Aug. 12, 1930. E. K. COLE 1,772,708

METHOD OF ANCHORING AND LEVELING SCREEDS

Filed Feb. 7, 1928

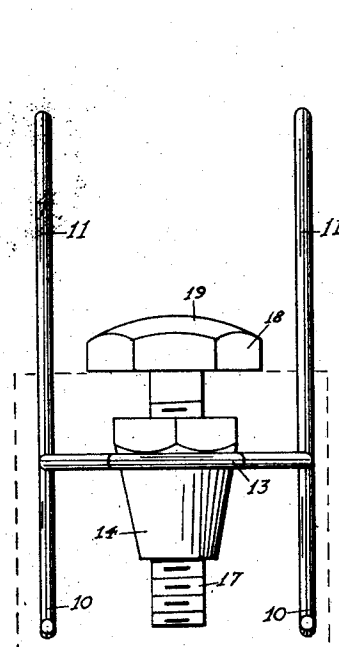


Fig. 1.

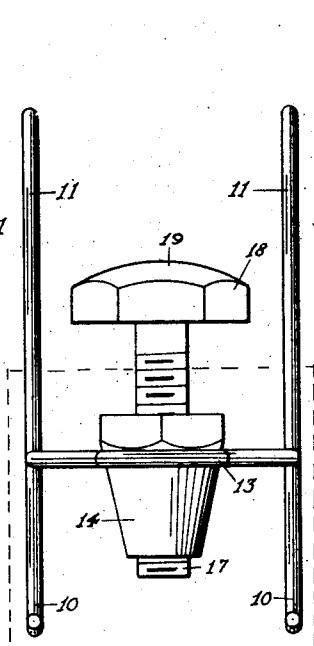


Fig. 2.

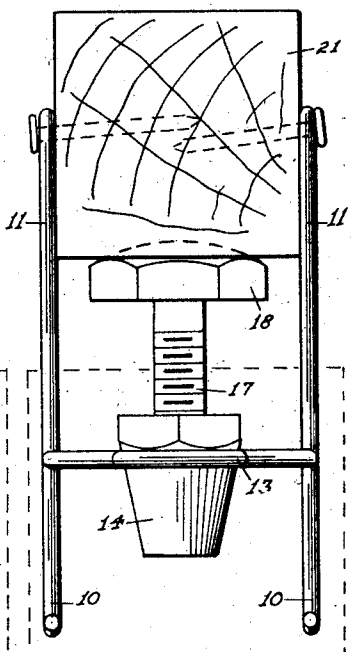


Fig. 3.

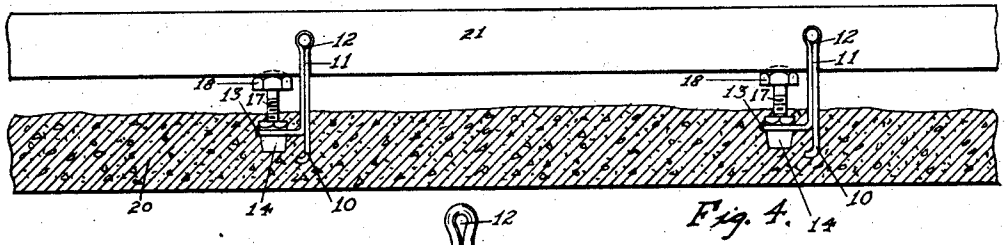


Fig. 4.

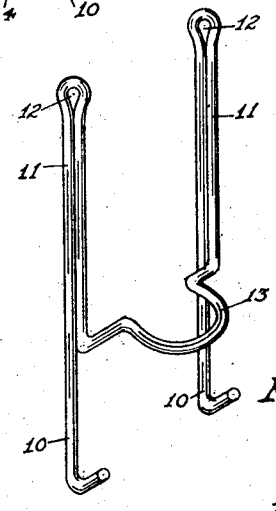


Fig. 5.

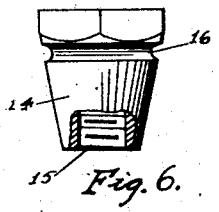


Fig. 6.

