Air Conditioning American Movie Theatres 1917-1932

Wittenmeier Machine Company

Frederick Wittenmeier, 1863-1928

Frederick Wittenmeier was born in Zweibrucken in Germany on the 30th May, 1863. He obtained a thorough training in mechanical engineering in Germany where he worked in the steam-fitting business. He migrated to the USA in 1881, moving to Chicago in 1885. Wittenmeier became an important pioneer in the development of the carbon dioxide refrigerating machine and in the early introduction of air conditioning in movie theatres.

Theatres are listed in alphabetical order by name

THE EARLY HISTORY OF CARBON DIOXIDE REFRIGERATION

The idea of carbon dioxide (also known as carbonic acid gas and carbonic anhydride) refrigeration systems can be traced back to the American civil engineer and professor Alexander Catlin Twining (who advanced the earlier work of Evans, Perkins and Hague) by building a vapour-compression ice-making plant in 1853, based on his US Patent 10,221 of 1853. The claim in his earlier British Patent, BP 13,167: 1850, that he invented the vapour-compression process itself proved to be insupportable. The American Civil War prevented Twining's efforts to make ice in the South.

During the 1850s, James Harrison, a Scotsman working in Australia, also obtained a number of British Patents for his machines, though he first used ether as a refrigerant.

Another early pioneer was Carl von Linde who experimented with carbon dioxide when in 1882 he designed a machine for Krupps in Essen, Germany. (Linde preferred and developed ammonia machines).

Raydt received BP 15475:1884 for a compression ice-making system using carbon dioxide.

The breakthrough came when Franz Windhausen of Germany designed a carbon dioxide compressor and obtained BP 2864: 1866 which was purchased and improved upon by J & E Hall and found widespread application for refrigerated cargo ships.

THE KROESCHELL BROS ICE MACHINE COMPANY

In 1896, Frederick Wittenmeier joined Kroeschell Bros who, at the time, were in the boiler manufacturing and steam-fitting business. .

It was in Chicago that carbon dioxide refrigeration was developed by Wittenmeier and the Kroeschell Bros using patents purchased from the Hungarian Julius Sedlacek. Wittenmeier experimented with CO_2 ice machines and this developed into a successful business leading to the formation of the Kroeschell Bros Ice Machinery Company in 1897 with Wittenmeier as Chief Engineer, leading in turn to the application of air conditioning for movie theatres.

"At that time (1900) the carbonic machine was commercially unknown in this country (USA) and much of the credit for its successful development to the present time must be given to him (Wittenmeier)."

Brunswick-Kroeschell, in their advertising, list as "cooled" by them, a number of Chicago theatres. These listings include movie theatres where the air conditioning is said to have been provided by the Wittenmeier Machine Company but it possible that Kroeschell Brothers (before forming the joint company with Brunswick in 1924) supplied the CO_2 refrigerating plant. Fred Wittenmeier was the Chief Engineer for Kroeschell before setting up his own company in 1917. Wittenmeier is credited with providing the first ever air conditioning (a spray washer with an integral direct expansion refrigerant coil) for a theatre, this being the Central Park Theatre in Chicago in 1917. The Central Park was part of the Balaban & Katz chain who became pioneers in adopting air conditioning for the theatres which they owned.

(No Model.) 3 Sheets—Sheet 1.

J. SEDLACEK.

REFRIGERATING MACHINE.

No. 602,199. Patented Apr. 12, 1898.

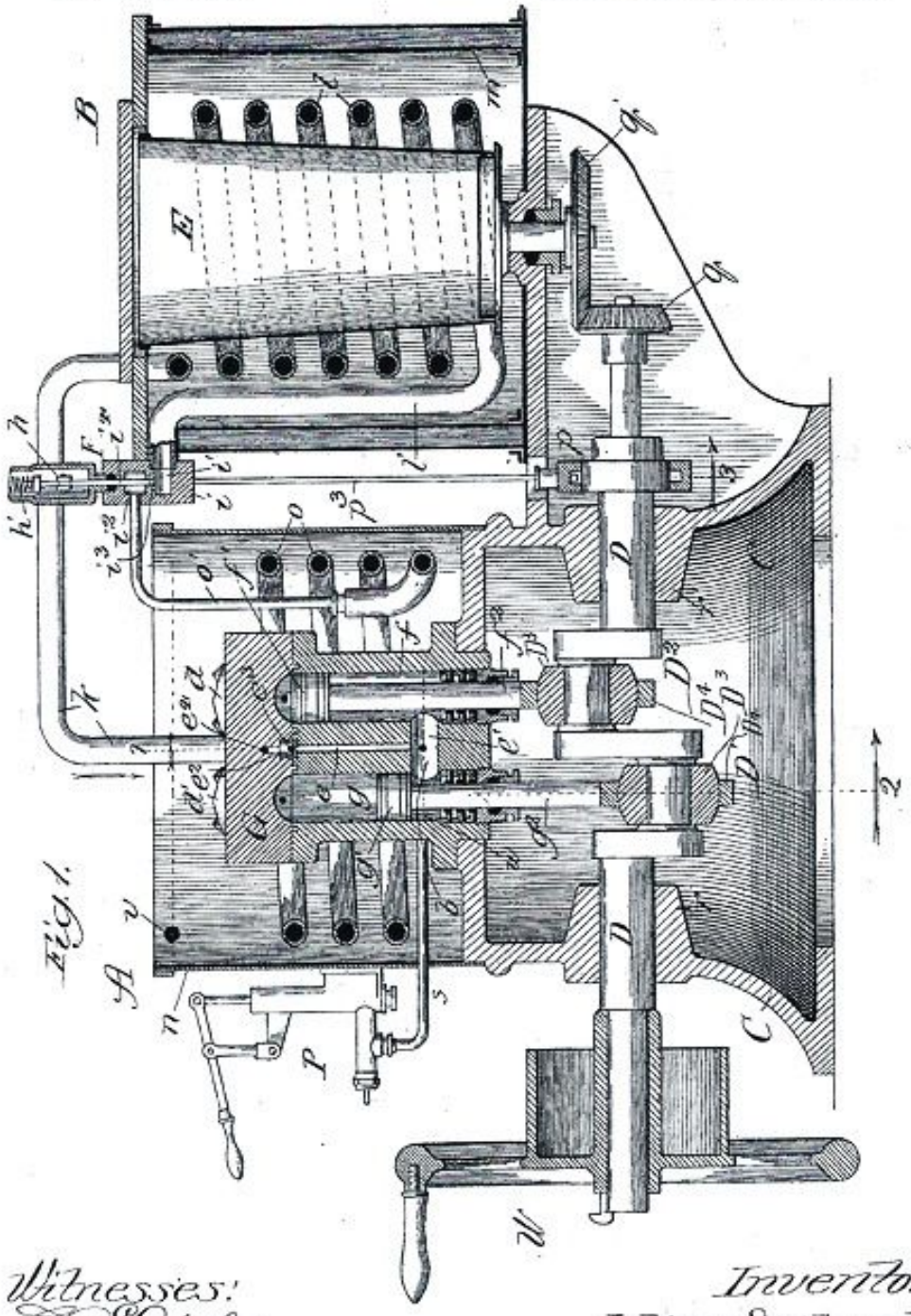
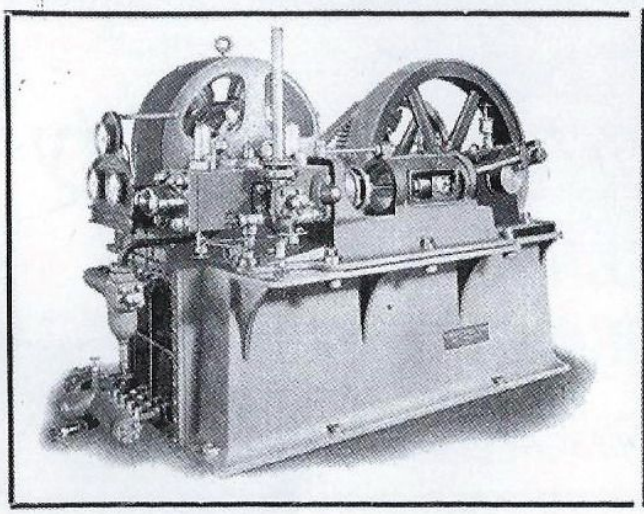


Fig. 1.

Witnesses:
Chas. E. Gaylord.
Peter J. Miller

Inventor:
Julius Sedlacek,
By Dyrenforth & Dyrenforth,
Attys.



The Carbonic Anhydride System of Refrigeration

GIVES THE BEST ECONOMY AND EFFICIENCY WITH SAFETY IN OPERATION

No Odor No Explosions

OUR MARINE AND LAND TYPE MACHINES OPERATING IN HUNDREDS OF PLANTS GIVE BEST RESULTS EVER OBTAINED.

KROESCHELL BROS. ICE MACHINE CO.

29-39 Erie Street CHICAGO, ILL.

Write for Catalog

1904

KROESCHELL

CARBONIC ANHYDRIDE SYSTEM

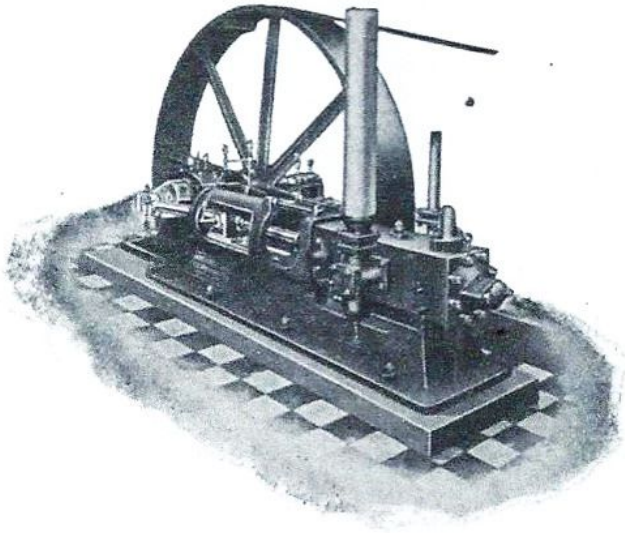
SAFE

—

ECONOMICAL

—

EFFICIENT



FOR ICE MAKING AND REFRIGERATION

Catalog And Information On Request

KROESCHELL BROS. ICE MACHINE CO.

MAIN OFFICE AND WORKS
472 W. ERIE ST., CHICAGO, ILL

EASTERN OFFICE
30 CHURCH ST., NEW YORK, N. Y.

1920

Air Conditioning American Movie Theatres
1917-1932

Capitol Theatre

NEW YORK

Date Built: 1919
Seating Capacity: 5230
Owner: Loew's
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Capitol Theatre, New York

The Capitol opened in 1919. Air conditioning by the Wittenmeier Machine Company was installed in 1920. The sign under the canopy reads “Largest Theatre Cooling Plant in the World- Now in Operation,” while the sign over the entrance doors says “Cooling Plant.”

THE CAPITOL THEATRE

NEW YORK

WORLD'S LARGEST THEATRE

EDWARD BOWES, MANAGING DIRECTOR

PRESENTATIONS BY S. L. ROTHAFEL

"OUR TRUE INTENT IS ALL FOR YOUR DELIGHT"


CAPITOL

Air Conditioning American Movie Theatres 1917-1932

Central Park Theatre

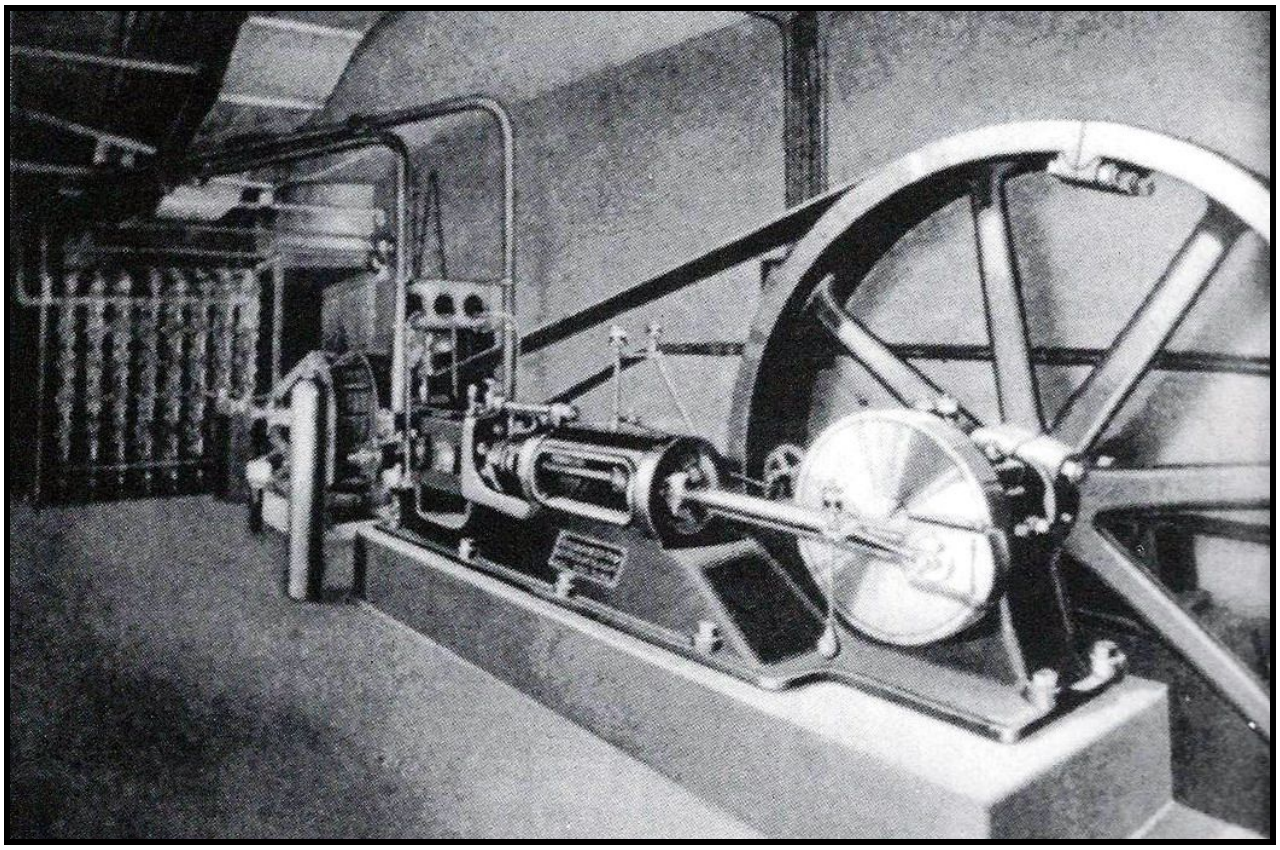
CHICAGO, ILLINOIS

Date Built: 1917
Seating Capacity: 2400
Owner: Balaban & Katz
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: Kroeschell Bros CO_2 plant

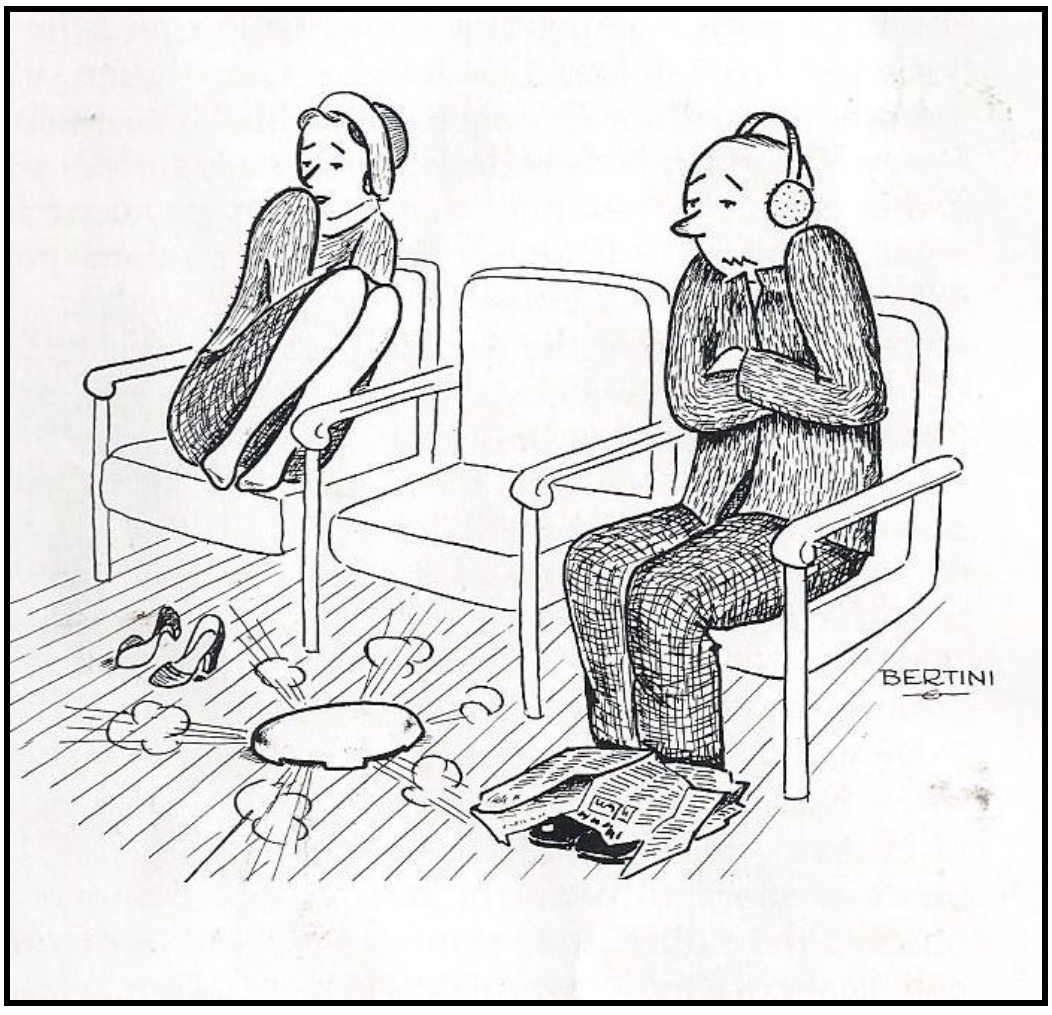
Central Park Theatre, Chicago, opened in 1917 (1780 seats)

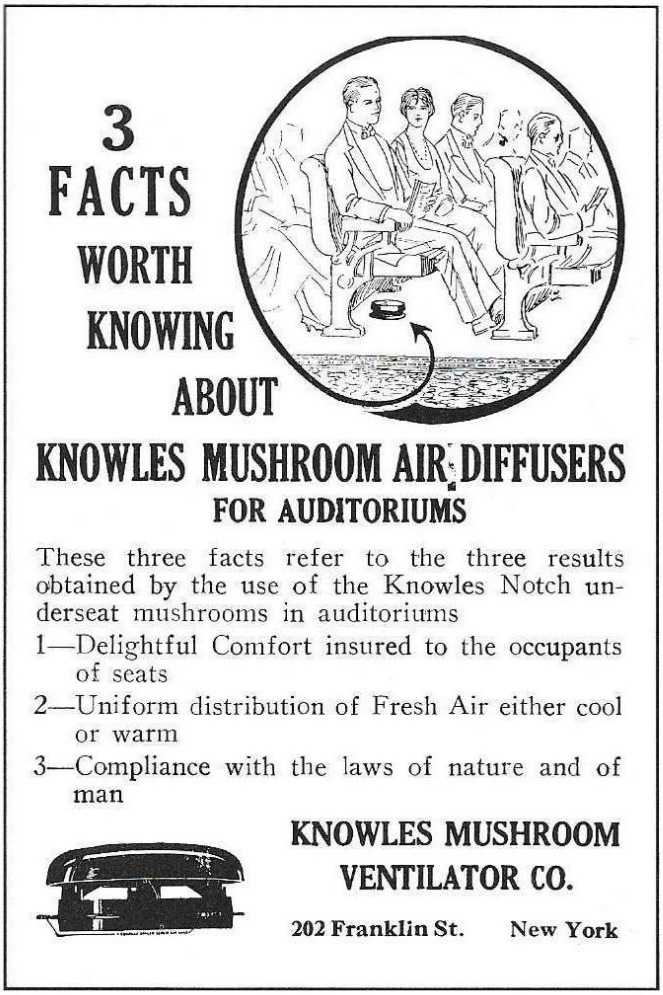
Wittenemeier's rule of thumb figures for theatre cooling were 2.5 tons of refrigeration for every 1000 cubic feet per minute of supply air in the northern states, increased by 25% for southern areas and appear to be based on 50% outside air. His evaporator design was based on using 1.25-inch iron pipe coils calculated at 35 feet per ton of refrigeration (finned coils were not then in use). Recirculated washer spray water was installed before and after the face of the coils at the rate of 3.5 US gallons per square foot with the air face velocity at 500 feet per minute and a spray water temperature of 58 deg F (to prevent build up of ice). The evaporating temperature of the CO_2 was suggested as 22 degF. The condensing temperature using cooling tower water, often as high as 85 degF, resulted in a gauge pressure of 1240 pounds per square inch necessitating heavy-duty construction of compressor parts and heavy steel pipe and fittings. (Pressure gauges were often scaled in atmospheres to "avoid scaring the operators," for example a pressure of 1240 psig would read 83 atmospheres).

The air conditioned Riviera opened in 1919 with a CO_2 refrigerating plant by the Wittenmeier Machine Company. It has been recorded that the Wittenmeier system "provided for humidification but lacked an effective method for adjusting the humidity level. Air left the air conditioner nearly 100 percent saturated, and the body heat of the audience raised it by about 8 degrees. In the Riviera, that produced a relative humidity of approximately 70 percent. Wittenmeier routinely furnished a temperature of 76-78 (degF) and a relative humidity of 75 percent. I assure you that you will feel comfortable in such a house, he maintained." Later, other air conditioning engineers and researchers would not agree with Wittenieimer's statement and the audience complained about cold draughts due to the discharge of cold supply air through floor-mounted mushroom outlets by their feet. (In the past, these outlets had been satisfactory when supplying warm air for heating purposes).



