REGULAR MEETING.

COUNCIL CHAMBER,
CITY OF INDIANAPOLIS,
December 17, 1894.

The Common Council of the City of Indianapolis met in the Council Chamber, Monday evening, December 17, 1894, at 8 o'clock, in regular meeting.

Present, Hon. Wm. H. Cooper, President of the Common Council, in the chair, and 17 members, viz: Messrs. Allen, Costello, Drew, Hennessy, Kaiser, Koehring, Krauss, Magel, Merritt, Murphy, Puryear, Rauh, Ryan, Schmid, Shaffer, Stott and Young.

Absent, 3—viz: Messrs. Colter, O'Brien and Stein.

The Clerk proceeded to read the Journal, whereupon Councilman Drew moved that the further reading of the Journal be dispensed with.

Which motion prevailed.

COMMUNICATIONS, ETC., FROM MAYOR.

His Honor, the Mayor, presented the following communication:

EXECUTIVE DEPARTMENT,
CITY OF INDIANAPOLIS,
December 10, 1894.

To the President and Members of the Common Council:

GENTLEMEN—I have approved the following ordinances passed by your honorable body at its last session, to-wit:

App. O. No. 15, of 1894.	An ordinance authorizing the transfer of $600 to a fund other than that for which it was originally appropriated, and matters connected therewith.
App. O. No. 16, of 1894.	An ordinance authorizing the transfer of $3,250 to a fund other than that for which it was originally appropriated, and matters connected therewith.
G. O. No. 64, of 1894.	An ordinance to prohibit the injuring of any improved sidewalk, and matters connected therewith.

Respectfully submitted,
C. S. DENNY,
Mayor.

Which was read and ordered spread on the minutes.

REPORTS, ETC., FROM CITY OFFICERS.

Communication from City Attorney:

DEPARTMENT OF LAW,
CITY OF INDIANAPOLIS,
December 17, 1894.

To the Honorable President and Members of the Common Council, City of Indianapolis:

I herewith return G. O. No. 6, 1894, the last action upon which was a reference to the Committee on Public Health and City Attorney.

This ordinance provides for the inspection of plumbing, etc., and Sec. 115 of the charter authorizes and directs the Health Commissioners to prepare ordinances of this character. I am not prepared to say that an ordinance introduced by a member of the Council, upon this subject, and passed, without action of the Health Commissioners, would not be valid, but I think the purpose and intent of the charter is that such ordinances should originate with the Health Commissioners, or at least pass under their supervision before enactment.

I think some changes would be necessary in the ordinance, but before they are made, I think it would be best to refer the ordinance to the Health Commissioners. The reference, of course, may include your Committee on Public Health.

If Council deems it important to pass an ordinance of this character, at this time, I therefore recommend that such ordinance be referred to the Health Commissioners and your Committee on Public Health, including me also in the reference, or not, as you see fit. In any event, I shall take pleasure in assisting the Health Department and your committee in any way I can.

If the Council do not deem it advisable to legislate upon this subject at the present time, a motion to strike the ordinance from the files would be proper.

Respectfully,
J. E. SCOTT,
City Attorney.

Which was read and referred to Committee on Public Health.

REPORTS FROM STANDING COMMITTEES.

Mr. Rauh, on behalf of the Committee on Finance, to whom was referred:

G. O. No. 66, 1894. An ordinance authorizing the City Comptroller to make a temporary loan or loans in anticipation of the revenues for the current and following year.

Made the following report:

INDIANAPOLIS, December 17, 1894.

Mr. President:

Your Committee on Finance, to whom was referred G. O. No. 66, 1894, have had the same under consideration, and respectfully recommend it be passed.

HENRY RAUH.
ED. G. STOTT.
J. R. ALLEN.
CHARLES KRAUSS.
JAS. H. COSTELLO.

Which was read and concurred in.

Mr. Young, on behalf of the Committee on Railroads, to whom was referred the communication of the Mayor of the date of November 19, 1894 (see p. 402), pertaining to the building of viaducts and the burying of electric light wires,

Reported progress.

Mr. Drew, on behalf of the Committee on Sewers, Streets and Alleys, to whom was referred:

G. O. No. 67, 1894. An ordinance in regard to certain improved streets in the City of Indianapolis and regulating the use of express wagons and vehicles for the transportation of freight or other articles to or from points within said City for hire or pay, and matters connected therewith.

Made the following report:

INDIANAPOLIS, December 17, 1894.

Mr. President:

Your committee to whom was referred G. O. No. 67, 1894, beg leave to recommend that the ordinance be passed.

L. W. DREW.
GEO. W. SHAFFER.
WM. HENNESSY.

Which was read and concurred in.

Mr. Merritt, on behalf of the Special Committee on Investigation and Impeachment,

Made the following report:

To the Common Council:

Your Committee on Investigation and Impeachment would respectfully report that we have had six meetings in pursuance of your instructions and have taken about 300 type-written pages of testimony at a cost of about $180 for stenographic reports. We are not prepared to make a final report, and ask for further time.

GEO. MERRITT.

Which was read and concurred in.

INTRODUCTION OF GENERAL AND SPECIAL ORDINANCES.

Under this order of business the following ordinances were introduced:

By Mr. Shaffer:

G. O. No. 69, 1894. An ordinance to amend Section Five (5) of an ordinance entitled, "An ordinance regulating collecting, keeping, storing, handling, and removal, by contract, of kitchen garbage, night soil, and other refuse matter, whether animal or vegetable, and regulating the cleaning of sidewalks on all improved streets, alleys, or public highways, providing a penalty for the violation thereof, repealing conflicting ordinances, and fixing the time when the same shall take effect." Approved March 25, 1893.

