Aug. 25, 1953

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2,650,120

SCAFFOLD CONNECTION

Filed Feb. 24, 1951

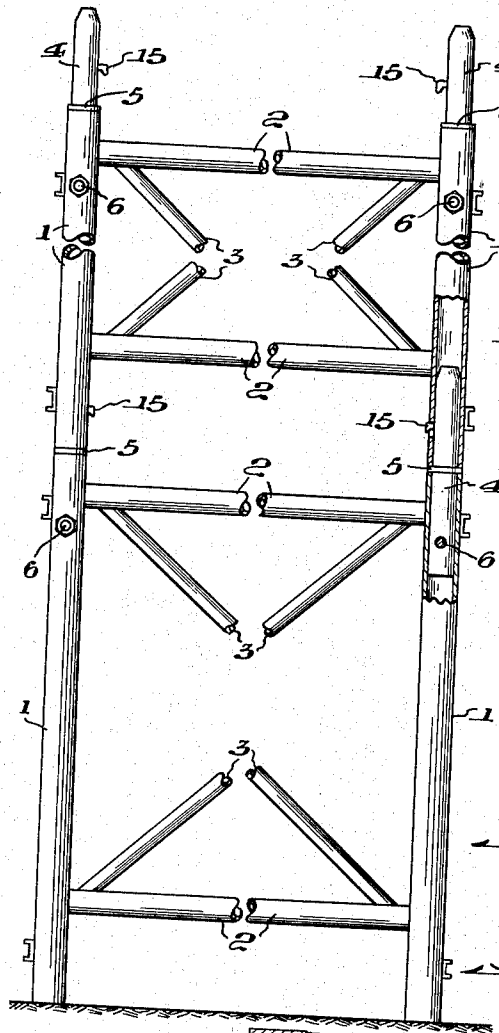


Fig. 1.

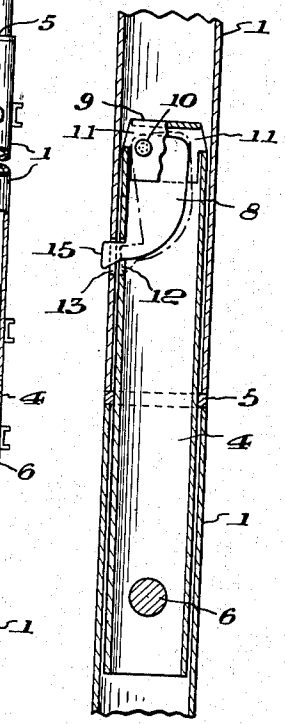


Fig. 2.

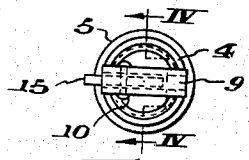


Fig. 3.

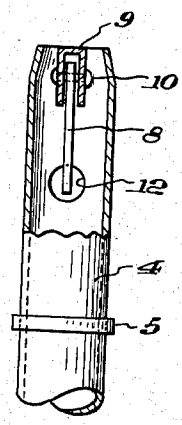


Fig. 4.

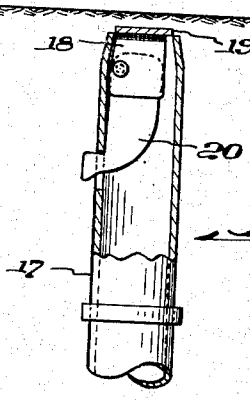


Fig. 6.

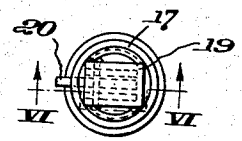


Fig. 5.

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Patented Aug. 25, 1953

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UNITED STATES PATENT OFFICE

2,650,120

SCAFFOLD CONNECTION

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Application February 24, 1951, Serial No. 212,665

2 Claims. (Cl. 287—119)

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This invention relates to metal scaffolds, and more particularly to the coupling pins by which prefabricated end frames are detachably connected together in superimposed relation.

It is among the objects of this invention to provide such a coupling pin which contains means for automatically locking it in a tubular end frame leg telescoped over it, and in which the locking means is positive in action and simple in construction and operation.

In accordance with this invention, two or more scaffold end frames, each of which includes a pair of tubular legs, are placed on top of each other with their legs in alignment. The frames are locked together and prevented from sliding laterally off each other by means of coupling pins projecting from the upper ends of the lower legs and extending into the lower ends of the adjoining upper legs. The side wall of the upper part of each pin is provided with a hole that registers with a hole in the wall of the surrounding leg. Inside the pin is a vertical latch, the upper end of which is pivotally supported above the level of the registering holes. The center of gravity of the latch is so located that the latch always tends to swing toward one side of the pin, and the lower end of that side of the latch has a lateral projection that therefore normally extends out through both holes to keep the upper leg from being lifted off the pin unless the projection first is pushed back into the pin. The latch may be suspended from a pivot pin mounted in a bracket supported in the upper end of the pin.

