SUBSCRIBER SETS TYPES FOR INDOOR LOCATIONS

INSTALLATION

1. GENERAL

1.01 This section covers the installation (locating and mounting) of subscriber sets of the types used at common battery stations at indoor locations which are not exposed to the weather, excessive dampness, etc., and where service conditions are not expected to be unusual.

1.02 This section does not, however, cover methods to employ in the installation of screw anchors or toggle bolts. For such information see Bell System Practices—Outside Plant Construction and Maintenance.

2. MATERIAL

Anchors:	**6-8 x 3/4 inch Screw Anchor.** (Attaching backboard to masonry or metal sheathing on brick, etc.)
	6-8 x 1-1/2 inch Screw Anchor. (Attaching backboard to plaster on masonry or glazed tiling on brick, etc.)
Bolt:	**1/8 inch x 4 inch B. H. Toggle Bolt.** (Attaching backboard or wooden set to plaster on metal lath or hollow tile, etc.)
Cleat:	**Inside Wiring Cleat.** (Attaching backboard to wall which is occasionally damp.)
Screws:	**(Length) No. 8 R. H. Blued Wood Screw.** Lengths: 3/4 inch, 1 inch, 1-1/4 inch, 1-1/2 inch, 2 inch, or 2-1/2 inch. (See Part 4 for proper length for various surfaces.)
	1 inch x 10-24 F. H. Bright Machine Screw. (Attaching backboard or wooden set to solid metal.)

5/8 inch x 8-32 Electro-Galvanized Machine Screw. (Attaching 534 type subscriber set to metal backboard.)

1/4 inch x 8-32 Electro-Galvanized Machine Screw. (Attaching 584 and 684 type subscriber sets to metal backboard.)

1 inch No. 8 Type Z Self-Tapping Screw. Parker-Kalon or approved equivalent. (Attaching backboard to metal desks and metal sets to metal desks.)

3. LOCATING

General

3.01 In locating subscriber sets be guided by the subscriber's wishes, the considerations outlined in other sections covering the "Locating and Mounting of Hand Telephone Sets and Desk Stands" and the considerations hereinafter outlined. If the subscriber's wishes cannot be followed, explain the reason therefor. If satisfactory arrangements cannot be made, consult your supervisor before proceeding with the work.

(a) **Audibility:** Select a location for set where bell will be clearly heard by subscriber, giving due consideration to the type of gongs on the ringer and volume of sound. In some installations the use of a bell at an extension station may be avoided by installing bell box in another room. Do not, however, install bell box in cellar (with desk stand or hand telephone set upstairs) and avoid, so far as practicable, locations in closets or similar enclosed places merely for the purpose of concealing the bell box unless such a location is in a bell box cabinet or telephone cabinet of approved type. Approved types of cabinets for housing bell boxes have grilles or other openings so telephone bell will be heard, and also have a removable face or cover which permits access to the bell box.

(b) **Dry or Hazardous Locations:** In so far as possible locate set in a dry location and where it will not be over or near a grounded metallic object, such as a radiator, register, sink, bathtub, steam riser, etc., nor near an electric light outlet or fixed electrical appliance, such as an electric stove. Where it is impracticable to obtain adequate separation from such objects, the desk stand or hand set mounting cord should be short enough to prevent the user from contacting with the object while using the telephone.

(c) **Finely Finished Surfaces:** Avoid locations on finely finished surfaces, such as marble counters or walls. If a set must be placed on such surfaces, first obtain permission to drill the surface from the subscriber or owner of the building. If surface selected would be expensive to repair in case of the removal of set or backboard, consult your supervisor.

(d) **Legibility:** Locate dial wall sets where there will be sufficient light for dialing, both at night and during the day.

(e) **Vibration:** Avoid a location where set would be exposed to vibration. In desk stand or hand telephone set installations the bell box (unless equipped with relay) may be placed on a vibrating support if no other support is available and vibration is not great enough to sound bell. If no other location can be agreed on and it seems necessary to place a wall or relay set on a vibrating support, consult your supervisor.

(f) **Crosstalk:** In order to avoid crosstalk in those cases where it is necessary to locate sets with either bakelite covers or wood sets with induction coils adjacent to each other, space such sets not closer than on 12-1/2 inch centers.

