

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION G32.165**  
**Issue 1, June, 1931**  
**Standard**

# **DROP AND BLOCK WIRING**

## **BLOCK WIRE RUNS**

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### **1. GENERAL**

1.01 When placing block wires from poles to buildings use construction specified in Sections G32.101 to G32.160.

### **2. PLANNING BLOCK WIRE RUNS**

2.01 In planning block wire runs always follow the rules given below:

- (a) Run of wire shall be such that the location of point of entrance and of protectors, where the latter are required, will conform to rules given in the instructions for Station and Private Branch Exchange Protector Installation.
- (b) Separate block wire requiring station protection from the building with porcelain insulation (knobs, insulated screw eyes, tubes), where attached to inflammable or conducting materials, such as Wood, Stucco on Wood, Stucco on metal lath and Metal.

## BLOCK WIRE RUNS

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- (c) Do not run block wire in front of signs or so as to interfere with fire escapes, clothes lines, awnings, shutters, hoists, doors, etc.
- (d) If necessary to cross or parallel electric conduits, rain spouts or other metallic obstructions protect the wire run as outlined in Section G32.160.
- (e) Do not place ring runs on walls which are likely to be built against in the near future.

2.02 Where establishing a ring run where no cable exists local conditions largely govern its location. The following points should be observed in so far as practicable in locating a ring run:

- (a) Locate ring runs with a view to permanency, and accessibility. Avoid locations for runs which would require the use of long ladders.
- (b) In general where the run is to be made on the outside of a building, locate ring runs on the rear or side walls.
- (c) When placing on a brick building with a stone foundation, establish run along brick walls of the building rather than on the rough stone of the foundation.
- (d) Avoid attaching to tin, sheet metal or other material requiring frequent repairs or renewals.
- (e) Avoid locating runs on frame buildings or on old or deteriorated buildings. Usually aerial spans between well built permanent buildings will obviate the necessity for attachments to poorly constructed or temporary buildings.
- (f) Select runs where the wires will be reasonably free from mechanical injury.
- (g) Locate ring runs so as to require the minimum length of wire with as few turns as practicable.
- (h) Make all ring runs horizontal or vertical.
- (i) Avoid electric light and power wires.
- (j) Locate runs so that they will encounter a minimum number of obstructions.
- (k) Where horizontal runs are required, place them out of the reach of the public, particularly children.
- (l) Do not place anchors nearer than 10 inches to corner or to top of wall, except in turning corners.
- (m) If practicable, without materially increasing length of run, establish vertical run in angle formed by intersecting walls.
- (n) Where ice conditions are severe, avoid locating vertical ring runs within 2 feet of a leader (down spout)

2.03 When establishing a block wire run on a building wall where cable has been placed the wire run should, in general, parallel the cable run.

2.04 Reuse an existing block wire at a reinstallation wherever practicable. Inspect the wire carefully and if necessary:

- (a) Tighten all loose rings and replace missing rings.
- (b) Remove excess slack in run.
- (c) Place protection where necessary around leaders, electrical conduits and other obstructions.
- (d) If the insulation is weatherworn or ragged to such an extent as to indicate that the service is likely to be impaired in the near future because of low insulation, replace that portion which would be likely to introduce trouble.
- (e) Remove any strings or other foreign matter which may detract from wire run's appearance.

2.05 A large number of bridle wires in a ring run is uneconomical. Where the number exceeds six, call the attention of your supervisor to the condition, in order that the question of placing block cable may be considered.

### **3. SELECTION OF ATTACHING DEVICES**

3.01 Where establishing a ring run where no cable exists use bridle rings or insulated screw eyes.

3.02 All wires, exposed or unexposed, on non-conducting or non-inflammable substances such as brick, stone, concrete, stucco on hollow tile or other non-conducting and non-inflammable backing, may be run in metal rings.

3.03 All exposed wires on conducting or inflammable substances such as wood, stucco on wood, stucco on metal lath, etc., should be run in insulated screw eyes. All unexposed wires may be run in metal rings.

3.04 Where establishing a ring run of unexposed wires which will parallel cable attached to building walls by means of cable clamps, use Cable Clamp Rings.

3.05 Where wire run will parallel cable placed on building walls by means of strand, use separate cable rings.

## BLOCK WIRE RUNS

3.06 The size and type of bridle rings to be used under various conditions are as follows:

Type and Ultimate Size of Wire Run	Type of Bridle Ring
In Runs where not more than 6 Bridle Wires will ever be required	E
In Runs where more than 6 Bridle Wires will be required	C
At Distributing Terminals 16 Pairs or Less	C
At Distributing Terminals more than 16 Pairs	A
In Runs where Bridle Rings with Machine Screw Shanks are required.	M

3.07 The size and type of insulated screw eyes to be used under various conditions are as follows:

Type and Ultimate Size of Wire Run	Type of Insulated Screw Eye
Wire Runs on Frame Buildings where not more than 6 Bridle Wires will ever be required	S - 5/8 in.
Wire Runs on Stucco on Inflammable or Conducting Backing where not more than 6 Bridle Wires will ever be required	L - 5/8 in.
Wire Runs on Frame Buildings where more than 6 Bridle Wires will be required	S - 1 in.
Wire Runs on Stucco on Inflammable or Conducting Backing where more than 6 Bridle Wires will be required	L - 1 in.

