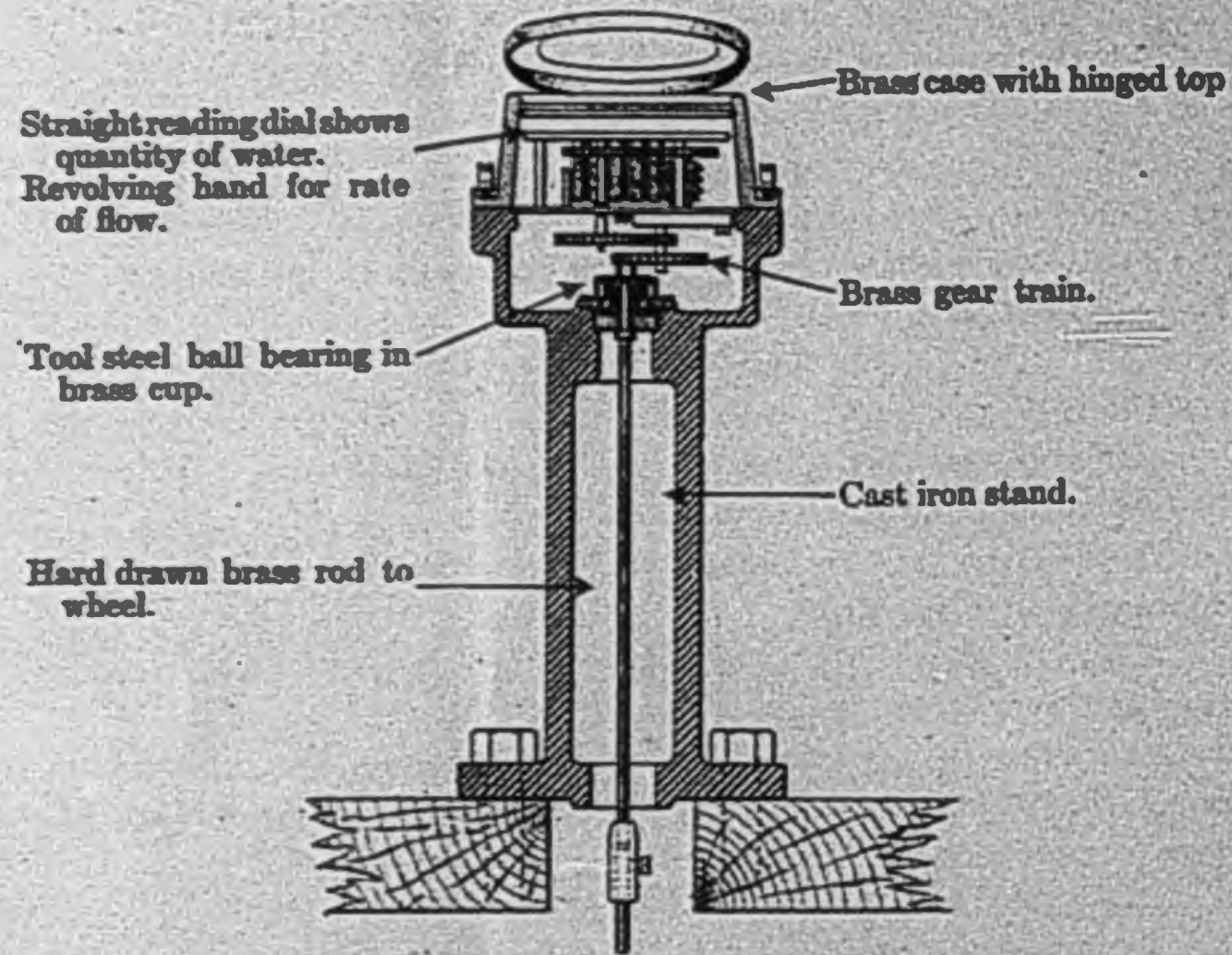
Necessity here produced the "WATER WATCH."

It seems strange that the ingenuity of man has not ere this produced an accurate and dependable measuring device for open ditches and canals; but until recently such an instrument did not exist.

It is very much in evidence though now, and the little WATER WATCH, like a silent sentinel, watches the flow of irrigating water all day and all night and registers the correct amount in an impartial manner to the perfect satisfaction of both buyer and seller.

It is impossible to conceive of the universal value of The Reliance Irrigation Meter.

Boxed in the open ditch as it is, this seemingly intelligent little machine holds its calculating head well above the water at all times, and anyone may tell by looking into its face the perfect record of the water which has passed through its gauge.



CROSS SECTION METER STAND

We herewith illustrate a cross section of the brain of this self recording measure.

With a cast iron head and a bronze lid the recording wheels and the one ball bearing of the machine are protected from dust and moisture, as well as idlers, for it is sealed by one in authority and remains so.

It must be a great relief to consumer and water superintendent alike to know that they have, in this instrument, a common meeting ground.

An instrument which does not have pencils or pens or recording papers to replenish and take care of; neither does it have clocks to wind or delicate parts submerged in water.

It being a fact that as many crops are spoiled by too much water as by too little, is alone sufficient cause for the installation of this meter.

To be able to accurately measure the water flow, regardless of the fluctuations in the canal, is a "dream come true" for both the water company and the individual consumer.

SIMPLE YET EFFECTIVE

When you understand how free from complicated and intricate parts (to get out of order) this Meter is, you will wonder that it had not been invented years ago.

The simplicity of its construction makes it both substantial and inexpensive.

The meter as it stands complete is like a rectangular shaped submarine, with its little periscope protruding above the water.

A picture of the vane is produced on the next page, together with the box in which it revolves.