Wittenmeier CO_2 refrigerating plant at the Central Park Theatre, Chicago





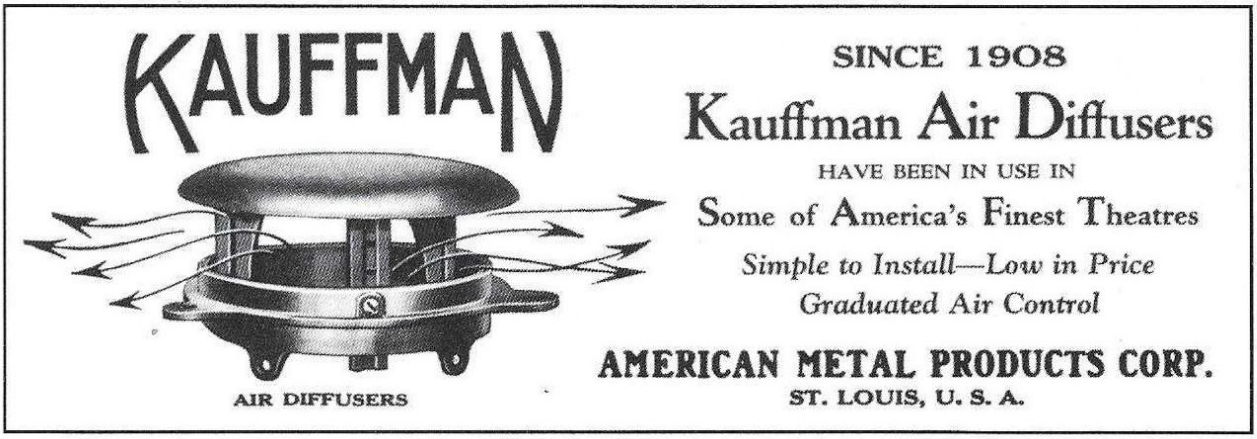


Figure 11-44 *Small floor registers, commonly known as mushrooms, were used in halls and theaters after 1910 for upward air distribution. Such outlets proved unsatisfactory for cooling purposes (from* The Heating and Ventilating Magazine, *June 1929 and January 1925).*

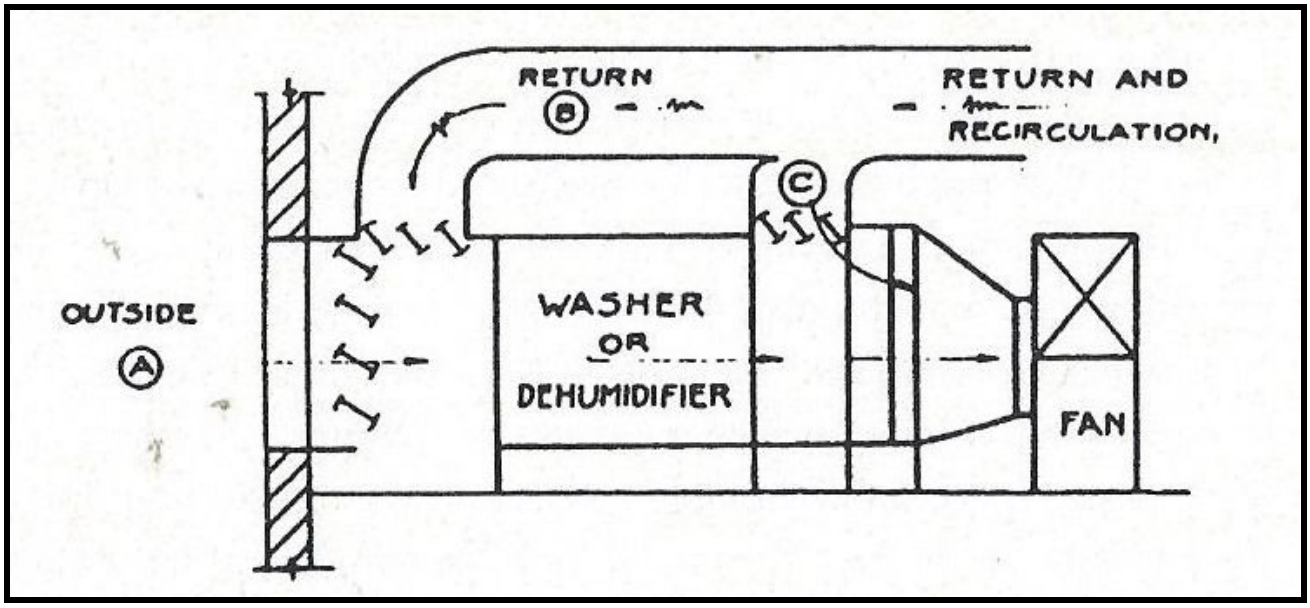
Complaints that the Wittenmeier systems were “cold and clammy” prompted Balaban & Katz in 1919 to consider using Carrier Engineering Corporation (CEC) to design and provide the air conditioning for their next Chicago theatre.

There were three possible solutions to the high relative humidity and cold supply air problem. Wittenmeier had made some improvement by limiting the design dry bulb temperature between inside and outside to 10 degF.

The first option was to reheat the chilled air leaving the direct-expansion coil. Carrier had considerable experience of this method from their design of industrial systems with humidity control requirements. However, the additional capital and running costs made it expensive.

The second option was to reduce the air circulation to about 10 to 15 cfm (cubic feet per minute) per person allowing the audience body heat to raise the temperature and lower the humidity (a possibility with a full audience). However, it was a requirement of the Chicago Health Department that 25 cfm of outside fresh air had to be provided.

A third option was provide 25 cfm per person but mix 50% fresh air with 50% recirculated air which violated regulations but was, in fact, used by Wittenmeier at the Riviera Theatre (and possibly others). Carrier rejected this solution as unacceptable as the desired humidity was not guaranteed. Their proposal was therefore to use a *return air bypass system** (see following diagram) but Wittenmeier continued to provide the air conditioning for Balaban & Katz theatres until his death in 1928.



The Return Air Bypass System

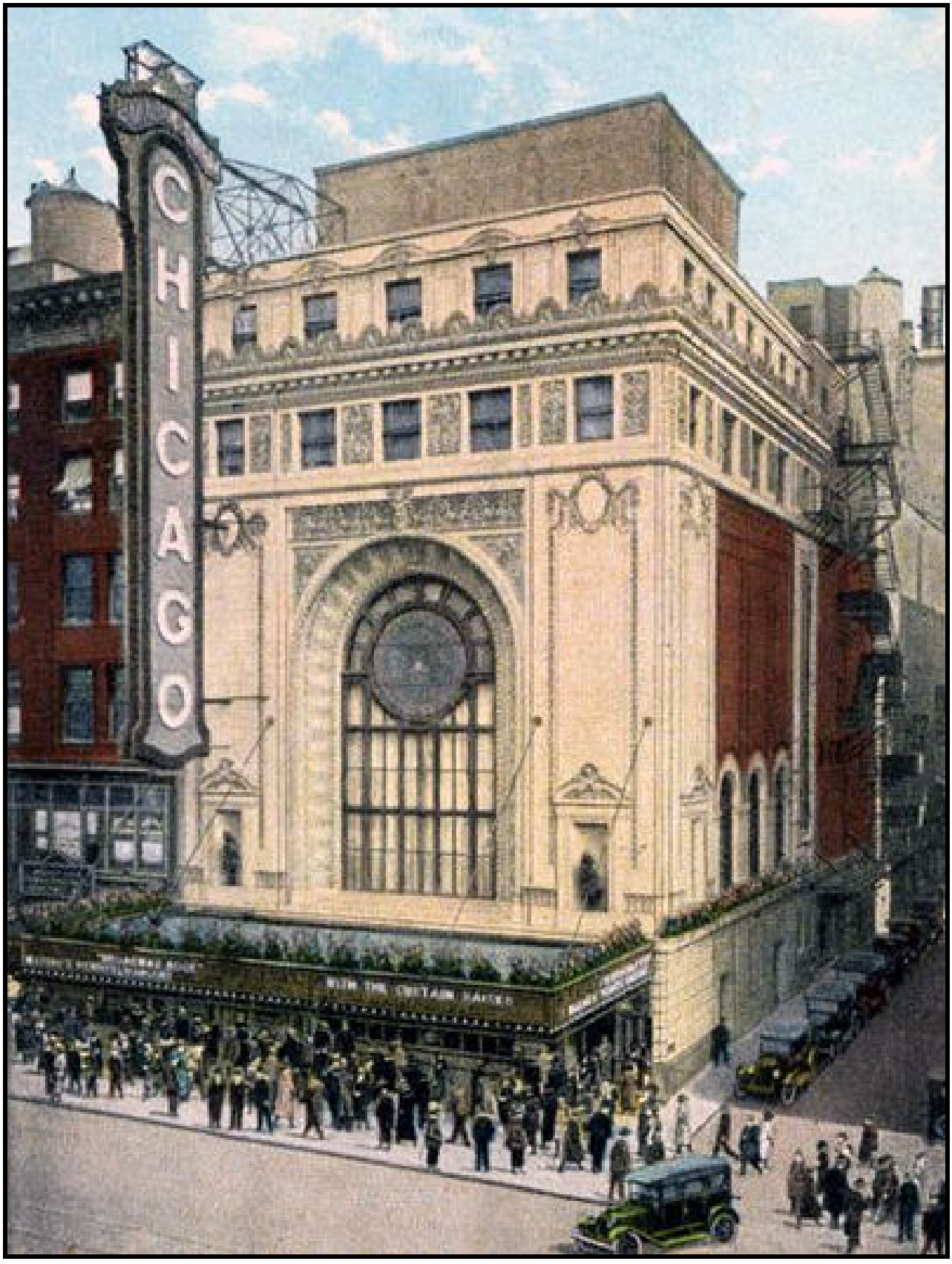
*Carrier’s first bypass system was not installed until 1921. In 1924 Logan Lewis of Carrier filed a patent application for the return air bypass system (and upside-down air distribution, i.e. ceiling supply) but the pioneering air conditioning engineer Walter Fleisher held a patent for a similar design. So he and Carrier joined forces and in 1927 formed the Auditorium Conditioning Corporation which by 1946 had licensed an estimated 90 percent of the comfort air conditioning installations in the USA.

Air Conditioning American Movie Theatres
1917-1932

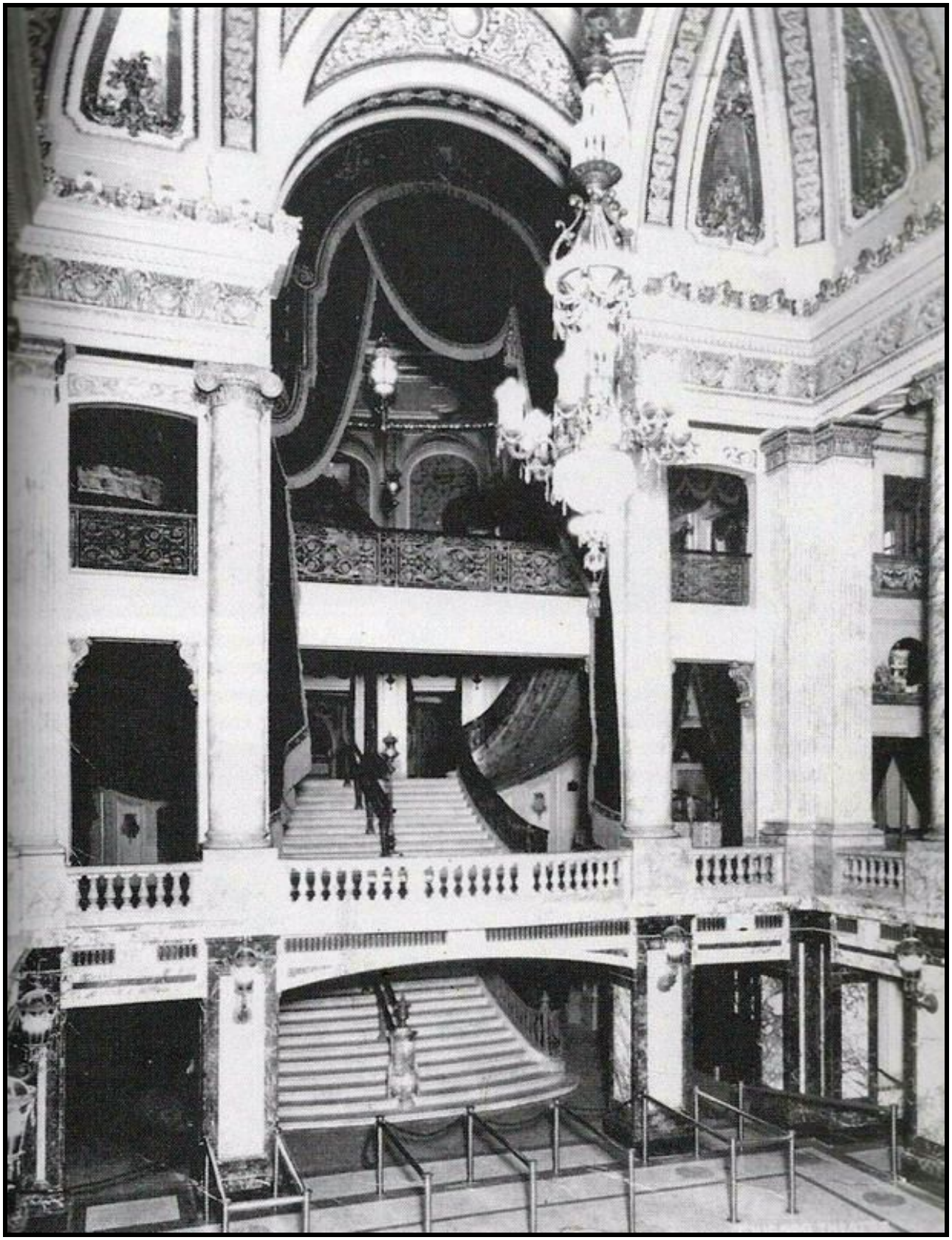
Chicago Theatre

CHICAGO, ILLINOIS

Date Built: 1921
Seating Capacity: 3861
Owner: Balaban & Katz
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine



Chicago Theatre, Chicago

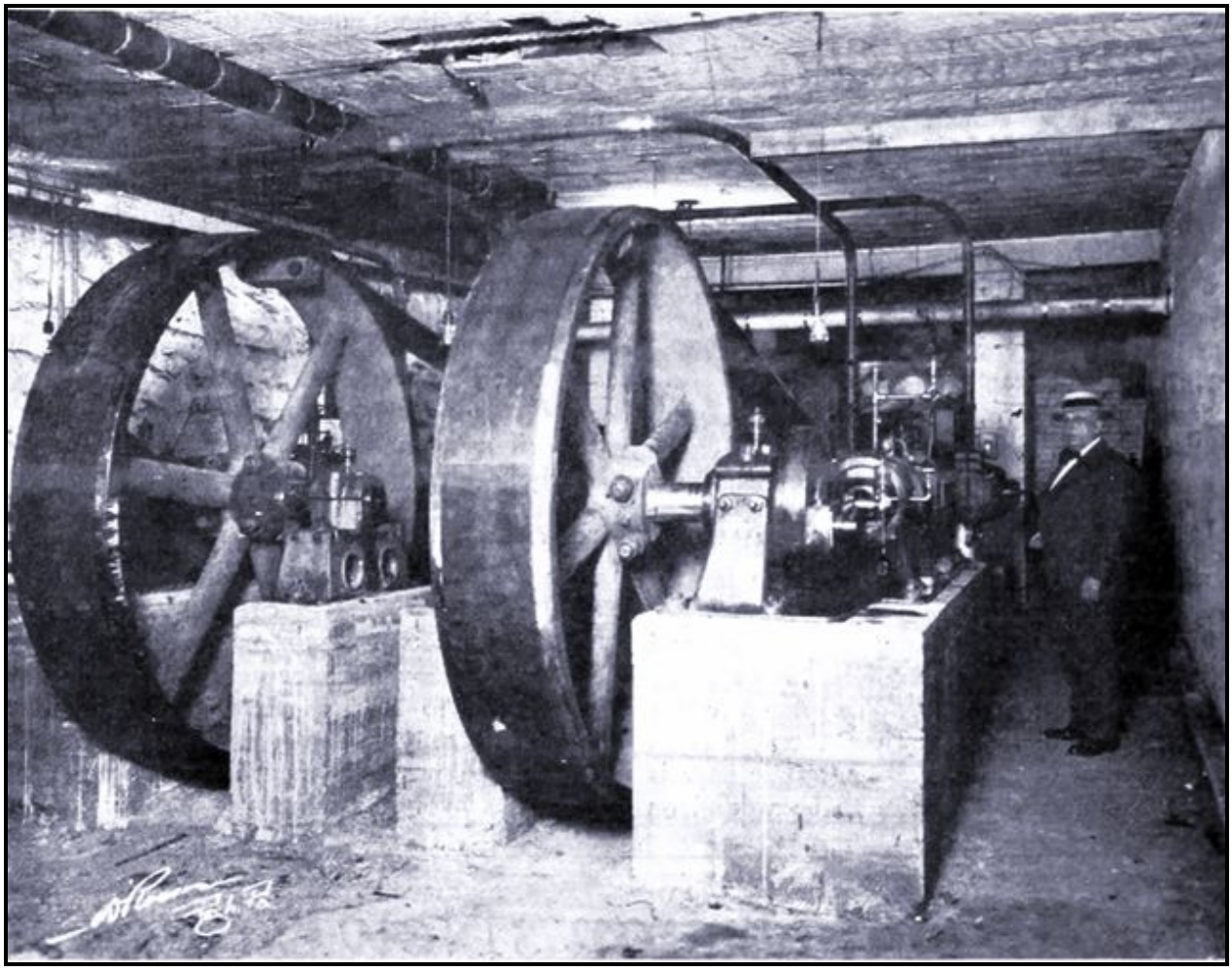


Grand lobby of the Chicago Theatre

Air Conditioning American Movie Theatres 1917-1932

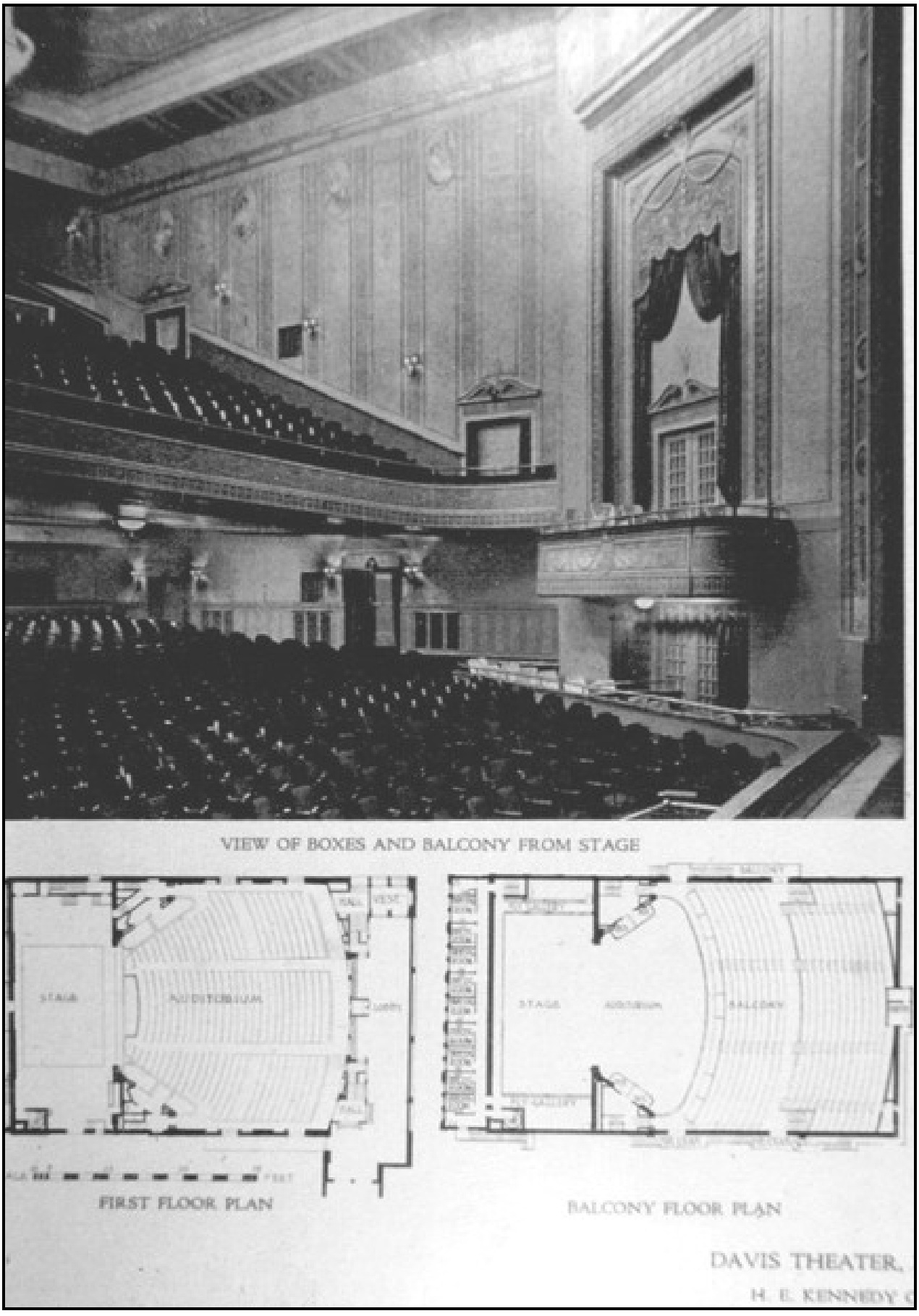
Davis Theatre

PITTSBURGH, PENNYSYLVANIA



Date Built: 1925
Seating Capacity: 2100
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine (above photo)

The air conditioning was said to have cost $100,000



Davis Theatre

Air Conditioning American Movie Theatres 1917-1932

Harding Theatre

CHICAGO, ILLINOIS

Date Built: 1925
Seating Capacity: 2993
Owner; Balaban & Katz (from Lubliner & Ttinz)
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

tomorrow at 5 P.M.!

The Golden Portals Open!

Be there! Be one of those to feel the thrill of this greatest event in the history of the Northwest side!

The swinging open of the Harding's doors marks a new era in the life of Northwest Chicago—thru those portals throngs are to pass into a glorious environment; into a palace dedicated to golden hours, brightening countless lives!

tomorrow!—you of the Northwest Side will have YOUR OWN palace of entertainment; a great, glowing structure beckoning you to happy hours! A temple, stately, regal, yet warmly friendly!

tomorrow!—the Harding theater makes possible the bringing to the Northwest Side of entertainment which you have had to go afar to find heretofore! Wide-spreading stage; thousands of seats; giant orchestral and organ possibilities—everything that any other theater has—and more!

You'll See:

Henry Kitchell Webster's 1915 satire on romance

"What FOOLS, Men!"

with

LEWIS STONE
BARBARA BEDFORD
SHIRLEY MASON

"Twilight Romance"

Knickbocker Stars Production, with a score of Musical Comedy Stars

"Trio From Faust"

Operatic Spectacle-Extravaganza, vividly presented,

EDWARD K. HOUSE
Solo Organist

HARDING CONCERT ORCHESTRA

An organization of Stars of Symphony and Syncopation

MR. BENJ. FALEY
Conducting

LUBLINER & TRINZ

HARDING

MILWAUKEE AVE. - AT SAWYER

Air Conditioning American Movie Theatres
1917-1932

Keith's Fordham Theatre

NEW YORK

Date Built: 1921
Seating Capacity: 2446
Owner: Keith
Architect: Wm McElfatick
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres
1917-1932

Loew's State Theatre

LOS ANGELES, CALIFORNIA

Date Built: 1921
Seating Capacity: 2422
Owner: Loew's
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Loew's State, LA

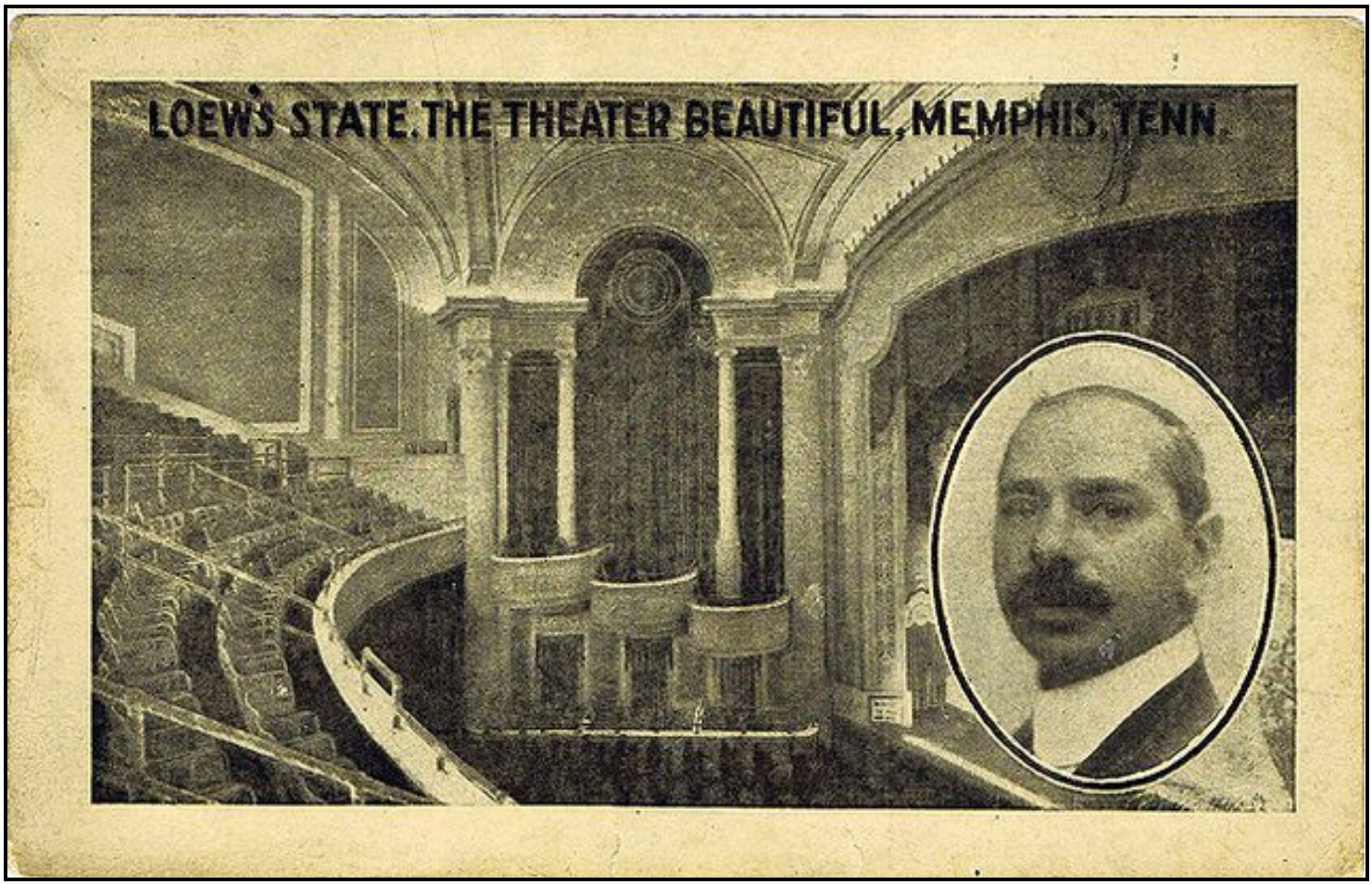
Air Conditioning American Movie Theatres 1917-1932

Loew's State Theatre

MEMPHIS, TENNESSEE

A SHOWMAN'S DREAM—The dream of every showman to come to work and find a block-long line of waiting patrons is being realized this week by Manager William Kemp of Loew's State in Memphis. The theatre is playing "Gone With the Wind" and crowds like the one pictured here have been lining up long before the first show started at 9 a. m. The picture is being presented four shows a day. It played a total of eight weeks in Memphis on two previous occasions.