3.08 The size and type of Cable Rings to be used under various conditions are as follows:

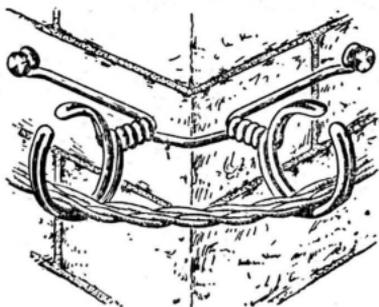
Type of Wire Run	Type of Cable Ring
Cable attached to 2200 Lb. Strand	1 1/2 in. #22
Cable attached to 6000 Lb. Strand	1 1/2 in. #6
Cable attached to 10000 Lb. Strand	2 1/2 in.
Cable attached to 16000 Lb. Strand	3 in.

#### 4. SPACING OF ATTACHMENTS

- 4.01 Space bridle rings approximately 50 inches (every sixth brick on brick buildings) apart on horizontal runs.
- 4.02 Where windows are available for making attachments on vertical runs, place an attachment at each floor.
- 4.03 Where windows are not available for making attachments, space the attachments on vertical runs approximately 8 feet apart.
- 4.04 When paralleling cable attached to building wall by cable clamps, place rings in every third cable clamp where clamps are 17 inches apart, and in every other cable clamp where clamps are 26 inches apart.
- 4.05 When paralleling cable placed on strand, place separate cable rings for block wires and space them at double the spacing of the cable rings.

#### 5. PLACING BRIDLE RINGS AND INSULATED SCREW EYES

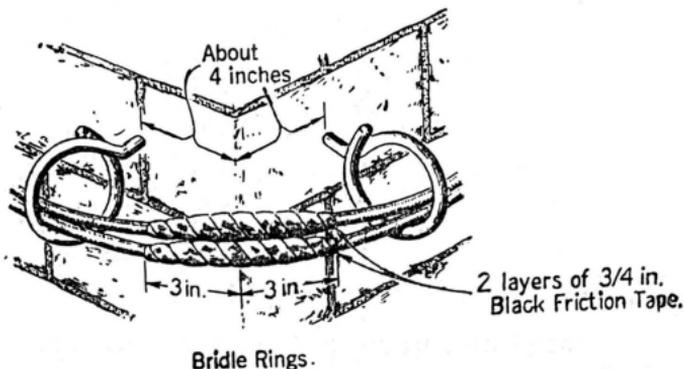
- 5.01 Place bridle rings and Insulated Screw Eyes where run is horizontal, so that the opening is at the top. On bends the opening shall be at the outer side of the bend.
- 5.02 Where a wire run turns an outside corner of the supporting structure keep wires free from contact with the corner in order to avoid injury to the insulation. A Corner Bridle Ring shall ordinarily be employed for this purpose.



Corner Bridle Ring

## BLOCK WIRE RUNS

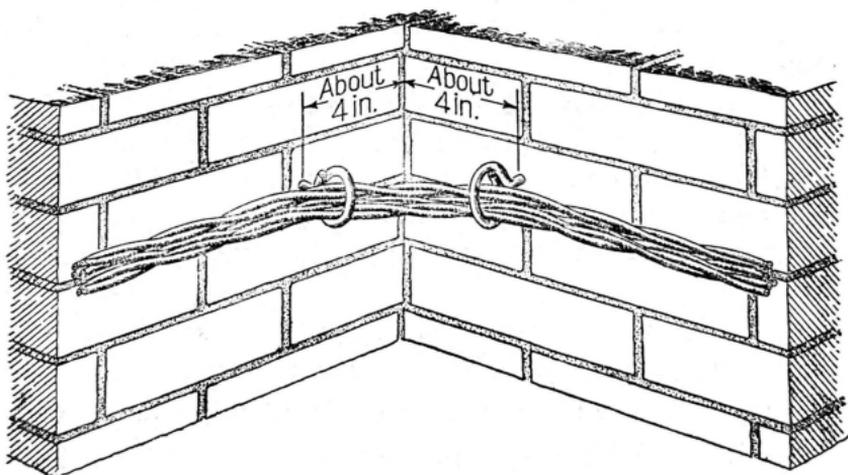
## ALTERNATIVE METHOD



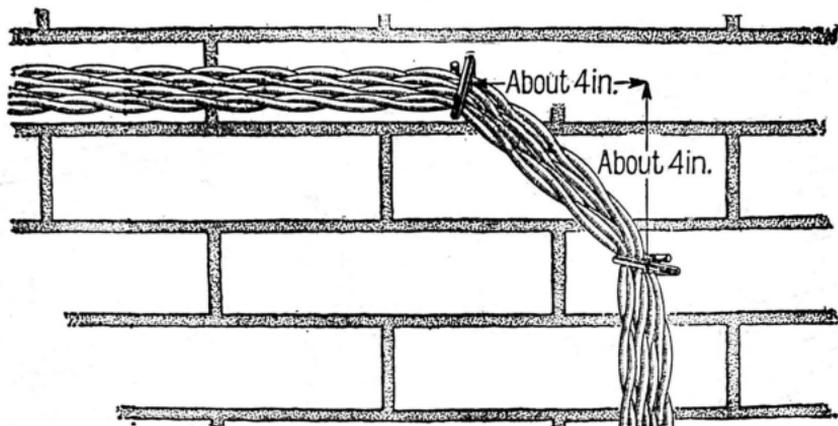
This method shall be used for a run of an ultimate of only a few pairs, where Corner Bridle Rings are not available.

Turn outside corners with exposed block wire runs on frame or stucco (conducting or inflammable backing) buildings as outlined in Section G32.150.

5.03 Where a wire run turns an inside corner place a bridge ring or insulated screw eye on each wall about 4 inches from the angle formed by the intersection of the walls.