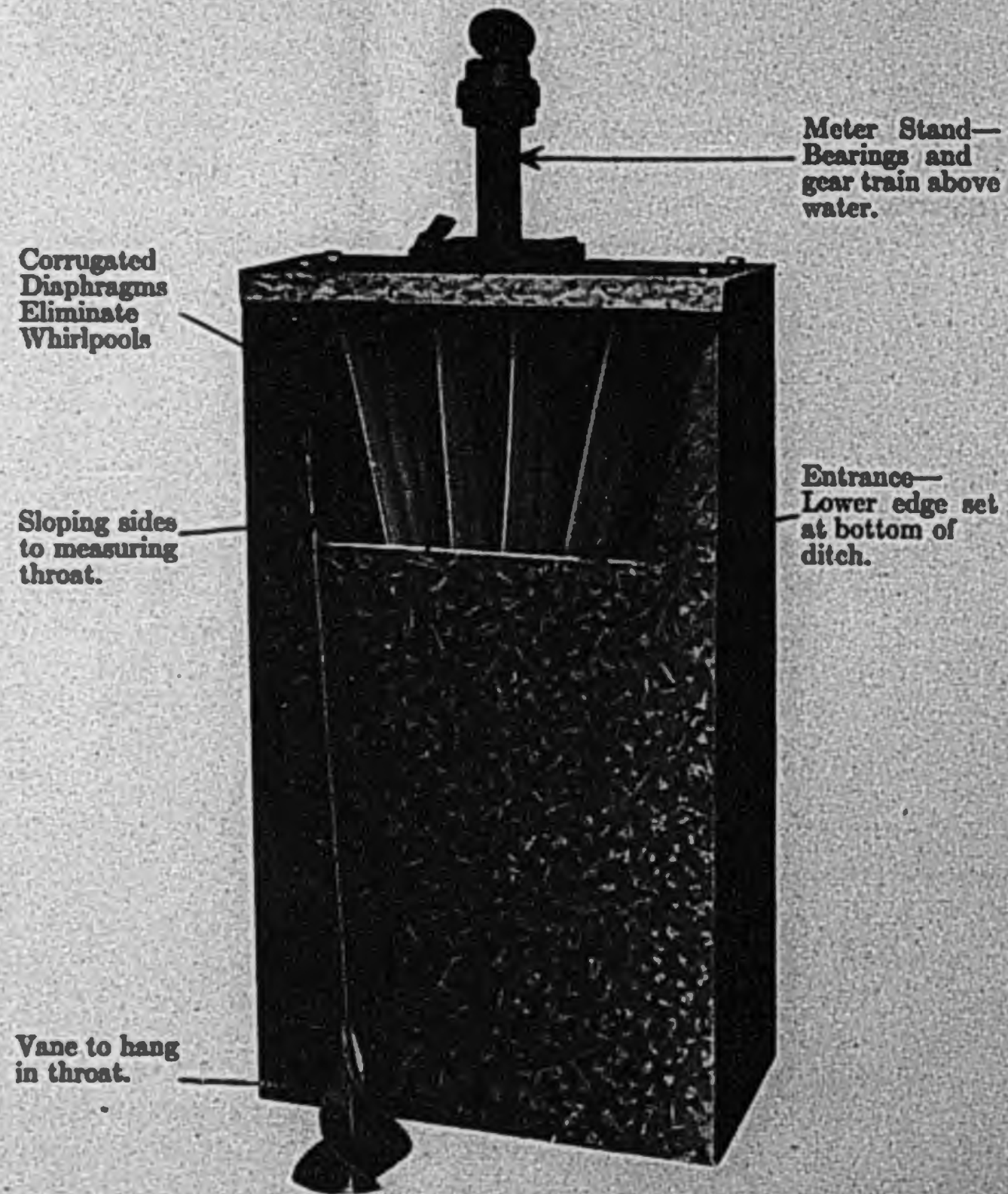
The water from the canal enters the opening as shown and passes downward into the chamber where the secret of the meter is concealed.

THE SECRET REVEALED

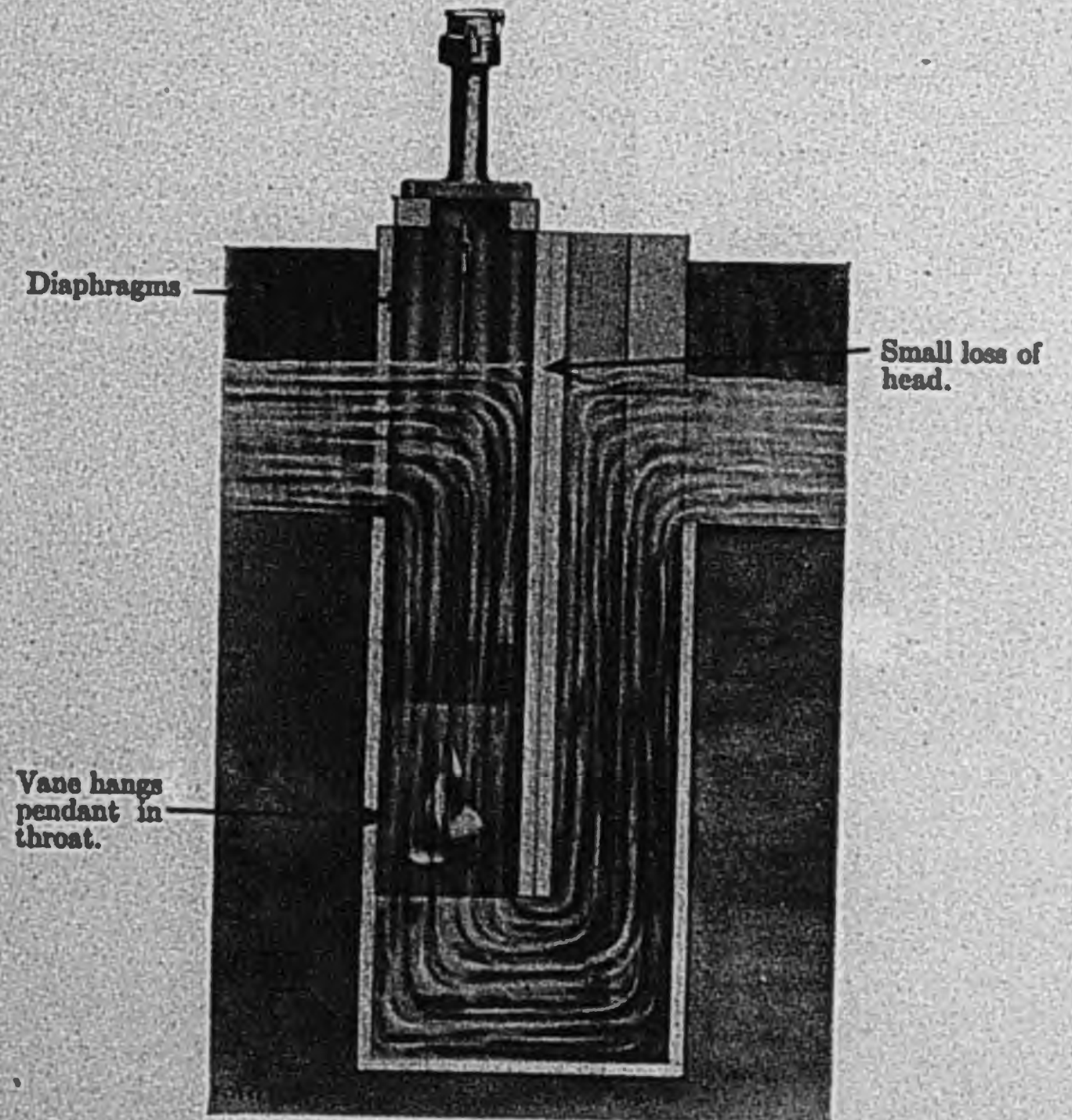
Notice the cross section illustration very carefully. The water in going down into the chamber moves faster because of the sloping sides which tend to focus it.