Date Built: 1920
Seating Capacity: 2566
Owner: Loew's
Architect: Thomas W Lamb
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine



The portrait is thought to be that of Marcus Loew

Air Conditioning American Movie Theatres 1917-1932

Loew's Theatre

NEW ROCHELLE, NEW YORK

Date Built: 1926
Seating Capacity: 2485
Owner: Loew's
Architect: Herbert J Krapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres 1917-1932

Loew's Theatre

NEW ORLEANS, LOUISANA

Date Built: 1926 (?)
Seating Capacity: 3285
Owner: Loew's
Architect: Thomas W Lamb
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres 1917-1932

Loew's Palace Theatre

WASHNGTON D.C

Date Built: 1918 (air conditioned in 1926)
Seating Capacity: 2423
Owner: Loew's
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres
1917-1932

Main Street Theatre

KANSAS CITY, MISSOURI

Date Built: 1921
Seating Capacity: 3000
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres
1917-1932

Majestic Theatre

DALLAS, TEXAS

Date Built: 1921
Seating Capacity: 2800
Architect: John Eberson
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine


MAJESTIC
"BIG TIME"
VAUDEVILLE
OPEN MONDAY
APRIL
WITH
NME OLGA PETROVA
THE INCOMPARABLE
HART

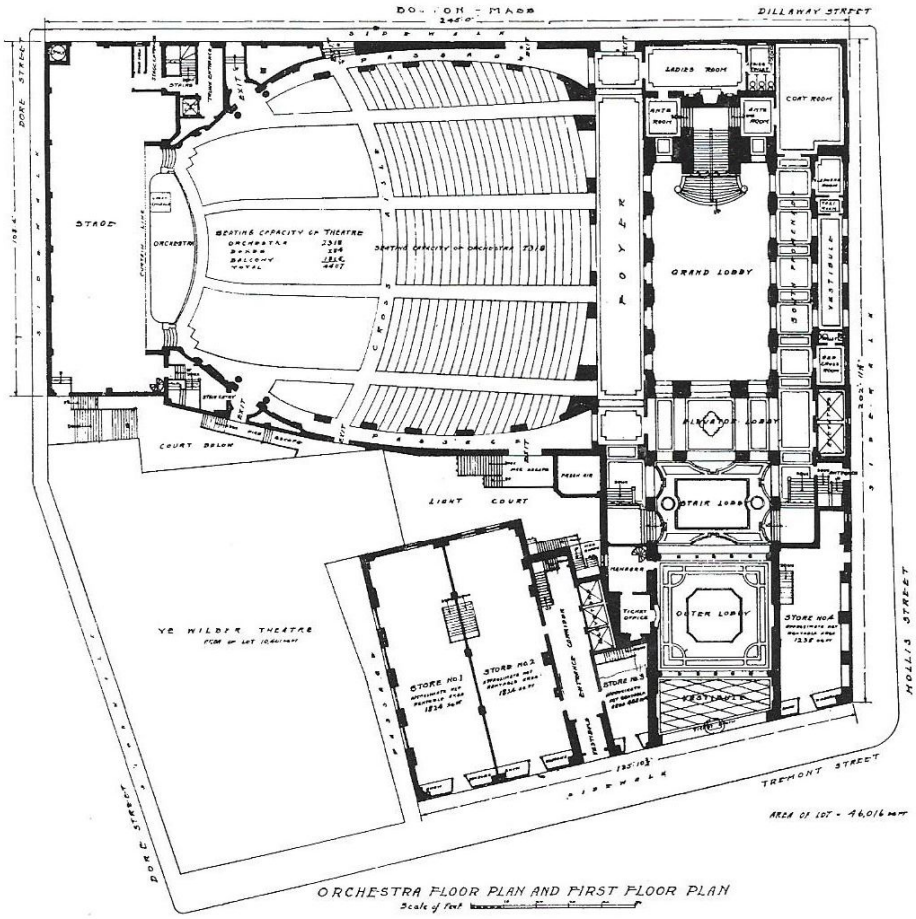

MAJESTIC
BEN MORRIS
JEWELRY CO
BEN MORRIS
JEWELRY CO
STAURANT
TOWER
MAJESTIC

Air Conditioning American Movie Theatres
1917-1932

Metropolitan Theatre

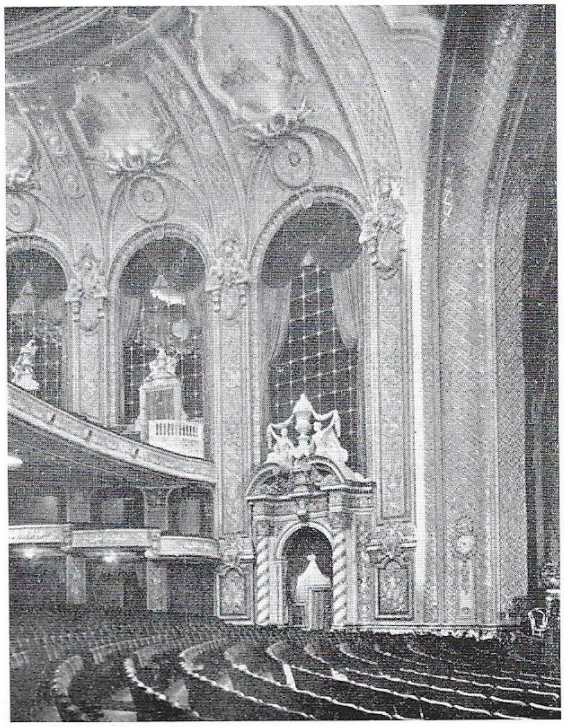
BOSTON, MASSACHUSETTS

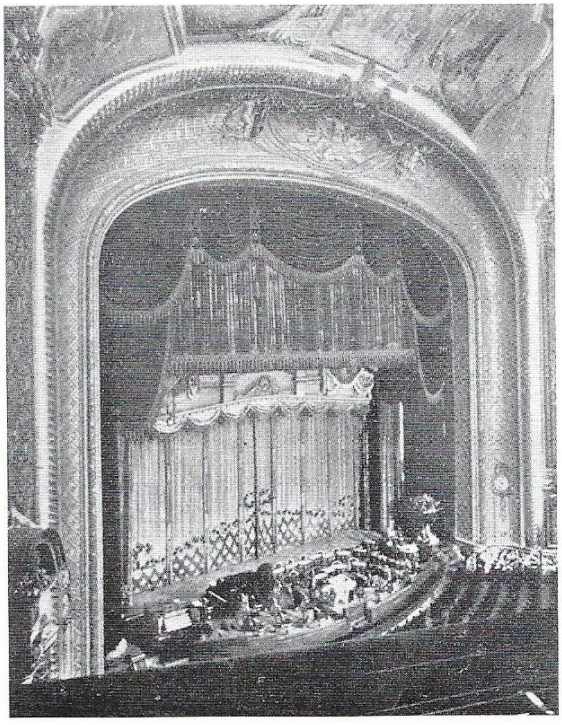
Date Built: 1925
Seating Capacity: 4400
Architect: C Howard Crane and others
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine



ORCHESTRA FLOOR PLAN AND FIRST FLOOR PLAN

Scale of feet





METROPOLITAN THEATRE, BOSTON, MASS.

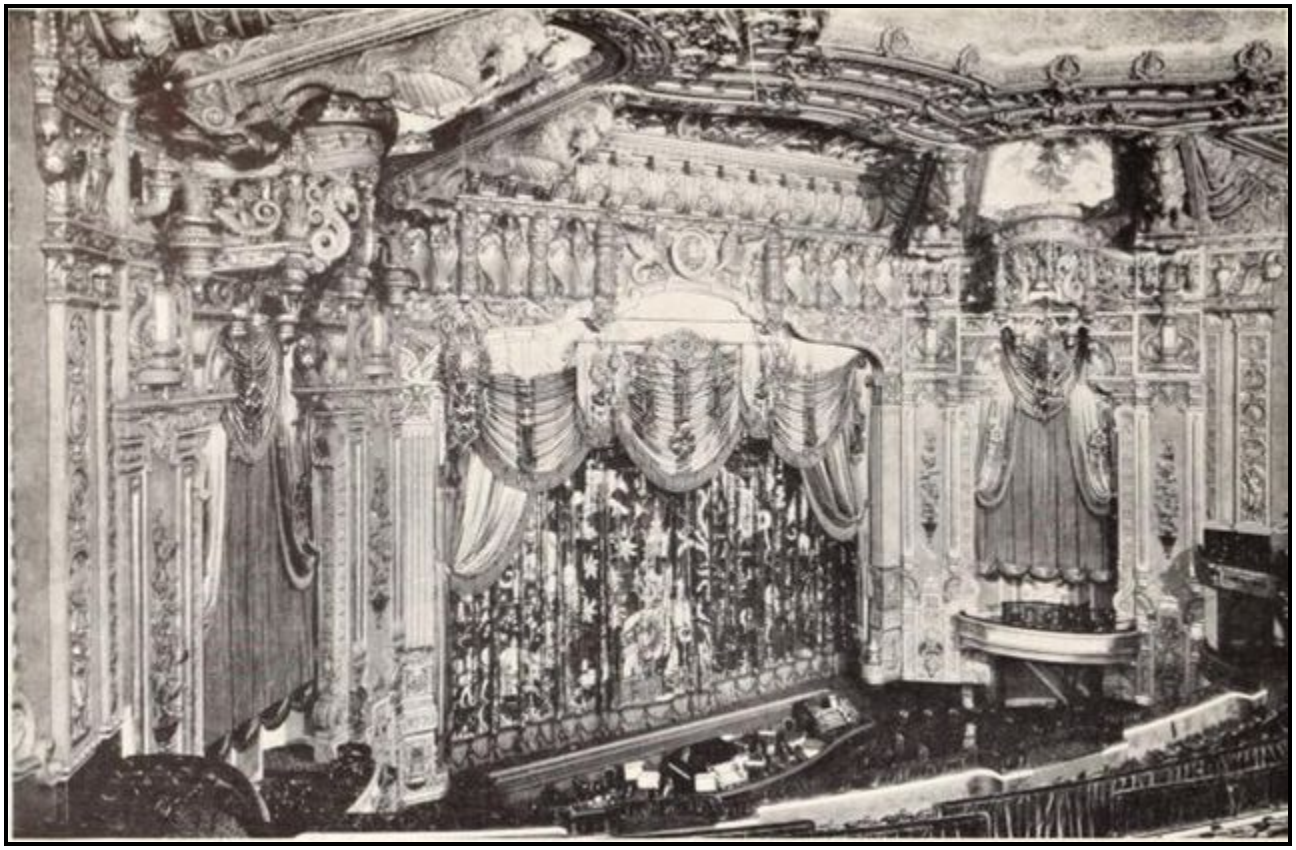
BLACKALL, CLAPP & WHITTEMORE; C. HOWARD CRANE, KENNETH FRANZHEIM, GEORGE NELSON MESERVE, ASSOCIATED ARCHITECTS.

(Courtesy The American Architect.)

Air Conditioning American Movie Theatres 1917-1932

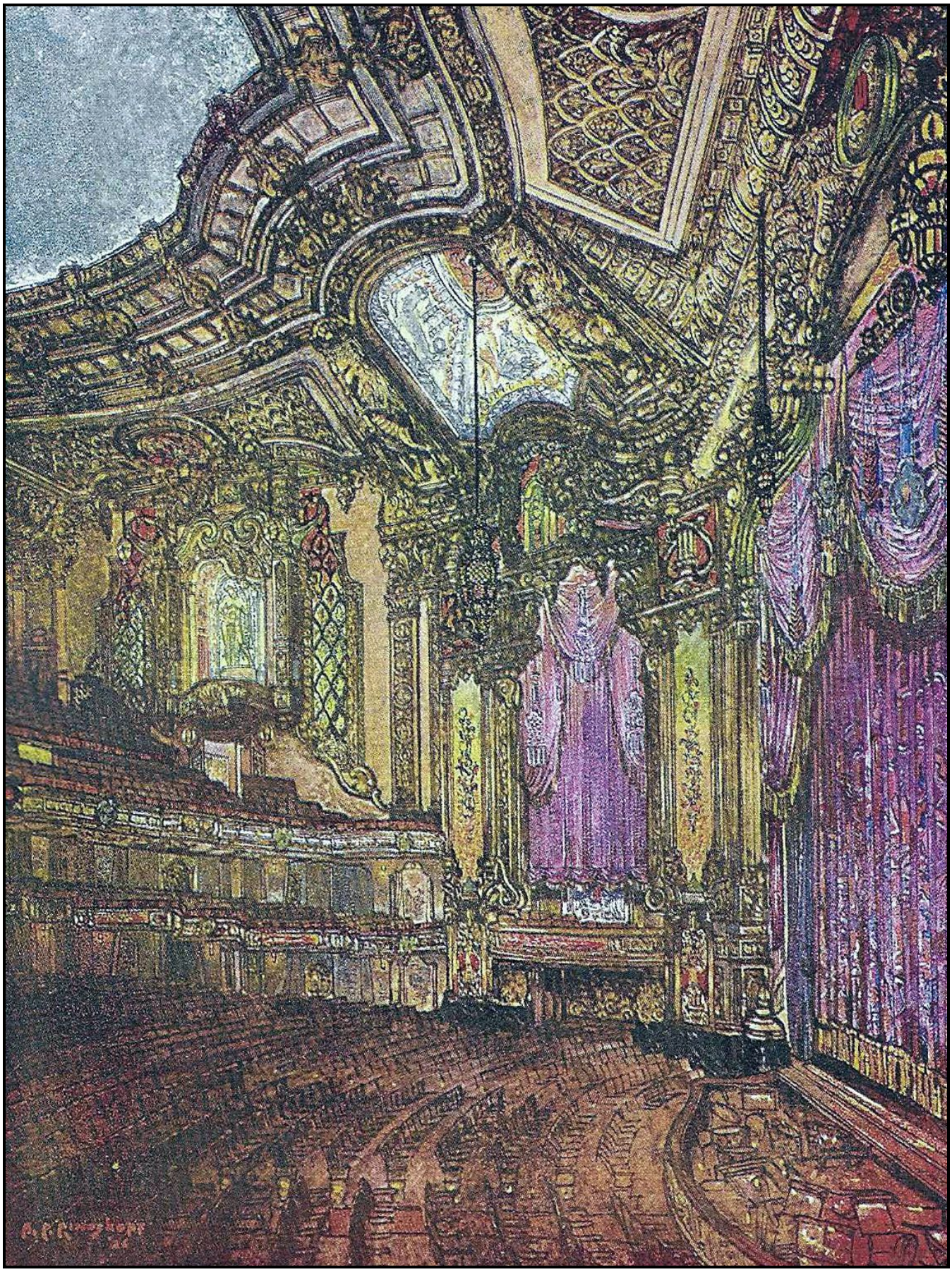
Oriental Theatre

CHICAGO, ILLINOIS



Date Built: 1926
Seating Capacity: 2200
Owner: Balaban & Katz
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

A third major multiple-use job in the busy year of 1926 was Chicago's Masonic Building and Oriental Theatre. The wary owners insisted that Rapp & Rapp give the building separate structural support in case the theatre failed and had to be torn out. (Chicago History Museum)



Oriental Theatre

MOTION PICTURES DOWNTOWN | MOTION PICTURES DOWNTOWN | MOTION PICTURES DOWNTOWN

ATTEND the OPENING TODAY!

(9:30 a. m.—Performances continuous)

TODAY you can feel the thrill of beauty you never thought possible in a theatre! You can step from Randolph street—into the glory and glamor and romance of the Orient!

BALABAN & KATZ

ORIENTAL

Randolph Near State Street

HERE is a theatre with a daring idea—with a dazzling beauty bringing to Chicago the jeweled splendor of the Far East against a background of soft silks, subtle lights, regal velvets. Here is romance agleam with modern theatre-magic.

In this glorious setting you will enjoy performances as unique as the theatre itself! On the screen, photoplays of note. On the "magic flying stage", newest marvel of stage-craft, you will enjoy as never before, the popular—

PAUL ASH

and his merry-mad musical gang

"Insultin' the Sultan" is Paul's first great Oriental production. Milton Watson, Peggy Bernier and a dozen new stars are in this big three-scene syncopation show.

HARRY LANGDON in "Tramp, Tramp, Tramp."
His first super-comedy feature.

HENRI A. KEATES
at the organ.

Air Conditioning American Movie Theatres 1917-1932

Orpheum Theatre

LOS ANGELES, CALIFORNIA

Date Opened: 1926
Seating Capacity: 2190
Owner: Orpheum Circuit
Architect: G Albert Landsburgh
Air Conditioning: Brunswick-Kroeschell
Refrigeration: CO_2 machine
Status: Restored 2003

Air Conditioning American Movie Theatres
1917-1932

Orpheum Theatre

MINNEAPOLIS, MINNESOTA

Date Built/Opened: 1921
Seating Capacity: 3500
Owner: Orpheum Circuit
Architect: Kirchhoff & Rose
Air Conditioning: Wittenmeier Machine Company
Refrigeration: Kroeschell Bros (Brunswick-Kroeschell)
Status: Renovated 1992

Orpheum Theatre Minneapolis, c.1939

Auditorium

Balcony

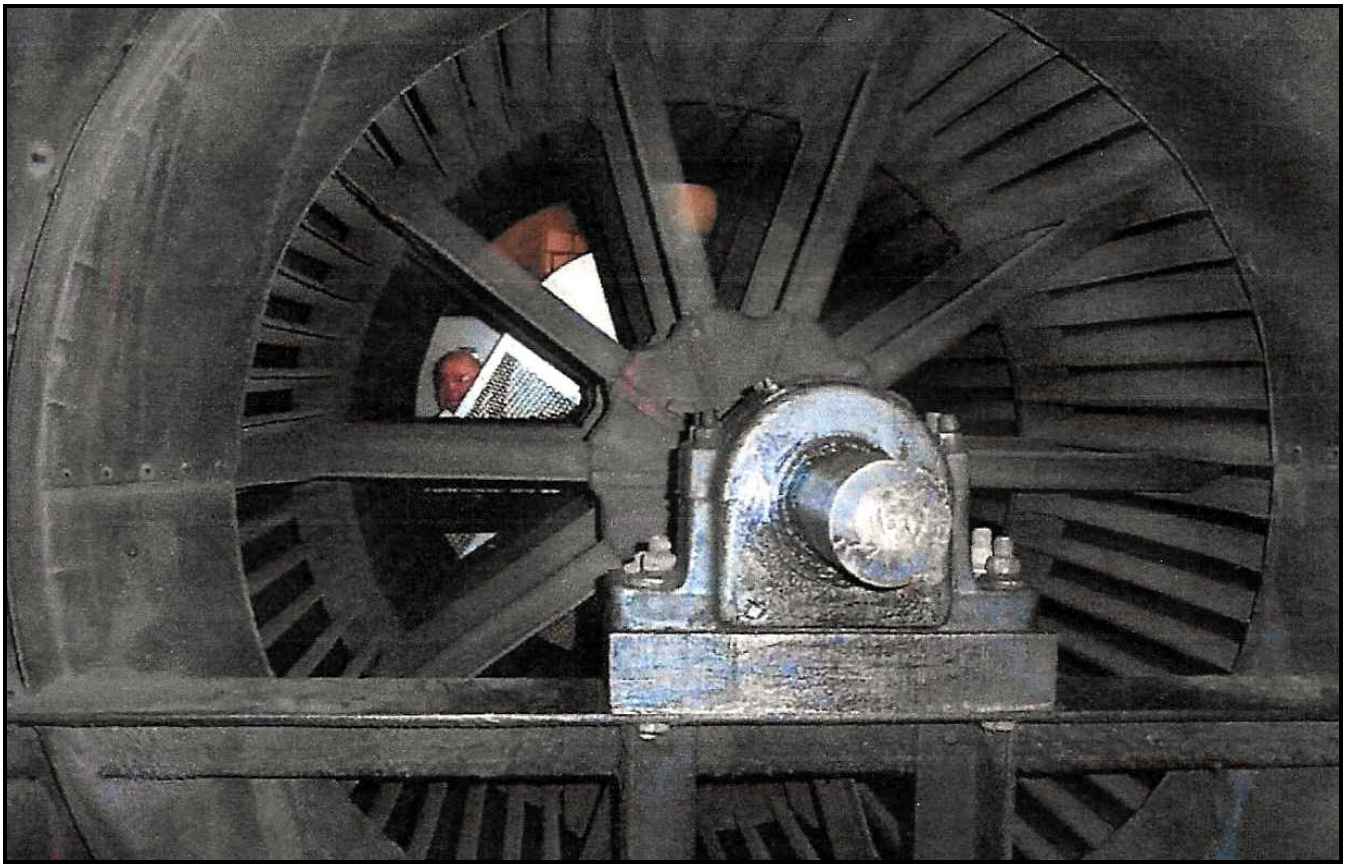
Orpheum

The following photographs and text are a selective edit of the ASHRAE Historical Committee survey by Bernard Nagengast on 29th August, 2006.

The complete document taken from the ASHRAE website runs to 30 pages with 45 photographs.