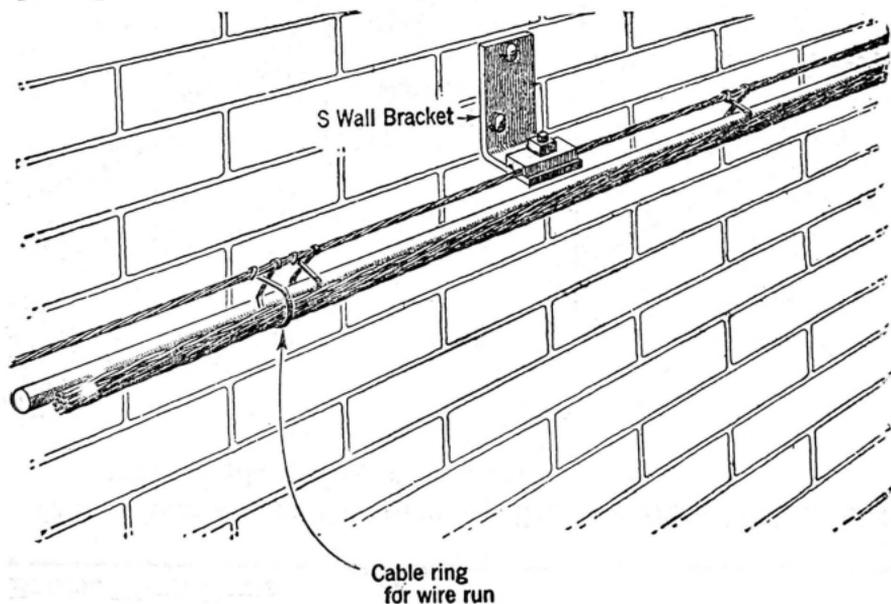
5.04 Where a ring run changes direction from horizontal to vertical place two bridge rings or insulated screw eyes to avoid excessive strain on the attachments and the insulation of the wires.



5.05 On straight runs, either horizontal or vertical, in order to locate a line for the run, a chalk line may be stretched between two points of the run and line snapped against the wall. When locating ring run in this manner, be sure that the chalk line is tight enough and that points selected are close enough together so that there is no appreciable sag in the line. Snap the chalk line squarely against the wall.

## 6. PLACING CABLE RINGS

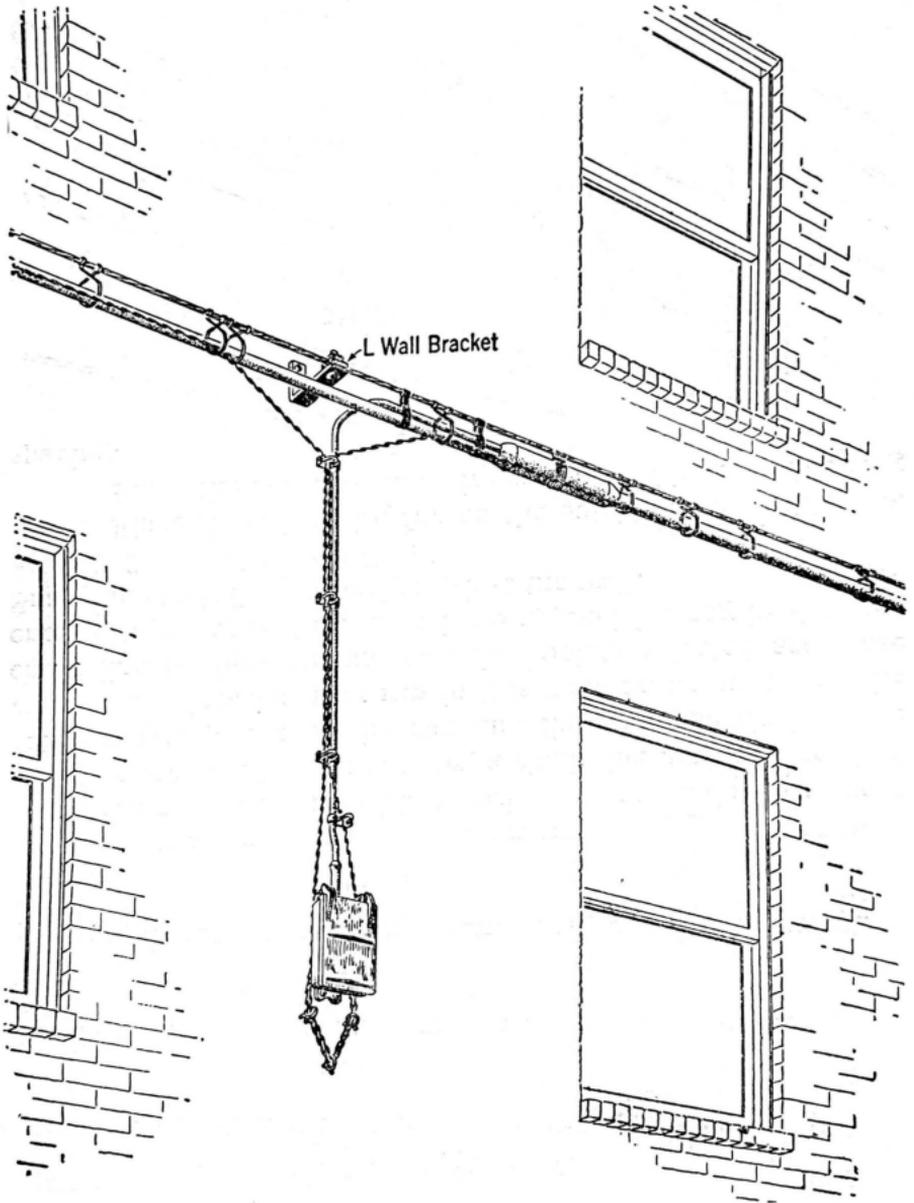
6.01 Place rings for wire run on the outside of the cable run. Place the rings for the wire run at double the cable ring spacing.