If it were not for the diaphragms the water would form eddies and thus defeat the principle of the invention, but the diaphragms, like many other features, have been scientifically placed so as to get the correct action of the water at the vital point.

By the terminating of the diaphragm into a throat of definite size, the flow becomes a regular and perfectly directed column of water.



METER AND VANE
WITH "ARMCO" IRON METER BOX
Type No. 2



SECTION OF METER BOX (WOOD)
Type No. 5

A brass spiral wheel (not unlike a ship's log) hangs in this throat and revolves by the action of the rushing water on its beveled surface.

The speed of the spiral is governed by the flow of the water, therefore if the canal is full and the pressure on the vane is increased by the heavier flow its velocity must of necessity be increased in proportion with the speed of the water, and vice versa in case a very little water is flowing through.

The speed of the revolving vane is transmitted by a brass rod to the head or mechanism. Here the action is registered, calculated and the corrected total is posted ready for reading at any time.

Suspended as it is, the spiral wheel is to the WATER WATCH what the pendulum is to a clock. The faster it moves the faster the indicator will act.

The freedom thus afforded automatically keeps it in the center of the current where it is sensitive to the slightest pressure of the moving water, which is equal at all points, and the turning of the vane registers the slightest variation in the flow.

You now understand how mechanically accurate the record is bound to be.

It is as easy to read the WATER WATCH as it is to read the time watch which you carry.

The complicated circles of figures which are on most meters are eliminated and the amount appears in a straight line. By this arrangement the total may be read at a glance.

By subtracting the figures of the last reading from those showing at any time, the consumption for the period may be had.

It matters not if you are receiving or distributing water, this way of actually measuring every drop is of vital interest to you.

It being a fact, that by the installation of the WATER WATCH the measuring and computing of all systems will become standard, is so compelling that it will be but a short while until all will want it.

The time saved by this uniform gauge is alone worth many times the initial cost of the meter.

With this little instrument comes an accounting which is undisputable, therefore lengthy arguments and misunderstandings over figures are now a thing of history.

After the water passes the vane and leaves the throat, it passes up through a constructed channel in an effort to reach its own level.

By this construction the loss of head is very small and one of the most serious problems of irrigating in level districts is thereby mastered.