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UNITED STATES PATENT OFFICE

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METHOD OF ANCHORING AND LEVELING SCREEDS

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In the construction of buildings in which a wooden floor is placed upon the top of a concrete base, it is customary at the present time to insert in the concrete base, while it is in a plastic condition, a series of screed anchoring devices, and then later when the base has set and hardened, screeds are nailed to the screed anchoring devices, and the wooden floor is then nailed to the screeds. In structures of this kind the concrete base is usually uneven and when the wooden screeds are placed upon it in the anchors, and before they are nailed to the anchors, wooden wedges are usually placed between the screed and the concrete base to level the screed.

These devices and this method of applying them are objectionable in use, because after the screeds are nailed to the anchors, there is sometimes a slight amount of play in the connections between the anchors and the screeds, and furthermore, the screeds frequently contract or shrink after they are nailed to the anchors, and in both instances a certain amount of play is permitted between the finished wooden floor and the concrete base, which play is objectionable because it frequently causes creaking floors when persons walk over the loose parts thereof. Furthermore, a great deal of time and labor is consumed in properly fitting the wooden wedges under the loose screeds for screed leveling purposes.

The objects of my invention are to provide a combined screed anchoring and leveling device of simple, durable and inexpensive construction, which may be placed in the concrete base when in plastic condition in the ordinary manner, and then after the base is set and hardened, the screed supporting head for each anchoring and leveling device may be screwed upwardly from the concrete base until all of these screed supporting heads are level, and this operation may be done rapidly and easily, and then the screeds may be loosely placed upon the adjustable screed supporting heads and nailed in position to the screed anchors in the ordinary way, after which the adjustable heads may then all be screwed upwardly a certain predetermined amount, thus taking up all lost motion between the anchors and the screeds, and applying a tension to the screeds to hold them against downward movement, and at the same time compressing the fibers of the wooden screeds adjacent to the adjustable screed supporting heads, so that in the event that the screeds should contract or shrink after drying, the wooden floor will be immovably held against downward movement by the screed supporting heads, and against upward movement by the anchors.

A further object is to provide an improved method of securing screeds to a concrete base, whereby the operation of leveling the screeds may be quickly and accurately performed, and whereby all play or lost motion between the screed anchors and the screeds is taken up, and the connection between the screeds and the anchors is placed under tension, and whereby the material of which the screeds are formed is compressed at the points where the screed supporting heads engage it, so that the contraction and shrinking of the screeds after being adjusted will not result in any play or lost motion between the screeds and the screed supporting heads.

My invention consists in the construction, arrangement and combination of the several parts of the screed anchoring and leveling device, and in the method of applying same to a concrete base and wooden screeds, whereby the objects contemplated are attained, as hereinafter more fully set forth, and pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows an end elevation of one of my improved screed anchoring and leveling devices. The dotted lines show the outline of the concrete base in which the device is positioned. In this figure the adjustable screed supporting head is shown at its downward limit of movement and lying flat upon the top of the concrete base.

Figure 2 shows a similar view with the screed supporting head elevated to the position desired for leveling the screeds.

Figure 3 shows a similar view with a screed inserted in position nailed to the anchor and

having the screed supporting head partially pressed into its under surface.

Figure 4 shows a vertical sectional view of a portion of a concrete base with two of my improved screed anchoring and leveling devices in position therein, and a portion of a screed nailed to the anchors and engaged by the screed supporting heads.

Figure 5 shows a perspective view of the screed anchoring member; and

Figure 6 shows a side view of the body portion of the leveling member.

Referring to the accompanying drawings, it will be seen that my improved device comprises a screed anchoring member and a screed leveling member permanently connected with each other and designed to be inserted in a concrete base in the same manner in which screed anchors are now customarily applied. The screed anchoring member is preferably formed of a single piece of wire and is provided with two legs 10 designed to be inserted into the concrete base, and two upwardly extending arms 11 designed to embrace a screed and having nail holes 12 at their upper ends. The central portion of the wire of which the anchor is formed is preferably formed with a loop 13 in which there is inserted a screed leveling base member, which comprises a tapered body portion 14 having a screw threaded opening 15 extended through it and being formed with an annular groove 16 designed to receive the loop 13 and to be supported in an upright position by said loop. Mounted in the screw threaded opening 15 is a screw threaded shank 17 having at its upper end a screed supporting head 18 preferably rounded at 19 at its upper end. The sides of the head 18 are preferably of hexagon shape to receive a wrench.

The reference numeral 20 indicates a concrete base and 21 a wooden screed, both of ordinary construction.