## BLOCK WIRE RUNS

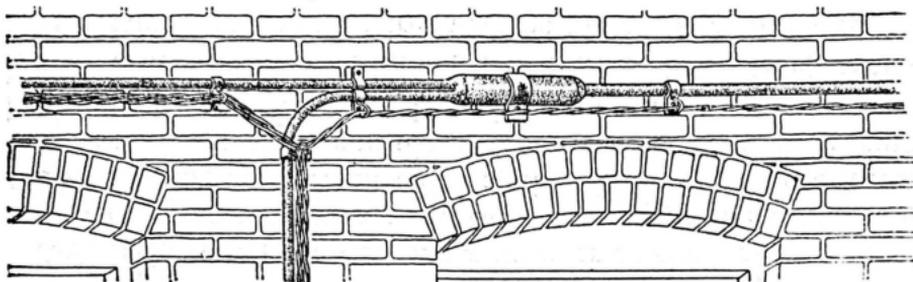
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6.02 Where a wire run changes direction from horizontal to vertical, place rings as shown.

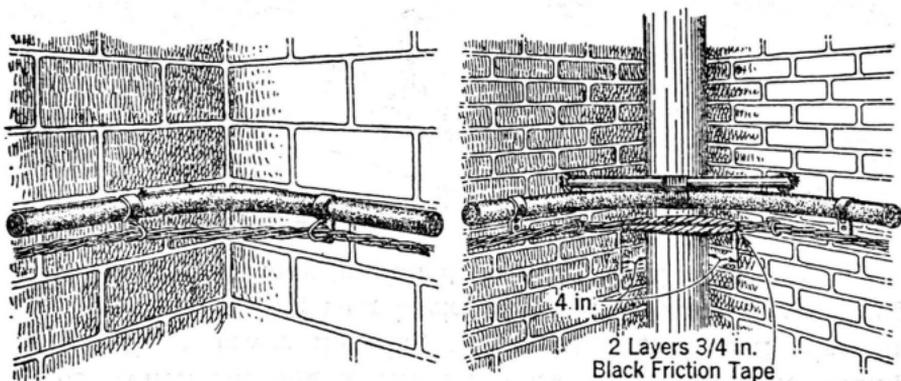


## 7. PLACING CABLE CLAMP RINGS

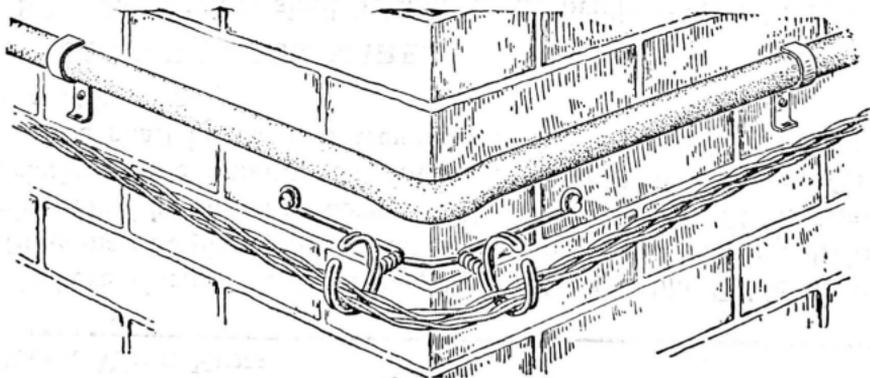
7.01 Where a wire run changes direction from horizontal to vertical, place rings as shown.



7.02 Where a wire run turns an inside corner place Cable Clamp Rings in the cable clamps at the corner. Where leader or other obstructions are encountered place bridge ring under cable in line with cable support.



7.03 Where a wire run turns an outside corner of the supporting structure a Corner Bridle Ring shall ordinarily be placed.



## BLOCK WIRE RUNS

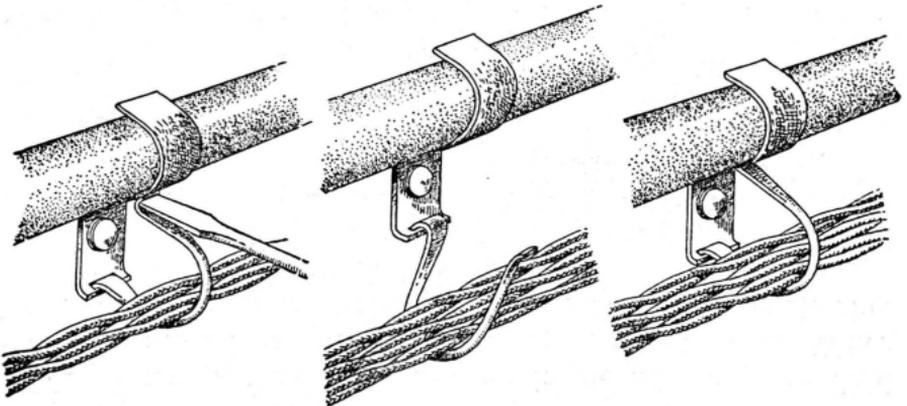
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Where Corner Bridle Rings are not available Cable Clamp Rings may be placed in the Cable Clamps at the corners. Bridle wires shall be taped at corner with two layers of  $\frac{3}{4}$  in. Black Friction Tape extending 3 inches each side of corners. This method shall be used, however, only for a run of an ultimate of a few pairs.

