O. P. GREENSTREET.

METALLIC SHINGLE.

APPLICATION FILED APR. 3, 1920.

1,432,999.

Patented Oct. 24, 1922.

Fig. 1.

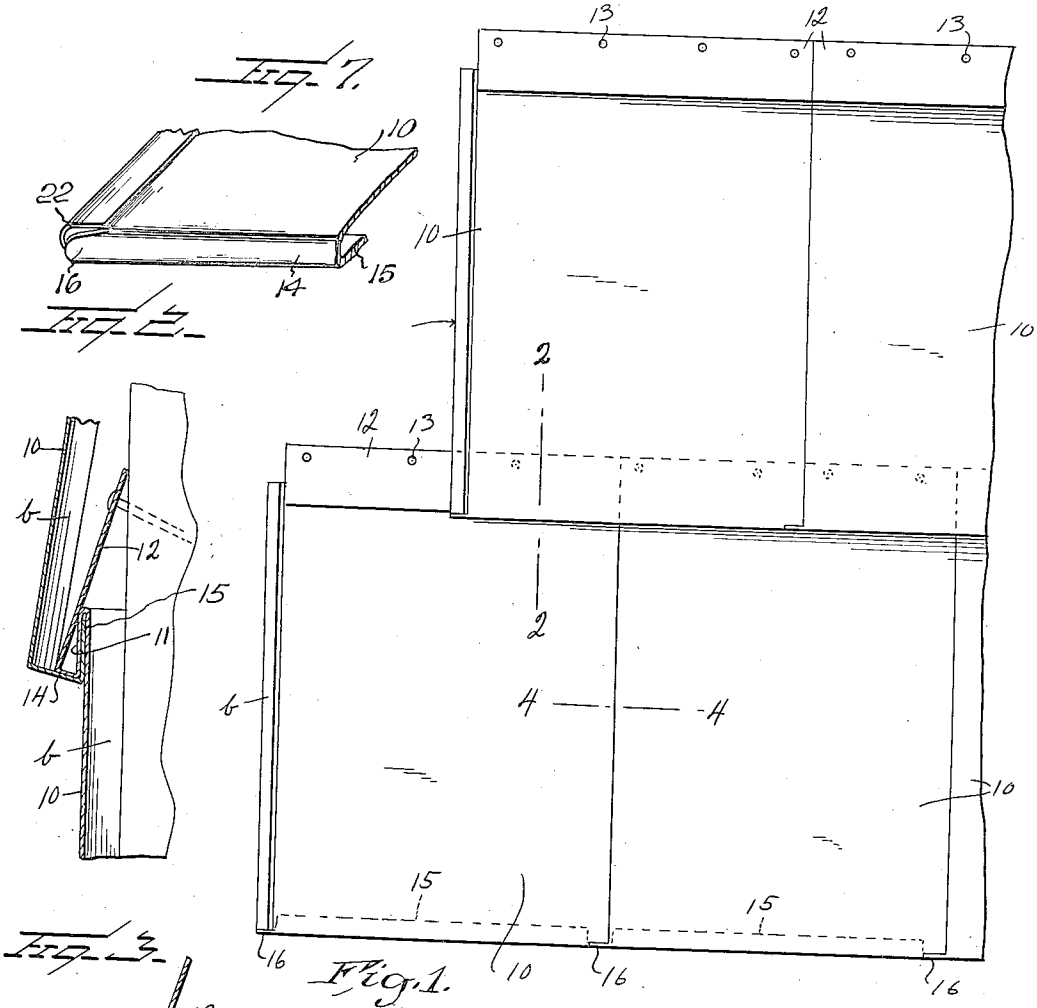



Fig. 2.




Fig. 3.




Fig. 4.

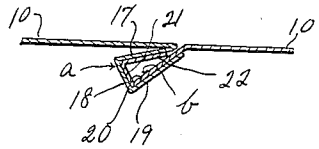



Fig. 5.

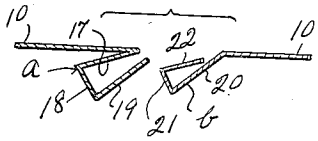
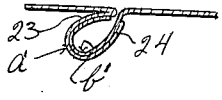



Fig. 6.




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# UNITED STATES PATENT OFFICE.

OLIVER P. GREENSTREET, OF QUAPAW, OKLAHOMA.

## METALLIC SHINGLE.

Application filed April 3, 1920. Serial No. 371,081.

*To all whom it may concern:*

Be it known that I, OLIVER P. GREENSTREET, a citizen of the United States, residing at Quapaw, in the county of Ottawa and State of Oklahoma, have invented certain new and useful Improvements in Metallic Shingles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to metallic shingles used for covering roofs and for sheathing purposes, and the general object of the invention is to provide a very simple, cheaply made and thoroughly effective metallic shingle having locking flanges on its margin so arranged that the shingles may be readily interlocked with each other, and when so interlocked, rain-proof joints will be formed between the shingles.

A further object is to provide a shingle so constructed that no soldering will be required, that all the nails used in attaching the shingle to the roof boards will be covered up, and the joint being such as to permit maximum expansion and contraction.

A further object is to provide a shingle of this character in which the joints will be covered so as to prevent the entrance of water at the lower ends of the beads and prevent water being carried along the joints of the shingles by capillary attraction.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a plan view of metallic shingles embodying the improvements of my invention;

Figure 2 is a sectional view on the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2 with the parts detached and in juxtaposition to each other;

Figure 4 is a section on the line 4—4 of Figure 1;

Figure 5 is a section approximately on the line 4—4 of Figure 1 but with the parts detached from each other;

Figure 6 is a detail view of a modification hereinafter specifically referred to;

Figure 7 is a fragmentary perspective view of the lower end of one of the shingles.