SECTION 1. Be it ordained by the Common Council of the City of Indianapolis, That Section Five of the above entitled ordinance be amended to read as follows: Sec. 5. All sweepings from stores, located on any improved street, shall be depos-

ited in a closed receptacle and placed so as to be readily accessible for removal. Such sweepings must be deposited in such receptacle before the hours of 8 a. m. and after the contents are removed by the contractor, the occupant of such store shall remove the receptacle.

SEC. 2. Any person violating any of the provisions of this ordinance on conviction shall be fined in any sum not less than one dollar nor more than one hundred dollars.

SEC. 3. This ordinance shall be published, one day each week, for two consecutive weeks, in *The Sun*, a daily newspaper printed and published in said city, and shall take effect and be in force from and after its passage and publication as aforesaid.

Which was read a first time.

Mr. Shaffer moved that the constitutional rules be suspended for the purpose of placing G. O. No. 69, 1894, on its final passage.

Which motion prevailed by the following vote:

AYES 18—viz: Messrs. Allen, Costello, Drew, Hennessy, Kaiser, Koehring, Krauss, Magel, Merritt, Murphy, Puryear, Rauh, Ryan, Schmid, Shaffer, Stott, Young and President Cooper.

NAYS—None.

Thereupon G. O. No. 69, 1894, was read second time, ordered engrossed, read third time, and received the following vote:

AYES 17—viz: Messrs. Allen, Costello, Drew, Hennessy, Kaiser, Krauss, Magel, Merritt, Murphy, Puryear, Rauh, Ryan, Schmid, Shaffer, Stott, Young and President Cooper.

NAYS 1—viz: Mr. Koehring.

G. O. No. 69, 1894, having failed to receive a unanimous vote of all members present, the Chair ruled that ordinance failed to pass.

By Mr. Krauss:

G. O. No. 70, 1894.—

WHEREAS, Sergeant Charles F. Dawson has served the Common Council of the City of Indianapolis as its Sergeant-at-Arms for more than a year last past; and,

WHEREAS, No provision has heretofore been made for a salary or compensation for such services; now, therefore,

SECTION 1. Be it ordained by the Common Council of the City of Indianapolis, Indiana, That the salary of the Sergeant-at-Arms of the Common Council of said city be and is hereby fixed at the sum of $100 per year, and that said salary shall be deemed to commence to accrue as of January 1, 1894, and shall hereafter be payable as other salaries are paid.

SEC. 2. The salary of the said Sergeant Charles F. Dawson shall be deemed as having commenced to accrue on the 1st of January, 1894, as such Sergeant-at-Arms for said Council, and he shall be paid accordingly.

SEC. 3. This ordinance shall be in force from and after its passage.

Which was read a first time and referred to Committee on Finance.

By Mr. Rauh (by request):

G. O. No. 71, 1894. An ordinance regulating the installation and use of all electric wires, lights, lamps, motors, dynamos, or other electrical devices or apparatus for lighting, heating, generating or furnishing power in the City of Indianapolis, Indiana, and matters connected therewith, providing a penalty for violations thereof, and providing for publication.

SECTION 1. Be it ordained by the Common Council of the City of Indianapolis, Indiana, That no electric wires, lights, lamps, motors, dynamos, or other electrical devices or apparatus for lighting, heating, generating or furnishing power shall be installed in any building or portion thereof, or in any street or alley in said city, unless such electric installation shall conform to the following rules and requirements:

CENTRAL STATIONS.

CLASS A.

FOR LIGHT OR POWER.

These Rules also apply to Dynamo Rooms in isolated plants, connected with or detached from buildings used for other purposes; also, to all varieties of apparatus therein, of both high and low potential.

1. Generators:—

a. Must be located in a dry place.

b. Must be insulated on floors or base frames, to prevent absorption of moisture, and also kept clean and dry.

c. Must never be placed in a room where any hazardous process is carried on, nor in places where they would be exposed to inflammable gases, or flying or combustible materials.

d. Should each be provided with a waterproof covering when not in use.

2. Care and Attendance:—

a. A competent man must be kept on duty in the room where generators are operating.

b. Oily waste must be kept in approved metal cans and removed daily.

c. Approved waste cans shall be made of metal, with legs raising can three inches from the floor, and with self-closing covers.

3. Conductors:—

From generators, switch-boards, rheostats, or other instruments, and thence to outside lines, conductors—

a. Must be in plain sight, and readily accessible.

b. Must be wholly on non-combustible insulators, such as glass or porcelain.

c. Must be separated from contact with floors, partitions or walls, through which they may pass, by non-combustible insulating tubes, such as glass or porcelain.

d. Must be kept rigidly apart that they cannot come in contact.

e. Must be covered with non-inflammable insulating material sufficient to prevent accidental contact, except that "bus bars" may be made of bare metal.

f. Must have ample carrying capacity, to prevent heating. (See Capacity of Wires' Tables.)

4. Switch Boards:—

Should be approved before being placed.

a. Must be so placed as to reduce to a minimum the danger of communicating fire to adjacent combustible material.

b. Must be accessible from all sides when the connections are on the back; or may be placed against a brick or stone wall when the wiring is entirely on the face.

c. Must be kept free from moisture.

d. Must be made of non-combustible material, or of hardwood filled to prevent absorption of moisture.

e. Bus bars must be equipped in accordance with Rule 3 for placing conductors.

5. Resistance Boxes and Equalizers :—

a. Must be equipped with metal, or other non-combustible frames.

b. Must be placed on the switch board, or, if not thereon, at a distance of a foot from combustible material, or separated therefrom, by non-inflammable, non-absorptive, insulating material.