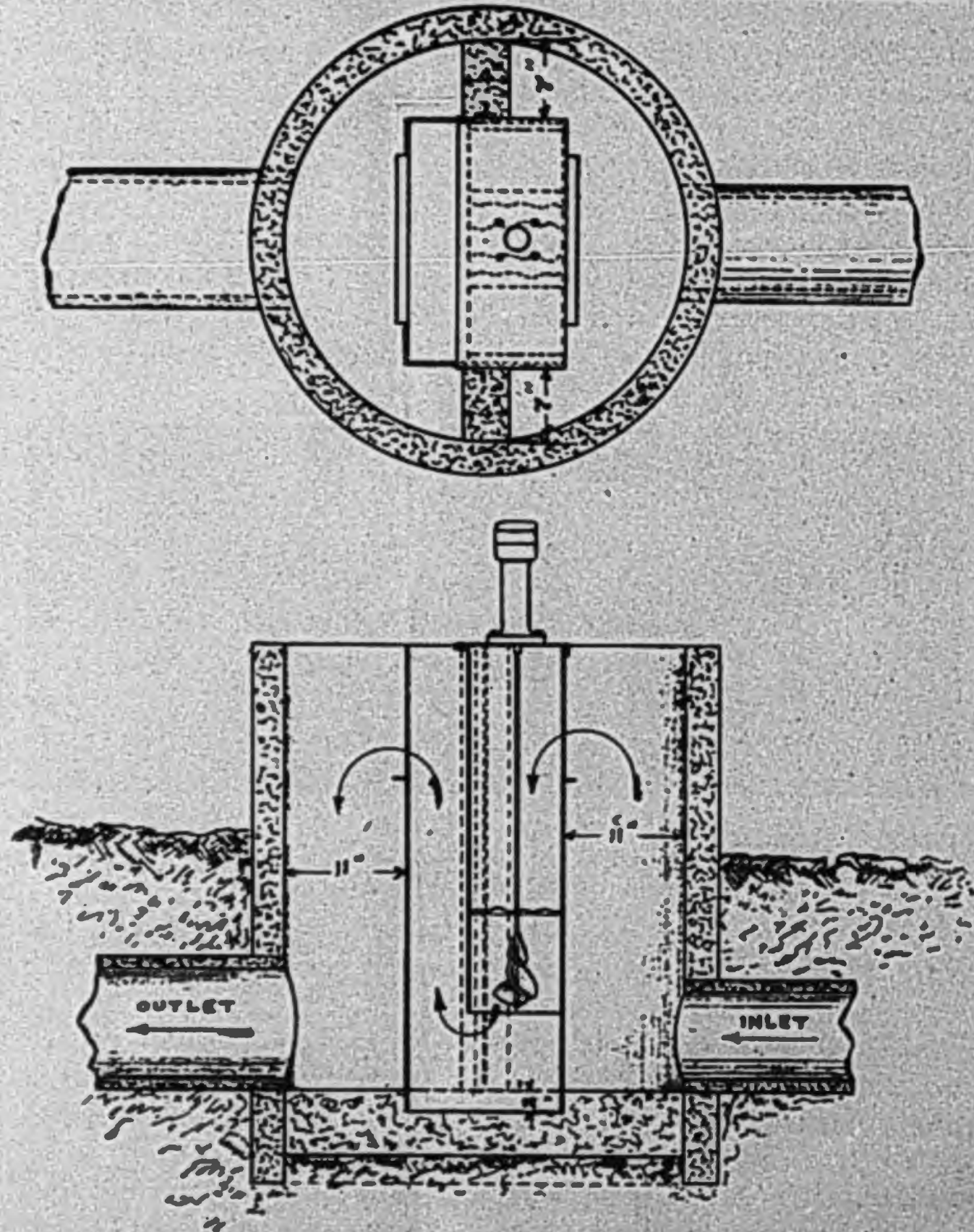


SPECIAL METER BOX

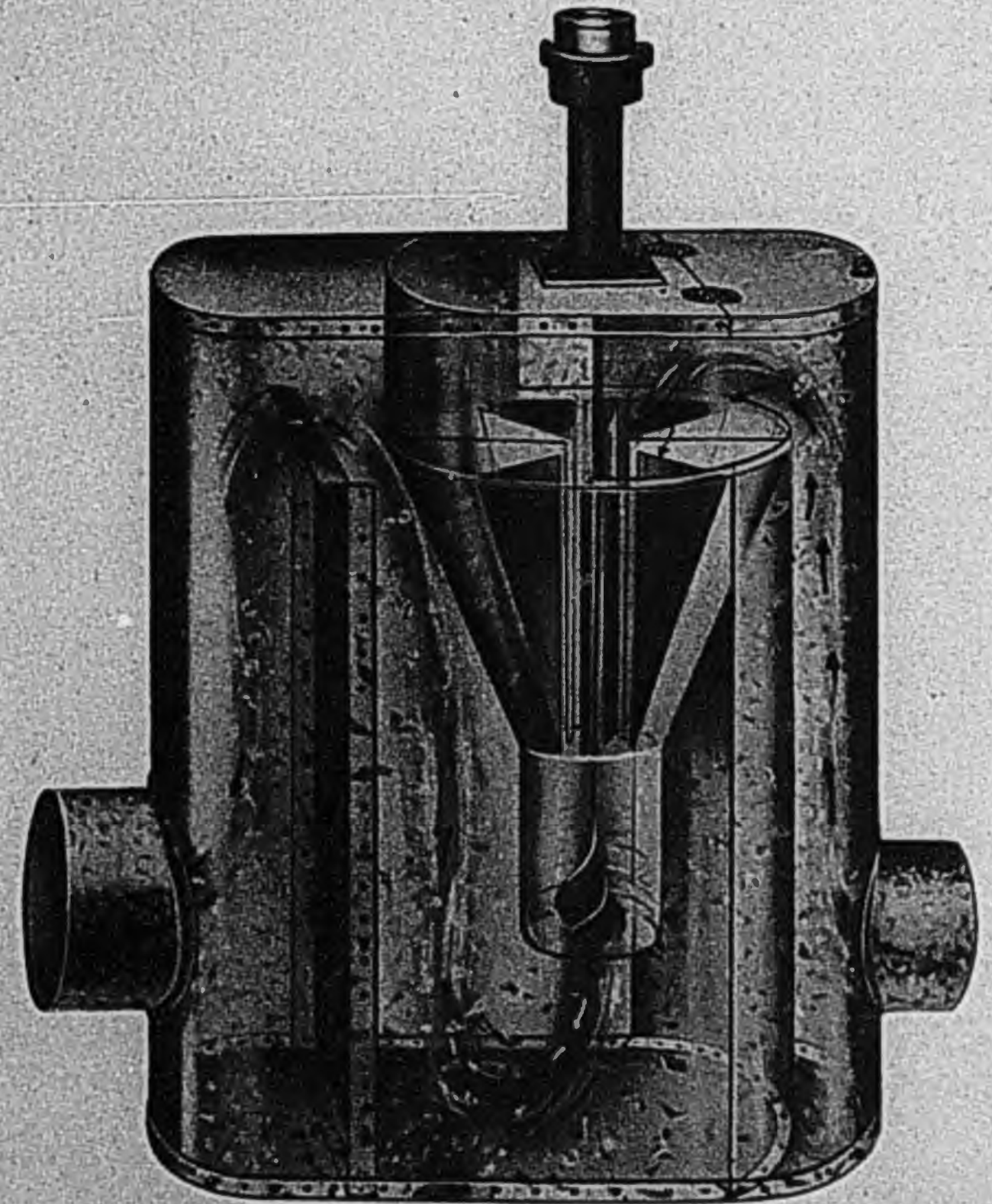
OF DOUBLE VALUE

As well as being the wonder gauge for open ditches, this little Reliance Meter may be set in the gravity pipe line with equally satisfactory results.

This may be accomplished by a concrete base and walls around the meter, as shown in the drawing, or one may purchase a meter and galvanized case or box all in one, with inlet and outlet nipples all ready to attach to pipe line. The fact that the meter can be used on either system is of inestimable value to all parties concerned and makes the standardization of a gauging system possible as well as an act of economy.



METER AND "ARMCO" IRON BOX, SET IN TWO LENGTHS CONCRETE PIPE, UPRIGHT.
FOR GRAVITY PIPE LINES. Type No. 3



COMPLETE "ARMCO" IRON METER BOX. FOR GRAVITY PIPE LINES
Type No. 1

CONSTRUCTION

Every part of the WATER WATCH is constructed of the best material we can buy.

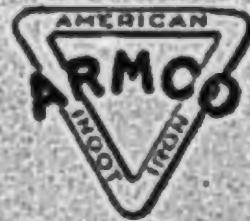
The one ball bearing is made of best steel.

The gear train is of brass, while the register parts are made of brass, nickel plated.

The suspending rod and wheel or vane (the only meter part under water) is also of solid brass.

It would be very unwise for us to produce the meter we do—putting the most expensive materials into it as well as the most expert workmanship and then not to build a meter box (when left to us to furnish) that would not be equal in every way to the standard we have established for making the instrument itself.

To that end we regularly build the boxes of galvanized "ARMCO IRON."



Resists Rust

"ARMCO IRON," the product of the American Rolling Mill Co., has fully established itself as the standard for purity and rust resistance. It costs us more money than any of several substitute materials which might be employed, but we are confident of being repaid in the superior service afforded our customers and the good will value accruing from the sale of an article which in no particular falls short of the best.