Referring to these drawings, it will be seen that each shingle consists of a sheet of metal 10 which is preferably zinc, though it might be made of any other desirable metal, and may have any suitable gauge. This shingle is formed with side flanges which are bent to form beads, as will be later described. The side flanges terminate short of the upper end of the shingle, and this upper end of the shingle is bent inward below the body of the shingle, as at 11, and then extended upward beyond the upper exposed edge of the shingle, as at 12, this attaching flange so formed being perforated, as at 13. The lower edge of the shingle is formed with a flange which extends downward, as at 14, and then inward, as at 15, this flange terminating just short of the lateral beads. The flange 14 is formed with an extension or tongue 16 projecting laterally beyond one side edge of the shingle and over the open end of the bead 20 formed on this margin of the shingle, as will be later described.

One side margin of the shingle is bent under the body of the shingle, as at 17, then is bent downward, as at 18, and then upward, as at 19, to provide an approximately triangular, relatively open and relatively large bead which is open at its ends. The opposite wall of the shingle is bent downward and outward, as at 20, and then upward and outward, as at 21, and then inward and upward, as at 22, so as to form an approximately triangular bead. The bead *b* of one shingle is adapted to be inserted in the bead *a* of the next adjacent shingle. The tongue or extension 16 extends over the open end of the engaged beads so that the lower ends of the engaged beads are entirely closed against the admission of water.

It will be understood that the shingles are laid, as illustrated in Figure 1, with the apices of the beads *a* and *b* extending downward and toward the roof sheathing and with the flanges 12 nailed to the roof sheathing. After a lower course of shingles has been laid, the upper course is laid by engaging the inturned flange 15 with the hooked portions 11 in the manner illustrated in Figure 2, thus completely covering the nails of the course below. Of course, the upper row of shingles is laid to break joints with the lower row in the usual manner. When the two shingles interlock with each other in the manner heretofore described, it will be obvious that the joint between the shingles is very close and tight, particularly so inasmuch as in order to interlock the shingles they should be placed at a slight angle to each other, and when the shingles are flat-

tened down on the roof so that the shingles are in line with each other, this joint between the engaged margins of the beads *a* and *b* will be very tight and closed.

It will be understood that it is not practical to form the sharp-cornered beads illustrated in Figure 5 by machinery, but ordinarily the beads will have the form shown in Figure 6, where the beads are formed by turning the margin of the shingle back somewhat upon the shingle, as at 23, and then curving this margin to form a more or less circular or elliptical bead, as at 24, and this bead *a'* corresponding to the bead *a* and the bead *b'* corresponding to the bead *b*. These beads operate in the same manner as those heretofore described and are approximately the same as the triangular beads to all intents and purposes, but the triangular beads hold the parts more rigidly together and preventing any turning movement.

A roof laid of shingles constructed in accordance with this invention is very tight and the open beads forming the locks or joints between the shingles permit the shingles to have a maximum expansion and contraction, thus adapting the shingles to all climes. Shingles constructed in accordance with this invention are adapted to all roofs, from comparatively flat roofs to roofs of maximum pitch, and, of course, may be used for all sorts of buildings. This construction does entirely away with soldering. The nails are fully covered up and protected from moisture, and if the shingle be made of zinc or other non-corrosive metal, it will not rust. Inasmuch as the shingles are only nailed at the top and are held in place by the locks on both sides and the bottom, sample space is permitted for longitudinal and lateral expansion. It will be seen that by spacing the body of the shingle from the roof sheathing, sweating of the roof is prevented. It will further be noted that the joints in applicant's construction open upon the top of the shingle and that the beads at the sides of the shingles fit closely to each other and the water which runs through one pair of interlocked beads is discharged upon the middle of the shingle below. This will prevent any water from collecting upon the roof. The lugs 16 do not come in such tight contact with the lower ends of the gutters or beads as to prevent the drainage of water therefrom, but merely prevent the dirt from plugging up the lower ends of the gutters or beads.

I claim:—

1. A metallic shingle rectangular in form and having the metal at one end bent back upon the body of the shingle toward the opposite end thereof and then upwardly extended beyond the body of the shingle to form a nailing strip, the opposite end of the shingle being bent downward and under the body of the shingle to form a hook-like margin, one margin of the shingle being bent outward and downward, then upward and outward, then inward and upward to form a hollow bead, the opposite margin of the shingle being bent under and downward beneath the body of the shingle and then downward and outward, then upward and outward to form a laterally opening, hollow bead and designed to slidably receive the first named bead of an adjacent shingle and having locking engagement therewith, said beads extending parallel to each other and projecting below the under face of the shingle to thereby support the shingle in spaced relation to the roof sheathing to which the shingle is applied, said beads when the shingles are conjoined constituting longitudinally extending troughs through which water may pass.

2. A metallic shingle of the character described comprising a rectangular sheet of metal formed at its upper end to provide a nailing flange and a downwardly extending, hook-shaped portion and at its lower end with a hook-shaped portion adapted to engage with the hook-shaped portion of the upper end of the next adjacent shingle, the side margins of the sheet being formed to provide parallel, tubular beads extending the entire length of the shingle, the free lateral edge of each bead approximating the body of the shingle, the beads of one shingle being adapted to telescopically engage beads of the next adjacent lateral shingles, said beads forming longitudinally extending, tubular gutters opening upon the upper face of the shingle and discharging upon the upper face of the shingle next below.

In testimony whereof I hereunto affix my signature.

OLIVER P. GREENSTREET.