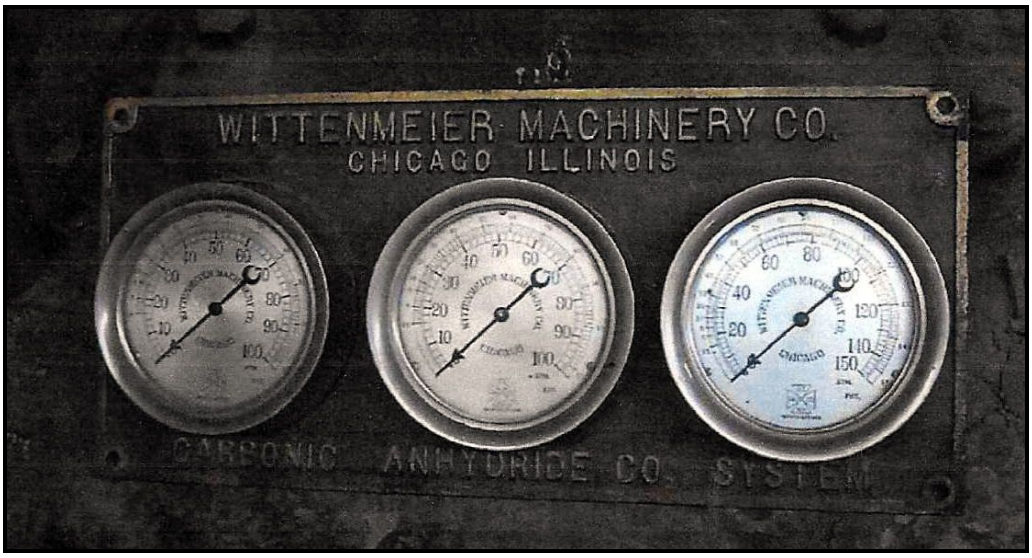
Orpheum Theatre Air Conditioning of 1921

The main air conditioning system "was a combination system, using heated and cooled air and also direct radiation. General air conditioning and heating was of the plenum type using two supply (main floor and balcony) and one return centrifugal fan with supply air distribution under the auditorium seats and conventional diffusers (elsewhere)."

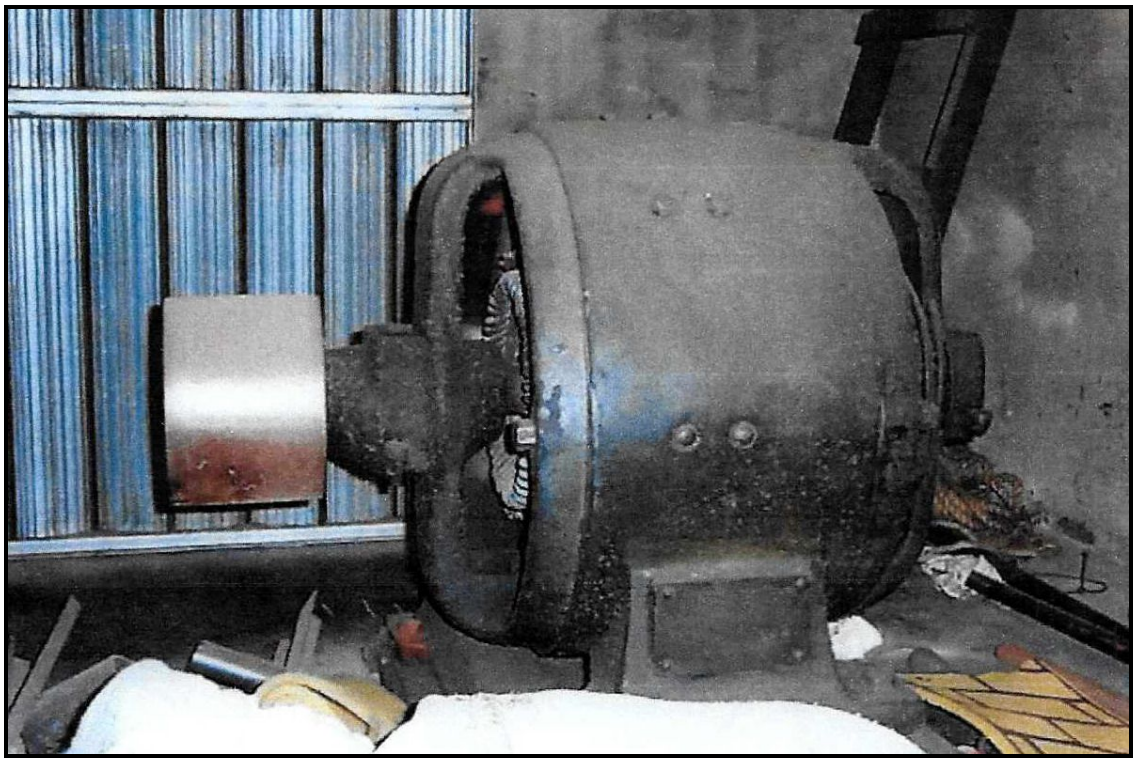


Return air fan, duty 75,000 ft3/min

"The system uses a bottom-up distribution, the air flow proceeding from the floor to the ceiling return air grilles. These grilles and other return ducts connect to the return air plenum located in the attic, over the auditorium ceiling. There is a fresh air inlet turret on the roof connected through dampers into the return plenum. The discharge of the return fan flows down to the basement where it splits to the main and balcony supply fans. A small portion of the return fan discharge is vented through a roof turret."



Gauge board

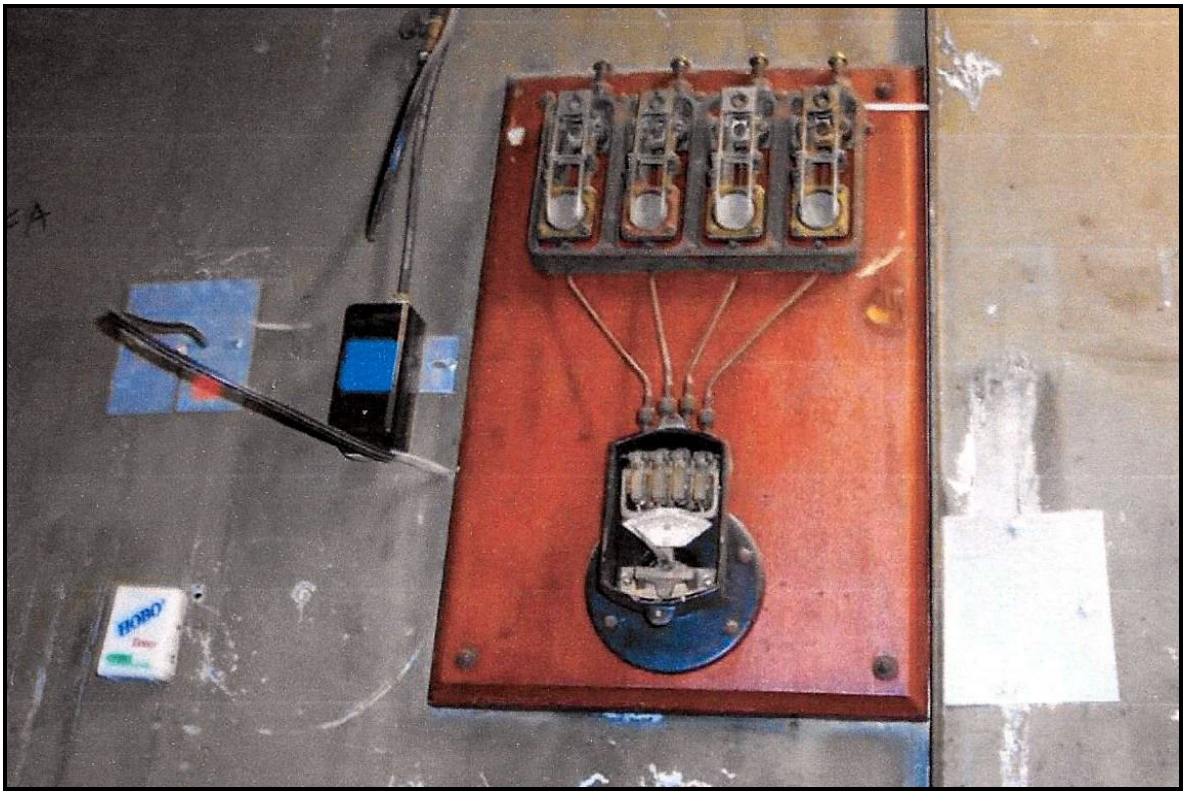


Original 25 hp direct current motor for return air fan

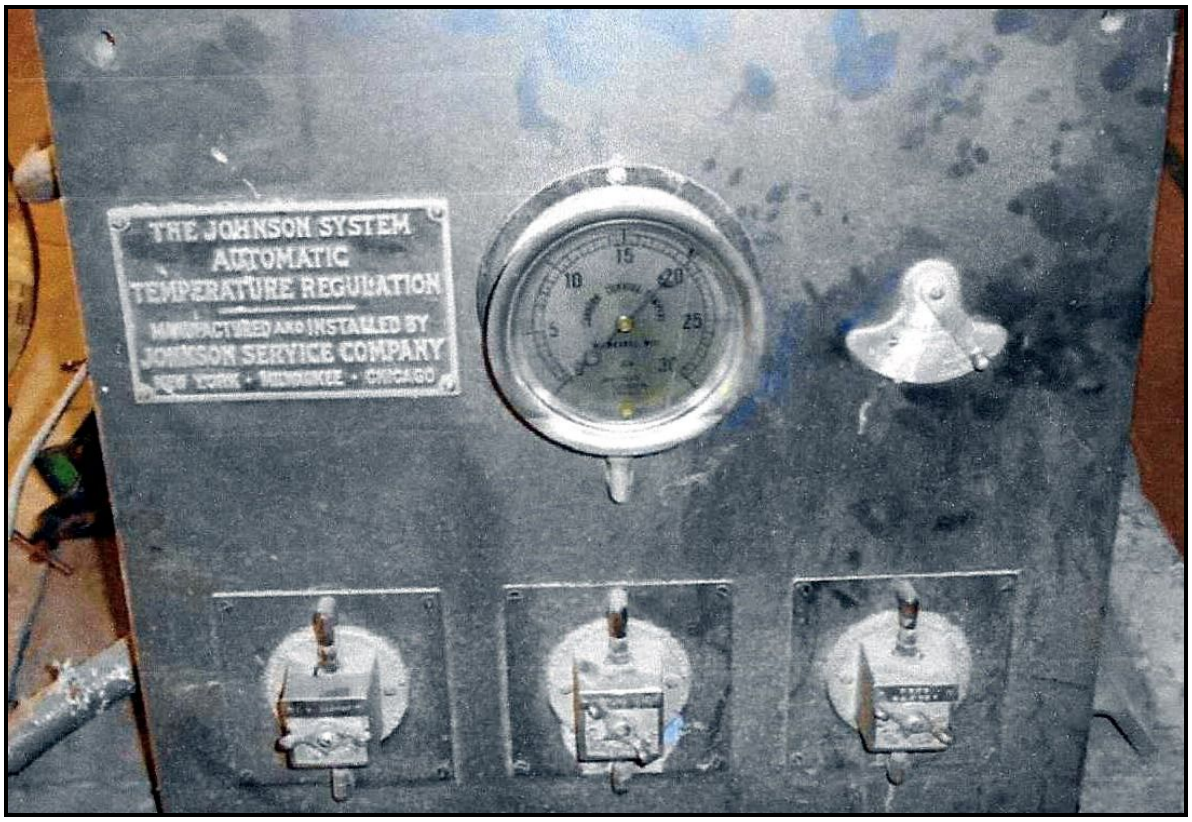
“Fans were manufactured by the New York Blower Company, La Porte, Indiana. Operating speed varies between 143 and 277 rpm. The fans are slow enough that one can actually see the shaft key turning. The fans are extremely quiet, as originally designed for theatre work. All three fans were originally operated by 25 hp direct current, wound rotor motors that were connected to the fans by flat leather belts.

When the dc system was taken off line in the 1992 renovation, the dc motors were replaced with 60 hp ac three-phase induction motors, mounted close to the fans, and the flat belts were replaced by V-belts. At first, the new drive system was noisy, with a lot of belt squealing. Three change-outs of the pulleys were required to solve the problem and, even then, the fans could not be operated at full speed. The 1992 renovation called for 92,000 ft3/min, but no more than 60,000 ft3/min was achieved.”

The Johnson 4-stage controls for the main supply air

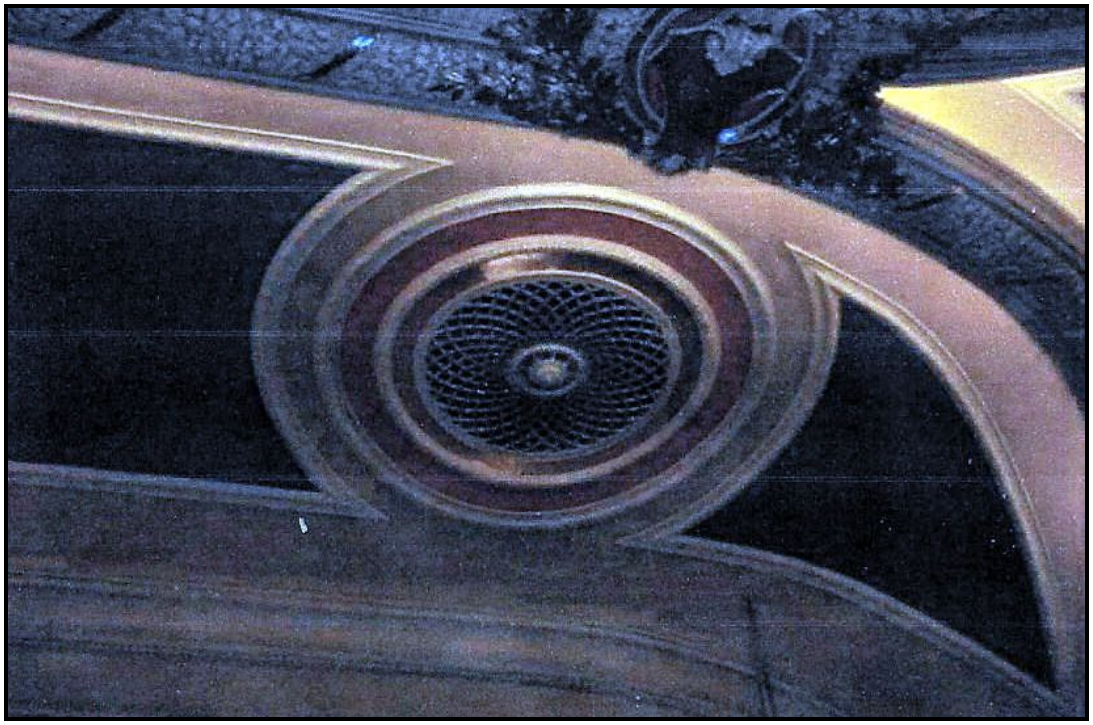


Original Johnson temperature control panel for the balcony supply fan

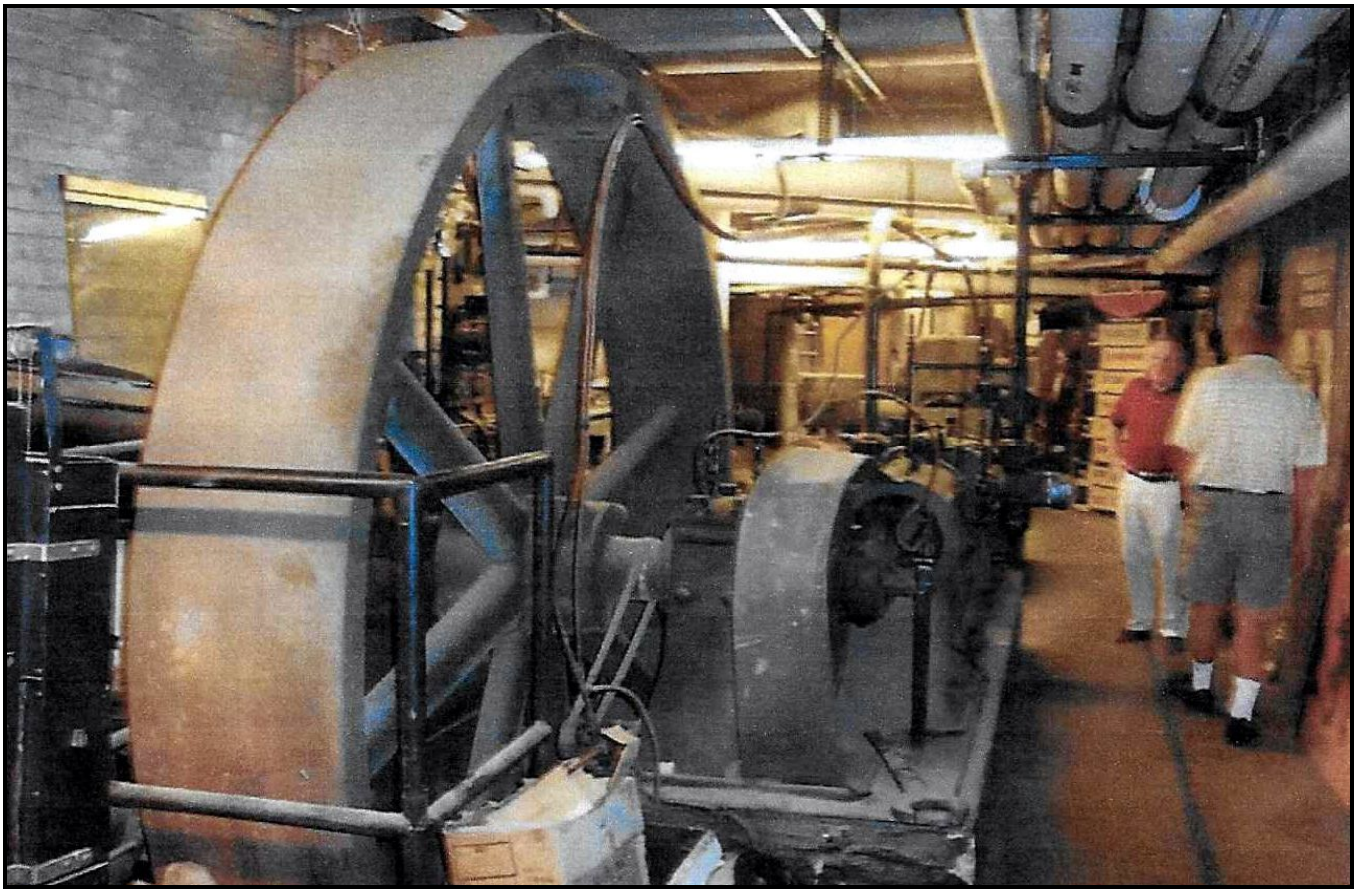


Original Johnson temperature control board used pneumatic controls for the main heating system

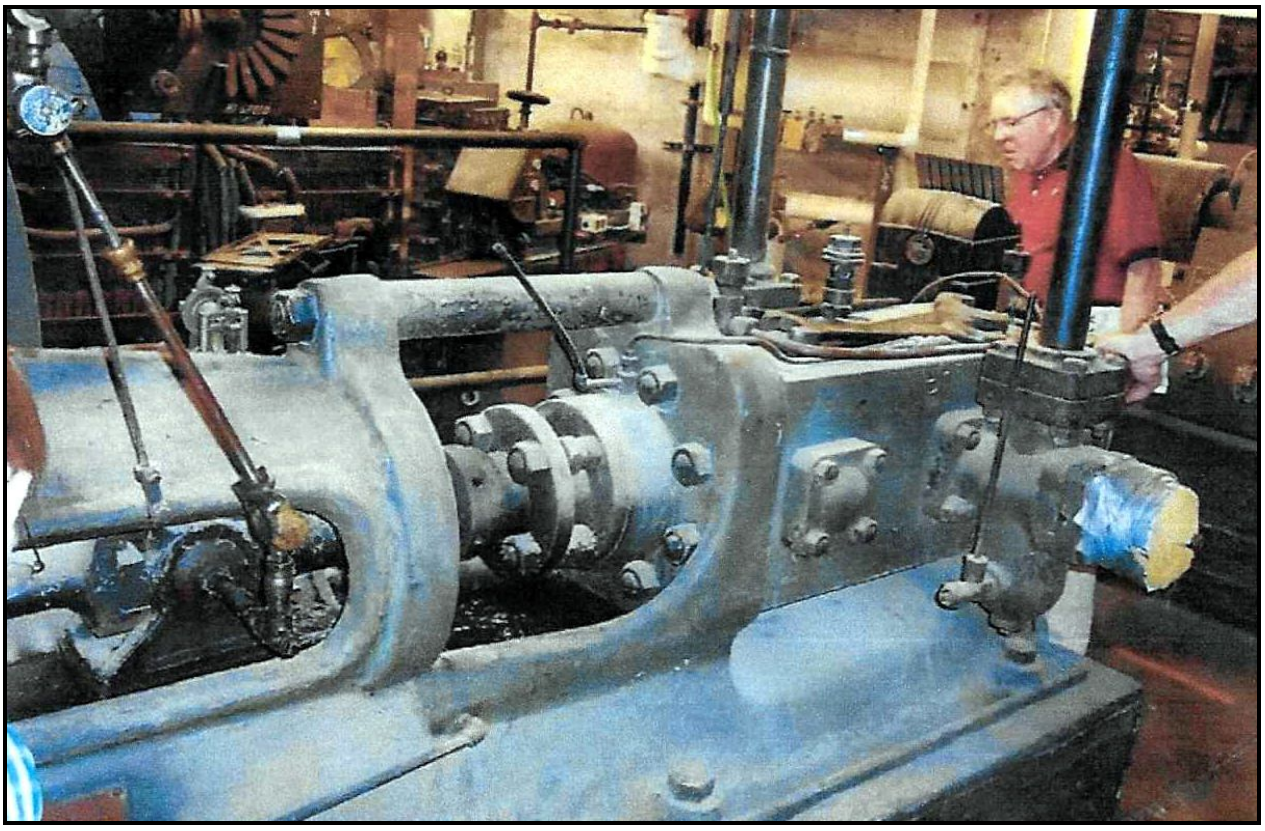
Supply air mushroom outlet under auditorium seats