6. Lightning Arresters :—

a. Must be attached to each side of every overhead circuit connected with the station.

b. Must be mounted on non-combustible bases in plain sight on the switch board, or in an equally accessible place, away from combustible material.

c. Must be connected at least with two "earths" by separate wires, not smaller than No. 6, B. & S. Gauge, which must not be connected to any pipe within the building.

d. Must be so constructed as not to maintain an arc after the discharge has passed.

7. Testing :—

a. All series and alternating circuits must be tested every twenty-four hours, to discover any leakage to earth, and a record of such tests submitted to the electrical inspector in case there be any such inspector.

b. All multiple arc low potential systems (300 volts or less) must be provided with an indicating or detecting device, readily attachable, to afford easy means of testing where the station operates continuously.

c. Data obtained from all tests must be preserved for examination by inspectors.

These rules on testing to be applied at such places as may be designated by the electrical inspector.

MOTORS.

8. Motors :—

a. Must be wired under the same precautions as with a current of the same volume and potential for lightning. The motor and resistance box must be protected by a double pole cut-out and controlled by a double pole switch.

b. Must be thoroughly insulated, mounted on filled dry wood, be raised at least eight inches above the surrounding floor, be provided with pans to prevent oil from soaking into the floor, and must be kept clean.

c. Should be covered with a waterproof covering when not in use, and if deemed necessary by the inspector, must be enclosed in an approved case.

From the nature of the question, the decision as to what is an approved case must be left to the inspector to determine in each instance.

9. Resistance Boxes :—

a. Must be equipped with metal or other non-combustible frames.

b. Must be placed on the switch board, or at a distance of a foot from combustible material, or separated therefrom by a non-inflammable, non-absorptive, insulating material.

c. Starting boxes must be so arranged that resistance cannot be left in circuit.

Class B.

ARC (SERIES) SYSTEM.

Over 300 *Volts.*

10. Outside Conductors. All outside, overhead conductors (including services) :—

a. Must be covered with some insulating material, not easily abraided, firmly

secured to properly insulated and substantially built supports, all tie wires having an insulation equal to that of the conductors they confine.

b. Must be so placed that moisture cannot form a cross connection between them, not less than a foot apart, and not in contact with any substance other than their insulating supports.

c. Must be at least seven feet above the highest point of flat roofs, and at least one foot above the ridge of pitched roofs over which they pass or to which they are attached.

d. Must be protected by dead insulated guard irons or wires from possibility of contact with other conducting wires or substance to which current may leak. Special precautions of this kind must be taken where sharp angles occur or where any wires might possibly come in contact with electric light or power wires.

e. Must be provided with petticoat insulators of glass or porcelain. Porcelain knobs or cleats and rubber hooks will not be approved.

f. Must be so spliced or joined as to be both mechanically and electrically secure without solder, to insure preservation and covered with an insulation equal to that on the conductors.

All guy wires must be insulated by an approved Strain Insulator. Telegraph, telephone and similar wires must not be placed on the same cross arms with electric light or power wires.

INTERIOR CONDUCTORS.

12. All Interior Conductors:—

Must where entering the buildings have the holes bushed with waterproof non-combustible insulating tubes, or where, from the nature of the case, this construction is impossible, with an approved flexible tube. The tube should slant upward toward the inside, and must be sealed with tape thoroughly painted, securing the tube to the wire.

Canvasite and Flexite tubings are approved as specified under this Rule.

a. Must be arranged to enter and leave the building through a double contact service switch, which will effectually close the main circuit and disconnect the interior wires when it is turned "off." The switch must be so constructed that it shall be automatic in its action, not stopping between the points when started, and prevent an arc between the points under all circumstances; it must be indicated on inspection whether the current be "on" or "off," and be mounted in a non-combustible case, and kept free from moisture and easy of access to police and firemen.

b. Must always be in plain sight, except that lead encased conductors may be run in moulding, in which case at least six inches of the lead covering shall project beyond the moulding.

c. Must have an improved insulating covering.

Insulation that will be approved for interior conductors must be solid, at least 7-100 of an inch in thickness, and covered with a substantial braid. It must not readily carry fire, must show an insulating resistance of one megohm per mile after two weeks' submersion in water at 70 degrees Fahrenheit, and three days' submersion in lime water, with a current of 550 volts and after three minutes electrification.

d. Must be supported on glass or porcelain insulators, and kept rigidly at least four, and, where possible, eight inches apart, except within the structure of lamps or on hanger boards, cut-out boxes, or the like, where less distance is necessary.

e. Must be separated from contact with walls, floors, timbers or partitions through which they may pass by non-combustible insulating tube or where from the nature of the construction it is impossible to use a rigid tube, an approved flexible tube may be used.

f. Must be so spliced or joined as to be both mechanically and electrically secure without solder. They must then be soldered, to insure preservation, and covered with an insulation equal to that on the conductors.

LAMPS AND OTHER DEVICES.

13. Arc Lamps, in every case:—

a. Must be carefully insulated from inflammable material.

b. Must be, unless otherwise permitted, provided at all times with a glass globe surrounding the arc, securely fastened on a closed base. No broken or cracked globes to be used.

c. Must be provided with an approved hand switch; also an automatic switch, that will shut the current around the carbons should they fail to feed properly.

The hand switch to be approved, if placed anywhere except on the lamp itself, must comply with requirements for switches on hanger boards as laid down in Section (*g.*) of Rule 13.

d. Must be provided with reliable stops to prevent carbons from falling out in case the clamps become loose.

e. Must be so constructed that spark arresters can be adjusted without short-circuiting the lamp.

f. Must be provided with an approved spark arrester above to prevent escape of sparks, melted copper or carbon, where readily inflammable material is in the vicinity of the lamps. It is recommended that plain carbons, not copper plated, be used for lamps in such places.