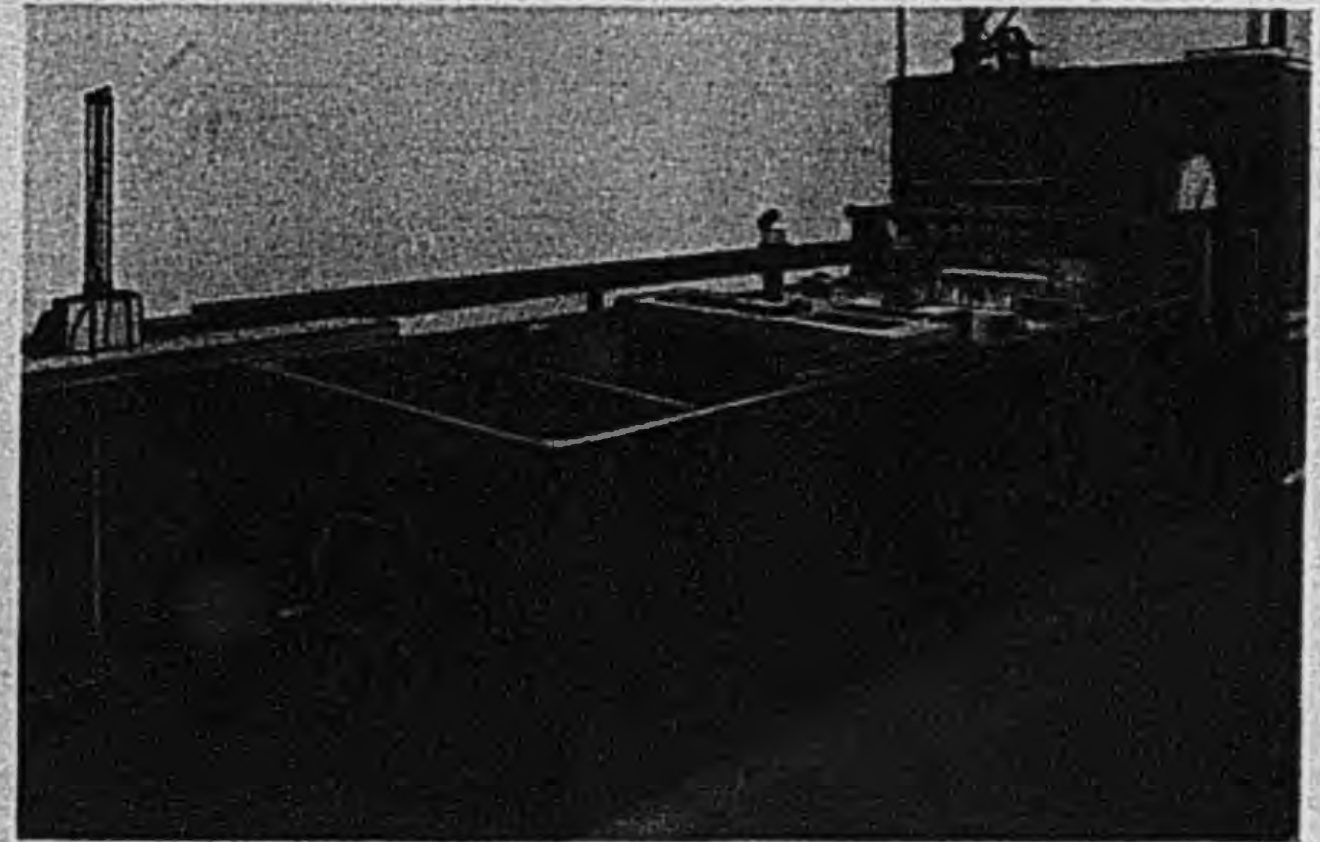
A QUESTION ANSWERED

What about your weir boxes?

In many cases, properly constructed weir boxes which are already installed may be utilized.

This will be of general interest to all who want The Reliance Meter installed in their irrigating systems.

There is not any other one thing, that is needed by both consumer and water company, which will meet with such widespread demand as well as mutual satisfaction as the WATER WATCH.



HYDRAULIC LABORATORY

WE SHOW YOU

A complete working (life size) model is installed in our laboratory and scientific rooms in the basement of the building in which our office is located.

In connection with this we have a standard Cippoletti Weir and Venturi Tube.

We not only invite, but we insist that you come in and make such tests for accuracy as you may desire.

If you do not care to run any tests, come in anyway and see this wonderful WATER WATCH in operation.

CONVERSION TABLE—RATES OF FLOW

Equivalent Values are Shown in the Same Horizontal Line

Cubic Feet Per Second	Miner's (1) Inches	Miner's (2) Inches	U.S. Gals. Per Minute	Acres-Foot Per 24 Hours	Acres-Ft. per Year (365)	Million U.S. Gallons Per 24 Hours	In. Depth Per Acre in 24 Hours
1	50	40	448.83	1.9835	723.97	0.646,317	23.802
0.02	1	0.80	8.98	0.0397	14.48	0.012,926	0.476
0.025	1.25	1	11.22	0.0496	18.10	0.016,158	0.595
0.002,23	0.1114	0.0891	1	0.00442	1.613	0.001,440	0.053
0.504	25.21	20.17	226.29	1	365.	0.325,851	12.
0.001,38	0.07	0.055	0.62	0.00274	1	0.000,892	0.033
1.547	77.36	61.89	694.44	3.07	1120.14	1	36.84
0.0420	2.10	1.68	18.86	0.083	30.3	0.02 7 15	1

Compiled by Charles H. Lee, Consulting Engineer, Central Building, Los Angeles.

- (1.) 50 Miners Inches = 1 cubic foot per second. (Southern California, Idaho, Nevada, Nebraska, New Mexico, Oregon, Utah, Washington.)
- (2.) 40 Miners Inches = 1 cubic foot per second. (California statute, Arizona, Montana.)

QUANTITY UNITS

1 cubic foot = 7.45 U. S. gallons
 1 acre foot = 43,560 cubic feet, 325,851 U. S. gallons.

The unit regularly used in the Reliance Meter is the ACRE FOOT. The meter can be read to 1-10,000 acre foot. Other units can be furnished if desired.

TYPES OF BOXES AND METERS

- No. 1. Meter and complete box, gravity pipe line installation. See page 11.
- No. 2. Meter and box for concrete setting in gravity pipe line or for installation in flume or ditch. See pages 6 and 7.
- No. 3. Meter and box (box without bottom) for setting in concrete in gravity pipe line. See page 10.
- No. 4. Meter and measuring chamber for installation in weir boxes, or where existing structures can be used.
- No. 5. Meter parts only — stand, wheel and diaphragms.

SIZES AND CAPACITIES

Size	A	B	C	D	E
Sec. ft.....	.5	1.0	2.0	4.0	8.0

Meters can be furnished for larger flows and to conform to special conditions.

OTHER INSTRUMENTS

In addition to manufacturing the Reliance Irrigation Meters we also manufacture or can furnish the following instruments.

RECORDERS FOR VENTURI AND PITOT TUBES

- STAGE REGISTERS
- WEIR RECORDERS
- LONG DISTANCE RECORDERS
- SPECIAL RECORDING DEVICES
- TO ORDER

We have made a particular study of practicable means for the measurement of water. Write us relative to your needs. There will be no charge for our assistance.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

August 12, 1919.

Supt. San Dieguito Land & Water Co.,
San Diego, Calif.