### 8. PLACING BLOCK WIRES

8.01 Block wires shall be laid in the bridle rings of existing runs and not drawn through rings. Where establishing a new run, wires may be pulled through the rings.

8.02 When running additional block wires in Cable Clamp Rings, lower the ring and lay the additional wires in the ring, then spring ring back into place. When establishing a new run, wires may be pulled through rings.



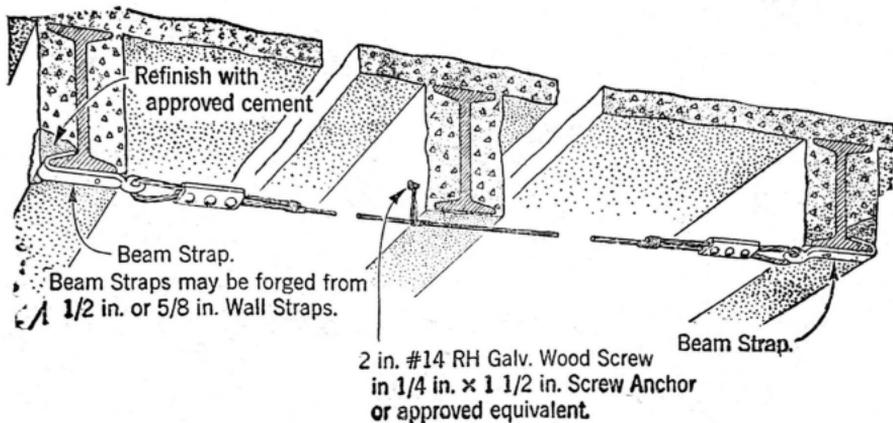
8.03 In lowering the ring, a screwdriver or similar tool should be inserted between the cable section of the clamp and the side of the ring which bears against it, springing the latter inward until the short end disengages from the slot. Snap ring back into place after wires have been placed.

8.04 When running additional block wires in cable rings attached to strand, wires may be pulled through rings.

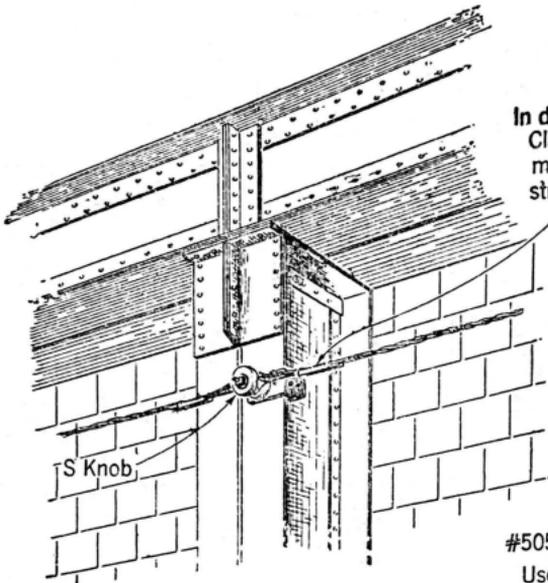
8.05 Block wires shall be pulled tight enough to avoid unsightly sag, but not so tight as to cause an undue strain upon the wires.

## 9. ATTACHMENTS TO INDUSTRIAL STRUCTURES

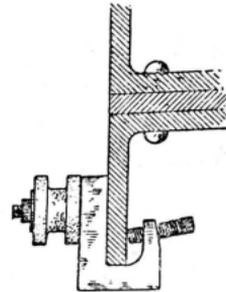
9.01 Manufacturing buildings, warehouses, piers, etc., may require special means of attachments. Methods of attachment which have proven practicable in such cases are shown in the following pictures as suggestions.



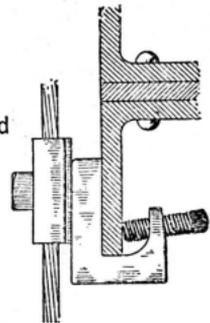
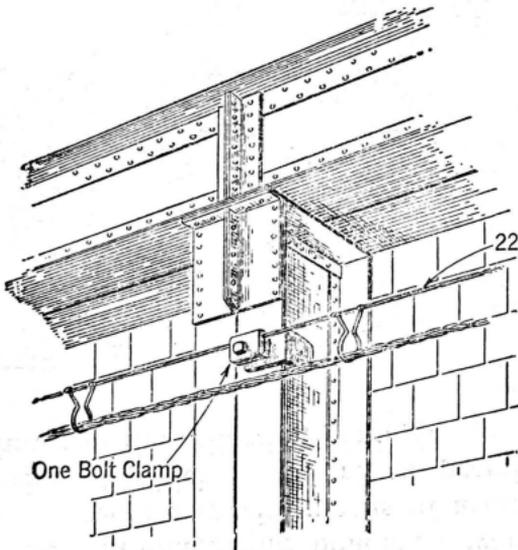
# BLOCK WIRE RUNS



In districts where Drop Wire Clamps are not available wire may be fastened to knob with straight tie.



#505 Universal Insulator Support  
Use #506 Universal Insulator Support for attaching T Knobs. to I Beams



#506 Universal Insulator Support

9.02 The exact method of attachment used in this class of building will depend upon the particular type of building encountered.