(g) **Accessibility:** Locate each set where it will be readily accessible for inspection.

Locating Bell Boxes

3.02 **In Cabinets:** If telephone or bell-box cabinets are provided by the subscriber, they should be used to house bell boxes wherever practicable. Inasmuch as there are many different types of such cabinets, it is not practical to show them all in detail. However, a typical illustration of a telephone cabinet and a bell-box cabinet is shown in Fig. 1.

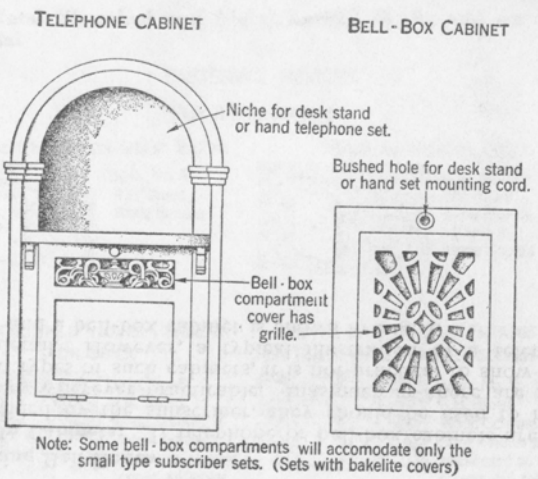


Fig. 1.

3.03 **On Walls:** Where instrument is to be placed on a desk, table or telephone stand (excluding telephone stands in modern hotels) and no bell-box cabinet is provided for the associated bell box, select a location on wall where bell box will be least likely to be damaged through the movement of furniture, which will be least likely to present a hazard (cord extending across a passageway) and will meet all other considerations.

3.04 If the distance between desk, table or telephone stand and wall exceeds approximately eight inches, select a location for bell box which will be either on wall or on desk, table, or telephone stand, depending on the conditions encountered.

3.05 **On Desks:** Where bell box is to be located on a desk, locate it as shown in the typical illustrations, Fig. 2 or Fig. 3. These illustrations show the two types of desks usually encountered. The two types of desks are as follows:

(a) Desks with or without a drop head for typewriter which does not enter knee well.

(b) Desks with a drop head for typewriter which does enter knee well.

3.06 In the case of (a) above, the left pedestal of wood and metal desks is shown in Fig. 2. It may, however, be more desirable to locate bell box on right pedestal if subscriber

wishes instrument placed on right side of desk. In such a case locate bell box on the knee well side of the right pedestal in the location that is comparable to locations 1 or 2. Where location 2 is selected, locate bell box as high on pedestal as practicable. Where conditions are favorable, select location for bell box in accordance with the following:

(a) Location 1 is preferable for bell box with bakelite cover.

(b) Location 2 is preferable for bell box with metal cover and should also be used where it is found impracticable to mount bell box with bakelite cover at location 1 due to insufficient space or where bracket is not furnished on metal desk.

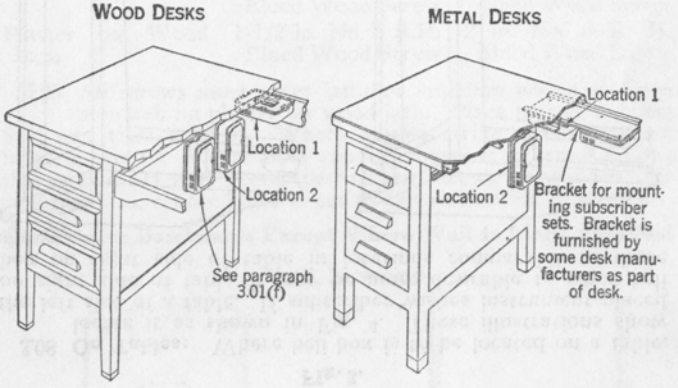


Fig. 2.

3.07 In the case of desks with a drop head for typewriter which enters knee well, locate bell box as shown in Fig. 3.

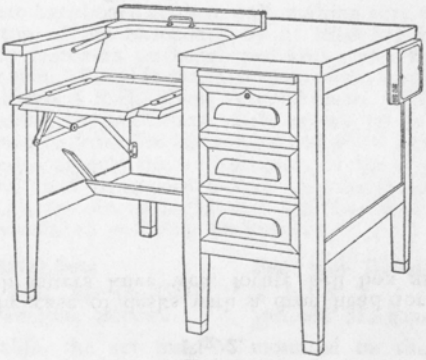


Fig. 3.