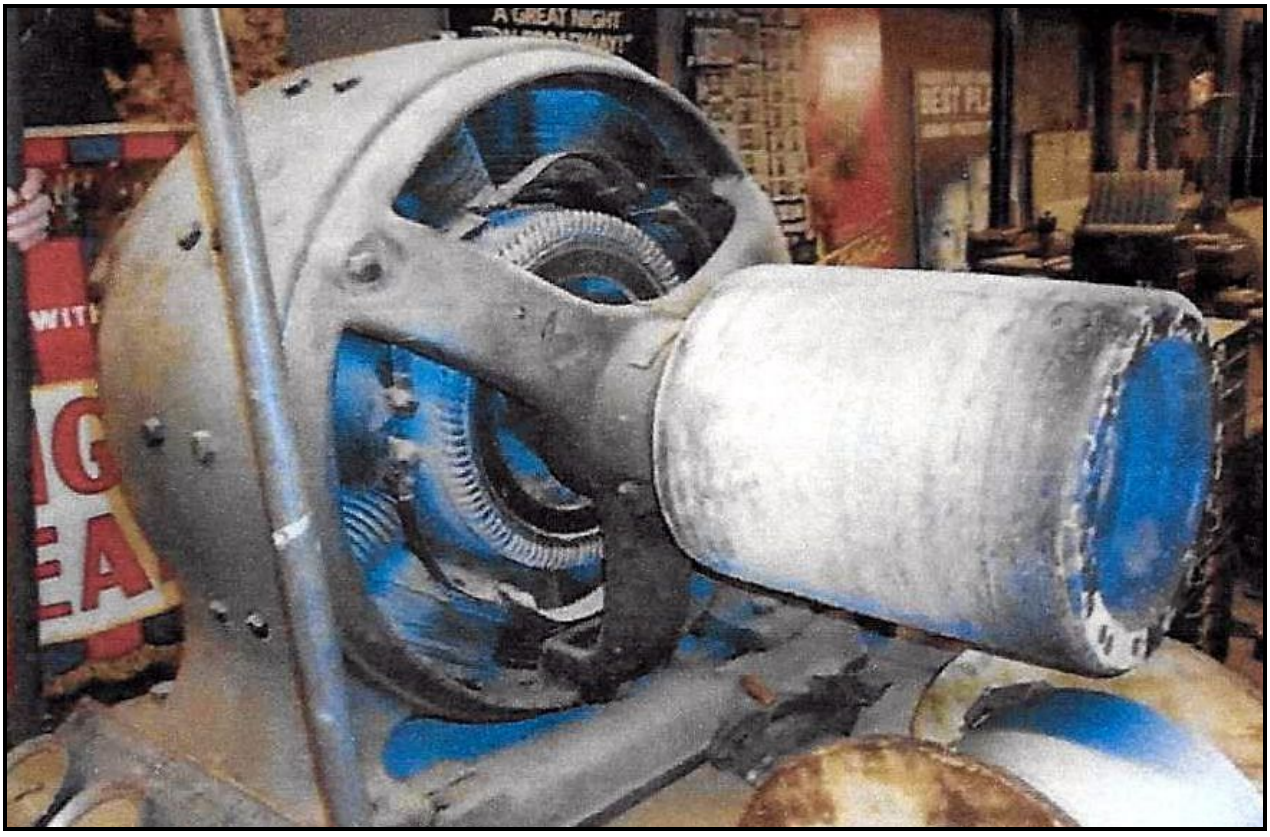
Return air grille in auditorium ceiling



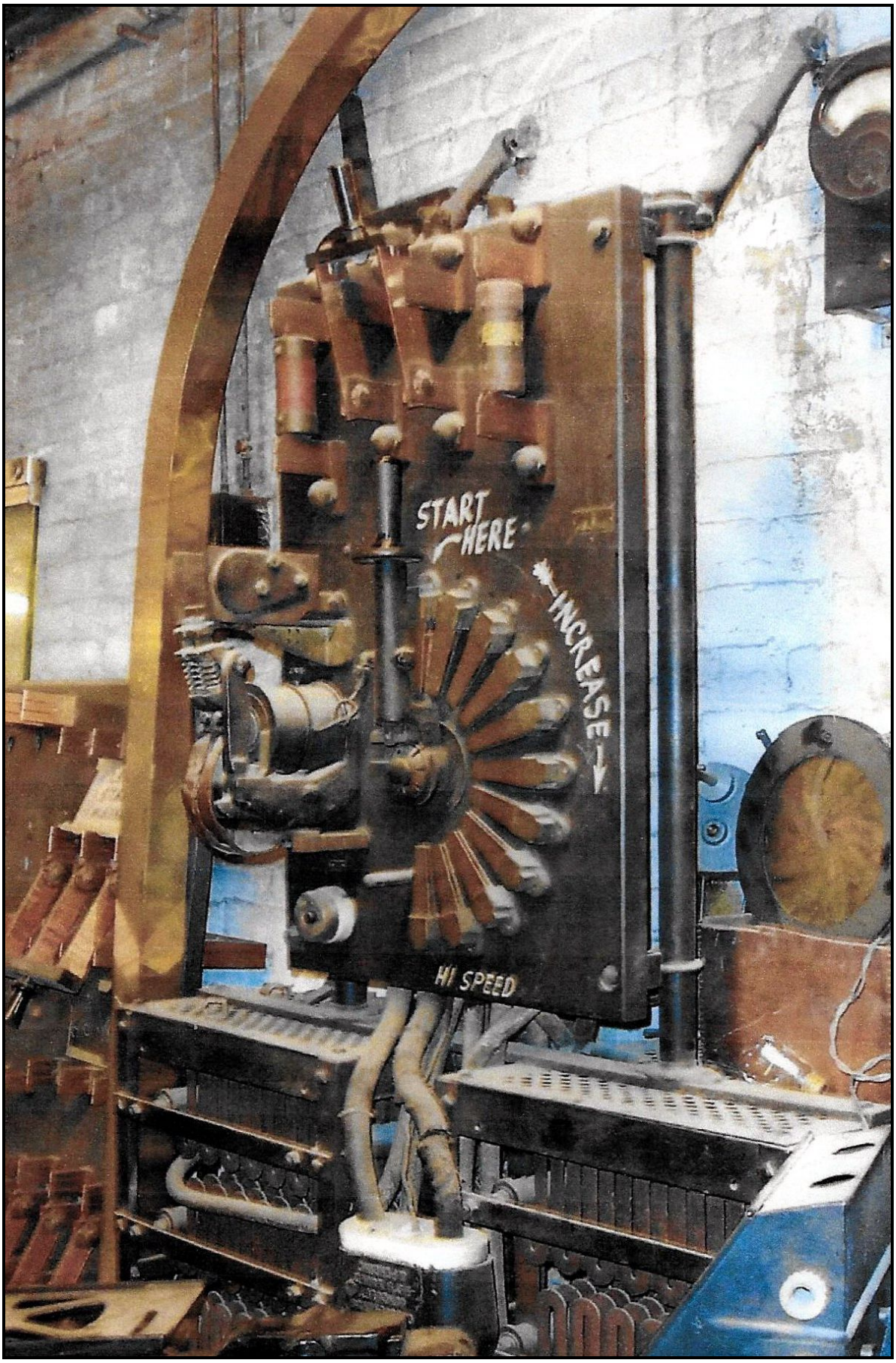
CO_2 compressor, flywheel



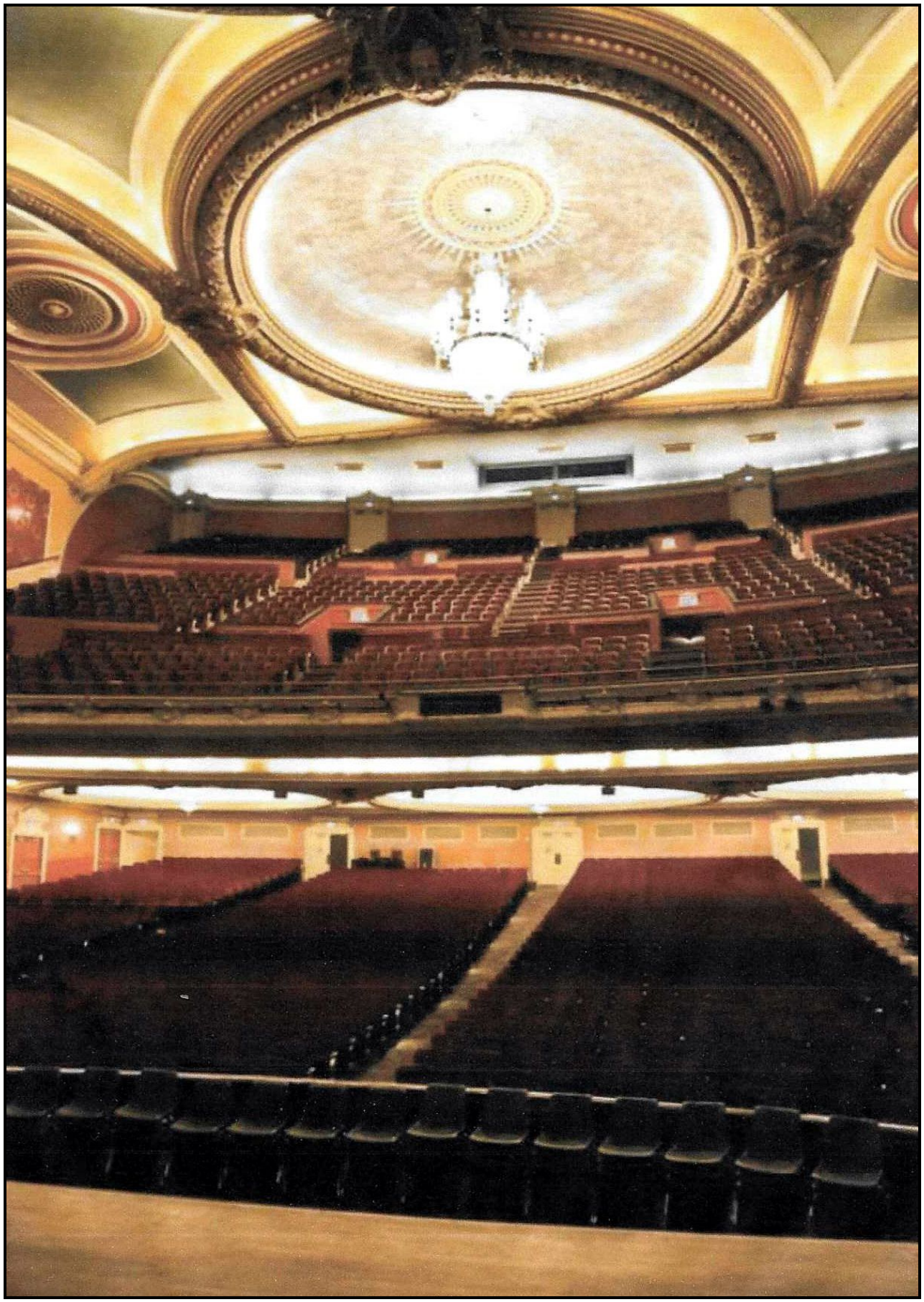
CO_2 compressor



100 hp DC compressor motor



Compressor motor starting box

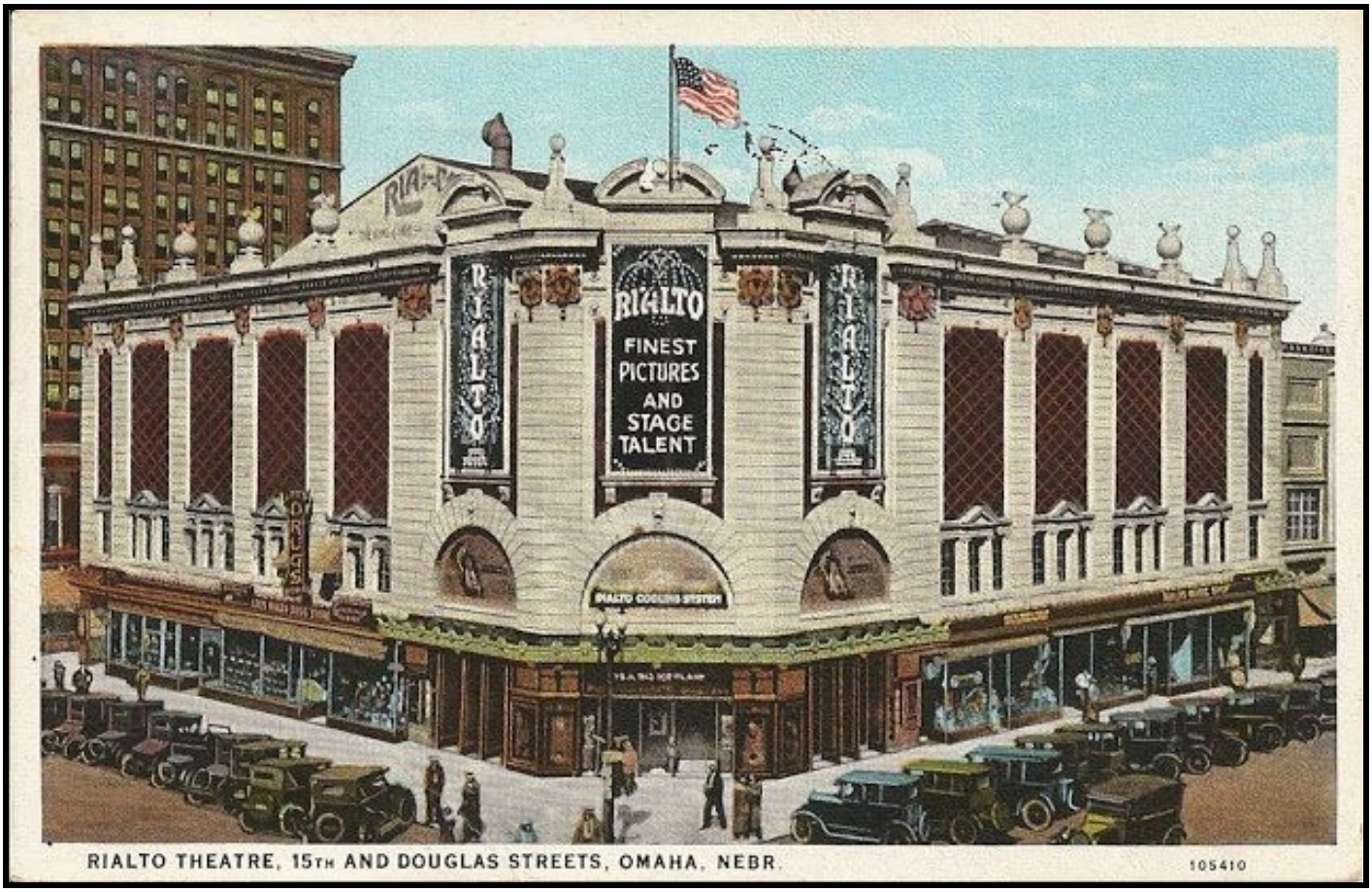


Orpheum Theatre auditorium

Air Conditioning American Movie Theatres
1917-1932

Rialto Theatre

OMAHA, NEBRASKA



Date Built: 1923
Seating Capacity: 2247
Owner: Orpheum
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Mr. A. H. Blank and Associates, Mr. Walter Brandes; Mr. Charles Grotte and Mr. John Latenser, Present to the City of Omaha America's Most Beautiful Playhouse—the

RIALTO

15th & DOUGLAS

Devoted to the Exclusive Presentation of Feature Pictures De Luxe with Proper Musical Synchronization, Offering as the Initial Feature, the Popular Screen and Stage Star,

JOHN BARRYMORE *in an unusual visualization of the well known book and play* *"RAFFLES"*

Orchestra Under the Personal Direction of Harry Silverman

Balcony, 10c & 20c
Lower Floor . 20c
Logee . . . 30c
Plus War Tax

Kenneth Widenor, Member of the Organists' Guild of America, Organist

Open Daily 11 A. M. to 11 P. M., Except May 30th, Day of Opening, When Doors Will Open at 7 P. M.

Air Conditioning American Movie Theatres
1917-1932

Ritz Theatre

BIRMINGHAM, ALABAMA

Date Built: 1926
Seating Capacity: 1800
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Air Conditioning American Movie Theatres 1917-1932

Roosevelt Theatre

CHICAGO, ILLINOIS

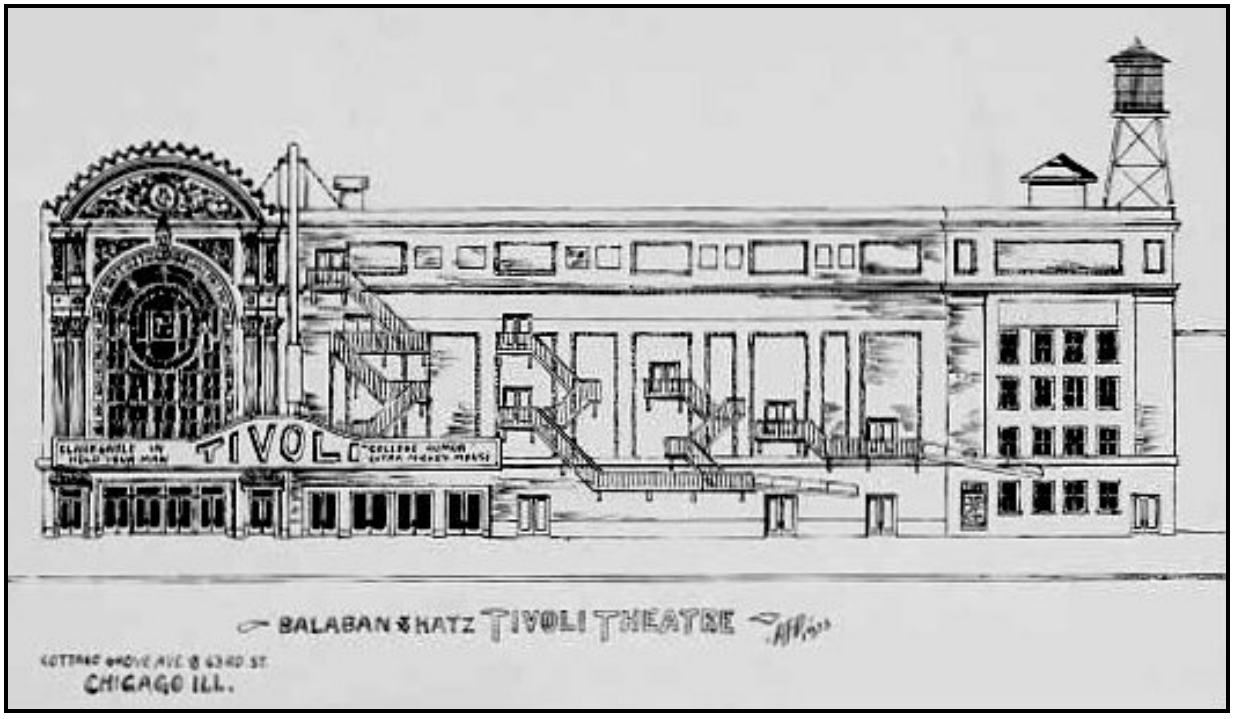
Date Built: 1921
Seating Capacity: 1535
Owner: Balaban & Katz
Architect: C Howard Crane & Kenneth Franzheim
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

Note the air conditioning signs

Air Conditioning American Movie Theatres
1917-1932

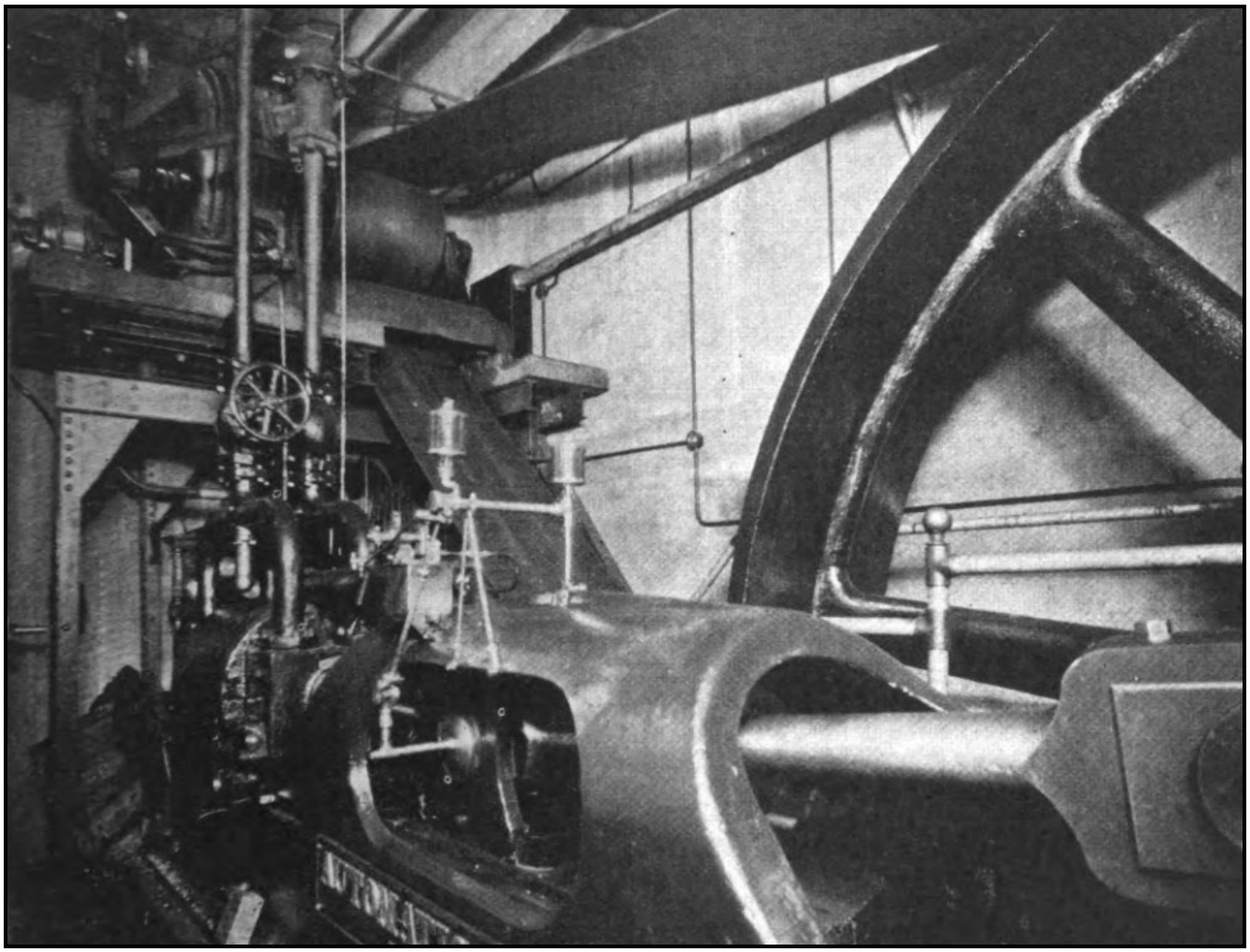
Tivoli Theatre

CHICAGO, ILLINOIS



Date Built: 1921
Seating Capacity: 3520
Owner: Balaban & Katz
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine (?)
Refrigeration: CO_2 Automatic Carbon Machine Co
150 TR equivalent to 250 TR with chilled water storage built up off-peak prior to audience admitted

A detailed description of the air conditioning and refrigeration is given under Technical Papers, Part Three