An approved spark arrester is one which will so close the upper orifice of the globe that it will be impossible for any sparks thrown off by the carbons to escape.

g. The use of hanger boards is not advised. The following construction is recommended: Hanging lamps direct by insulated wires attached to waterproof, non-conbustible, insulating supports. When used, hanger boards must be so constructed that all wires and current-carrying devices thereon shall be exposed to view, and thoroughly insulated by being mounted on a waterproof, non-combustible substance. All switches attached to the same must be so constructed that all wires and current-carrying devices thereon shall be exposed to view, and thoroughly insulated by being mounted on a waterproof, non-combustible substance. All switches attached to the same must be so constructed that they will be automatic in their action, not stopping between points when started, and preventing an arc between points under all circumstances.

14. Incandescent lamps in series circuits having a maximum potential of 300 volts or over:—

a. Must be governed by the same rules as for arc lights, and each series lamp provided with an approved hand-spring switch and automatic cut-out.

b. Must have each lamp suspended from a hanger board by means of a rigid tube.

c. No electro-magnetic devices for switches, and no system of multiple-series or series-multiple lighting, will be approved.

d. Under no circumstances can series lamps be attached to gas fixtures.

Class C.

INCANDESCENT (LOW PRESSURE) SYSTEM.

300 *Volts or less.*

OUTSIDE CONDUCTORS.

15. Outside Overhead Conductors:—

a. Must be erected in accordance with the rules for arc (series) circuit conductors.

b. Must be separated not less than 12 inches, and be provided with an approved fusible cut-out, that will cut off the entire current as near as possible to the entrance to the building and inside walls.

An approved fusible cut-out must comply with the sections of Rules 23 and 24 describing fuses and cut-outs.

16. Underground Conductors:—

a. Must be protected against moisture and mechanical injury, and be removed at least two feet from combustible material when brought into a building, but not connected with the interior conductors.

b. Must have a switch and a cut-out for each wire between the underground conductors and the interior wiring when the two parts of the wiring are connected.

These switches and fuses must be placed as near as possible to the underground conduit, and connected therewith by specially insulated conductors, kept apart not less than two and a half inches.

c. Must not be so arranged as to shunt the current through a building around any catch-box.

INSIDE WIRING.

General Rules.

17. At the entrance of every building there shall be an approved switch placed in the service conductors by which the current may be entirely cut off.

The switch required by this rule to be approved must be double pole, must plainly indicate whether the current is "on" or "off," and must comply with Sections *a*, *c*, *d* and *e* of Rule 26 relating to switches.

Concealed work must be examined and preliminary certificate obtained before being covered, if there be an inspector or other person authorized to make such examination and issue such certificate.

The use of wire ways for rendering concealed wiring permanently accessible is most heartily endorsed and recommended; and this method of concealed construction is advised for general use.

Architects are urged, when drawing plans and specifications, to make provision for the channeling and pocketing of buildings for electric light or power wires, and in specifications for electric gas lighting to require a two-wire circuit, whether the building is to be wired for electric light or not, so that no part of the gas fixtures or gas piping be allowed to be used for the gas lighting circuit.

18. Conductors:—

a. Must have an improved insulating covering, and must not be of a size smaller than No. 16, B. & S. gauge.

The insulating covering of the wire, to be approved, must be solid, at least 3-64 of an inch in thickness, and covered with a substantial braid. It must not readily carry fire, must show an insulation resistance of one megohm per mile after two weeks' submersion in water at 70 degrees Fahrenheit, and three days' submersion in lime water, with a current of 550 volts, and after three minutes electrification.

b. Must be protected when passing through *floors*, or through walls, partitions, timbers, etc., in places liable to be exposed to dampness, by waterproof, noncombustible insulating tubes, such as glass or porcelain, except that in cases where it is impossible to use a rigid tube, an approved flexible tube may be permitted.

Canvasite and Flexite tubings are approved and specified under this rule.

Must be protected when passing through walls, partitions, timbers, etc., in places not liable to be exposed to dampness by approved insulating bushings especially made for this purpose.

Except for floors and for places liable to be exposed to dampness, glass, porcelain, canvasite, metal-sheathed interior conduit and vulca tube, when made especially for bushings, will be approved. The two last named will not be approved if cut from the usual lengths of tube made for conduit work, nor when made without a head or flange on one end.

c. Must be kept free from contact with gas, water or other metallic piping, or any other conductor or conducting material which they may cross (except high potential conductors) by some continuous and firmly fixed non-conductor.

d. Must be so placed in crossing high potential conductors that there shall be a space of at least three inches (3 inches), or greater where required by special conditions, at all points between high and low tension conductors.

e. Must be so placed in wet places that air space will be left between conductors and pipes in crossing, and the former must be run in such a way that they can not come in contact with the pipe accidentally. Wires should be run over all pipes upon which condensed moisture is likely to gather, or which by leaking might cause trouble on a circuit.

Special Rules.