3.08 **On Tables:** Where bell box is to be located on a table, locate it as shown in Fig. 4. These illustrations show the left side of a table. If subscriber wishes instrument placed on right side of table, it may be more desirable to place bell box on right side of table in locations comparable to those shown.

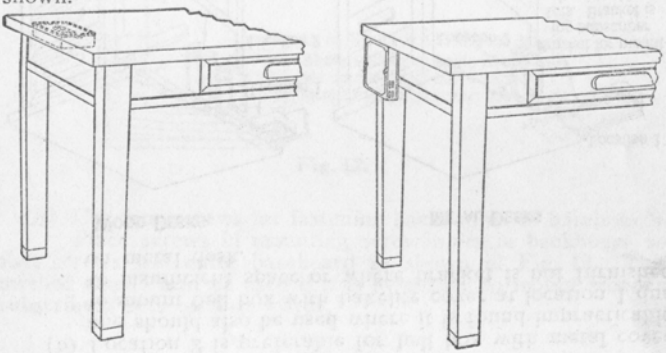


Fig. 4.

3.09 **On Telephone Stands in Hotels:** In the case of hotels equipped with a conduit system for wire distribution, a telephone stand is generally furnished in each room. If no bell-box cabinet is provided, locate bell box on the underside of stand and as near side facing wall as practicable, as shown in Fig. 5.

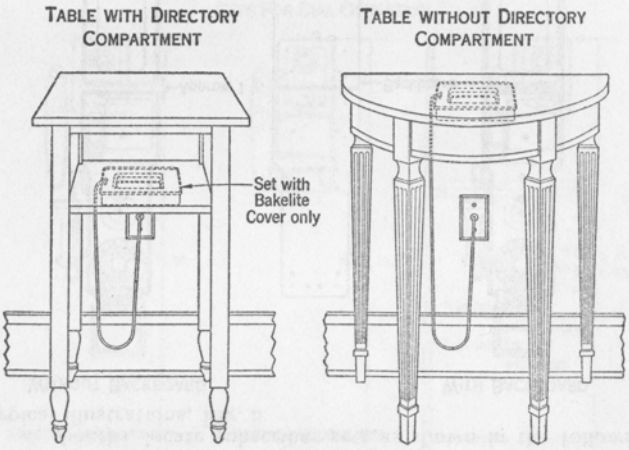


Fig. 5.

3.10 **At Coin Collector Installations:** Locate subscriber sets in telephone booths equipped with coin collectors as indicated in Fig. 6 or Fig. 7 depending on the type of booth.

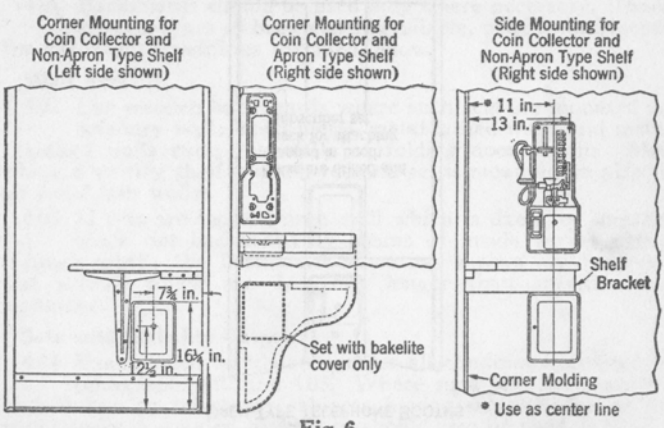


Fig. 6.

OPEN TYPE TELEPHONE BOOTHS

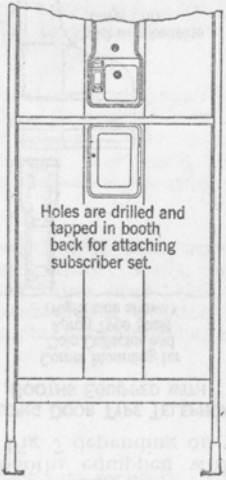


Fig. 7.