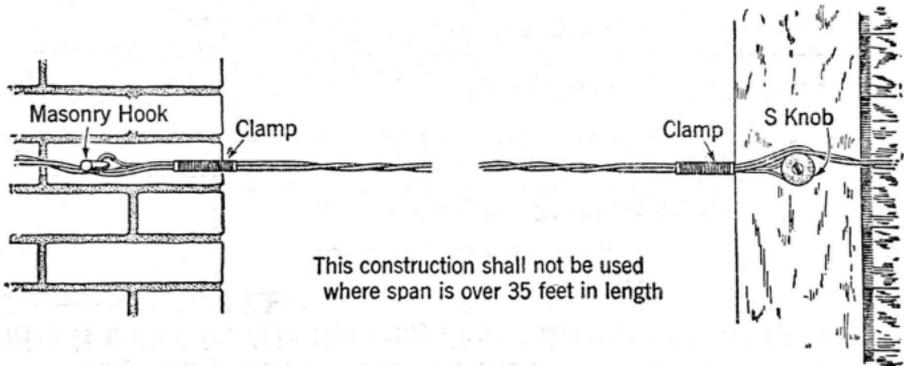
## 10. AERIAL BLOCK WIRE SPANS

10.01 Where practicable avoid aerial spans which may introduce an exposure that would not otherwise exist, thus requiring the installation of station protectors.

10.02 Where aerial span crosses driveway or private property, provide proper clearances.

10.03 Where span is 5 feet or less, Bridle Wire shall be run without special supports, that is, without being attached to knobs or Masonry Hooks at the ends of the span. Where a good appearance is not essential and the run is out of the reach of children, this distance of unsupported Bridle Wire may be increased to 12 feet. Where span is longer than this distance, use construction specified in Paragraphs 10.04 to 10.06.

10.04 Where only a few bridle wires will ever be run and the span is 35 feet or less in length, the following construction may be used.

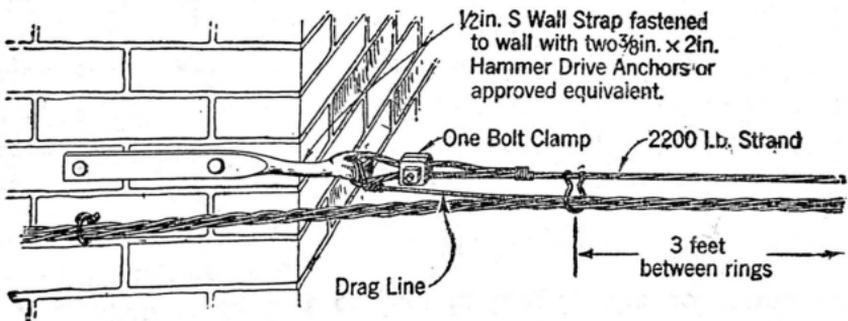


10.05 Where span is more than 35 feet in length, use either Drop Wire attached at each end on S Knobs or Masonry Hooks or Bridle Wire supported on 2200 Lb. Strand as specified in Paragraph 10.06.

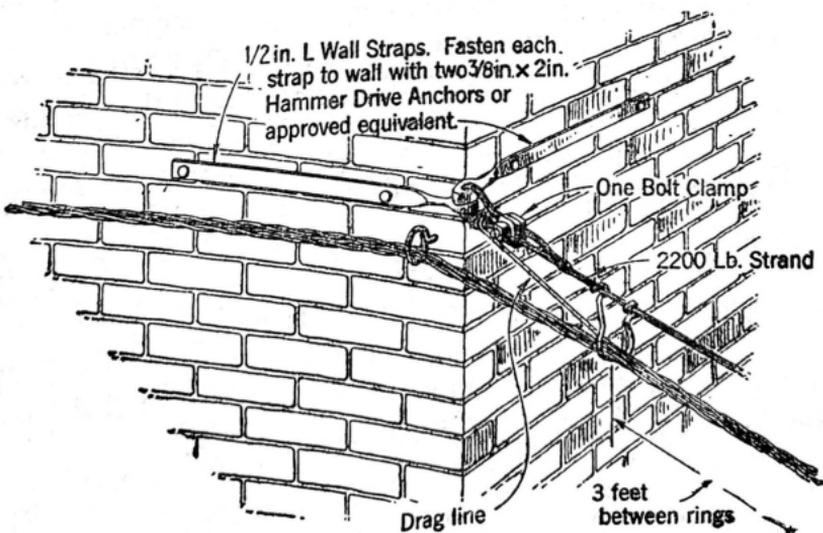
BLOCK WIRE RUNS

10.06 Where span exceeds lengths specified in Paragraphs 10.03 or 10.04, Bridle Wire may be run in 1-1/2 in. #22 Cable Rings attached to 2200 Lb. Strand. Space cable rings 3 feet apart. Place a drag line in the rings of the crossing span at the time they are attached. The drag line should always be replaced after it has been used for pulling wires across the aerial block wire span. This may be done at the time of pulling in additional wires by attaching a new drag line to the existing line and pulling the new line into the rings at the same time the wire is pulled in. Tie the drag line at the ends of the span. **Do not ride 2200 Lb. Strand.**

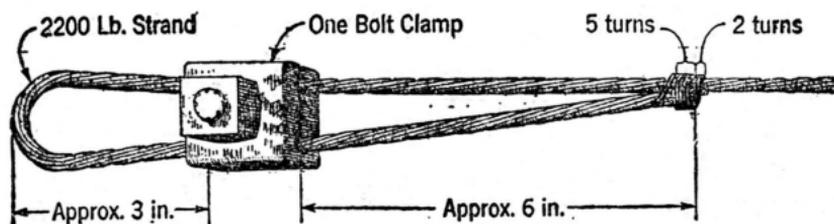
SPAN IN LINE WITH WALL



SPAN FROM CORNER OF WALL



10.07 Serve 2200 Lb. Strand as shown:



10.08 On wooden buildings use a 1/2 in. L Wall Strap instead of the 1/2 in. S Wall Strap. Fasten wall strap to building with two 3/8 in. x 4 in. Coach Screws installed in studing. Bore 1/4 inch lead holes for Coach Screws.