19. Wiring not Encased in Moulding or Approved Conduit:—

a. Must be supported wholly on non-combustible insulators, constructed so as to prevent the insulating coverings of the wire from coming in contact with other substances than the insulating supports, except that wood cleats may be used in places not liable to moisture where moulding would be allowed, and where mechanical protection of the wire is not necessary. Such cleats to be filled with moisture-proof compound. A filled or finished wood work will be accepted in lieu of the backing of the cleat.

b. Must be so arranged that wires of opposite polarity, with a difference of potential of 150 volts or less, will be kept apart at least two and one-half inches.

c. Must have the above distance increased proportionately where a higher voltage is used, unles they are encased in moulding or approved conduit.

d. Must not be laid in plaster, cement, or similar finish, except in conduits.

e. Must never be fastened with staples. In unfinished lofts, between floor and ceilings, in partitions, and other concealed places.

f. Must have at least one-half inch clear air space surrounding them, and where wires pass through joists, beams, etc., must conform to Rule 18 (*b.*)

g. Must be at least ten inches apart when possible and should be run singly on separate timbers or studdings.

h. Wires run as above immediately under roofs, in proximity to water tanks or pipes, will be considered as exposed to moisture.

i. Wires must not be finished for any great distance, and only in places where the inspector can satisfy himself that the above rules have been complied with.

j. When from the nature of the case it is impossible to place concealed wiring on non-combustible insulating supports of glass or porcelain, the wires may be finished on the loop system if encased from outlet to outlet in approved flexible tubing or conduit.

Flexite and Canvasite tubing are approved as specified under this rule.

20. Mouldings:—

a. Must never be used in concealed work in damp places.

b. Must have at least two coats of waterproof paint or be impregnated with a moisture repellant.

c. Must be made in two pieces, a backing and a capping, with a bridge one-half inch wide and must afford suitable protection against abrasion. Filledor finished woodwork will be accepted in lieu of backing for moulding.

21. Special Wiring:—

In breweries, packing houses, stables, dyehouses, paper and pulp mills, or other buildings specially liable to moisture or acid, or other fumes liable to injure the wires or insulation, except where used for pendants, conductors—

a. Must be separated at least six inches.

b. Must be provided with an approved waterproof covering.

The insulating covering of the wire to be approved under this section must be solid, at least 3-64 of an inch in thickness, and covered with a substantial braid. It must not readily carry fire, must show an insulating resistance of one megohm per mile after two weeks' submersion in water at 70 degrees Fahrenheit, and three days' submersion in lime water with a current of 550 volts after three minutes

electrification, and must also withstand a satisfactory test against such chemical compounds or mixtures as it will be liable to be subject to in the risk under consideration.

c. Must be carefully put up.

d. Must be supported by glass or porcelain insulators No switches or fusible cut-outs will be allowed where exposed to inflammable gases or dust, or to flyings of combustible materials.

e. Must be protected when passing through floors, walls, partitions, timbers, etc., by waterproof, non-combustible, insulating tubes, such as glass or porcelain.

f. The wires in passing through floors should be protected to a height of eight feet by a box so constructed as to allow an air space around the wire. The joint between box and floor to be made waterproof by a quarter round moulding laid in tar. Where this construction is followed wires may be run through floor without insulating tubes, provided a similar air space be maintained.

22. Interior Conduit:—

a. Must be continuous from one junction box to another, or to fixtures, and must be of material that will resist the fusion of the wire or wires they contain, without igniting the conduit.

b. Must not be of such material or construction that the insulation of the conductors will ultimately be injured or destroyed by the elements of the composition.

c. Must be first installed as a complete conduit system, without conductors, strings or anything for the purpose of drawing in the conductors, and then the conductors to be pushed or fished in. The conductors must not be placed in position until all mechanical work on the building has been as far as possible, completed.

d. Must not be so placed as to be subject to mechanical injury by saws, chisels or nails.

e. Must not be supplied with a twin conductor, or two separate conductors in a single tube.

f. Must have all ends closed with a good adhesive material, either at junction boxes or elsewhere, whether such ends are concealed or exposed. Joints must be made air-tight and moisture proof.

g. Conduits must extend at least one inch beyond the finished surface of walls or ceilings until the mortar or other similar material be entirely dry, when the projection may be reduced.

23. Double Pole Safety Cut-Outs:—

a. Must be in plain sight or enclosed in an approved box, readily accessible.

To be approved, boxes must be constructed, and cut-outs arranged, whether in a box or not, so as to obviate any danger of the melted fuse metal coming in contact with any substance which might be ignited thereby.

b. Must be placed at every point where a change is made in the size of the wire (unless the cut-out in the larger wire will protect the smaller).

c. Must be supported on bases of non-combustible, insulating, moisture-proof material.

d. Must be supplied with a plug (or other device for enclosing the fusible strip or wire) made of non-combustible and moisture-proof material, and so constructed that an arc cannot be maintained across its terminals by the fusing of the metals.

e. Must be so placed that no group of lamps requiring current of more than five amperes shall be ultimately dependent upon one cut-out. Special permission may be given for departure from the above.

24. Safety Fuses:—

a. Must have fusible wires or strips, where the plug or equivalent device is not used, and where over five amperes of current is carried with surfaces or tips of harder metal, soldered or otherwise, having perfect electrical connection with the fusible part of the strip.

b. Must all be so proportioned to the conductors they are intended to protect that they will melt before the maximum safe-carrying capacity of the wire is exceeded.

25. Table of Capacity of Wires:—

It must be clearly understood that the size of the fuse depends upon the size of the small conductor it protects, and not upon the amount of current to be used on the circuit. Below is a table showing the safe carrying capacity of conductors of different sizes in Brown & Sharpe Gauge, which must be followed in the placing of all conductors.