3.11 At multi-slot coin collector installations not in telephone booths, locate subscriber sets as shown in the following typical illustrations, Fig. 8

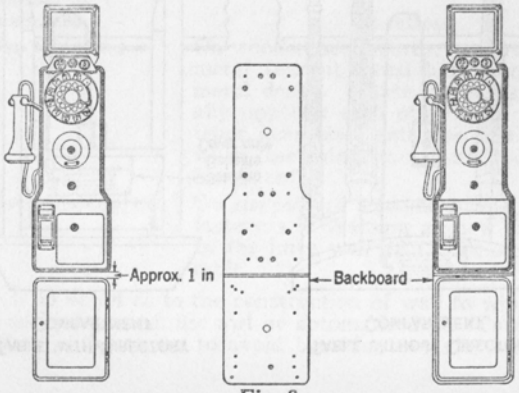


Fig. 8.

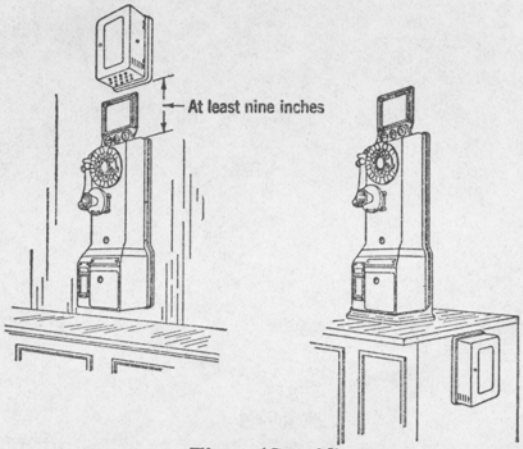


Fig. 8 (Cont'd).

Position of Gongs

3.12 Place bell boxes with gongs down except where:

(a) Bell boxes are necessarily so placed that the opening of door would be interfered with.

(b) Bell boxes with outside gongs are placed vertically under desks and gongs would be liable to damage from kicking if placed down.

(c) Bell boxes are placed horizontally under desks, tables or telephone stands.

(d) Bell boxes with relays for four-party selective service are placed so that relays are vertical (bell boxes plumb) and armatures up.

3.13 Never mount bell boxes with gongs one above the other, as this reduces ringing efficiency.

Locating Wall Sets

3.14 If satisfactory to subscriber, mount wall type sets with center of transmitter (face vertical) approximately 56-1/2 inches above the floor. If not satisfactory, place to suit subscriber.

3.15 Avoid locating wall type set with writing shelf where impracticable to mount at proper height without "blocking out." If impossible to place in some other location and it is impracticable to block out, use set without shelf if agreeable to subscriber.

3.16 The height from floor to top of set of some of the more commonly used wall sets is shown in Fig. 9 and Fig. 10. This height gives approximately the standard height of 56-1/2 inches to center of transmitter.

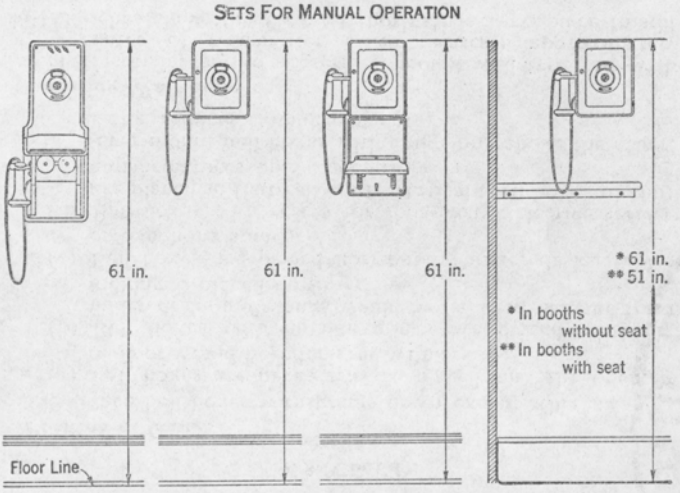


Fig. 9.