Dear Sir:

The causes and action of water hammer on pipe lines are given in much detail in Bulletin #48 issued by the University of Illinois, which gives the results of tests made by Prof. Arthur M. Talbot.

The main conclusions which are of interest to you as a Water Superintendent are that a water hammer equal to 54 times the velocity in feet per second is possible. If the velocity in a pipe is ten feet per second, a water hammer equal to 540 pounds is possible.

Another interesting deduction is that the water hammer caused by the closing of a valve is due entirely to the closure in the last 10%. It makes very little difference as to the rate of speed in closing the valve in the first 90%, but it is the rate of speed in the last 10% of closing that causes the water hammer.

If your water distributing system is equipped with fire hydrants which are not constructed to give a slow closing of the valve during the last 10% of closure, you are undoubtedly having to repair the damages caused by water hammer. If you will note the construction of the COREY FIRE HYDRANT, and investigate the method of valve closure, you will see that the valve moves very rapidly during the first part of the closing, but during the last part, it is impossible to close it rapidly, and thus a water hammer is avoided.

We are enclosing a pamphlet descriptive of this COREY FIRE HYDRANT, and would refer you to Page 8, which shows the internal construction. The valve is closed by the use of a toggle joint, and from its very construction the valve has to move very slowly as it nears its seat, no matter how rapidly the valve stem is being turned. This one feature is of sufficient import to justify anyone in going seriously into the study of this hydrant.

Yours truly,

WATER WORKS SUPPLY COMPANY.

Chas. H. Sheldon

WATER METERS RENSSELAER VALVES COREY FIRE HYDRANTS PIPE, EQUIPMENT AND SPECIALTIES
COLDWELL WILCOX SLUICE GATES CLARK METER BOXES SIMPLEX VENTURI METERS
GOLDEN ANDERSON PRESSURE REGULATING VALVES

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

Nov. 12, 1919.

San Dieguito Land & Water Co.,
San Diego, Calif.

Gentlemen: Attention Mr. King.

The last time the writer was in San Diego you expected to soon put in a large pipe line to supply the City of San Diego with additional water, and we are writing to know if at this time you are ready for prices on valves which may be required on the above mentioned line.

The writer expects to be in San Diego the early part of the coming week, at which time he will see you, but if, in the meantime, we can be of service in any way, please advise us.

With best personal regards, we are

Yours truly,

CHS:KF

WATER WORKS SUPPLY COMPANY.

Chas. H. Sheldon

WATER METERS RENSSELAER VALVES COREY FIRE HYDRANTS PIPE, EQUIPMENT AND SPECIALTIES
COLDWELL WILCOX SLUICE GATES CLARK METER BOXES SIMPLEX VENTURI METERS
GOLDEN ANDERSON PRESSURE REGULATING VALVES

83A
November 14, 1919.

Mr. Charles H. Sheldon,
Waterworks Supply Company,
Union Oil Building,
Los Angeles, Calif.

Dear Mr. Sheldon:

I will be glad to see you in connection with the valves for the City Pipe Line when you are in town. There is nothing urgent between now and then, but I think by the latter part of next week we will know just where we stand, so I will be glad to see you.

Yours truly,

THK:K

83A
BROADWAY 780

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

Dec. 4, 1919.

Mr. T. H. King,

c/o San Dieguito Mutual Water Co.,
San Diego, Calif.

Dear Mr. King:

Don't think that we have forgotten you on the prices on air valves and gate valves. We are trying to get a price on this equipment, covering the square disc gate valve, and it has taken us longer than we had expected. We hope to have this in your hands within the next few days.

With best wishes,

Yours truly,

CHS:KF

WATER WORKS SUPPLY COMPANY.

Charles H. Sheldon

COREY FIRE HYDRANTS
RENSSELAER VALVES
CRISPIN AIR VALVES

COLDWELL WILCOX SLUICE GATES
JOHNSON HYDRAULIC VALVES
SIMPLEX VENTURI METERS
GOLDEN ANDERSON PRESSURE REGULATING VALVES

MILLER AUTOMATIC SEWAGE SIPHONS
R-W MECHANICAL SEWAGE SCREENS
PIPE, EQUIPMENT AND SPECIALTIES

BROADWAY 7888

834

Water Works Supply Company

INCORPORATED
UNION OIL BUILDING

LOS ANGELES Dec. 12, 1919.

Mr. T. H. King,
s/o San Dieguito Mutual Water Co.,
Fletcher Building,
San Diego, Calif.

Dear Sir:

We at last have some information for you on the valves for your pipe line.

We can furnish an 18" Rensselaer Double Disc Heavy Type Hub End Gate Valves, fitted with Square Disc Gates, good for 150# working pressure, for \$271.00 each, f.o.b. San Diego. If you desire the valve to have flanged ends, the price will be \$282.00 each, f.o.b. San Diego.

The disc is square and the opening in the gate valve is round so you can see that a very gradual closing is effected, which is so important and which we discussed the last time the writer was in San Diego. The valve is so made that the square disc is not in contact with the seat until after the lower edge of the disc is below the round opening. Then the disc goes up against the seat of the valve and a tight joint is made. This arrangement overcomes any wear on the valve seat which might be caused by pressure against the disc when in motion, and this, of course, obviates any wear on the valve seat.

The writer had hoped to have some printed matter on this valve, but so far it has not been received. We will send same to you as soon as we get it.

Concerning the 4" blow off valves, we have had some little conversation with Mr. Ellis Rowe, President of the Rensselaer Valve Company, who lives at Pasadena in the winter, and Mr. Rowe suggested very definitely that a gearing device on the valve be eliminated for the reason that it would introduce possible troubles far in excess of troubles it might overcome in the way of closing the valve slowly. He thought that on a valve of only 4" size you would not have the tremendous flow of water under the high velocity which would give you any trouble, and if your operators used any care whatsoever, that you would have no difficulty from the closing of the valve. He did suggest that a very satisfactory way has been to provide two valves on the blow off line,

834

T.H. King

-2-

834

Dec. 12.

whereby the valve nearest the line is never used except when the farther valve must be repaired. There is not much money involved in these small valves, and the additional cost would not be great.

We can furnish a 4" Rensselaer Double Disc Hub End Gate Valve good for 150# working pressure for \$14.90 each, f.o.b. San Diego.

Now concerning the air valves on the line, we sent to you some time ago a catalog of the Crispin Air Valve, and you will note they manufacture air valves in two types, the air and vacuum valve, and the pressure air valve. The air and vacuum valve is used in cases where pipe might collapse in the event of the water being delivered from the line, and the air valve is so arranged that the air will be eliminated from the pipe line when the water is entering, and should the water leave the line, air will rush in and equalize the pressure so that no vacuum will take place.

