(No Model.)

J. C. H. SCHULTZ.

ROOFING.

No. 522,330. Patented July 3, 1894.

Fig. 1.

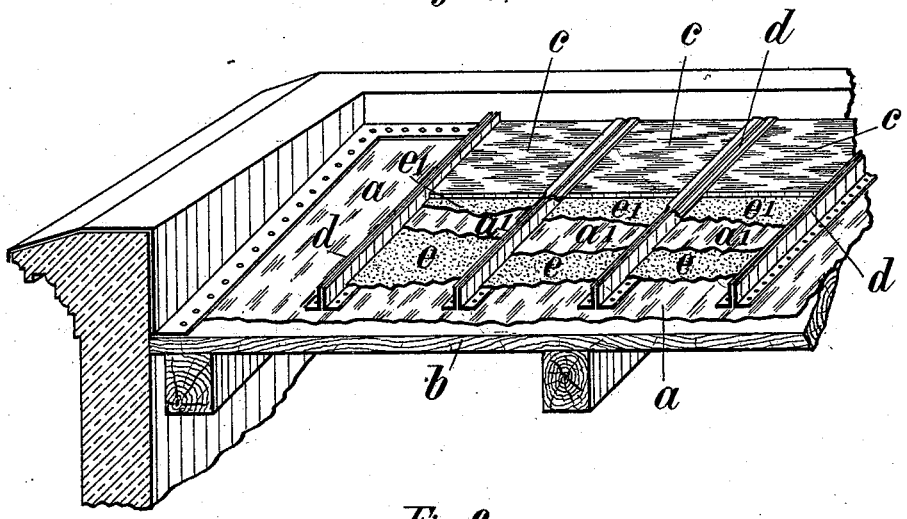


Fig. 2.

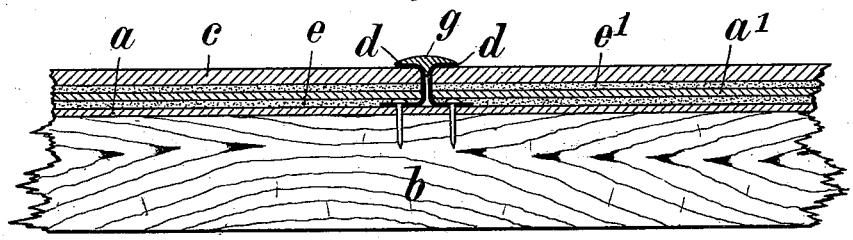
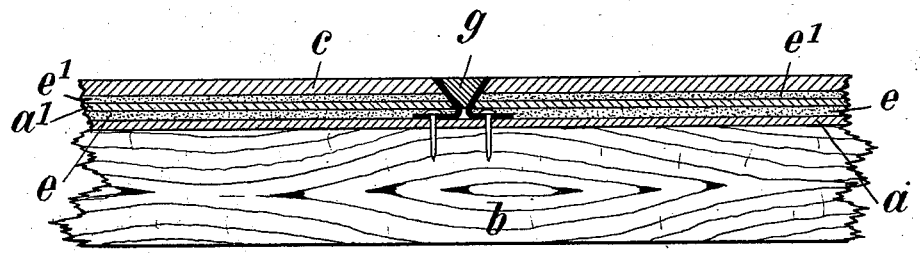


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHANN CARL HEINRICH SCHULTZ, OF HAMBURG, GERMANY.

ROOFING.

SPECIFICATION forming part of Letters Patent No. 522,330, dated July 3, 1894.

Application filed April 29, 1893. Serial No. 472,387. (No specimens.)

To all whom it may concern:

Be it known that I, JOHANN CARL HEINRICH SCHULTZ, a subject of the German Emperor, residing at Hamburg, in the German Empire, have invented certain new and useful Improvements in Roofing, of which the following is a specification.

My invention relates to improvements in that class of roofing which is known under the description of hardroofing; and the object of this invention is to make the latter applicable for sloping roofs of every description, such as saddle-, hip- and dome shaped roofs as well as for flat roofs, without necessitating any alteration in the system, in which are combined both the advantages of flexible and hard-roofing.