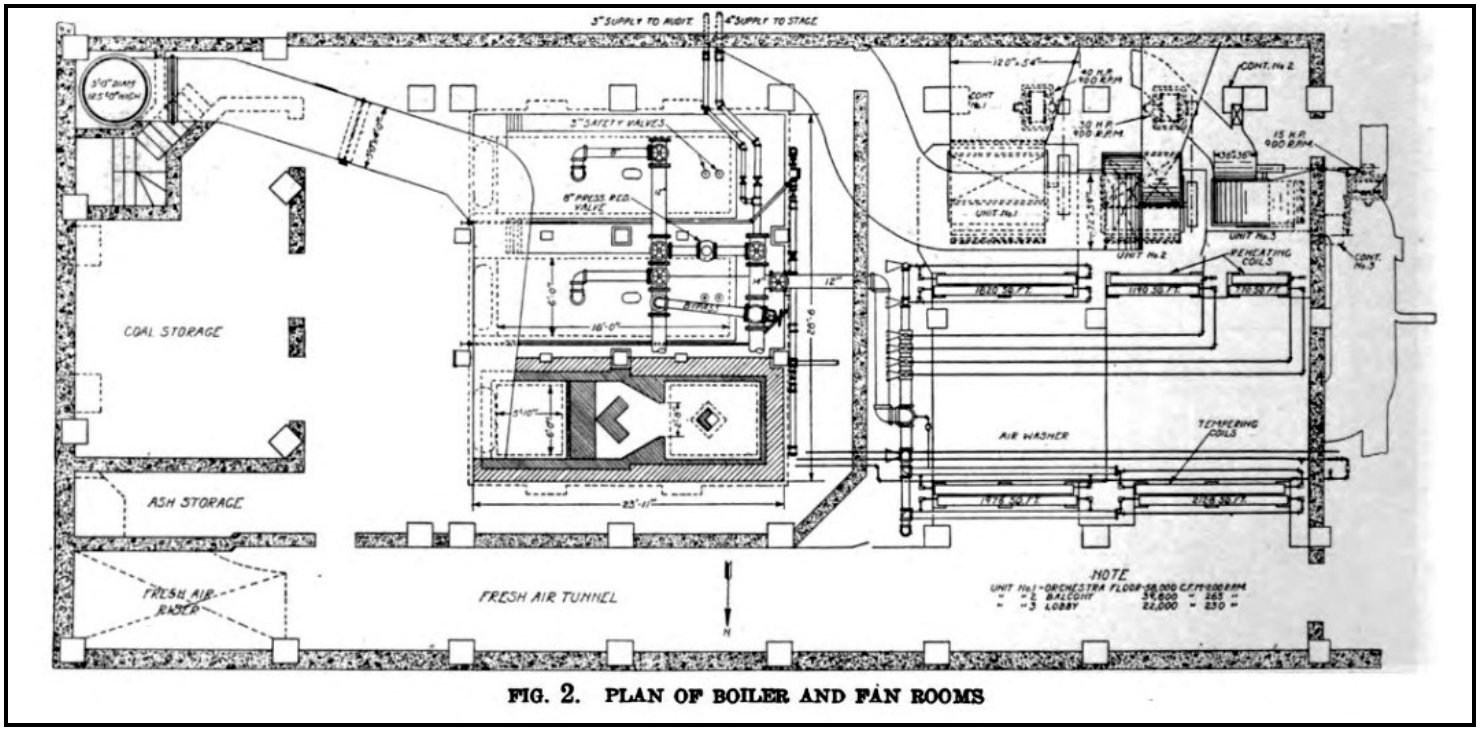


FIG. 2. PLAN OF BOILER AND FAN ROOMS

Refrigeration Compressor photo & Fan Room plan

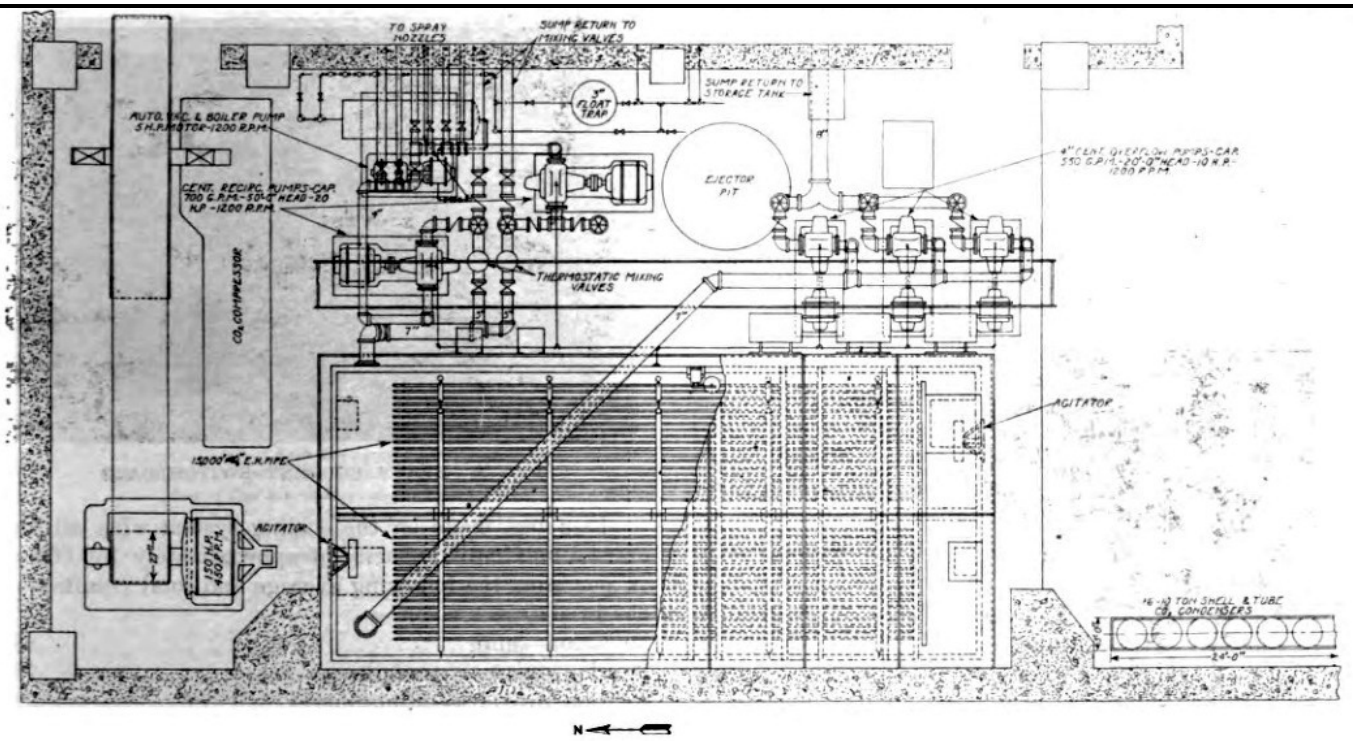
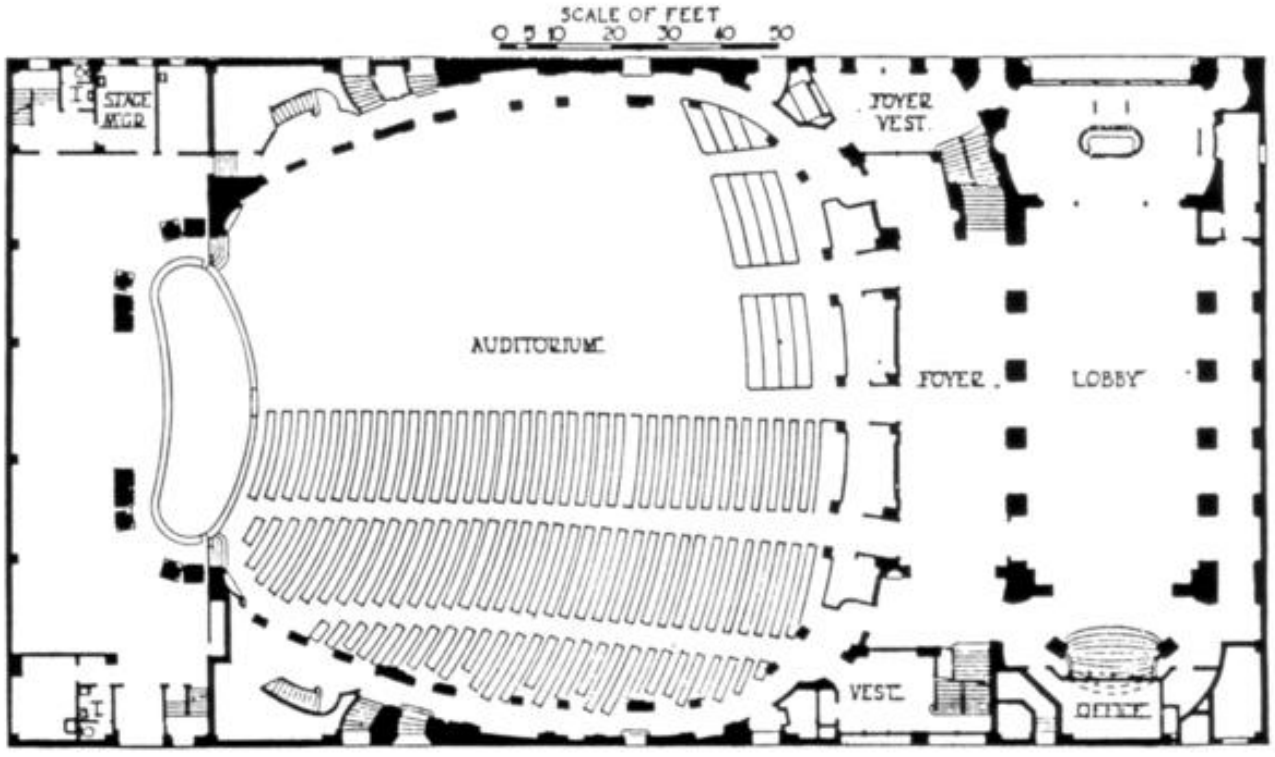


FIG. 6. PLAN OF PUMP AND COMPRESSOR ROOM SHOWING STORAGE TANK AND CONDENSER



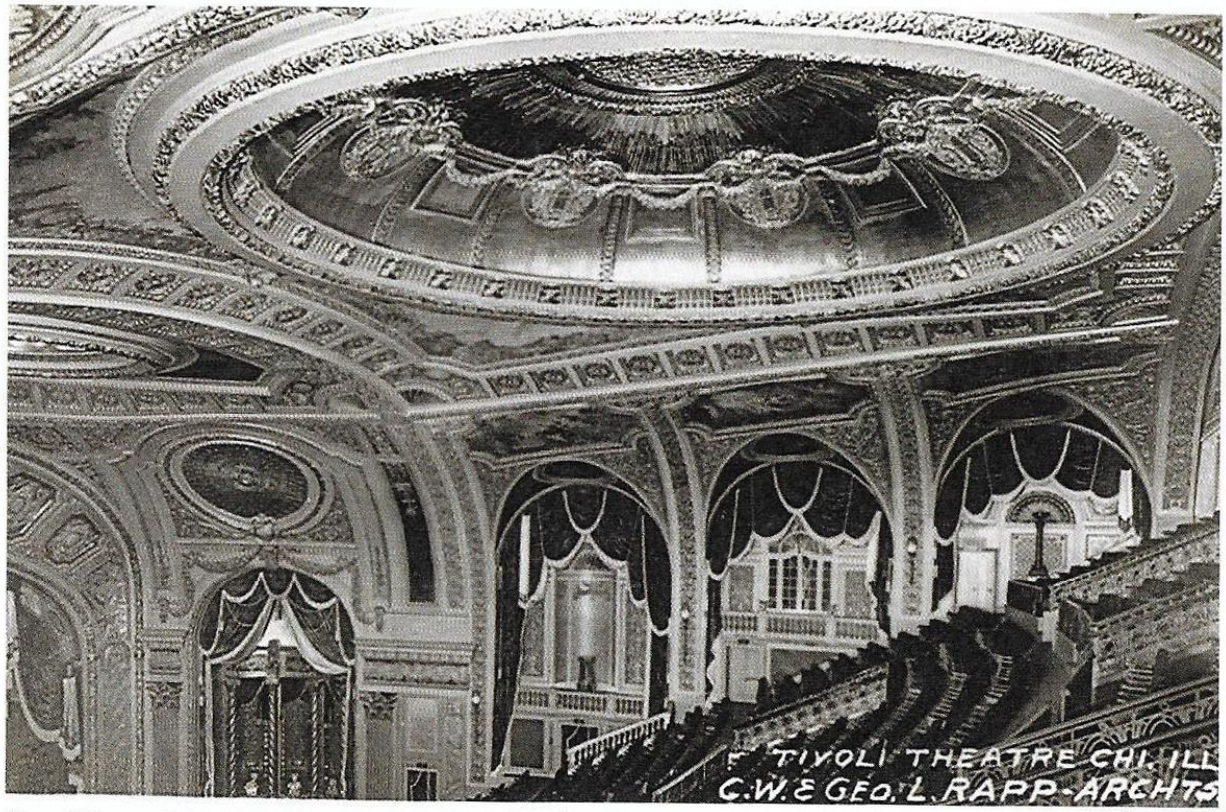
ENTRANCE FLOOR

PLANS, THE TIVOLI THEATER, CHICAGO

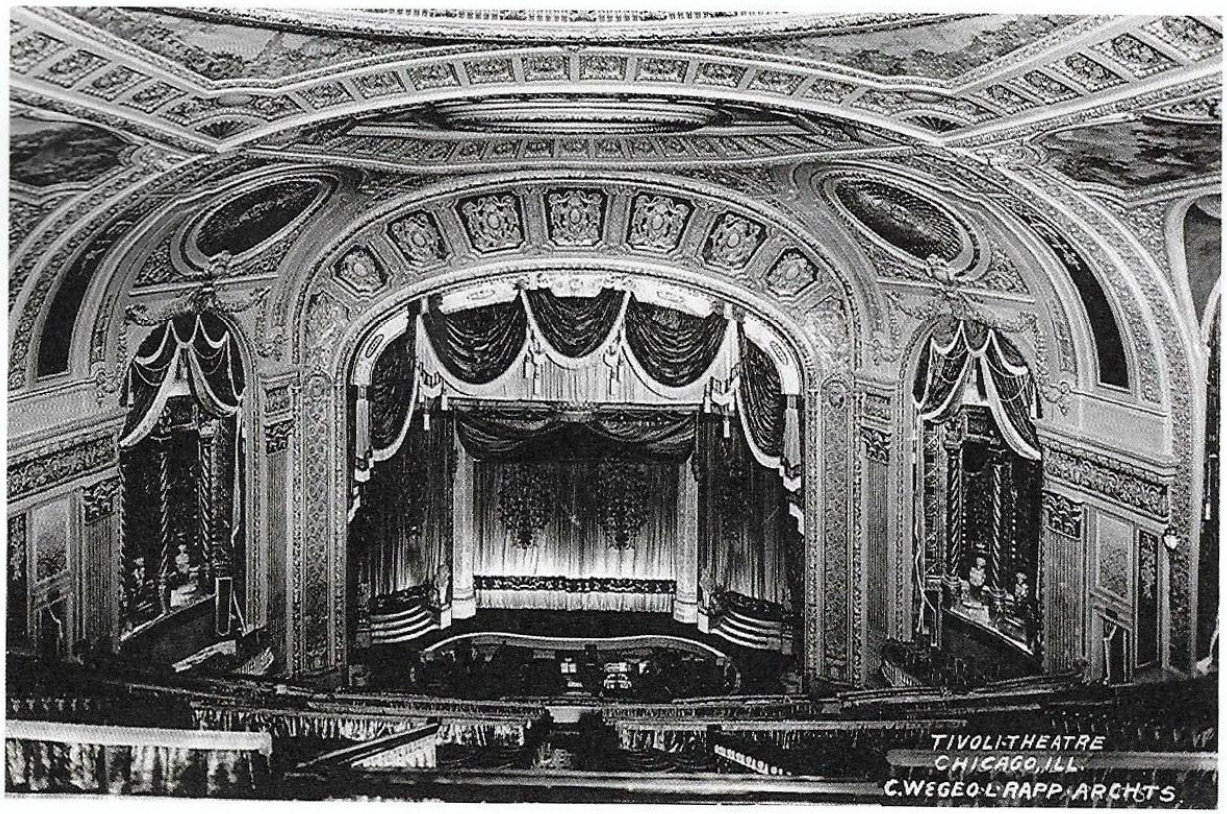
C. W. & GEORGE L. RAPP, ARCHITECTS


TIVOLI
MILLION DOLLAR
FUR FASHION SHOW
NORMA SHEARER
SLAVES OF FASHION
TIVOLI
TIVOLI

The Tivoli's Grand Lobby, very much in the spirit of the Versailles Chapel but larger. (Rapp Collection).



Grand Dome of the Tivoli Theatre. (Rapp Collection)



The Tivoli stage and proscenium arch flanked by the decorative organ-pipe screens, all swathed in drapery. The recessed stage proved too small for elaborate stage productions and was quickly enlarged. (Rapp Collection)

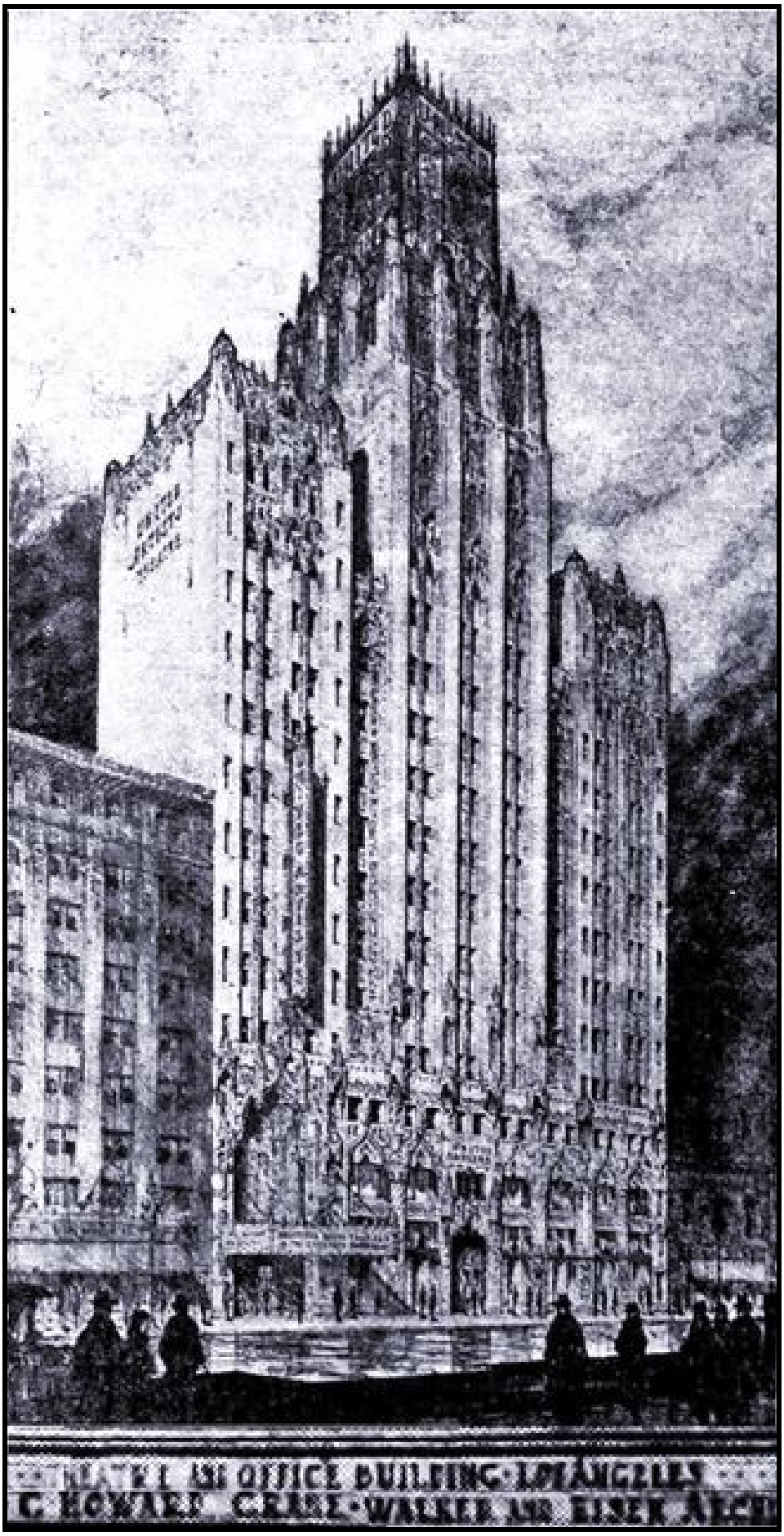
Air Conditioning American Movie Theatres 1917-1932

United Artists Theatre

LOS ANGELES, CALIFORNIA

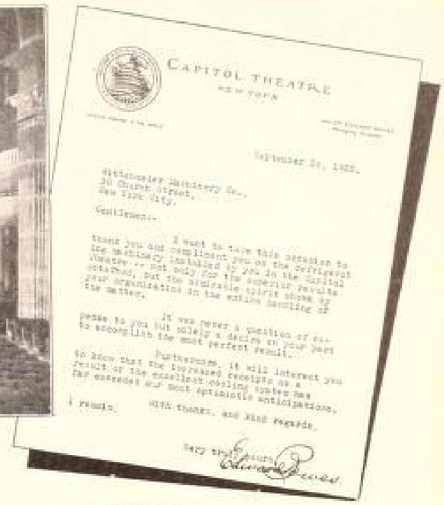
Trade Ad

Date Built: 1927
Seating Capacity: 2141
Owner: United Artists
Architect: C Howard Crane
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine



United Artists

The Capitol Theatre, Broadway, New York
is cooled with a Wittenmeier-'Vitolyzed-Air' System



About Cooling Your Theatre

The question of cooling your theatre in Summer is not a matter of philanthrophy but of cold dollars and cents.

Put yourself in the theatre goer's place for a minute—look at it through his or her eyes and decide what you would do under similar conditions.

Take a steaming hot night in August. Suppose there are two theatres in town—one equipped with air cooling apparatus, the other not. In the unequipped house the thermometer rises steadily up into the nineties. The humidity increases. The perspiration streams down your face and body. Your collar wilts. Your handkerchief becomes damp and soggy. So does every stitch on you. You start out for pleasure and end in misery.

In the artificially cooled house, no matter how crowded, no matter how hot out-of-doors, it is delightfully cool and comfortable, no perspiration, no undue humidity, no wilted clothes. You see a good show. You are far more comfortable than you would be out-of-doors or at home. You are highly pleased. You have a kindly feeling in your heart for the theatre and its management and you tell your friends.

To which of these theatres would you go?

You would go to the artifically cooled theatre just as the crowd does.

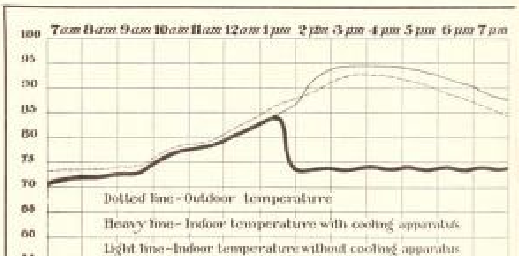
As it is working out, the theatres not having air cooling equipment are paying in lost patronage for the equipment in the theatres that do have it. So, if you are going to pay for it anyway, why not have it?

From coast to coast, all over the country, Wittenmeier-'Vitolyzed-Air' cooled theatres draw capacity houses. Among the oldest and strongest concerns in the air conditioning field, we have facts, figures and detailed information about theatre cooling and the results it brings that can easily mean many thousands of dollars in increased box office receipts to you each year.

We will furnish it gladly upon request without cost or obligation to you.

A FEW WITTENMEIER-'VITOLYZED-AIR' INSTALLATIONS

Capitol Theatre, New York, N.Y.
Warner Bros. Theatre, New York, N.Y.
Fox Academy of Music, New York, N.Y.
Keith's Fordham, New York, N.Y.
Loew's Canal Street, New York, N.Y.
United Artists' Theatre, Los Angeles, Calif.
Majestic Theatre, Dallas, Texas
Loew's State, Memphis, Tenn.
Loew's Palace, Washington, D.C.
Loew's Palace, Memphis, Tenn.
Famous Players-Lasky Corp., Long Island, N. Y.
United Artists' Theatre, Kansas City, Mo.
Capitol Theatre, Portchester, N.Y.
Loew's New Rochelle, New Rochelle, N.Y.
Metropolitan Theatre, Boston, Mass.
Riviera Theatre, Chicago, Ill.
Central Park Theatre, Chicago, Ill.
Davis Theatre, Pittsburgh, Pa.
Wichita Theatre, Wichita, Kans.
Ritz Theatre, Birmingham, Ala.
Loew's State, Los Angeles, Calif.



In the above graph the dotted line represents outdoor temperature on a moderately hot day in summer. The heavy black line shows the corresponding indoor temperatures of a theatre equipped with cooling apparatus which opens its doors at one-thirty P.M. During the morning while the apparatus is inactive the indoor temperature rises, but at one-thirty when the cooling system is turned on the temperature abruptly drops to any required degree and there remains. Without cooling apparatus the indoor temperature as indicated by the fine line continues to rise to a suffocating degree. Is it any wonder the public prefers artificially cooled theatres?