SETS FOR DIAL OPERATION

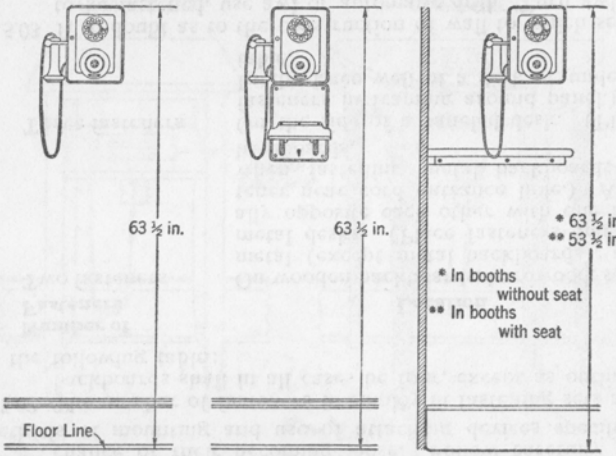


Fig. 10.

4. USE OF BACKBOARDS

General

4.01 Backboards should be used only where necessary. There are two types of backboards available, wooden and metal, for use under conditions specified below.

Wall Sets

4.02 Use wooden backboards where such sets are mounted on masonry walls, solid metal, metal lathed walls and metal sheathed walls excepting walls of folding door booths. Also where a writing shelf is employed and set is mounted on plaster on wood lath walls.

4.03 If sets are located on a wall which is damp, or uneven, block out backboard by means of inside wiring cleats through which the backboard mounting screws are inserted. Use screws which are 1/2 inch longer than specified for mounting.

Sets with Bakelite Covers

4.04 Use wooden backboards under all conditions outlined in paragraphs 4.02 and 4.03. Where such sets are mounted in bell box or telephone cabinets having metal backs or on metal desks, a wooden backboard should also be used.

4.05 Mounting on surfaces such as masonry and metal lathed walls may be avoided by mounting sets on the baseboard if of wood. Use metal backboard in such cases except where wall is metal sheathed. In such cases use wooden backboards.

Metal Sets

4.06 Use wooden backboards under all conditions outlined in paragraphs 4.02, 4.03 and 4.04 except where such sets are mounted on metal desks. Use metal backboards when mounting sets on wooden baseboards except where wall is metal sheathed. In such cases use wooden backboards.

Wooden Sets

4.07 Use wooden backboards with wooden sets where they are mounted on masonry walls, metal lathed walls and walls having metal sheathing over brick. If these sets have to be mounted on baseboards a wooden backboard should be used, inasmuch as no metal backboard has been standardized for this purpose.

5. MOUNTING

General

5.01 Fasten subscriber sets securely so that there will be no chance of their becoming loose. Follow carefully the methods of mounting and use of attaching devices specified.

5.02 The number of fasteners to employ in fastening sets and backboards shall in all cases be four, except as outlined in the following table:

Number of Fasteners	Location
Two fasteners	On wooden backboards, hardwood, solid metal (except metal backboards), and metal desks. (Place fasteners diagonally opposite each other with one fastener near cord entrance hole.) Also, when fastening metal backboards to baseboards.
Three fasteners	On the side of a paneled desk. (Place fasteners in framing around panel.) In the knee well of a desk or under a table.

5.03 If in doubt as to the construction of wall to which set is to be fastened, use awl or automatic drill. Turn awl or drill when withdrawing to avoid breaking out plaster.

On Wood (Including Wooden Backboards) and Plaster on Wood Lath Walls

5.04 The fasteners to employ in mounting subscriber sets on wood surfaces and plaster on wood lath walls are as follows:

Surface	Fastener Sets with Bakelite Cover	Metal and Wooden Sets
Hardwood (Including Wooden Backboards)	3/4 in. No. 8 R.H. Blued Wood Screw	1-1/4 in. No. 8 R.H. Blued Wood Screw
Softwood	1 in. No. 8 R. H. Blued Wood Screw	1-1/2 in. No. 8 R.H. Blued Wood Screw
Plaster on Wood Lath	1-1/2 in. No. 8 R.H. Blued Wood Screw	2 in. No. 8 R. H. Blued Wood Screw

5.05 All screws must enter laths or studding where sets are mounted on plaster on wood lath. Place screws in holes first and then in slots. Where screws strike space between laths, move set if first hole can be covered; otherwise slant the screws. If it is necessary to slant screws on wooden sets to strike lath, rebore holes in set to permit slanting of screws.

