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CEILING HANGER

Filed March 20, 1956

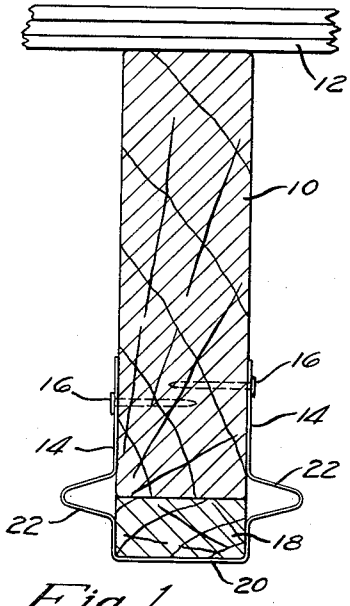


Fig. 1

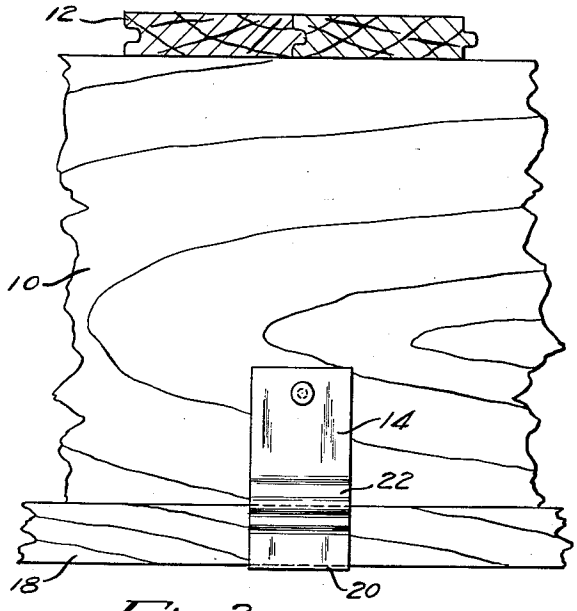


Fig. 2

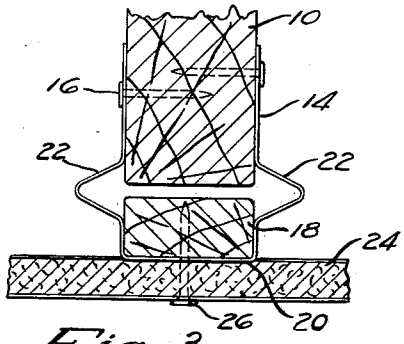


Fig. 3

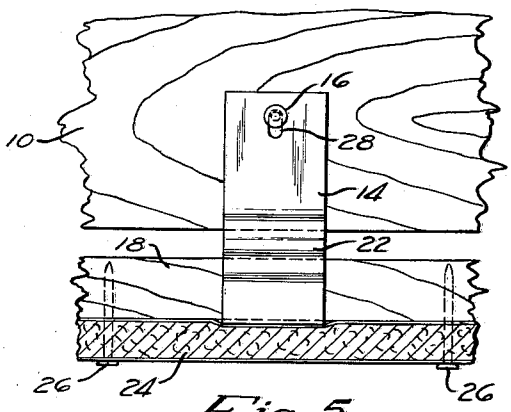


Fig. 5

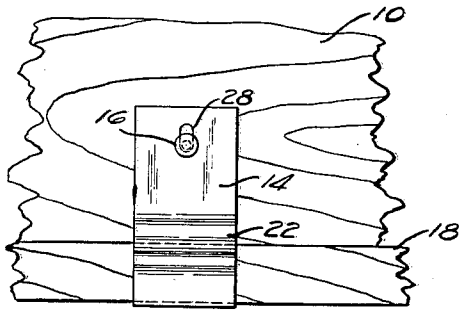


Fig. 4

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CEILING HANGER

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This invention relates to dry wall construction and more particularly to hangers for suspending a ceiling from joist construction in a building.

One of the objects of this invention is to provide structure for suspending a ceiling which will insulate the ceiling from the floor above to prevent the transmission of sound and vibrations from room to room.

In the normal building construction of the multi-unit type wherein an occupied suite is superimposed on another suite, a problem arises in the transmission of noise from suite to suite when dry wall construction is used in the ordinary manner on the ceiling. The usual manner of installing dry wall plasterboard is to nail it directly to the floor joist when making a ceiling or to the studding for wall construction.