The invention is illustrated in the accompanying drawings, in which Fig. 1 is a view of two superimposed scaffold end frames with adjoining portions of two of their legs broken away to show the coupling pin inside of them; Fig. 2 is an enlarged fragmentary vertical section of a pair of the superimposed legs showing a coupling pin also in section; Fig. 3 is a plan view of the coupling pin; Fig. 4 is a vertical section of the pin taken on the line IV—IV of Fig. 3; Fig. 5 is a plan view of a modified coupling pin; and Fig. 6 is a vertical section taken on the line VI—VI of Fig. 5.

Referring to Fig. 1 of the drawings, each of a pair of superimposed scaffold end frames has vertical tubular legs 1 rigidly connected by horizontal braces 2. Crossed inclined braces 3 connect the horizontal braces. To hold the upper frame in place on the lower frame, coupling pins 4 are used which extend from the lower legs up into the upper ones. Each coupling pin is a tubular member encircled about midway between its ends by a collar 5. The portion of the pin below the collar is inserted in the upper end of an end frame leg with the collar resting on top of the leg. The lower end of the pin is provided with a pair of diametrically opposite holes which register with similar holes in the surrounding leg. A suitable fastening member 6, such as a bolt, extends through the aligned holes for holding the pin in the leg. A leg of the upper end frame is slid down over the pin and rests on its collar. The upper end of the pin may be tapered to facilitate application of the upper leg to it. The coupling pins therefore hold the legs of the two frames in vertical alignment and prevent them from slipping sideways off each other.

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To detachably lock the upper frame on the lower one, the coupling pins are provided with gravity-actuated latches. The major portion of each latch 8 is entirely inside the upper part of a pin and has its upper end projecting up into an inverted U-shape bracket 9 where it is pivotally suspended from a horizontal pivot pin or rivet 10 mounted in the bracket. The upper parts of the ends of the bracket have extensions 11, as shown in Fig. 2, that project out into vertical notches cut in the upper end of the coupling pin. The bracket is welded in these notches to hold it in place, with its top flush with the top of the pin. Rivet 10 is disposed close to one end of the bracket so that the center of gravity of the latch will be between the rivet and the opposite end of the bracket. This causes the latch to swing toward the side of the coupling pin nearest to the rivet. This particular side of the coupling pin is provided near the lower end of the latch with a hole 12 that registers with a similar hole 13 in the side wall of the encircling leg 1. The lower end of the latch has a lateral projection 15 that normally extends out through the two registering holes and thereby locks the upper leg on the pin.

When the upper leg is slipped down over the coupling pin, the lower end of the leg will strike the latch projection 15 and swing it downward and into the pin until the leg can slide past it. As soon as the hole 13 in the leg registers with the hole 12 in the coupling pin, gravity will cause the latch to swing its projection out through the two holes. Any attempt to lift the leg from the pin will cause the lower wall of the leg hole to engage the latch projection and attempt to swing it upward and outward. Such a movement of the latch being impossible, the leg is prevented from being removed from the cou-

pling pin. To provide an even more positive lock, the lower surface of the latch projection may be inclined outward and downward as shown in Fig. 2. Before the upper leg can be lifted from the coupling pin the latch projection has to be pushed inward by a workman, thereby swinging the latch toward the opposite side of the pin, and held in that position until the leg is lifted far enough for its inner surface to engage the outer end of the latch projection. The leg itself then will hold the latch retracted until the leg is lifted above the latch projection, whereupon gravity will swing the latch back to its operative position.

In the modification shown in Figs. 5 and 6, the tapered upper end of the hollow coupling pin 17 is not notched. Instead, the latch-supporting bracket 18 is welded to the bottom of a metal plate 19 which rests on top of the pin, to which the plate is welded. The gravity actuated latch 20 functions in the same manner as the one just described.

It will be seen that the scaffold connection disclosed herein automatically locks itself in the tubular leg that is slid down over it, the locking being accomplished by the action of gravity. The lock always is in condition to operate, and there is nothing about it to get out of order. The lock remains in locking position until pushed out of it by a workman, and will swing back to locking position as soon as released again. The locking means is simple in construction and is well protected by the coupling pin.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A scaffold connection comprising a vertical hollow pin adapted to extend from a scaffold member into a vertical tubular member, the side wall of the pin being provided with a hole and the upper end of the pin being provided with a pair of diametrically opposite vertical notches, a vertical latch inside the upper part of the pin, a bracket having its ends rigidly mounted in said notches, and a pivot pin mounted in the bracket and supporting the upper end of the latch with its center of gravity at the side of the pivot pin opposite to said hole, the lower end of the latch having a lateral projection normally extending out through said hole but adapted to be swung back into the pin.

2. A scaffold connection comprising a vertical hollow pin adapted to extend from a scaffold member into a vertical tubular member, the side wall of the pin being provided with a hole and the upper end of the pin being provided with a pair of diametrically opposite vertical notches, a vertical latch inside the upper part of the pin, and an inverted U-shape bracket having its ends projecting into said notches and rigidly mounted therein and having substantially parallel side walls extending down into the pin, and a pivot pin mounted in said bracket side walls and supporting the upper end of the latch between them with the center of gravity of the latch located at the side of the pivot pin opposite to said hole, the lower end of the latch having a lateral projection normally extending out through said hole but adapted to be swung back into the pin.

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