On Wooden Baseboards Except Where Wall Is Metal Sheathed

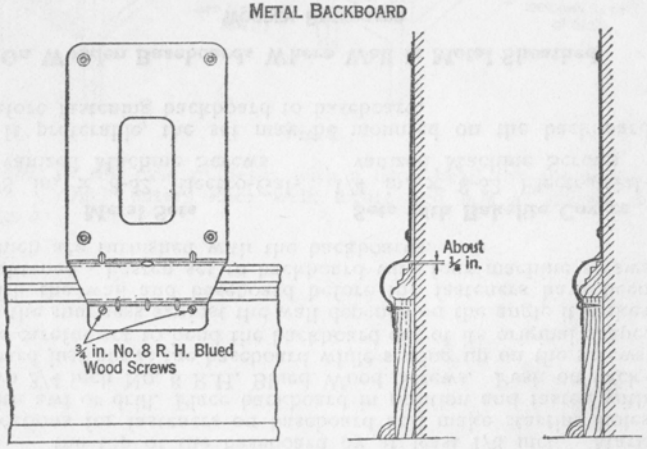


Fig. 11.

5.06 Locate backboard against wall, making sure that it clears the top of the baseboard by at least 1/8 inch. Mark locations for fasteners on baseboard and make starting holes with awl or drill. Place backboard in position and fasten with two 3/4 inch No. 8 R.H. Blued Wood Screws. Push on backboard just above the baseboard while setting up on the screws. Be careful not to bend the backboard out of its original shape, as the snugness against the wall depends on the angle it makes with the wall and baseboard before the fasteners have been tightened. Fasten set to backboard with four machine screws which are furnished with the backboards.

Metal Sets	Sets with Bakelite Covers
5/8 in. x 8-32 Electro-Galvanized Machine Screws	1/4 in. x 8-32 Electro-Galvanized Machine Screws

If preferable, the set may be mounted on the backboard before fastening backboard to baseboard.

On Wooden Baseboards Where Wall Is Metal Sheathed

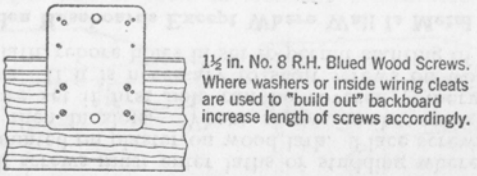


Fig. 12.

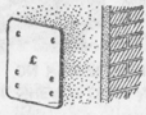
5.07 Use four screws for fastening backboards to baseboards. Place screws in mounting screw holes in backboard so that screws will enter baseboard as shown in Fig. 12. This method should also be used if it is necessary to mount wooden subscribers' sets on baseboards.

On Masonry Walls

FASTENING DEVICES

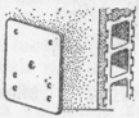
FOR BACKBOARDS ON

PLASTER ON MASONRY



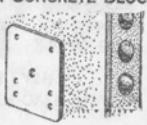
2½ in. No. 8 R.H. Blued Wood Screws in 6 - 8 × 1½ in. Screw Anchors

PLASTER ON HOLLOW TILE



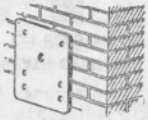
⅛ in. × 4 in. B.H. Toggles (Two required)

PLASTER ON PLASTER BLOCK OR CONCRETE BLOCK



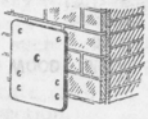
2½ in. No. 8 R.H. Blued Wood Screws in 6 - 8 × 1½ in. Screw Anchors. (See Note 1)

MASONRY



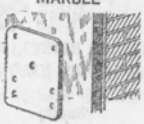
1½ in. No. 8 R.H. Blued Wood Screws in 6 - 8 × ¾ in. Screw Anchors (See Note 2)

GLAZED TILING



2½ in. No. 8 R.H. Blued Wood Screws in 6 - 8 × 1½ in. Screw Anchors (See Note 2)

MARBLE



1½ in. No. 8 R.H. Blued Wood Screws in 6 - 8 × ¾ in. Screw Anchors See Paragraph 3.01 (c)

Note 1: Where hole is made into hollow part of plaster block or concrete block it may be more desirable to use ⅛ in. × 4 in. B.H. toggles.