WITTENMEIER–'VITOLYZED–AIR

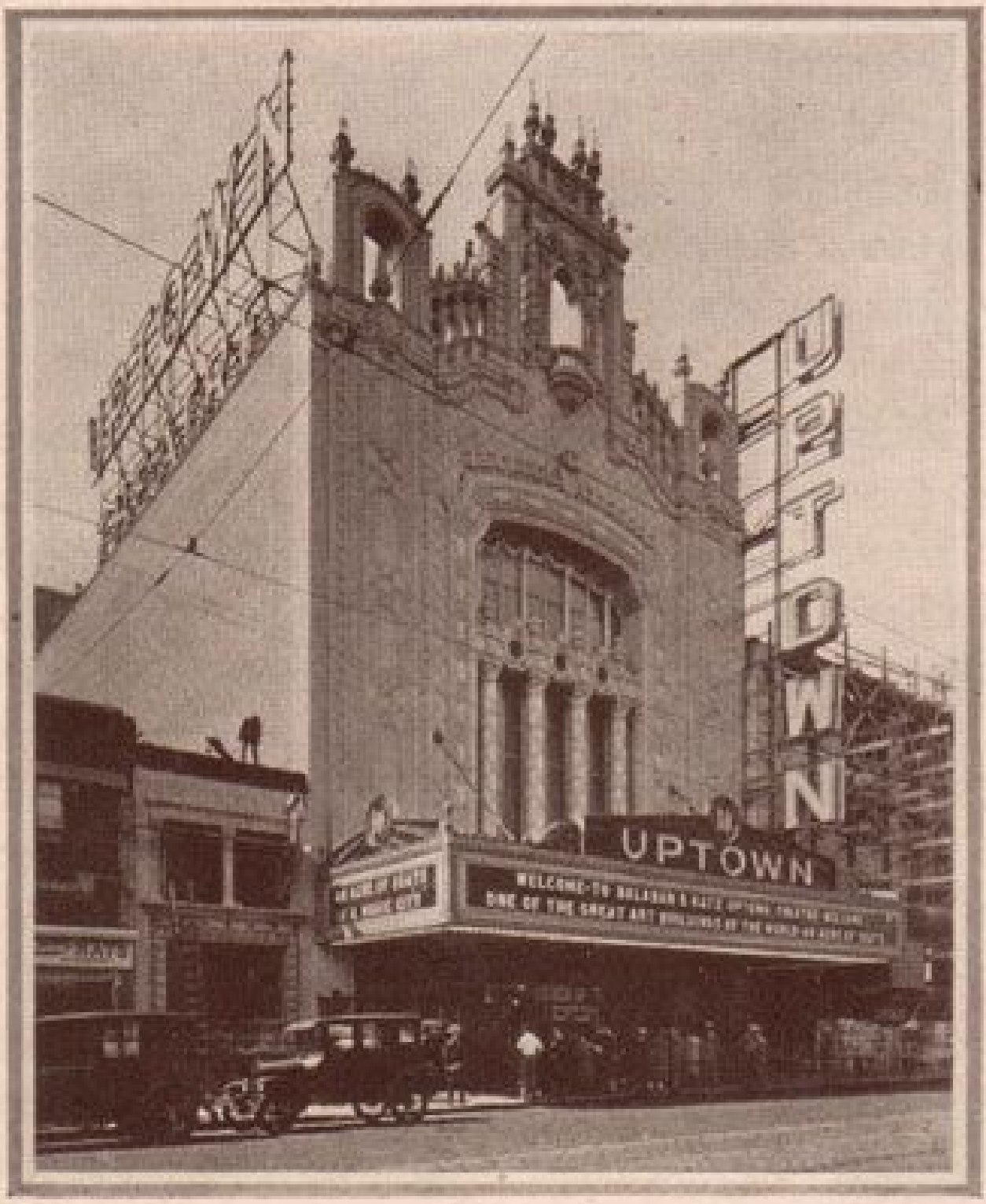
1926 Broadway, New York—Phone Trafalgar 4522

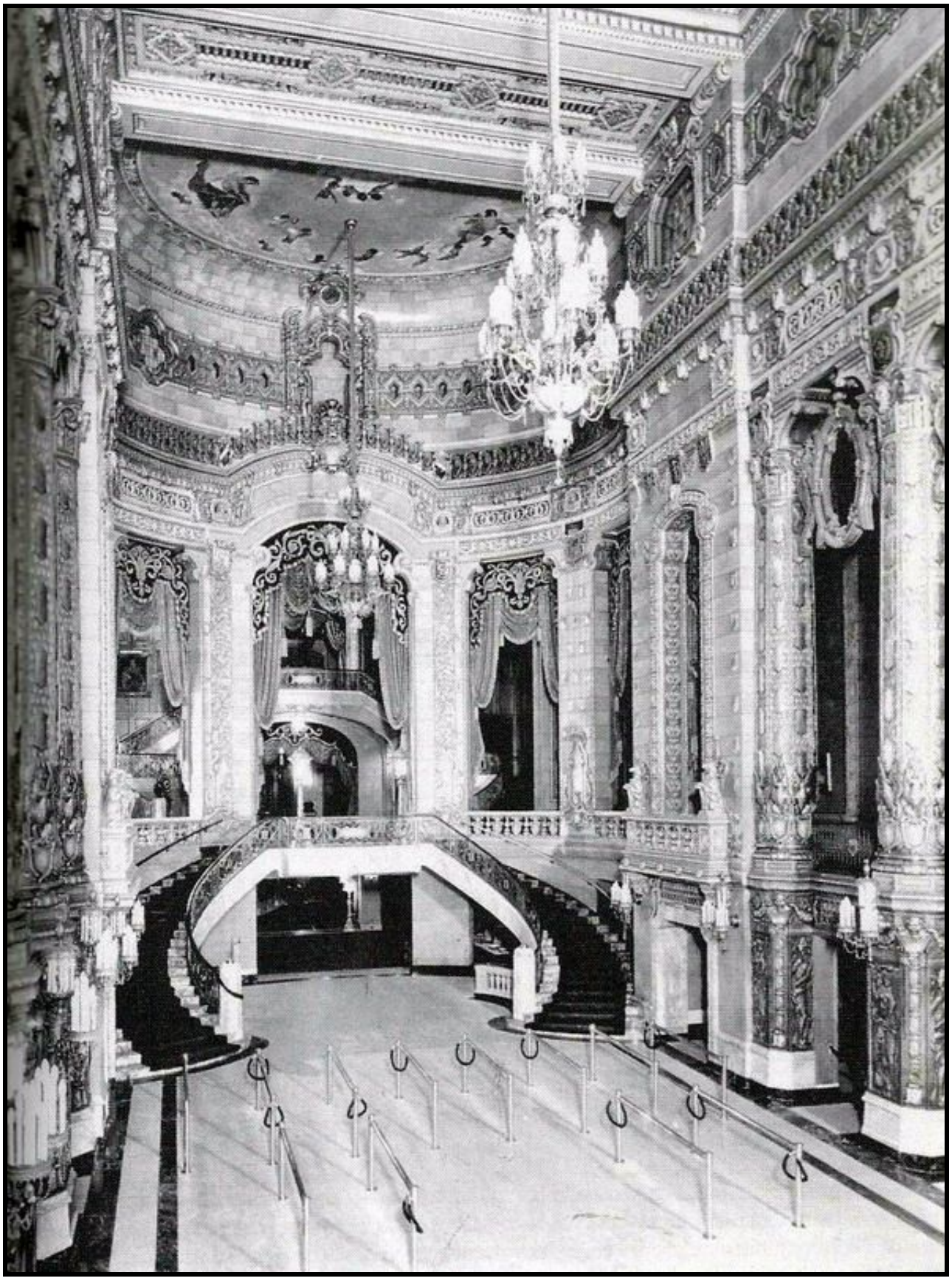
Air Conditioning American Movie Theatres 1917-1932

Uptown Theatre

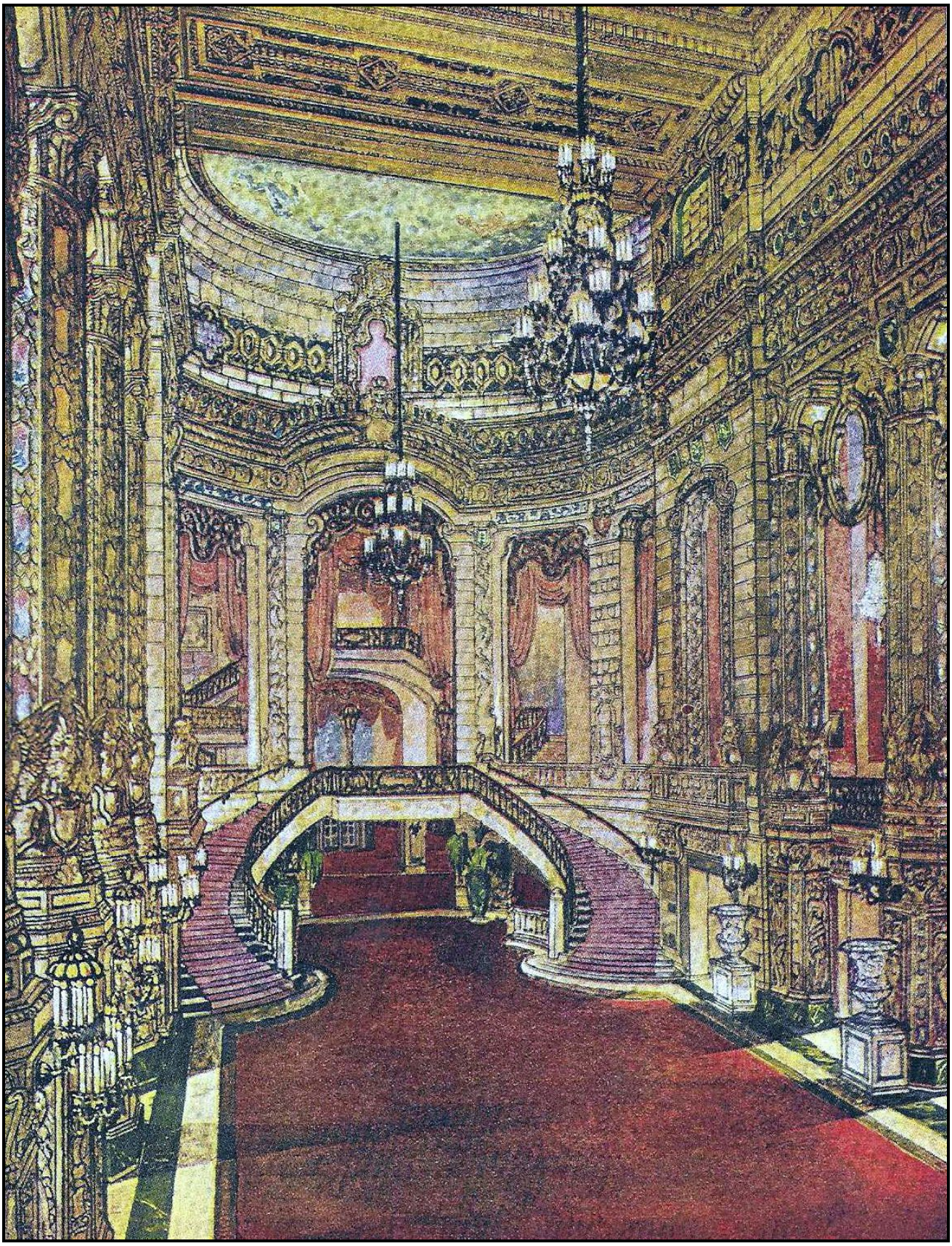
CHICAGO, ILINOIS

Date Built: 1925
Seating Capacity: 4381
Owner: Balaban & Katz
Architect: Rapp & Rapp
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine


UPTOWN



Lobby of the Uptown Theatre



Lobby of the Uptown Theatre

TODAY At High Noon 12 o'Clock Sharp

THE UPTOWN THEATRE

OPENS ITS DOORS

Drop everything and come! The Uptown Theatre's opening is too magnificent a moment to miss. Come for the most awe-inspiring sight of your life—

There's An Acre of Seats

• • •

BALABAN & KATZ

UPTOWN THEATRE

Broadway & Lawrence Ave.

UPTOWN THEATRE

Come for the most enjoyment you ever had in a theatre! A stage show of enough splendor to match the startling grandeur of the theatre itself—Ivoris & gypsies, baltoons dancers, court processional, love lore, serenaders, out of Old Spain—The Edgewater Beach Hotel Oriole Orchestra—and the world premiere of Fox Natural's "The Lady Who Lied" with Lewis Stone and Virginia Valli.

• • •

Drop Everything and Be There!

View of Grand Lobby from Mezzanine Balconade

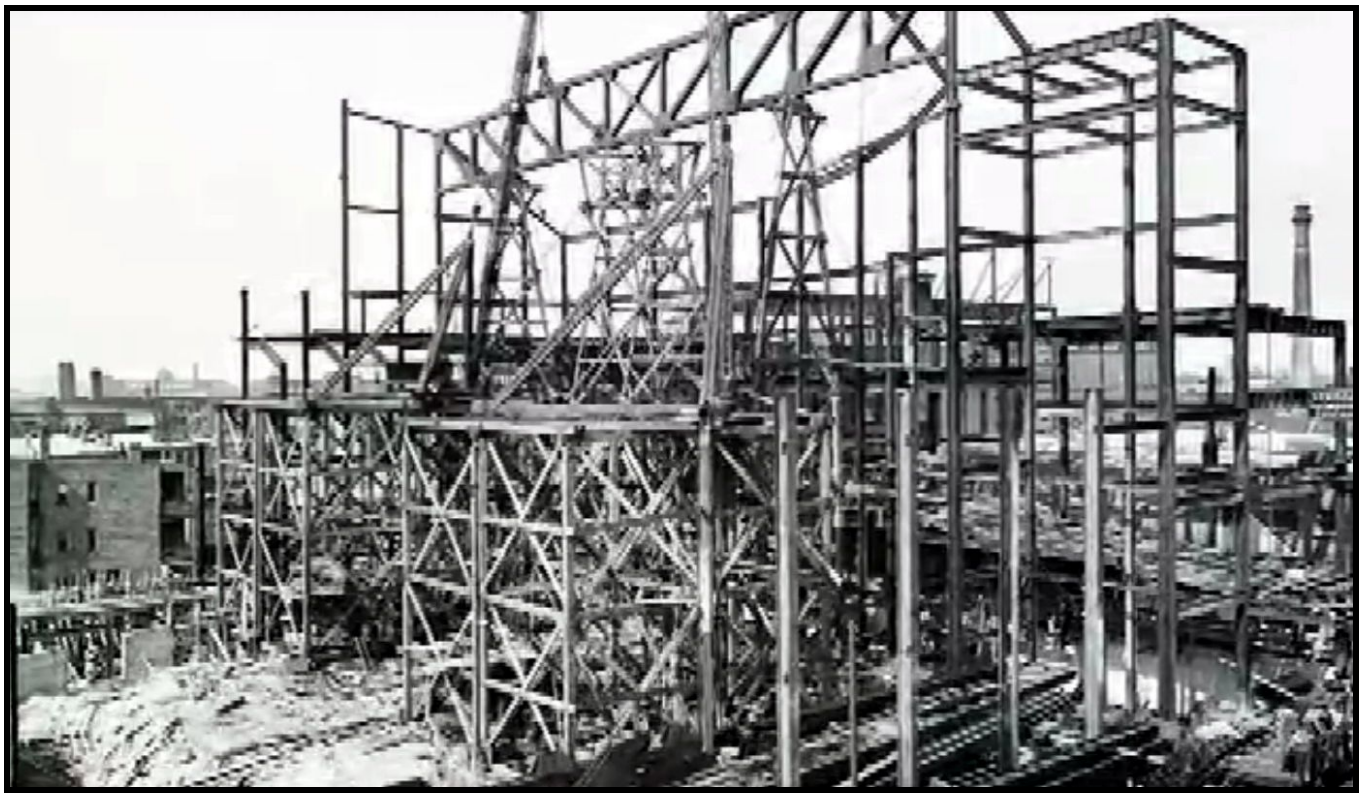
FOOTNOTE: UPTOWN THEATRE, CHICAGO

What follows are screenshots taken from the 2006 video documentary *Uptown: Portrait of a Palace* (available under this title on the internet). These three black and white pictures date from the mid-1920s.

The Uptown Theatre, designed by famous architects Rapp & Rapp*, was commissioned by Balaban & Katz, opened in 1925, with air conditioning which included a Wittenmeier CO_2 refrigeration plant. The Uptown had over 4300 seats, covered 40,000 square feet, was the 2nd largest in the USA (second only to New York's Radio City Music Hall, though New York's Roxy had some 6000 seats)) and is said to have had the largest internal volume of any theatre. It had the most elaborate internal architecture and decoration, considered a wonder by its audience. The theatre closed in 1981, being left unused and unheated in severe Chicago winters resulting in terrible deterioration and damage. Attempts to restore its former glory have stalled due to financial restraints.

* Rapp & Rapp also designed a number of these early Balaban & Katz air conditioned theatres including Central Park, Chicago, Oriental, Riviera and Uptown.

The newly-opened Uptown Theatre in Chicago, about 1925

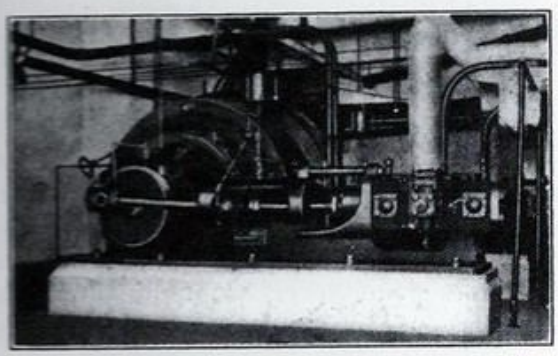


The Uptown Theatre under construction

Early days at the Uptown

Ventilation

Complete Air Conditioning Installations
Cooling—Refrigerating—Washing



Wittenmeier Horizontal Compressor CO_2

A Few Representative Installations

CAPITOL THEATRE, New York, N. Y.
WARNER BROS. THEATRE, New York, N. Y.
KEITH'S FORDHAM, New York, N. Y.
LOEW'S NEW ROCHELLE, New Rochelle, N. Y.
FOX ACADEMY OF MUSIC, New York, N. Y.
UNITED ARTISTS THEATRE, Los Angeles, Calif.
METROPOLITAN THEATRE, Boston, Mass.
PYTHIAN TEMPLE, New York, N. Y.
ELKS CLUB, Union Hill, N. J.
MASONIC TEMPLE, Kansas City, Mo.
ILLINOIS ATHLETIC CLUB, Chicago, Ill.
UNION LEAGUE CLUB, Chicago, Ill.
N. Y. COUNTY COURT HOUSE, New York, N. Y.
FEDERAL RESERVE BANK, Chicago, Ill.
U. S. NAVAL HOSPITALS, San Diego, Calif.
CONCOURSE PLAZA APTS., New York, N. Y.
RALEIGH APTS., New York, N. Y.
WEYLIN HOTEL, New York, N. Y.
MONTAUK POINT HOTEL, Montauk Point, N. Y.
RITZ-CARLTON HOTEL, Boston, Mass.
NEW BEDFORD HOTEL, New Bedford, Mass.
AMBASSADOR HOTEL, Chicago, Ill.
WINDERMERE HOTEL, Chicago, Ill.
AUGUSTINIAN FATHERS, Staten Island, N. Y.
BOARD OF EDUCATION, Chicago, Ill.
N. Y. TELEPHONE COMPANY, New York, N. Y.
NATIONAL CITY BANK, New York, N. Y.
WRIGLEY BUILDING, Chicago, Ill.
TRIBUNE BUILDING, Chicago, Ill.
KINGS COUNTY HOSPITAL, Brooklyn, N. Y.
CITY OF NEW YORK NURSES' HOME, Welfare Island, N. Y.
NORTH COMMUNITY HOSPITAL, Glen Cove, N. Y.
MICHIGAN CHILDREN'S HOSPITAL, Detroit, Mich.
ILLINOIS CENTRAL R. R. HOSPITAL, Paducah, Ky.
NORTHERN PACIFIC HOSPITAL, St. Paul, Minn.
LUCKEY PLATT DEPT. STORE, Poughkeepsie, N. Y.
HORNE DEPT. STORE, Pittsburgh, Pa.
CURTISS CANDY CO., Chicago, Ill.
ALBERT PICK & CO., Chicago, Ill.
TRIANON BALLROOM, Chicago, Ill.

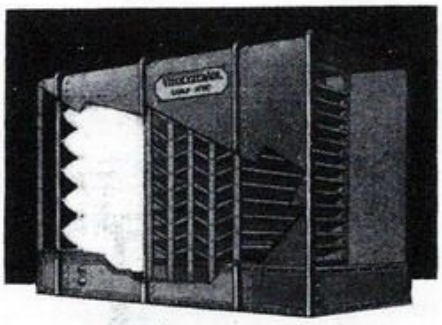
WHEREVER comfort and efficiency require cooled or refrigerated air, Wittenmeier-Vitolyzed-Air equipment delivers it.

In hundreds of theatres, hotels, clubs, restaurants, apartment houses, schools, hospitals, and industrial plants our installations give perfect service.

Simple in design, construction and in operation, once installed they become almost automatic, requiring a minimum of time on the part of mechanic or engineer.

No matter what problem of cooling or refrigeration presents itself to you, we have sometime, somewhere faced and solved a problem similar in its main essentials—and installed the necessary apparatus.

Our experience is at your service. Full information supplied gladly upon request.



Air washer and eliminator as installed by Wittenmeier-Vitolyzed-Air

One Contract---One Responsibility

WITTENMEIER—VITOLYZED-AIR

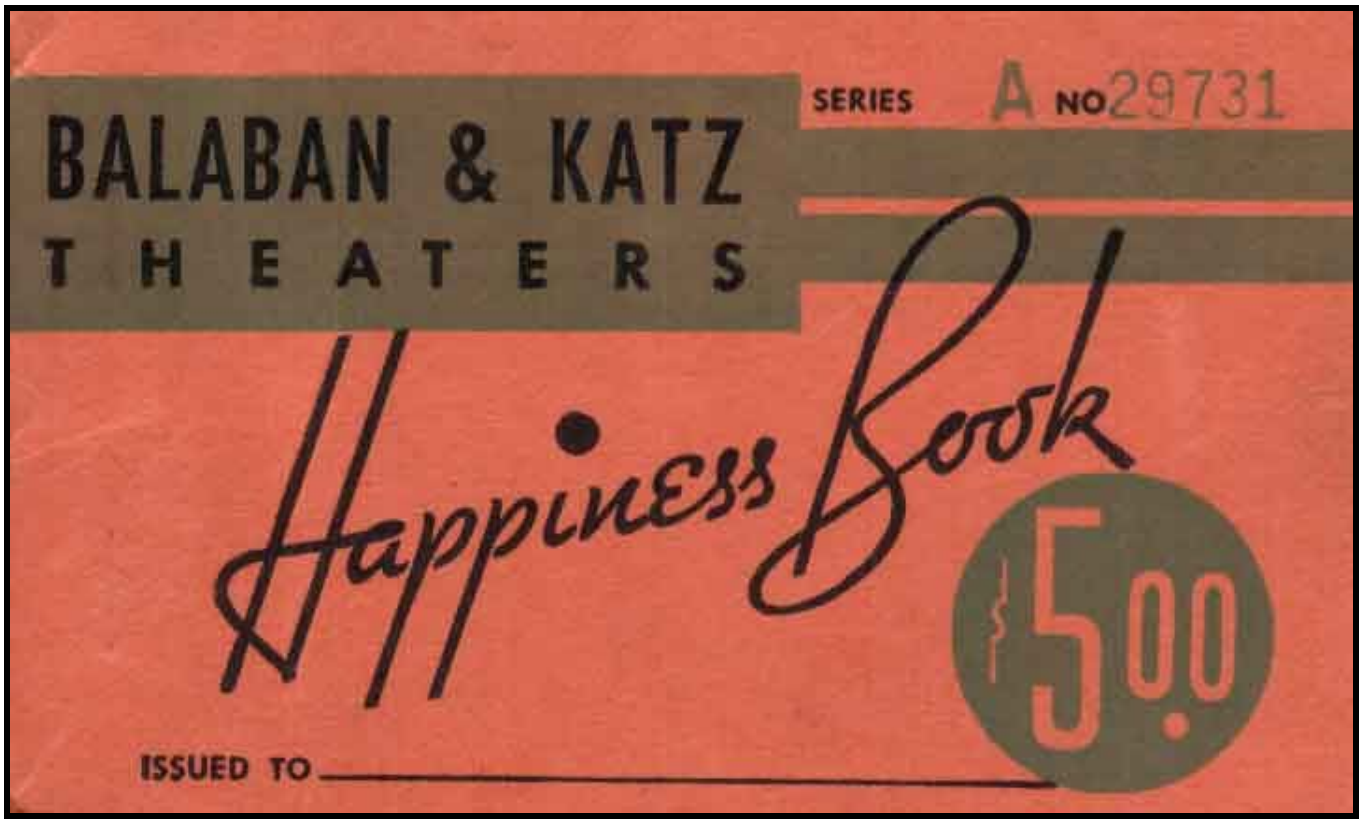
1926 BROADWAY—NEW YORK CITY

A Few Representative Installations

CAPITOL THEATRE, New York, N. Y.
WARNER BROS. THEATRE, New York, N. Y.
KEITH'S FORDHAM, New York, N. Y.
LOEW'S NEW ROCHELLE, New Rochelle, N. Y.
FOX ACADEMY OF MUSIC, New York, N. Y.
UNITED ARTISTS THEATRE, Los Angeles, Calif.
METROPOLITAN THEATRE, Boston, Mass.
PYTHIAN TEMPLE, New York, N. Y.
ELKS CLUB, Union Hill, N. J.
MASONIC TEMPLE, Kansas City, Mo.
ILLINOIS ATHLETIC CLUB, Chicago, Ill.
UNION LEAGUE CLUB, Chicago, Ill.
N. Y. COUNTY COURT HOUSE, New York, N. Y.
FEDERAL RESERVE BANK, Chicago, Ill.
U. S. NAVAL HOSPITALS, San Diego, Calif.
CONCOURSE PLAZA APTS., New York, N. Y.
RALEIGH APTS., New York, N. Y.
WEYLIN HOTEL, New York, N. Y.
MONTAUK POINT HOTEL, Montauk Point, N. Y.
RITZ-CARLTON HOTEL, Boston, Mass.
NEW BEDFORD HOTEL, New Bedford, Mass.
AMBASSADOR HOTEL, Chicago, Ill.
WINDERMERE HOTEL, Chicago, Ill.
AUGUSTINIAN FATHERS, Staten Island, N. Y.
BOARD OF EDUCATION, Chicago, Ill.
N. Y. TELEPHONE COMPANY, New York, N. Y.
NATIONAL CITY BANK, New York, N. Y.
WRIGLEY BUILDING, Chicago, Ill.
TRIBUNE BUILDING, Chicago, Ill.
KINGS COUNTY HOSPITAL, Brooklyn, N. Y.
CITY OF NEW YORK NURSES' HOME, Welfare Island, N. Y.
NORTH COMMUNITY HOSPITAL, Glen Cove, N. Y.
MICHIGAN CHILDREN'S HOSPITAL, Detroit, Mich.
ILLINOIS CENTRAL R. R. HOSPITAL, Paducah, Ky.
NORTHERN PACIFIC HOSPITAL, St. Paul, Minn.
LUCKEY PLATT DEPT. STORE, Poughkeepsie, N. Y.
HORNE DEPT. STORE, Pittsburgh, Pa.
CURTISS CANDY CO., Chicago, Ill.
ALBERT PICK & CO., Chicago, Ill.
TRIANON BALLROOM, Chicago, Ill.