The preferred embodiment of the invention disclosed herein is primarily adapted for use in the ceiling construction. When the dry wall panel is nailed directly to the lower side of the floor joist, the noise produced by walking on the floor above is transmitted directly through the the floor joist and the panel with the result that an undesirable disturbance in the room below occurs. In order to eliminate this disturbing sound transmission, a series of hangers are used which suspend the ceiling from the floor joist in such a manner that a barrier is produced which will not transmit the noise from the room above. Conventional furring strips are held in a stirrup-like hanger supported across the width thereof, in such a manner that there is no tendency for the furring strip to turn or twist. Also, the furring strip is against the joist during the nailing of the ceiling panel, which results in an unyielding structure in which to drive the nails. The separation of the furring strip and the joist is achieved automatically by the deflection of spring-like portions of the hanger when the weight of the ceiling is applied thereon. The springs further function to resist the transmission of vibration, and the transmission of sound from room to room, therefore, is substantially prevented.

Another object of this invention is to provide a hanger for suepending furring strips to which the dry wall paneling is nailed to form the ceiling.

A still further object of this invention is to provide a hanger which will hold the furring strips against the joist during the nailing operation when applying a dry wall plasterboard thereto and which will allow the furring strip to be suspended free of the joist when the weight of the plasterboard is carried thereby.

A still further object of this invention is to provide a ceiling hanger having spring sections included in the structure for resiliently carrying the ceiling structure, and preventing the transmission of sound through the hanger to the ceiling from the floor above.

Another object of this invention is to provide a ceiling hanger having structure which permits the furring strip carried thereby to be held against the ceiling during the nailing operation and suspended freely of the joist to which the hanger is attached after the ceiling material has been nailed to the furring strip.

A still further important object of this invention is to provide a ceiling hanger which engages the bottom and sides of the furring strip which is suspended thereby and eliminates any tendency of the furring strip to turn or twist.

Other objects and advantages more or less ancillary to

the foregoing, and the manner in which all the various objects are realized, will appear in the following description, which considered in connection with the accompanying drawings sets forth the preferred embodiment of the invention.

In the drawings:

FIG. 1 is an elevational end view showing the hanger in place with the furring strip in position for nailing;

FIG. 2 is a side view of the hanger shown in FIG. 1;

FIG. 3 is an end view of the hanger of FIG. 1 with the ceiling board installed;

FIG. 4 is a modified view of the hanger of FIG. 1 wherein a slot for the nail is provided; and

FIG. 5 is the hanger of FIG. 4 in the position assumed after installing the ceiling.

Referring first to FIG. 1, a floor joist **10** is shown therein of the type usually found in buildings for supporting the flooring **12**. The floor **12** is in direct contact with the joist and affixed thereto.

A hanger **14** of stirrup configuration is affixed to the joist **10** by nails **16** when the hanger is installed. A furring strip **18** lies in the rebent portion **20** of the hanger **14** and the hanger is so positioned when nails **16** are installed that the furring strip **18** is in contact with the lower face of the joist **10**. The hanger **14** includes spring-like bends **22** which flex to allow vertical movement of the furring strip **18** when a load is applied thereto. This flexing and the new position of the furring strip **18** is better illustrated in FIG. 3 wherein the ceiling panel **24** is fastened to the furring strip **18** by nails **26**.

When the nailing has been completed, and the load of the ceiling panel **24** is allowed to be carried by the furring strip **18** by removing temporary support required during nailing thus releasing the ceiling panel to apply the weight thereof to the furring strip **18**, the hanger bends **22** are flexed to a point that the furring strip **18** is separated from the joist **10**. This results in a gap between the furring strip **18** and the joist **10**, incapable of transmitting vibration and sound from the floor above. The spring-like bends **22** absorb the vibrations since the resonant frequency of the ceiling structure is very low and the hanger **14** is incapable of transmitting the vibrations into the ceiling.

In the modified form shown in FIGS. 4 and 5, a slot **28** is formed in the hanger **14** for receiving the nail **16**. The slot **28** allows vertical motion of the hanger **14** since the nail-head is not driven against the hanger **14**. During installation, the hanger **14** and furring strip **18** are in the uppermost position and the nail **16** is installed at the lower end of the slot **28**, in each leg of the hanger **14**. When the ceiling panel **24** has been applied to the furring strip **18**, the hanger **14** moves downwardly until the upper end of the slot **28** engages with the nail **16**. This feature provides for nailing the ceiling panel **24** to the furring strip **18** while it is against the joist **10** and after the nailing operation is completed the hanger suspends the furring strip **18** in spaced relation to the joist **10**. Bends **22** are provided for the spring action required to prevent the travel of sound and vibrations through the hanger **14** into the ceiling structure.