In practical use, when the concrete base is in a plastic condition, a number of my improved screed anchoring and leveling devices are placed in rows properly spaced apart from each other throughout the surface of the concrete base. They are inserted by simply pushing them down into the base until the undersurface of the screed supporting head 18 comes approximately level with the concrete base, as shown in Figure 1. After the base has set and hardened, and it is desired to level the screeds, then the operator first establishes a level over the entire floor along the lines where the bottoms of the screeds are to lie permanently. This is usually done by stretching strings at the proper places, or by the use of a straight edge. Then the operator uses a quick acting wrench designed to fit the screed supporting heads and applies this wrench to the heads and screws them upwardly until they are at the desired level. This may be very quickly and easily accomplished, and on account of the screw threads, the leveling may be done with great accuracy, and when once placed in proper position, these heads are substantially immovable, except when a wrench is applied to them. When this leveling has been done throughout the entire floor, then the wooden screeds are placed on the screed supporting heads and between the upwardly extending arms of the anchor members and are nailed to the anchor members in the ordinary manner. After the screeds have been nailed to the anchors, then the operator employs a wrench and turns each screed supporting head a certain predetermined number of revolutions, say for instance, two revolutions. This has the effect of forcing the screed upwardly and taking up any play or lost motion that there might be between the screed and the anchor. It also forces the rounded upper surface of the screed supporting head into the fibers of the wood, causing the wood to be compressed and placed under tension. Obviously, if all of the screed supporting heads are turned the same number of revolutions, this tension and compression will be equally applied throughout the entire floor. Then, after the wooden floor has been laid, and in the event that the wood of which the screeds are formed should contract or shrink, it will still remain in firm contact with the rounded tops of the screed supporting heads, because at that point the wood had been previously compressed and put under tension. In practice, I have found that screeds may be employed that are thoroughly soaked in water, and yet after having become thoroughly dried, they will not contract or shrink to such an extent as to clear themselves from engagement with the screed supporting heads.

In practice with my improved method, the anchoring and leveling devices are embedded in the concrete when it is in a plastic condition. Then the screed supporting heads are screwed upwardly to a common level, and after the screeds have been nailed to the anchor members, the screed supporting heads are again turned upwardly a certain predetermined amount, and all of the heads in a floor are screwed upwardly to substantially the same distance, resulting in the compression of such portions of the screeds as are in immediate contact with the heads, and at the same time taking all play or lost motion out of the connection between the screeds and the anchors, so that subsequent contraction or shrinking of the screeds will not cause any play or lost motion between the screeds and the screed supporting heads, and the floor will be prevented from creaking when being walked upon.

I claim as my invention:

1. The method of anchoring and leveling screeds upon a concrete base, which method consists in inserting a row of screed anchors in plastic concrete base, then adjustably se-

curing a series of screw threaded members to the concrete base in line with the anchors, then leveling the upper ends of all of the screw threaded members by screwing them up or down, then firmly fixing wooden screeds to the anchors, and finally screwing all of the screw threaded members upwardly substantially the same distance, and thereby applying an upward strain upon the anchors and their connections through the screeds, and partially compressing the material of the screed at the points where said screw threaded members engage it.

2. The method of anchoring and leveling screeds on a concrete base, which consists in first inserting a row of screed anchors in a plastic concrete base, then inserting in said base means for adjustably applying upward pressure to the under side of a screed when applied to said anchors, then applying a screed to said anchors, and finally adjusting said pressure applying means to exert upward strain upon said anchors and their connections through said screeds.

3. The method of anchoring and leveling screeds on a concrete base, which consists in first inserting a row of screed anchors in a plastic concrete base, then inserting in said base means for adjustably applying an upward pressure to the under side of a screed when applied to said anchors, then placing a screed adjacent to said anchors and above the pressure applying means, then adjusting the pressure applying means to aline said screeds horizontally, then permanently fastening the screeds to said anchors, and further adjusting said pressure applying means to permanently apply an upward strain upon said anchors and their connections through said screeds.

4. The method of anchoring and leveling screeds upon a concrete base, which consists in first inserting in a plastic concrete base a row of screed anchors and allowing the concrete to harden, applying a screed adjacent to said anchors, and alining the same horizontally, then permanently securing the screed to said anchors, and finally applying devices to produce a permanent upward strain upon said anchors and to their connections through said screed.

Des Moines, Iowa, December 31, 1926.

ELMER K. COLE.