Referring to the drawings which form a part of this specification, Figure 1, is a perspective and Fig. 2, a sectional view of a flat roof containing my invention, while Fig. 3, is a sectional view of a somewhat modified construction of roofing.

In carrying out this invention the boarding *b* of the framework of a roof, or the Monier-ceiling or the like is first covered with a layer of asphalted fabric or paper *a* and on this are laid metal strips *d* of angular cross section at a distance one from the other which corresponds with the breadth of the plates *c* to be employed as hard covering. The metal strips *d* are fastened to the asphalted paper or fabric by pairs in such a manner that the upright legs of each pair of adjoined strips are touching one another.

The compartments thus formed by these strips are then covered by a layer *e* of mineral goudron or other suitable cement and on this is applied again a layer of asphalted paper or fabric *a'*. The upper side of the latter is thereafter covered by a layer of any suitable cement *e'*, such as aforesaid, in which the cover-plates *c* are finally embedded. These coverplates *c* may be made of any material suitable for hardroofing, such as slate, burnt clay, glass, metal or the like. That part of the upright flanges of the metal-strips *d* projecting beyond the coverplates *c* is then bent over the edges of the coverplates *c* and tightly pressed upon the latter, thus the coverplates are held rigidly in the manner of stained-glass windows by a so-called cames. Finally, the joint between the two adjoined metal strips *d* is filled out by means of a seam *g* of soft solder which may be smoothened thereafter.

Instead of a pair of angle-shaped metal-strips, a single strip of T-shaped cross-section may be used, and in this case that part of the web which projects beyond the cover plates should be longitudinally severed into two parts, in order to be bent over in opposite directions on to the plates *c* as above described. In this case the solder joint may be dispensed with.

Where it is desirable, to have the upper edges of the webs of the metal strips *d* flush with the cover-plates *c*, the adjoining edges of the latter may be beveled and the upright flanges of the metal strips bent so as to fit the beveled edges. The space between the two adjoining metal strips *d* is then filled with solder *g*, as heretofore mentioned, which may be made plane with the upper surface of the cover-plates, as illustrated by Fig. 3.

In some cases the layers *a'* and *e'* may be dispensed with, so that the cover-plates *c* may be directly embedded in the layer of mineral goudron or tar on the asphalted paper or fabric *a*, without departing from the nature of this invention.

This system of roof-covering has the purpose to make the roof by the soft or flexible bottom-layer water and air-tight and by the hard cover-plates to insure strength and durability as well as protection against atmospheric and mechanical influences, such as occurred by stepping on, or by storm, fire, &c. The arrangement of the metal-ribs permits of the connection of the different layers, forming the roof without the use of nails, which is undoubtedly a great advantage.

By using for the coverplates hard materials of different sorts, the roof may be ornamented in any desirable manner.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A system of roofing comprising I-shaped metallic strips extending from ridge to eaves and dividing the roof into fields of a width equal to that of the plates or sheets of roofing material employed, a foundation of cement in which the foot flange of said strips is em-

bedded and sheets or plates of roofing material embedded in said foundation and secured in position under and by the head flanges of the aforesaid strips, substantially as and for the purpose set forth.

2. A system of roofing comprising metallic angle strips arranged in pairs, as described, said strips extending from ridge to eaves and dividing the roof into fields of a width equal to that of the sheets or plates of roofing material employed, a foundation of cement in which the foot flange of said strips is embedded, sheets or plates of roofing material embedded in said foundation and secured in position by the bent over upper portion of the web of the strips, and a waterproof filler, as soft solder, filling the seam or space between two of said strips, substantially as and for the purpose set forth.

3. A system of roofing comprising a suitable bed, a waterproof covering therefor, angle retaining strips secured thereto in pairs, said strips extending from ridge to eaves and dividing the roof into fields of a width equal to that of the roofing material employed, a layer of tar or similar cement applied to the waterproof covering between the retaining strips, roofing sheets or plates embedded in said cement and having bearing on the foot of the retaining strips, said sheets or plates secured in position by the bent over edges of the vertical members of the strips, and a waterproof filling for the seam between the retaining strips of each pair, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of April, 1893.

JOHANN CARL HEINRICH SCHULTZ.

Witnesses:
ALEXANDER SPECHT,
DIEDRICH PETERSEN.