TABLE A. CONCEALED WORK.		TABLE B. OPEN WORK.
B. & S. G.	*Amperes.*	*Amperes.*
0000	218	312
000	181	262
00	150	220
0	135	185
1	105	156
2	88	131
3	75	110
4	63	92
5	53	77
6	45	65
8	33	46
10	25	32
12	17	23
14	12	16

26. Switches:—

a. Must be mounted on moisture-proof and non-combustible base, such as slate or porcelain.

b. Must be double pole for two wire, and tripple pole for three wire system.

c. Must have a firm and secure contact; must make and break readily, and not stop when motion has been once imparted by the handle.

d. Must have a carrying capacity sufficient to prevent heating.

e. Must be placed in dry, accessible places, and be grouped as far as possible, being mounted—when practicable—upon slate or equally non-combustible back boards. Jack-knife switches, whether provided with friction or stops, must be so placed that gravity will tend to open rather than close the switch.

FIXTURE WORK.

a. In all cases where conductors are concealed within, the latter must be insulated from the gas pipe system of the building by means of approved mica joints. The insulating material used in such joints must be of a substance not affected by gas, and that will not shrink or crack by variation in temperature. Insulating joints, with soft rubber in their construction, will not be approved.

Insulating joints to be approved must be entirely made of material that will resist the action of illuminating gases, and will not give way or soften under the heat of an ordinary gas flame. They shall be so arranged that a deposit of moisture will not destroy the insulating effect, and shall have an insulating resistance of 250,000 ohms between the gas pipe attachments, and be sufficiently strong to resist the strain they will be liable to in attachment.

b. Supply conductors, and especially the splices to fixture wires, must be kept clear of the grounded parts of gas pipes, and where shells are used the latter must be constructed in a manner affording sufficient area to allow this requirement.

c. Fixtures must never be wired outside.

d. All conductors for fixture work must have a solid waterproof insulation that is durable and not easily abraided, and must not in any case be smaller than No. 18 B. & S. gauge.

e. All burrs or fins must be removed before the conductors are drawn into fixture.

f. The tendency to condensation within the pipes should be guarded against by sealing the upper end of the fixture.

g. No combination fixture in which the conductors are concealed in a space less than one-fourth inch between the inside pipe and the outside casing will be approved.

h. Each fixture must be tested for "contacts" between conductors and fixtures, for "short circuits," and for ground connections before the fixture is connected to its supply conductors.

i. Ceiling blocks of fixtures should be made of insulating material; if not, the wires, in passing through the plate, must be surrounded with hard rubber tubing.

28. Arc Lights on Low Potential Circuits:—

a. Must be supplied by branch conductors which will carry a current twenty-five per cent. in excess of the rated capacity of the lamps.

b. Must be connected with main conductors only through double pole cut-outs.

c. Must only be furnished with such resistances or regulators as are enclosed in non-combustible material, such resistance being treated as electric stoves or heaters.

Incandescent lamps must not be used for resistance devices.

d. Must be supplied with globes and protected as in case of arc lights on high potential circuits.

29. Electric Gas Lighting:—

Where electric gas lighting is to be used on the same fixture with the electric light no part of the gas piping or fixture shall be in electrical connection with the gas lighting circuit.

b. The wires used with the fixtures must have a non-inflammable insulation, or, where concealed between the pipe and shell of the fixture, the insulation must be such as required for fixture wiring for the electric light.

c. The whole installation must test free from grounds.

d. The two installations must test perfectly free from connection with each other.

30. Sockets:—

a. No portion of the lamp socket exposed to contact with outside objects must be allowed to come into electrical contact with either of the conductors.

b. In rooms where inflammable gases may exist, the incandescent lamp and socket should be enclosed in a vapor-tight globe.

c. No key socket shall be used for a lamp consuming over one ampere of current.

31. Flexible Cord:—

a. Must be made of conductors, each surrounded with a moisture proof and a non-inflammable layer, and further insulated from each other by a mechanical separator of carbonizable material. Each of these conductors must be composed of several strands.

b. Must not sustain more than one light not exceeding 50 candle-power.

c. Must not be used, except in accordance with the following specifications:

(1.) Pendant drop for single lamp.

(2.) Short lamp for portable lamp, or motor protected by fuse plug.

d. The ends of the cord should be protected by insulating bushings where the cord enters the socket.

e. Must be so suspended that the entire weight of the socket and lamp will be borne by knots under the bushing in the socket, and above the point where the cord comes through the ceiling block or rosette, in order that the strain may be taken from the joints and binding screws.

f. Should be equipped with keyless sockets, as far as practicable, and be controlled by all switches.

g. Pendants must be suspended from ceiling blocks of non-combustible insulating material by cut-out.

Class D.

ALTERNATING SYSTEMS (CONVERTERS OR TRANSFORMERS.)

32. Converters:—

a. Must not be placed inside of any building, except the central station, unless by special permission.

b. Must not be placed in any but metallic or other non-combustible cases.

c. Must not be attached to the outside walls of buildings, unless separated therefrom by substantial insulating supports.

In those cases where it may not be possible to exclude the converters and primary wires entirely from the building, the following precautions must be strictly observed:

33. Converters should be located at a point as near as possible to that at which the primary wires enter the building, and must be placed in a room or vault constructed of or lined with fire-resisting material, and used only for the purpose. They must be effectually insulated from the ground, and the room in which they are placed be practically air-tight, except that it shall be thoroughly ventilated to the outdoor air, if possible, through a chimney or flue.

34. Primary Conductors:—

a. Must each be heavily insulated with a coating of moisture-proof material from the point of entrance to the transformer, and, in addition, must be so covered and protected that mechanical injury to them or contact with them shall be practically impossible.

b. Must each be furnished, if within a building, with a switch and a fusible cut-out where the wires enter the building, or where they leave the main line, on the pole or in the conduit. These switches should be enclosed in secure and fire-proof boxes, preferably outside the building.

c. Must be kept apart at least ten inches, and at the same distance from all other conducting bodies when inside a building.

35. Secondary Conductors:—

a. Must be installed according to the rules for "Low Potential Systems."

