My invention relates to a pipe sleeve for use in concrete or other types of ceilings, walls, or floors.

Therefore, in the use of sleeves for pipes to pass through when buildings are being constructed, it has been customary to take a short piece of pipe having the desired internal diameter and to place a cap over one end. Then a long bolt is placed through the cap, and the bolt is screwed into the wood form. With the above arrangement, the head of the bolt protrudes above the floor and is in the way, particularly when the floor is screeded. The pipe forming the liner also has an opportunity to shift a distance which is approximately the radius of the pipe, since one end of the pipe is not securely held in position.

It is an object of my invention to securely and accurately hold the adjustable pipe sleeve in position on the wooden forms about which concrete is poured.

Another object of my invention is to construct an adjustable pipe sleeve which will screw in or out of concrete that has hardened about the pipe sleeve.

Another object of my invention is to provide a water-proof adjustable pipe sleeve or tube which is adapted to pass through floors, ceilings, boards, or partitions of various thicknesses either in buildings, boats, or other related places.

Another object of my invention to provide a pipe sleeve which is adjustable to any thickness of floor, wall, or partition.

Another object of my invention is to provide a sleeve which will not interfere with the screeding of floors.

Another object of my invention is to provide a pipe sleeve through any material in a vertical position which extends just above the floor and, therefore, prevents water from seeping around the pipe when the floors are scrubbed.

Another object of my invention is to provide a pipe sleeve which can be used in old as well as in new buildings.

Another object of my invention is to provide a pipe sleeve with a flange formed therewith so that the flange can be painted to match the pipe, thereby eliminating extra floor and ceiling pipe plates.

Another object of my invention is to provide a pipe sleeve wherein the flanges may be easily positioned the correct distance from each other and also a proper distance from any wall or partition.

Another object of my invention is to provide a pipe sleeve which cannot be driven through the wall, floor, or partition after it is in place.

It is the present custom to attach floor and ceiling plates directly to the pipes by set screws or springs which are displaced by the movement of the pipes. With my invention the floor and ceiling plates remain in a permanent fixed position and are not displaced by the expansion, contraction, or movement of the pipes.

Another object of my invention is the provision to attach other additional commercial size floor and ceiling plates directly to the flanges of the sleeves.

Other objects of my invention are to provide an improved device of the character described that is easily and economically produced, that is sturdy in construction, and is efficient for the use to which it is placed.

With the above and related objects in view, my invention consists in the following details of construction and combination of parts that will be more apparent when the drawing is read in conjunction with the following specifications.

In Fig. 1 is a fragmentary sectional view of a building showing my improved pipe sleeves in the floors and in a vertical wall.

Fig. 2 is a plan view of one part of my new pipe sleeve.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken of the female part of the adjustable pipe sleeve.

Fig. 5 is a sectional view of the male part of the adjustable pipe sleeve.

Fig. 6 is an oil or paraffine-coated paper tube which is placed about the curved surface of the interfitting male and female parts of the pipe sleeve.

Fig. 7 is a side elevational view of my adjustable sleeve in closed position, and the dotted lines show the sleeve in an extended position.

Fig. 8 is a modified portion of an adjustable sleeve showing it as made in one piece.

Fig. 9 is a side elevational view of my improved adjustable sleeve with the lower flange fastened to a wood form preparatory to the filling in of the concrete about the form. The paper liner is omitted.

Referring now in detail to my invention, I show in Fig. 1 a fragmentary portion of a building, generally designated as A, which has a vertical side wall 10 and a vertical inner wall 12 and floors designated as 14, 15 and 16. The floors have therein adjustable pipe sleeves, generally desig-
nated as B, one adjustable sleeve being shown in the base partition 12 and in each of the floors 14, 15 and 16. A steam, water, or sprinkler system pipe, generally designated as C, is located in a horizontal position below the floor 14, and then is vertically positioned through the floors 14, 15, and 16.

It is to be observed that the adjustable pipe sleeves B in each of the floors 14, 15, and 16 are vertically aligned.

The pipe sleeve B is comprised of a metal flange 18 which has a large central opening 20 therein, and its end 21 is downturned to retain a small gasket 22 which surrounds the inner portion of the flange 18 to make the sleeve waterproof. A plurality of suitable spaced holes, 23, 24, 25, 26, 27 and 28 are in the main annular flange portion to receive nails whereby the device is held in place or to receive a tool whereby the sleeve may be turned and to receive an additional separate commercial standard size floor or ceiling plate as desired.

A female threaded sleeve 30 passes through the opening 20 in the flange 18 and also is inserted within one end of an oil or paraffine-coated cylindrical paper tube 32. The outer end of the sleeve 34 in the flange is united by a driving fit and flattened pipe on said flange 30 so they turn as one piece.

Interfiting with the female sleeve 30 is a male sleeve 34 which passes through a flange 36 and into the other end of the paper tube 32. The flange 36 and the outer end 35 of the sleeve 34 are united by a driving fit and flattened type so that they turn as one piece.