Note 2: In masonry or glazed tiling, place fasteners in brick or tiling rather than in seam.

Fig. 13.

5.08 When making holes through plaster on masonry or hollow tile, use a bit stock twist drill to avoid breaking out a hole larger than necessary. Then continue with masonry drill. When hollow tile is encountered, use light blows on drill in drilling to avoid shelling off the inner surface of the tile.

5.09 For drilling holes in marble and through glazed tiling, use an 11/32 inch straight shank twist drill, using masonry drill on brick under tiling.

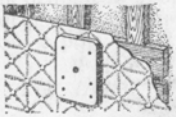
5.10 Place screw anchors flush with face of marble, tile or plaster on masonry.

On Metal Sheathed and Metal Lathed Walls and on Solid Metal

FASTENING DEVICES

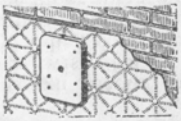
FOR BACKBOARDS ON

METAL SHEATH ON SOLID WOOD



1½ in. No. 8 R.H. Blued Wood Screws

METAL SHEATH ON BRICK

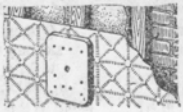


1½ in. No. 8 R.H. Blued Wood Screws 6-8 × ¾ in. Screw Anchor

METAL SHEATH OVER FURRING ON BRICK

1¼ in. No. 8 R.H. Blued Wood Screws. Bore 4 holes in backboard so that screws will enter furring.

METAL SHEATH OVER FURRING ON BRICK WITH PLASTER BETWEEN

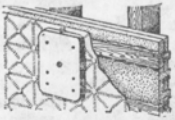


1¼ in. No. 8 R.H. Blued Wood Screws. Bore 4 holes in backboard so that screws will enter furring.

METAL SHEATH OVER ⅜ IN. SOLID WOOD ON PLASTER ON LATH

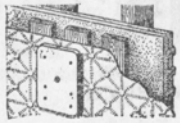
1½ in. No. 8 R.H. Blued Wood Screws

METAL SHEATH OVER ⅞ IN. FURRING ON LATH WITH PLASTER BETWEEN



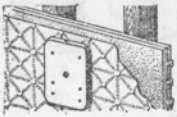
2 in. No. 8 R.H. Blued Wood Screws

METAL SHEATH OVER ⅜ IN. FURRING ON PLASTER ON LATH



2 in. No. 8 R.H. Blued Wood Screws

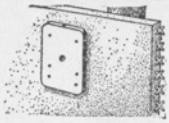
METAL SHEATH OVER PLASTER ON LATH



2 in. No. 8 R.H. Blued Wood Screws

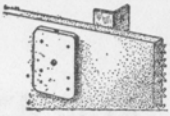
Fig. 14.

PLASTER ON METAL LATH ON STUDDING



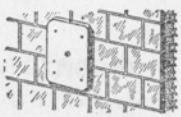
⅜ in. × 4 in. B.H. Toggles

PLASTER ON METAL LATH ON METAL FRAMEWORK



⅜ in. × 4 in. B.H. Toggles

GLAZED TILING OVER PLASTER ON METAL LATH

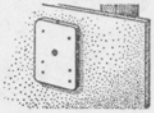


⅜ in. × 4 in. B.H. Toggles

SOLID METAL

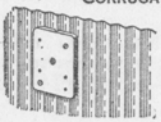
Use (2) 1 in. No. 10 - 24 F.H. Bright Machine Screws. Place screws diagonally opposite each other

PLASTER ON PLASTER BOARD



⅜ in. × 4 in. B.H. Toggles

CORRUGATED METAL



Use (2) 1 in. No. 8 Parker - Kalon Self Tapping Screws. Place screws diagonally opposite each other.

Fig. 14 (Cont'd).

5.11 In order to insulate metal sets from metal walls, see that backboard fasteners are not in contact with metal sets or with the screws which are used in attaching such sets to backboards.

5.12 On glazed tiling over metal lath use an 11/32 inch straight shank twist drill for drilling holes through the tiling. Then enlarge holes, using 1/2 inch or 5/8 inch bit stock twist drill.

5.13 On solid metal use No. 25 straight shank twist drill. Then tap holes with 10/24 machine screw plug tap.