10.09 In blocks where the growth will be slow, the wires may be run along the backs of buildings attached to Masonry Hooks or S Knobs provided span length will not exceed 35 feet.

## 11. LAST ATTACHMENTS

11.01 Last attachment and entrance should be as near together as practicable but not more than 18 inches apart.

11.02 All last attachments on wire runs should be made in accordance with the instructions outlined in Section G32.150.

11.03 Where practicable, the last attachment on unexposed block wire runs should be located below the entrance hole.

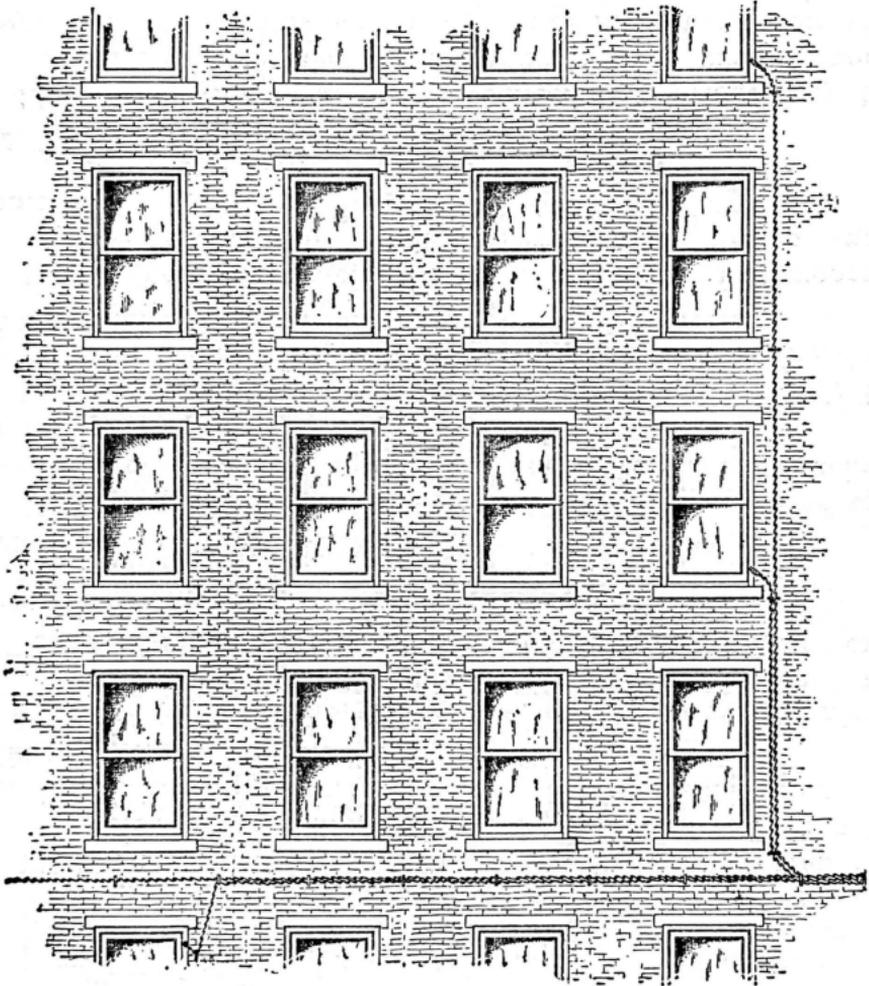
## 12. PARTY LINE TAPS

12.01 In making a party line connection, a bridge may be made at the most accessible point in an existing wire run, provided that this point is 50 feet or more away from the terminal, or in case there is no space available on the binding posts for terminating the new party. If the most convenient point for bridging in the run is within 50 feet of the terminal, run the wire to the terminal, provided that there is space available on the binding posts.