It is noted that in each instance the furring strip **18** is firmly and uniformly bearing against the joist **10** when the ceiling panel **24** is being installed, therefore, holding the furring strip **18** firmly in place during this operation. After the nailing has been completed, the weight of the ceiling construction accomplishes the separation of the furring strip **18** from the joist **10**. Since the ceiling structure is in suspended relation to the floor structure above and the suspension means includes a spring, there is no path remaining for the sound vibrations from the floor above to be transmitted to the room below.

A hanger construction has been described as primarily

adapted for mounting a furring strip to a joist, from which a dry wall ceiling is to be suspended, however, the hanger would be equally as successful in insulating against the travel of sound when other types of ceilings such as plaster, acoustic, wallboard, etc., are used. In other modifications, the expanded metal lath or sheet rock lath would be nailed to the furring strip prior to the placing of the plaster thereon. The hanger disclosed herein therefore, is particularly adapted for suspending any sort of object below a horizontal building structure in such a way that transmission of sound and vibrations will be inhibited.

It is to be understood that the specific nature of the present disclosure is not intended to be restrictive or confining and that various rearrangements of parts and modifications of design may be resorted to without departing from the scope or spirit of the invention as herein claimed.

Having thus described our invention, what we claim and desire to be secured by Letters Patent is:

1. A ceiling suspension clip for ultimately resiliently supporting a ceiling-supporting, wood, furring strip adjacent and spaced below a wooden ceiling joist comprising solely a thin narrow strip of resilient sheet material, said strip being formed to include a flat end section and a pair of symmetrical spaced leg members having a general extent substantially perpendicular to each respective terminus of said end section, each said member including a first flat portion remote from said end section for attachment to the side face of a joist, and an outwardly extending spring-like, rebent portion formed between said end section and said first flat portion and a second flat portion relatively closely adjacent said end section and co-planar with said first flat portion for holding a furring strip in alignment with a joist, said rebent portion being adapted to span the space between the furring strip and the joist.

2. A ceiling suspension clip for ultimately resiliently supporting wood furring strips adjacent and spaced below wooden ceiling joists comprising a thin narrow strip of resilient sheet material, said strip being formed to include a substantially rectangular, three-sided, upwardly-opening bottom section having a flat bottom leg and two flat side legs extending perpendicularly upwardly from each

end of said bottom leg, said strip having an outwardly-extending, spring-like rebent portion formed symmetrically immediately above the upper terminus of each said bottom section side leg, and two flat upper legs each extending upwardly from the upper terminus of a respective rebent spring-like portion within the plane of the respective bottom section side leg, whereby said clip may be applied to hold a furring strip in alignment below and in direct contact with a joist prior to application thereto of ceiling elements, said rebent portion being adapted to span the space between the furring strip and the joist.

3. A ceiling suspension clip for ultimately resiliently supporting wood furring strips adjacent and spaced below wooden ceiling joists comprising a thin narrow strip of resilient sheet material, said strip being formed to include a substantially rectangular, three-sided, upwardly-opening bottom section having a flat bottom leg and two flat side legs extending perpendicularly upwardly from each end of said bottom leg, said strip having an outwardly-extending, spring-like rebent portion formed symmetrically immediately above the upper terminus of each said bottom section side leg, and two flat upper legs each extending upwardly from the upper terminus of a respective rebent spring-like portion within the plane of the respective bottom section side leg, said clip being completely free of any elements between the two opposed planes of said bottom section side legs with the exception of said single flat bottom leg connecting the lower terminus of said bottom section side legs, whereby said clip may be applied to hold a furring strip in alignment below and in direct contact with a joist prior to application thereto of ceiling elements.

References Cited in the file of this patent

UNITED STATES PATENTS

1,578,964	Duphiney	Mar. 30, 1926
1,675,226	Munroe	June 26, 1928
1,778,412	Balduf	Oct. 14, 1930
1,935,536	Balduf	Nov. 14, 1933
1,980,900	Bemis	Nov. 13, 1934
2,039,382	Balduf	May 5, 1936
2,041,773	Manske	May 26, 1936
2,181,885	Goldsmith	Dec. 5, 1939
2,714,305	Nelsson	Aug. 2, 1955