On the other hand, the pressure air valve is so arranged that if air accumulates in the line when the line is filled with water, the float arrangement allows the air to escape.

The solution of this problem would be to distribute pressure air valves along the high points of the line, and then every so often have an air and vacuum valve so as to protect the line in the event the water was running off.

A 4" Crispin Air and Vacuum Valve will cost you \$82.00 each, f.o.b. San Diego. A 4" Pressure Air Valve will cost \$92.00 each, f.o.b. San Diego.

We hope the above information will be of service to you at this time.

Yours truly,

CHS:KF

WATER WORKS SUPPLY COMPANY.

Chas H. Sheldon

T.H.King,
~~XXXXXX~~

January 26, 1920

Mr. Chas. H. Sheldon,
c/o Waterworks Supply Co.,
Union Oil Building,
Los Angeles, California.

My dear Mr. Sheldon:--

I believe in the course of a week, we will be in a position to place an order for air valves, blow-offs, etc., in our DelMar-La Jolla pipe line. I have not yet received from the city the number of valves of each kind which will be required, but will probably have the information by Wednesday. If you are going to be in this neighborhood during the next week, I would be more than glad to see you and talk the situation over so as to have the benefit of your advice on the best valves to use and get prices, etc.

The heads in the 18" line will vary from 100 to 200 feet; those in the 16" line will vary from 100 to 400 feet. There will be, all told, nearly ten miles of line.

Please let me hear from you at your earliest convenience.

Yours very truly,

THK:K

BROADWAY 7888

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

Feb. 4, 1920.

Mr. W. H. Judy,
Manager of Operations,
City of San Diego, Calif.

Dear Sir:

We are pleased to quote the following prices on Crispin Air Valves:

1" - air & Vacuum Valve	15.25
2" Crispin Air & Vacuum valves	\$33.00 each
1/2" do	9.50 each
4" do	89.00 each
5/16" Air Pressure Valve	33.65 each

The above prices are f.o.b. San Diego.

Yours truly,

CHS:KF

WATER WORKS SUPPLY COMPANY.

Chas. H. Sheldon

COREY FIRE HYDRANTS
RENSSELAER VALVES
CRISPIN AIR VALVES

COLDWELL WILCOX SLUICE GATES
JOHNSON HYDRAULIC VALVES
SIMPLEX VENTURI METERS
GOLDEN ANDERSON PRESSURE REGULATING VALVES

MILLER AUTOMATIC SEWAGE SIPHONS
R-W MECHANICAL SEWAGE SCREENS
PIPE, EQUIPMENT AND SPECIALTIES

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

Feb. 4, 1920.

Mr. W. H. Judy,
 Manager of Operations,
 City of San Diego, Calif.

Dear Sir:

We are pleased to quote the following prices on Rensselaer Gate Valves for use on the pipe line which you propose to install.

We have gone into this subject of these valves with the engineers for the Fletcher Company, and have talked with your engineers on this subject, also.

The type of valve we are quoting on below is the Rensselaer valve made with square discs, which are particularly adaptable for use on lines where the pressure is high and the flow is great, as the square disc feature supports the discs when in motion, and protects the valve seat, and helps prevent the chattering of the valve. The square disc is of more advantage when the pressure is high and where the velocity might be great. It is not so necessary where the pressures are low.

We are quoting on all sizes with the square disc, and then on the low pressure valves with the round discs. All quotations cover spur gearing on the valves:

2 - 16" Rensselaer hub end gate valves, as specified above, good for 75# working pressure	\$197.50 each
2 - 16" Rensselaer hub end gate valves, good for 225# working pressure	272.65 each +10.00 for flange
7 - 18" Rensselaer hub end gate valves, good for 35# working pressure	209.00 each
1 - 18" Rensselaer gate valve, hub one end, flange one end	216.00 each
1 - 18" Rensselaer flanged end gate valve good for 150# working pressure	305.00 each
1 - 18" Rensselaer hub end gate valve good for 75# working pressure	238.00 each

W. H. Judy

-2-

Feb. 4.

The above prices are f.o.b. San Diego.

If it is thought that the square disc valves are not necessary under the low pressures, we can furnish:

7 - 18" Rensselaer Double Disc Hub End
 Gate Valves good for 35# working
 pressure \$173.00 each

If this valve is fitted with one end flange and the other bell, the price would be \$180.00.

The above prices on all the valves include spur gearing.

Yours truly,

CHS:KF

WATER WORKS SUPPLY COMPANY.

Chas. H. Sheldon

*18" - Hub End Gate good for
 75# with spur gear and
 3" Bypass -
 square disks. \$288.00*

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING
LOS ANGELES

Feb. 27, 1920.

Mr. T. H. King,
c/o San Dieguito Mutual Water Co.,
San Diego, Calif.

Dear Mr. King:

We have word to-day that prices on valves are going to be advanced March 6th, and if you can possibly get in your specifications and formal orders on the valves for your pipe line before that date, you will be saving some money.

We must have the orders in time so they will be mailed from our office to the factory by March 6th.

Yours truly,

WATER WORKS SUPPLY COMPANY.

Chas. H. Sheldon

CHS:KF

Mr. H. Sheldon,
Waterworks Supply Co.,
Union Oil Building,
Los Angeles, California.

Dear Mr. Sheldon:

Inclosed herewith is a list of the valves of various kinds for the City line and also a list of the valves for our line through Del Mar. These latter will be charged to the Santa Fe Land Improvement Company, while those to the City line can be charged either to the City of Henshaw & Fletcher.

I am leaving it to you to supply the lowest priced valve that will stand up and do the work for these blow off valves, or would not a bronze valve for the blow off valves be cheaper than an iron valve with the brass mounting and if so would it do the work under the pressures indicated.

On the Crispin Air valves you quoted \$33.00 for the 2" air and vacuum; \$89.00 for the 4" air and vacuum. I had another quotation today of \$15.00 and \$85.00. It seems to me you should at least be able to meet this price.

I will probably have to be out of town Saturday, March 6th, but you can reach me at my house Sunday morning if necessary, or I will be at the office on Monday morning should anything come up on which you would want to communicate with me.

I trust you can make some arrangements by which we can get delivery earlier than four months.

Yours very truly,

March 5, 1920.

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 6, 1920.

Mr. T. H. King,
c/o Ed Fletcher Company,
924 Eighth Street,
San Diego, Calif.

Dear Mr. King:

Your letter of the 5th inst., together with list of valves required by you and the City, has just been received.