THE BALABAN & KATZ MOVIE THEATRE CHAIN

Two sets of brothers, Barney and Abe Balaban, and Sam and Maurice Katz, founded the Balaban & Katz Movie Theatre Chain in Chicago and opened their Central Park Theatre on the 27th October, 1917. The architecture and decoration by architects Rapp & Rapp was breathtaking but a major talking point was the introduction of air conditioning and this gave Balaban & Katz an edge over their competitors. As Barney Balaban recalled: "Up until then no one ever thought of going to the theatre in the summer time, but we proved that we could do business fifty-two weeks a year."



The air conditioning system at Central Park proved so successful that Balaban & Katz made it a standard feature in their chain of Chicago Theatres.

It appears that the Kroeschell Ice Machine Company provided CO_2 refrigeration for the air conditioning of the Central Park (1917) and possibly for the Riviera Theatre (1919). However in 1917, Kroeschell's Chief Engineer, Frederick Wittenmeier, set up his own business the Wittenmeier Machinery Company "devoted to the exclusive manufacture of carbonic refrigerating machines and apparatus." Balaban & Katz continued to build and open air conditioned theatres and at some point Wittenmeier secured the business and installed refrigerating machines of his manufacture and proudly advertised "Cooling and dehumidifying the air during the summer makes a theatre equipped with Wittenmeier System a profit producer."

The B&K Chicago theatres include the Tivoli Theatre (1921), Chicago Theatre (1921), Oriental Theatre (1924) and the Uptown Theatre (1925). Eventually they operated more than 50 Chicago-area theatres and a total chain of about 125 theatres. Other theatres air conditioned about this time by the Wittenmeier Machine Company include the Capitol in New York (1920), the Orpheum in Minneapolis (1921) and the Warner New York (1924).

Balaban & Katz advertisement for their Chicago movie theatres , the Central opened in 1917, the Riviera in 1919.

Air Conditioning American Movie Theatres
1917-1932

Warner Theatre

NEW YORK

Date Built: 1924
Seating Capacity: 1322
Owner: Warner
Architect: Schloss & Orlando
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine

In 1926, the Warner Theatre in New York saw the premiere of the film “Don Juan” with pre-recorded musical soundtrack demos (The first talkie “The Jazz Singer” followed in 1927.

The air conditioning was provided by the Wittenmeier Machinery Company. They provided “vitolyzed air” with an air washer and carbon dioxide direct-expansion refrigeration. Hanging under the canopy is the slogan “Refrigerated Washed Air,” the sign being complete with icicles.


WARNERS
it's NOW
WARNERS THEATRE
formerly the PICCADILLY
WARNER BROS. have purchased the Piccadilly Theatre on Broadway near 52nd Street. It is now WARNERS THEATRE, the New York home of Warner Classics of the Screen. The stage and orchestra pit have been enlarged and modernized and every improvement made that could add to the comfort and enjoyment of guests and to the perfect presentation of the finest screen entertainment in the city.
The new WARNERS THEATRE introduces many exceptional features. Charming hostesses will welcome you with a smile–direct you to a seat–do everything possible to make you feel at home.
The new WARNERS orchestra is under the personal direction of HERMAN HELLER of California –the greatest leader in motion picture music in America.
Opening Today with
"The LIMITED MAIL"
–Warner Bros. new mile-a-minute melodrama of overpowering realism, with MONTE BLUE.
Come to the new WARNERS THEATRE–enjoy its wonderful entertainment–its enchanting music–its distinctive hospitality and the matchless new Warner Classics of the Screen.
The Home of
WARNER BROS
Classics of the Screen
OPENING MUSICAL PROGRAM
HERMAN HELLER
and his Orchestra of Versatile Soloists in
"Melodies You Know"
"SWEETHEART"
VIRGINIA BACON, Dramatic
SAM HERMAN, Ballroom Dancers

Air Conditioning American Movie Theatres 1917-1932

1927

1932

WITTENMEIER PATENTS

F. WITTENMEIER.
AIR COOLING APPARATUS.
APPLICATION FILED OCT. 28, 1910.

988,613. Patented Apr. 4, 1911

3 SHEETS—SHEET 1.

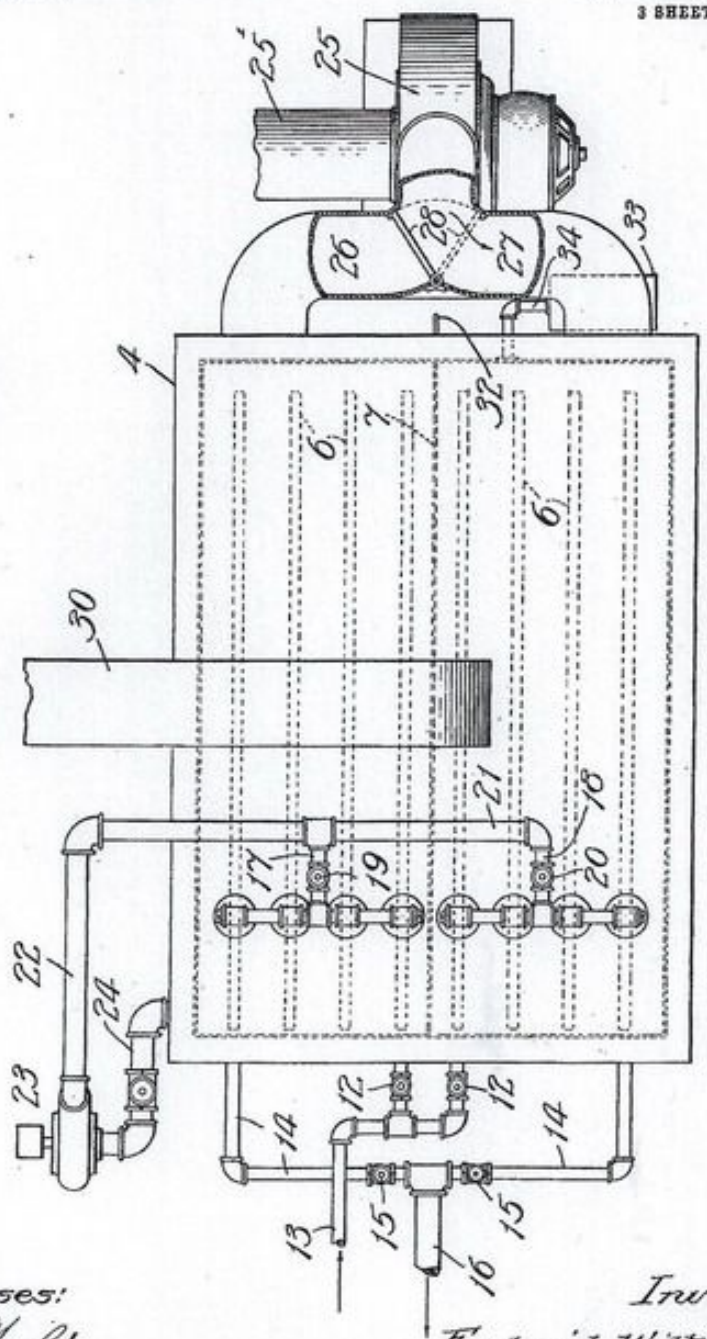


Fig. 1.

Witnesses:
Chas. H. Burch.

Inventor:
Frederick Wittenmeier.
By Dyrenforth, Lee, Christy & Wells,
Attys.

F. WITTENMEIER.

AIR COOLING APPARATUS.

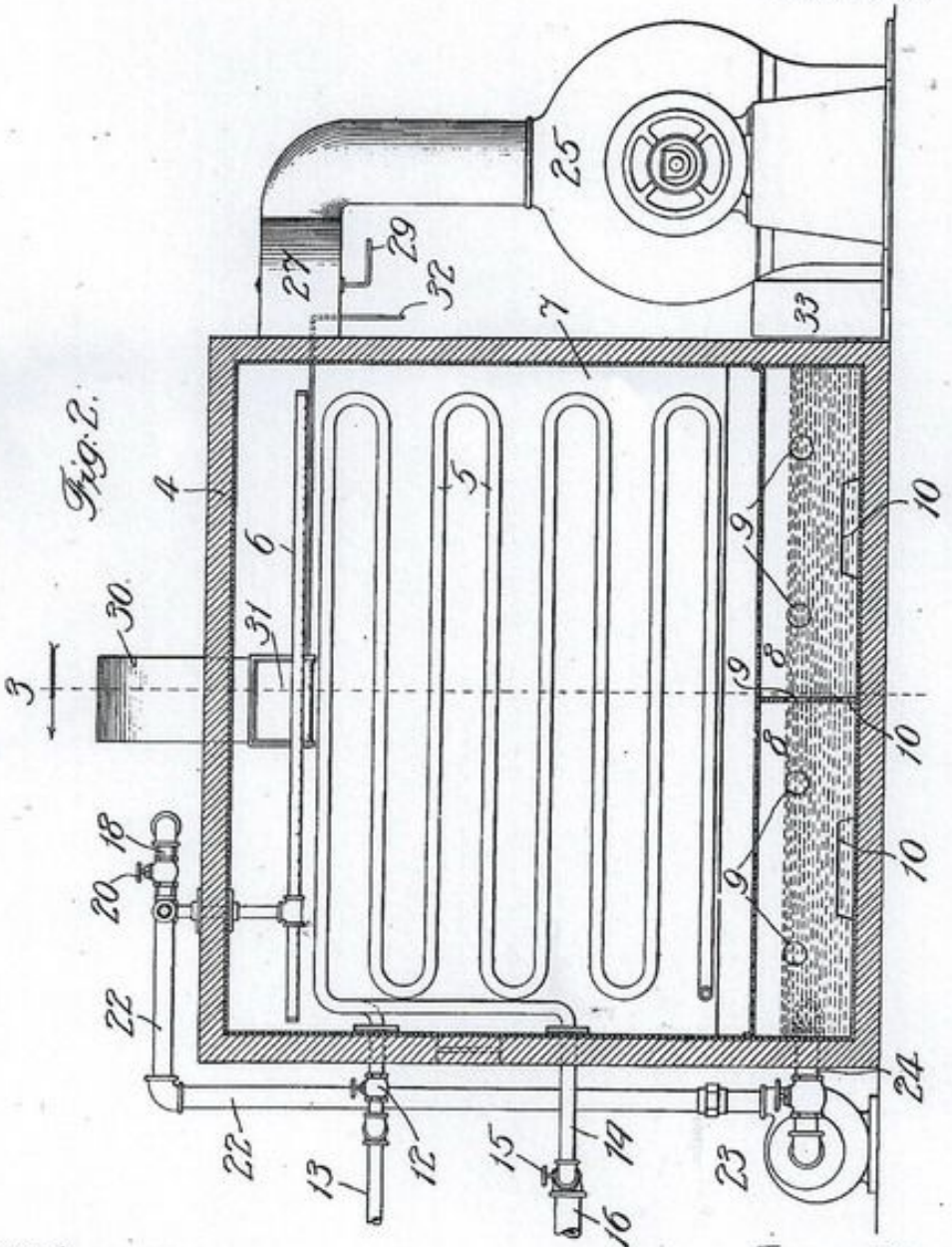
APPLICATION FILED OCT. 28, 1910.

988,613.

Patented Apr. 4, 1911.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Chas. H. Burell.

Inventor:

Frederick Wittenmeier.

By Dyrenforth, Lee, Christy & Wiles,

Attys.

F. WITTENMEIER.

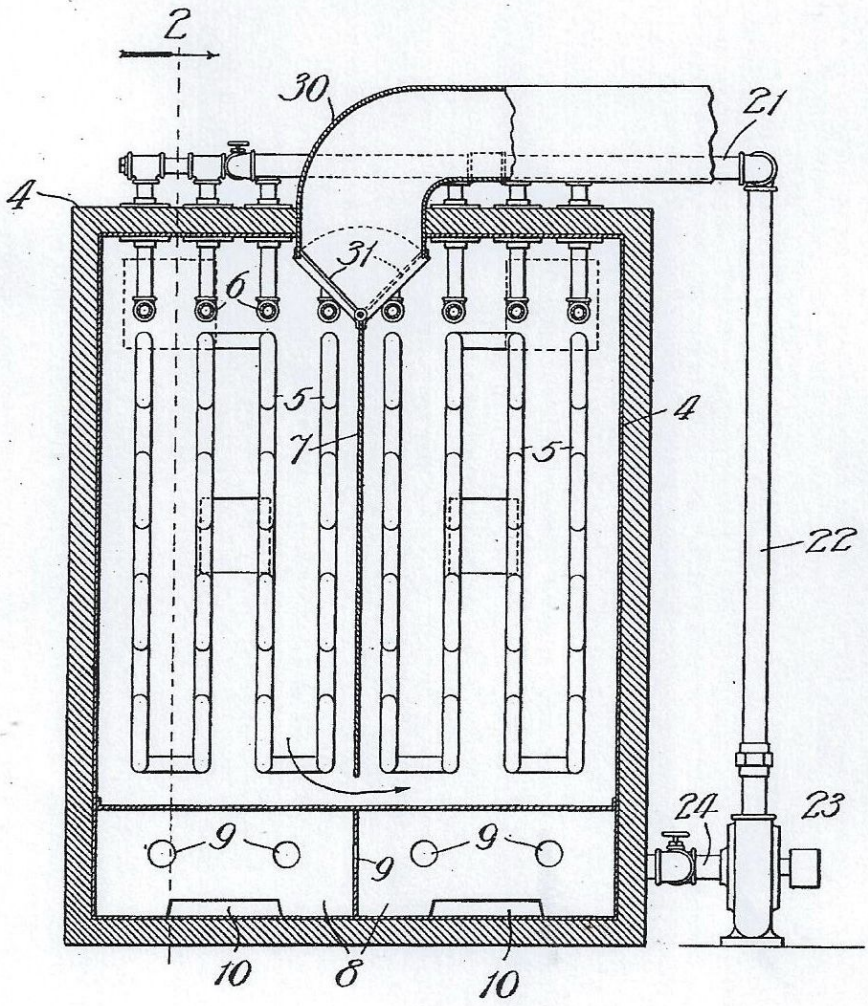
AIR COOLING APPARATUS.

APPLICATION FILED OCT. 26, 1910.

988,613. **Patented Apr. 4, 1911**

3 SHEETS—SHEET 3.

Fig. 3.



Witnesses:
Edw. E. Gaylord.
Chas. A. Buell.

Inventor:
Frederick Wittenmeier.
By Dyrenforth, Lee, Chritton & Wiles,
Attys.

F. WITTENMEIER.

AIR COOLING APPARATUS.

APPLICATION FILED MAY 18, 1911.

1,003,129.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.

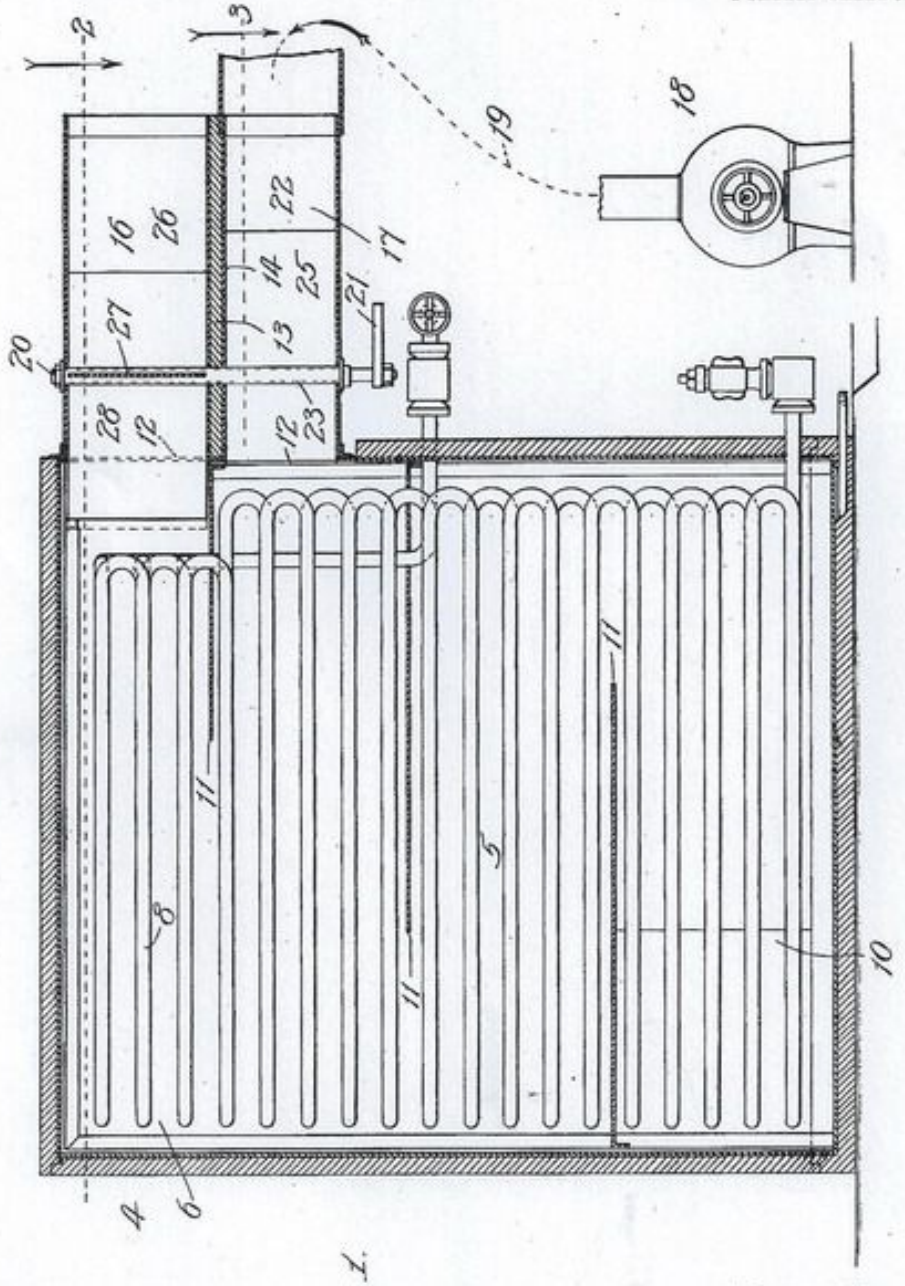


Fig. 1.

Witnesses:
Chas. H. Bull.
G. J. Chase.

Inventor:
Frederick Wittenmeier.
By Dyrenforth, Lee, Chritton & Wiles.
Attys.

F. WITTENMEIER.

AIR COOLING APPARATUS.

APPLICATION FILED MAY 18, 1911.

1,003,129.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 2.

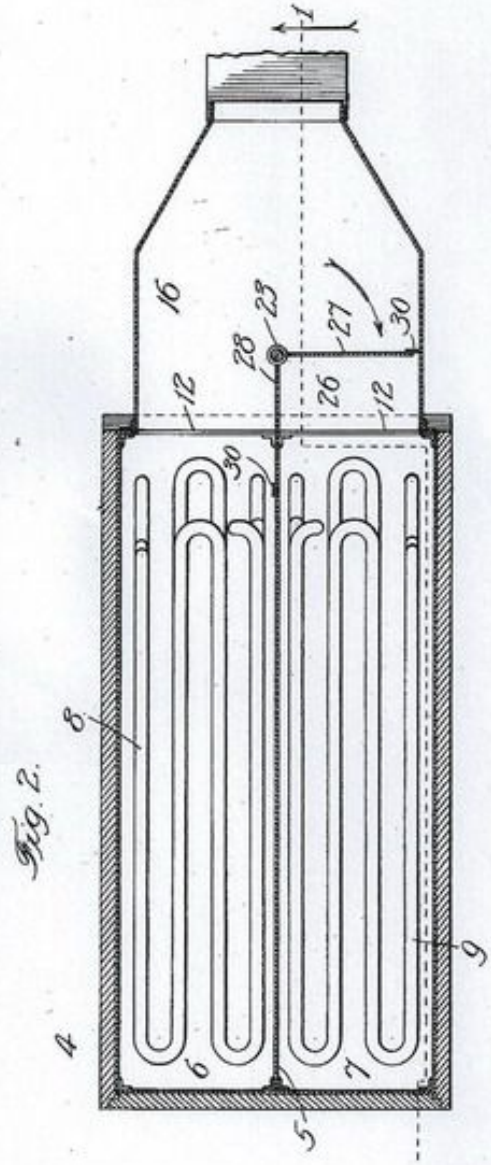


Fig. 2.

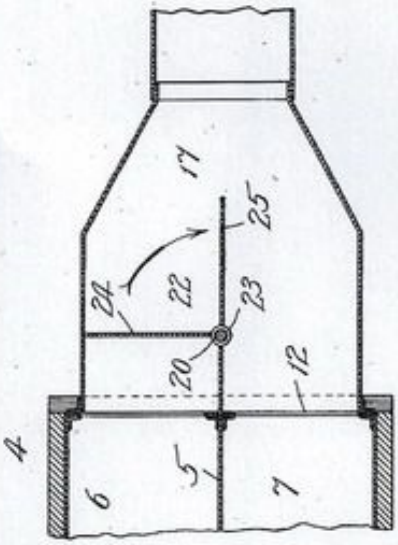


Fig. 3.

Witnesses:

Chas. H. Bull.

D. F. Chase

Inventor:

Frederick Wittenmeier.

By Dyerforth, Lee, Christy & Wiles

Attys.

Air Conditioning American Movie Theatres 1917-1932

Wichita Theatre

WITCHITA, KANSAS

Date Built: 1918
Seating Capacity: 920
Architect: Boller Bros
Air Conditioning: Wittenmeier Machine Company
Refrigeration: CO_2 machine