The physical construction of the tube sleeve 32 is shown in Fig. 6, that is the paper tube 32 encircles the outside surface of the interfiting male and female adjustable sleeves 34 and 30. Hence, after the concrete of a newly poured floor or wall surrounds the extensible pipe sleeve and paper tube 32, then the threaded interfiting parts may be turned to extend the pipe sleeve or to contract the pipe sleeve. The paper sleeve does not confer any resistance to the force of the concrete; hence, the threads are formed in the concrete as those in the external surface of the sleeve, and the threads in the concrete are comparatively smooth so that the threaded sleeve may be rotated to open or to closed position. The operation of turning the pipe sleeve is performed by inserting a tool in any of the flange openings and rotating the sleeve.

By the use of the paper sleeve, it should be apparent that during the pouring of concrete into the form of the building for either a floor, wall or ceiling, no concrete or liquid will pass between the interlocking threaded portions in order to solidify there and to prevent the moving or unscrewing of one of the parts with respect to the other. This is of considerable importance in pipe sleeves which are inserted in newly poured floors, walls, or ceilings.

In certain places such as in concrete, the tube 32 may be oil or paraffine coated, but when the sleeve is used in a wood floor or ceiling, the tube should be of asbestos or of non-combustible matter.

It has been customary in constructing buildings to form openings in the walls or ceiling to run steam or other pipes through the openings, and then to cover the outside of this space with a floor or ceiling plate, separable cap or ring both at the entrance or exit to the opening.

With my invention it is apparent that at the outset I can slip the proper pipe through the sleeve opening, without the necessity of using any packing subsequently and that the flanges 18 and 36 neatly cover the space surrounding the pipe opening.

While the foregoing description has been generally applied to the use of my invention for concrete structures, it is also within the scope of my invention to employ the device in wooden or other structures where an adjustable pipe sleeve is desired.

A modification of my invention is shown in Fig. 8 where a flange 21A is integrally pressed with the threaded sleeve 30A. Both the male sleeve and the female sleeve are constructed of one piece of metal.

My invention is assembled as follows:

The wooden forms such as 37, Fig. 9, on the wall or ceiling are nailed or supported in place. Then either the male or female part of the sleeve, such as the sleeve 34, is located in position on the wooden form—nails or other fasteners 33 are driven through each of the holes 23 to 28. With one portion of the sleeve in place, the sleeve 32 is placed over the fastened sleeve portion, and then the upper sleeve portion 30 is inserted into the upper end of the tube and turned, so the threads on the male and female sleeves interlock. The length of the sleeve is adjustable to the thickness of the floor.

After the concrete is poured into position and is hardened or in a semi-hardened condition, each sleeve is unscrewed, and a gasket 22 is placed under the floor flange 18.

The flanges may be painted any color desired, and they may also have different designations punched thereon.

Under certain conditions the sleeves may be of molded material; such as "bakelite", or molded metal, or spun metal.

It should be noted that the sleeves are of a larger internal diameter than the outside diameter of the pipe which passes therethrough in order to allow for the expansion or the free movement of the pipes, and that the sleeves cannot be driven through any substance in which they may be embedded or held.

Although my invention has been described in considerable detail, such description is intended as illustrative rather than limiting since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A pipe sleeve adapted to be inserted in the space defining the floor prior to the pouring of concrete which comprises a sleeve having its curved bounding surface threaded, a complementary interfiting sleeve with threads upon its curved bounding surface whereby the sleeves may be screwed together in order to extend or contract the length of the sleeve, a paper tube surrounding the curved bounding surface of the interfiting sleeve parts.

2. A pipe sleeve comprising a threaded male portion, a female sleeve interfiting with said male sleeve, each of said sleeves having a flange at one end thereof, and a paper tube surrounding the outer surface of the interfiting sleeve.

3. A method of forming an opening in a floor comprising building a form for the concrete, fastening a screw threaded part of a sleeve on said form, inserting a paper cylinder tube over said screw threaded sleeve, inserting a complementary part of said sleeve into said cylinder tube, screwing
the interfitting sleeve into position, and pouring the concrete in position around said pipe sleeve.

4. An adjustable metallic sleeve comprising a cylindrical threaded male sleeve, a flange rigidly attached on one end of said male sleeve, said flange having a plurality of openings therein, a cylindrical female sleeve, a flange rigidly attached to one end of said female sleeve, said last named flange having a plurality of openings therein, said male and female sleeves adapted to interfit in order that they may be adjusted as to length, and a cylindrical paper tube surrounding the outside surface of said interfitting sleeves.

5. An adjustable sleeve comprising a cylindrical male sleeve, a plurality of threads formed on the inside and outside of said sleeve, a flange rigidly attached on one end of said male sleeve, said flange having a plurality of openings therein, a cylindrical threaded female sleeve, a plurality of threads formed on the inside and the outside of said sleeve, a flange rigidly attached to one end of said female sleeve, said last named flange having a plurality of openings therein, said male and female sleeves adapted to interfit in order that they may be adjusted as to length, and a cylindrical paper tube surrounding the outside surface of said interfitting sleeves.

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