Class E.

ELECTRIC RAILWAYS.

36. All rules pertaining to arc light wires and stations shall apply (so far as possible) to street railway power stations and their conductors in connection with them.

37. Power Stations:—

a. Must be equipped in each circuit as it leaves the station with an approved automatic "breaker," or other device that will immediately cut off the current in case the trolly wires become grounded. This device must be mounted on a fire-proof base and in full view and reach of the attendant.

Automatic circuit-breakers should be submitted for approval before being used.

38. Trolly Wires:—

a. Must be no smaller than No. O., B. & S. copper, and must readily stand the strain put upon them when in use.

b. Must be well insulated from their supports, and in case of the side or double-pole construction, the supports shall also be insulated from the poles immediately outside of the trolly wire.

c. Must be capable of being disconnected at the power-house, or of being divided into sections, so that in case of fire on the railway route the current may be shut off from the particular section, and not interfere with the work of the firemen. This rule also applies to feeders.

d. Must be safely protected against contact with all other conductors.

39. Car-Wiring:—

a. Must be always run out of reach of the passengers, and must be insulated with a water-proof insulation.

40. Lighting and Power from Railway Wires:

a. Must not be permitted, under any pretense, in the same circuit with trolley wires with a ground return, nor shall the same dynamo be used for both purposes, except in street railway cars, electric car houses and their power stations, or by special permit.

41. Car Houses:—

Must have special cut-outs located at a proper distance outside, so that all circuits within any car-house can be cut out at one point.

42. Ground Return Wires:

Where ground return is used it must be so arranged that no difference of potential will exist greater than five volts to fifty feet, or fifty volts to the mile, between any two points in the earth or pipes therein.

Class F.

43. Storage or Primary Batteries:—

a. When current for light and power is taken from primary or secondary batteries, the same general regulations must be observed as apply to similar apparatus fed from dynamo generators developing the same difference of potential.

b. All secondary batteries must be mounted on approved insulators.

Insulators for mounting secondary batteries, to be approved, must be non-combustible, such as glass, or thoroughly vitrified and glazed porcelain.

c. Special attention is directed to the rules, page 14, for rooms where acid fumes exist.

d. The use of any metal liable to corrosion must be avoided in connections of secondary batteries.

Class G.

44. Electrical Heating Apparatus:—

a. All arrangements for making connections to heating devices must be fixed and permanent, and the current shall not be carried beyond the permanent fixture. The apparatus must be so designed that whenever the device containing the resistance is removed the circuit shall be automatically broken.

b. No flexible cord or wire to be used. The wire to the permanent fixture shall be strictly in accordance with the rules for safe wiring of the same voltage.

c. The permanent fixture shall be placed in a safe position and isolated from inflammable materials; not concealed, but in plain sight.

d. The resistance itself shall be enclosed in a fire-proof case.

e. Each device, or set of contacts, shall be protected by a proper fusible cut-out under the regulations laid down in "Rules For Safe Wiring."

f. There shall be a double pole self-acting switch for each circuit, which shall absolutely and plainly indicate to the eye whether the current be on or off.

Miscellaneous.

45. *a.* The wiring of each completed installation must have an insulation resistance of one megohm per mile of conductor.

b. Ground wires for lightning arresters of all classes, and ground detectors, must not be attached to gas pipes within the building.

c. No other electric service wires will be allowed in the same raceways or ducts with electric light wires.

d. The following formula for soldering fluid is suggested:

Saturated solution of zinc	5 parts.
Alcohol	4 parts.
Glycerine	1 part.

NOTICE OF THE APPROVAL OF CERTAIN WIRES AND MATERIALS, AND THE INTERPRETATION OF CERTAIN RULES.

RULE 4. Switch Boards:

Section *a*. Special attention is called to the fact that switch boards should not be built down to the floor, nor up to the ceiling, but a space of at least eighteen inches or two feet should be left between the floor and the board, in order to prevent fire from communicating from the switch board to the floor or ceiling, and also to prevent the forming of a partially concealed space very liable to be used for storage of rubbish and oily waste.

RULE 5. Resistance Boxes:—

Section *a*. The word "frame" in this section relates to the entire case and surroundings of the rheostat, and not alone to the upholding supports.

RULE 9. Resistance Boxes:—

Section *a*. The word "frame" in this section relates to the entire case and surroundings of the rheostat, and not alone to the upholding supports.

CLASS B.

Any circuit attached to any machine, or combination of machine which develop over 300 volts difference of potential between any two wires, shall be considered as a high potential circuit and coming under that class, unless an approved transforming device is used, which cuts the difference of potential down to less than 300 volts.

RULE 10. Outside Conductors:—

Section *f*. All joints must be soldered, even if made with the McIntyre or any patent splicing device. This ruling applies to joints and splices in all classes of wiring covered by these rules.

RULE 15. Outside Overhead Conductors:—

Section *b*. The cut-out required by this section must be placed so as to protect the switch required by Rule 17.

RULE 16. Underground Conductors:—

Section *b*. The cut-out required by this section must be placed so as to protect the switch.

RULE 22. Interior Conduits:—

The American Circular Loom Company's Tube, the brass or iron encased Interior Conduit Tube, and the Vulca Tube are approved for the class of work called for in this rule.

MATERIALS:—

The following are given as a list of non-combustible, non-absorptive, insulating materials, and are listed here for the benefit of those who might consider hard rubber, fibre, wood and the like, as fulfilling the above requirements. Any other substance which it is claimed should be accepted, must be forwarded for testing before being put on the market:—

1. Thoroughly vitrified and glazed porcelain.
2. Glass.
3. Slate, without metal veins.
4. Pure sheet mica.
5. Marble (filled).
6. Lava (certain kinds of).
7. Alberene stone.