We believe we know what you want concerning square discs, etc., but we are not sure what the City wants, and for this reason, we believe it necessary for the writer to go to San Diego this coming week, and go into the matter personally with the City Officials.

This we will do, but in the meantime will protect you on price, and will give you the benefit of the very lowest prices we can make. We have already wired the factory concerning shipment, and expect to hear from them some time this morning.

We appreciate very much your position in this matter, and will do our best to repay you for the confidence you have placed in us.

Yours truly,

WATER WORKS SUPPLY COMPANY.

Chas H. Sheldon

CHS:KF

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 19, 1920.

Mr. T. H. King,
c/o Fletcher Companies,
Fletcher Building,
San Diego, Calif.

Dear Mr. King:

The manufacturers of the Crispin Air & Vacuum Valves refuse to accept the order we sent to them on the price basis quoted to you. The Crispin people raised their prices March first, and did not advise us until some time after, and we have been endeavoring since then to have them accept the business on the basis at which we quoted you, but this they absolutely refuse to do.

They have made a nice healthy increase so that the cost to you on a 2" Crispin Air & Vacuum Valve would be \$37.65, and the price on a 4" valve would be \$107.50.

Please write us if it will be satisfactory to enter up the order for the air and vacuum valves on this basis. We hope you will appreciate our position in this matter, and that the above arrangement may be satisfactory to you.

With best wishes,

Yours truly,

WATER WORKS SUPPLY COMPANY.

Chas H. Sheldon

CHS:KF

Water Works Supply Company

INCORPORATED

UNION OIL BUILDING

LOS ANGELES

March 29, 1920.

Gentlemen:

CHANGE OF ADDRESS.

After this date, the address of our Los Angeles office will be:

705 Wright & Callender Building,
Los Angeles, Calif.

Yours truly,

WATER WORKS SUPPLY CO.

P.

Water Works Supply Company

INCORPORATED

~~UNION OIL BUILDING~~ WRIGHT & CALLENDER BLDG.

LOS ANGELES

March 29, 1920.

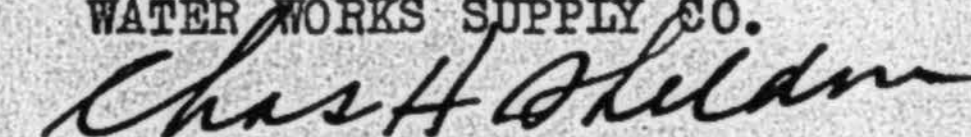
Mr. T. H. King, Engineer,
Ed Fletcher Companies,
East Eighth Street,
San Diego, Calif.

Dear Mr. King:

Our San Francisco office advises they cannot locate any 18" valves in San Francisco. So the only ones we know of are the heavy type valves mentioned to you over the telephone, which would cost \$313.00, Los Angeles.

Yours truly,

WATER WORKS SUPPLY CO.



CHS:KF

Water Works Supply Company

INCORPORATED

~~WRIGHT & CALLENDER BLDG.~~
Wright & Callender Bldg.
LOS ANGELES

April 24, 1920.

Mr. T. H. King,
c/o Ed Fletcher Companies,
Eighth Street,
San Diego, Calif.

Dear Mr. King:

We have been unable to locate any 18" Class "B" pipe in San Francisco, but will continue our search around here, and will advise you if we are successful.

Yours truly,

CHS:KF

WATER WORKS SUPPLY CO.

Chas. H. Sheldon
7.

GENERAL OFFICE:
BURLINGTON, N. J.

L. R. LEMOINE, PRESIDENT
GEORGE J. LONG, VICE PRESIDENT
B. F. HAUGHTON, SECY AND TREAS.

United States Cast Iron Pipe and Foundry Company

N. F. S. RUSSELL, GEN. SALES MGR.

R. W. MARTINDALE, PACIFIC COAST MANAGER

Monadnock Building, SAN FRANCISCO

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS OR OTHER CAUSES BEYOND OUR CONTROL. ANY CASTING DEVELOPING AN INHERENT DEFECT WHEN PLACED IN SERVICE, WILL BE REPLACED F. O. B. AGREED POINT OF DELIVERY. NO CLAIMS FOR DAMAGES ALLOWED.

Los Angeles, Calif.,
April 27, 1920.

Mr. T. H. King,
c/o Ed Fletcher Companies,
Eighth Street,
San Diego, Calif.

Dear Mr. King:

We have covered the Los Angeles and San Francisco territory trying to locate 48 feet of 18" Class "B" pipe, but have been unsuccessful.

Do you desire to have us bring this out by water from our Birmingham foundries? We have a boat coming around about the 15th of May or a little later, on which might be placed the four lengths of pipe, and if you would place the order immediately, we could furnish the pipe to you for \$105.00 per ton, f.o.b. San Diego.

Yours truly,

CHS:KF

U.S. CAST IRON PIPE & FOUNDRY CO.

Chas. H. Sheldon

GENERAL OFFICE:
BURLINGTON, N. J.

United States Cast Iron Pipe and Foundry Company

N. F. S. RUSSELL, GEN. SALES MGR.

L. R. LENOIRE, PRESIDENT
GEORGE J. LONG, VICE PRESIDENT
B. F. HAUGHTON, SECY AND TREAS.

R. W. MARTINDALE, PACIFIC COAST MANAGER

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A B C-4TH & 5TH EDITION
LIEBER'S 1886 OF FIVE LETTERS
WESTERN UNION | UNIVERSAL
NEW BUSINESS | EDITION

LONG DISTANCE TELEPHONE
KEARNY 562

Monadnock Building, SAN FRANCISCO

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS OR OTHER CAUSES BEYOND OUR CONTROL. ANY CASTING DEVELOPING AN INHERENT DEFECT WHEN PLACED IN SERVICE, WILL BE REPLACED F. O. B. AGREED POINT OF DELIVERY. NO CLAIMS FOR DAMAGES ALLOWED.

Los Angeles, Calif.,

May 3, 1920.

Mr. T. H. King,
c/o Ed Fletchers Companies,
San Diego, Calif.

Dear Mr. King:

Our Birmingham foundries shipped by mistake one length of 18" Class "C" pipe to Mr. Hallett, who has the contract at the San Diego Marine Barracks. We can furnish this pipe to you at the rate of \$114.50 a ton, f.o.b. where the pipe is located on Mr. Hallett's operation.

Yours truly,

CHS:KF

U.S. CAST IRON PIPE & FOUNDRY CO.



Ed Fletcher Papers

1870-1955

MSS.81

Box: 32 Folder: 32

General Correspondence - Water Works Supply Company



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