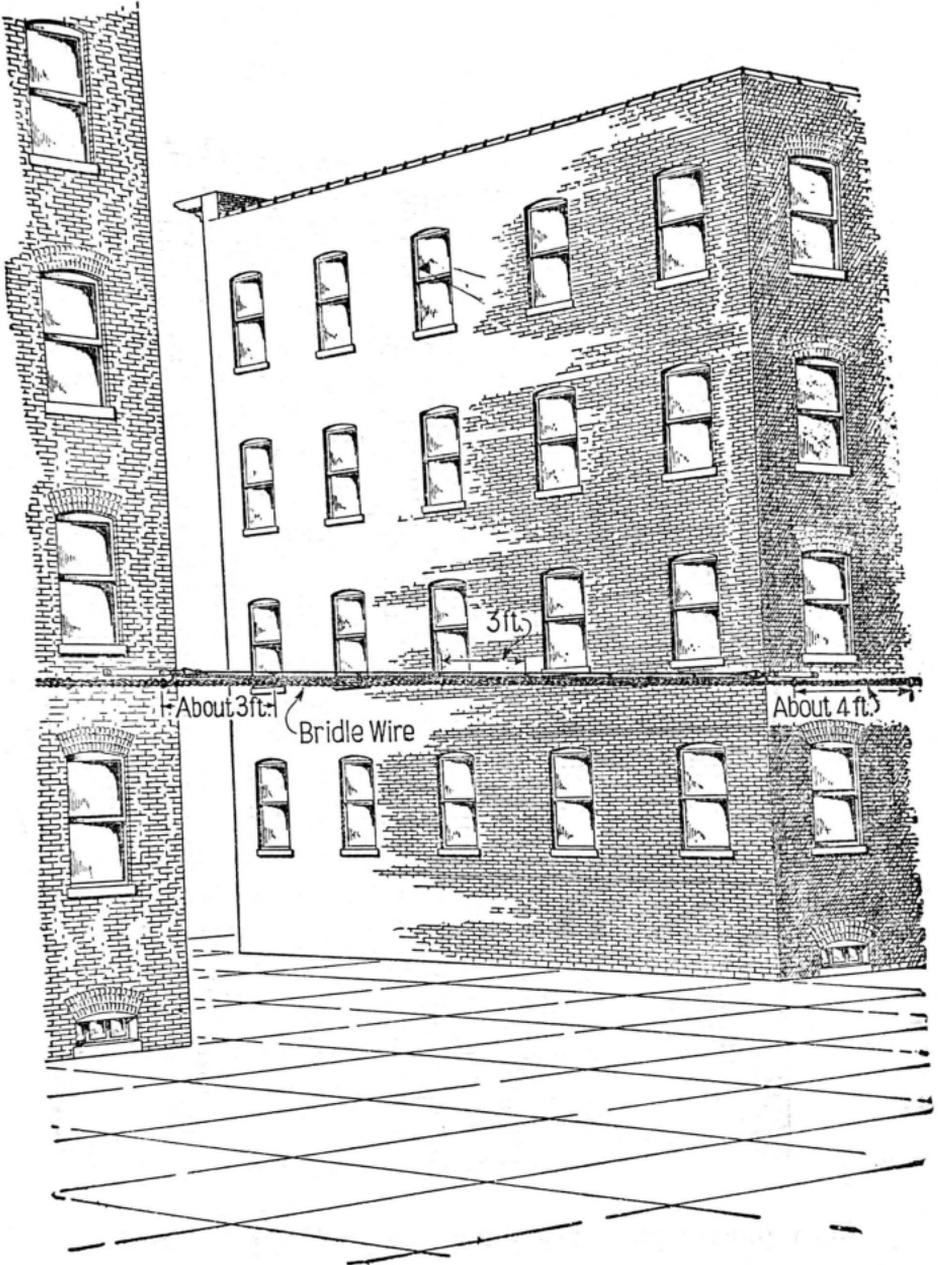
## 12. TYPICAL BLOCK WIRE RUNS

12.01 Typical Building Runs are shown in the following pictures.

(a) Bridle Ring Run.



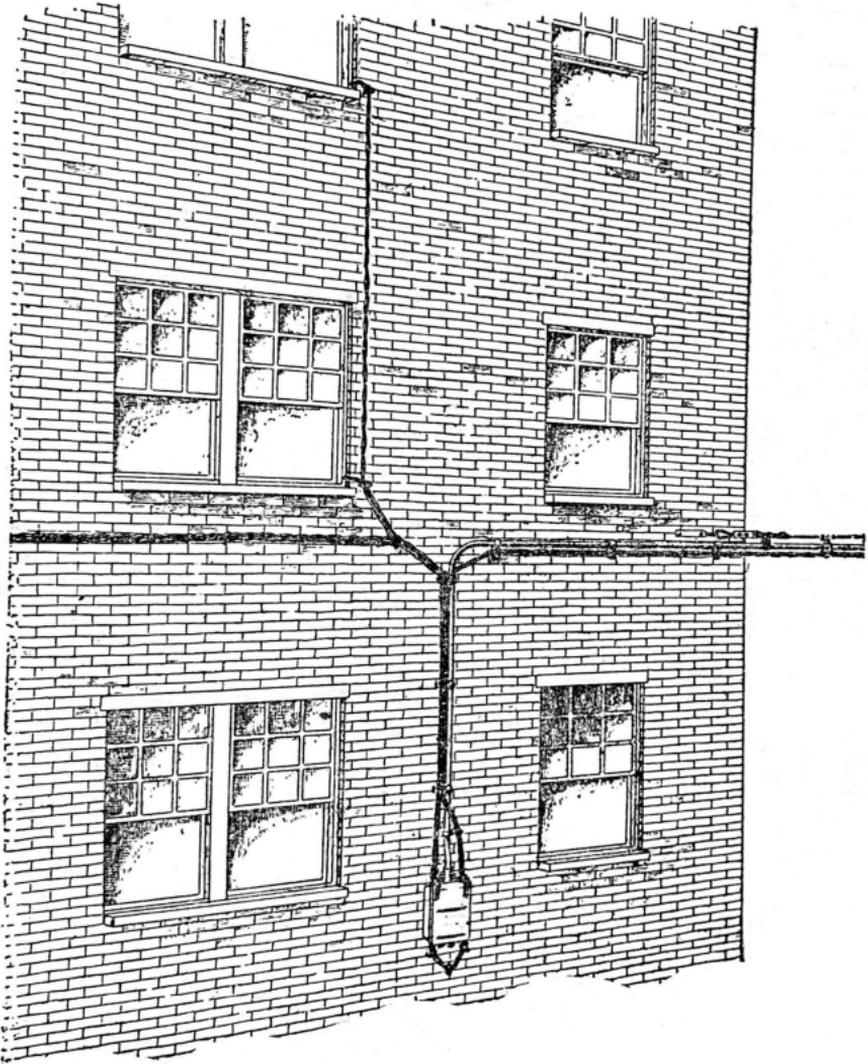
(b) Strand Run.



## BLOCK WIRE RUNS

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(c) Bridle Ring, Cable Clamp Ring and Strand Run.



(d) Insulated Screw Eye Run.