WIRES:—

The following wires have been accepted by the Underwriters' International Association, we shall accept them until further notice. Due notice will be given of additions or corrections to the list:

Americanite.
Bishop.
Crescent.
Crown.
Clark.
General Electric Double-core Rubber.
Habirshaw (Red Core).
Kerite.
National India Rubber Co. (N. I. Y.).
Okonite.
Paranite.
Raven Core.
Safety Insulated { Requa White Core. / Safety Black Core.
Salamander (rubber covered).
Simplex (caoutchouc).

None of the above wires to be used unless protected with a substantial braided outer covering.

SEC. 2. Any electric wires, lights, lamps, motors, dynamos, or other electrical devices or apparatus for lighting, heating, generating or furnishing power now in use in this City or hereafter used, not conforming to the above rules and requirements shall, if they appear to the Building Inspector to be dangerous or unsafe, or if so considered by him, be ordered by him to be repaired and said repair shall be made according to the rules and requirements herein established for new installations, and unless so repaired within thirty (30) days after said order is given it shall be unlawful to use said wires, lights, lamps, motors, dynamos, or other electrical appliances or apparatus for lighting, heating, generating or furnishing power.

SEC. 3. No alteration shall be made in any installation or plant unless such installation or plant shall, when so altered, conform to the rules and requirements herein established.

SEC. 4. No plans or specifications for buildings providing for installation of electric wires, lights, lamps, motors, dynamos, or other electrical devices for lighting, heating, generating or furnishing heat or power, shall be approved by the Building Inspector unless the same conforms to the rules and requirements herein established.

SEC. 5. Any person, firm or corporation violating any provision of this ordinance shall on conviction be fined in any sum not exceeding Fifty Dollars, and each day's continuance in such violation shall constitute a separate offense. The contractor or person employed to put in any installation or plant shall be regarded and held as a violator of this ordinance if such installation or plant does not conform to the rules and requirements herein established.

SEC. 6. This ordinance shall be in full force and effect from and after its passage and publication once each week for two consecutive weeks in *The Sun*, a daily newspaper of general circulation, printed and published in said City of Indianapolis.

Which was read a first time and referred to Committee on Public Safety and Comfort.

By Mr. Rauh:

G. O. No. 72, 1894. An ordinance to amend Section five (5) of an ordinance entitled, "An ordinance regulating the collecting, keeping, storing, handling and removal by contract, of kitchen garbage, night soil, and other refuse matter, whether

animal or vegetable, and regulating the cleaning of sidewalks on all improved streets, alleys or public highways, providing a penalty for the violation thereof, repealing conflicting ordinances and fixing the time when the same shall take effect." Approved March 25, 1893.

SECTION 1. Be it ordained by the Common Council of the City of Indianapolis, that Section five of the above entitled ordinance be amended to read as follows: Sec. 5. All sweepings from stores, located on any improved street, shall be deposited in a closed receptacle and placed so as to be readily accessible for removal. Such sweepings must be deposited in such receptacle before the hours of 8 a. m., and after the contents are removed by the contractor, the occupant of such store shall remove the receptacle.

SEC. 2. Any persons violating any of the provisions of this ordinance, on conviction, shall be fined in any sum not less than one dollar nor more than one hundred dollars.

SEC. 3. This ordinance shall be published, one day each week, for two consecutive weeks, in *The Sun*, a daily newspaper, printed and published in said city, and shall take effect and be in force from and after its passage and publication as aforesaid.

Which was read a first time.

Mr. Rauh moved that the constitutional rules be suspended, and G. O. No. 72, 1894, be read a second time.

Which motion prevailed by the following vote:

AYES 18—viz: Messrs. Allen, Costello, Drew, Hennessy, Kaiser, Koehring, Krauss, Magel, Merritt, Murphy, Puryear, Rauh, Ryan, Schmid, Shaffer, Stott, Young and President Cooper.

NAYS—None.

Mr. Rauh moved that G. O. No. 72, 1894, be referred to Committee on Public Safety and Comfort.

Which motion prevailed.

ORDINANCES ON SECOND READING.

On motion of Mr. Rauh, the following entitled ordinance was taken up, read second time, ordered engrossed, and then read the third time:

G. O. No. 66, 1894. An ordinance authorizing the City Comptroller to make a temporary loan or loans in anticipation of the revenues for the current and following year.

And was passed by the following vote:

AYES 17—viz: Messrs. Allen, Costello, Drew, Hennessy, Kaiser, Koehring, Krauss, Magel, Murphy, Puryear, Rauh, Ryan, Schmid, Shaffer, Stott, Young and President Cooper.

NAYS 1—viz: Mr. Merritt.

On motion of Mr. Drew, the following entitled ordinance was taken up, read second time, ordered engrossed, and then read the third time:

G. O. No. 67, 1894. An ordinance in regard to certain improved streets in the City of Indianapolis, and regulating the use of express wagons and vehicles for the transportation of freight or other articles to or from points within said city for hire or pay, and matters connected therewith.

And failed of passage, for want of a constitutional majority, by the following vote:

AYES 10—viz: Messrs. Allen, Drew, Hennessy, Kaiser, Magel, Merritt, Murphy Puryear, Rauh and Shaffer.

NAYS 8—viz: Messrs. Costello, Koehring, Krauss, Ryan, Schmid, Stott, Young and President Cooper.

On motion of Mr. Rauh, the Common Council, at 8:50 o'clock P. M., adjourned.

W. N. Cooper
President.

ATTEST: Lee Nixon.
City Clerk.