A. W. HERBERT.

SAFETY TREAD STRUCTURE.

APPLICATION FILED JUNE 2, 1917.

1,328,875. Patented Jan. 27, 1920.

Fig. 1.

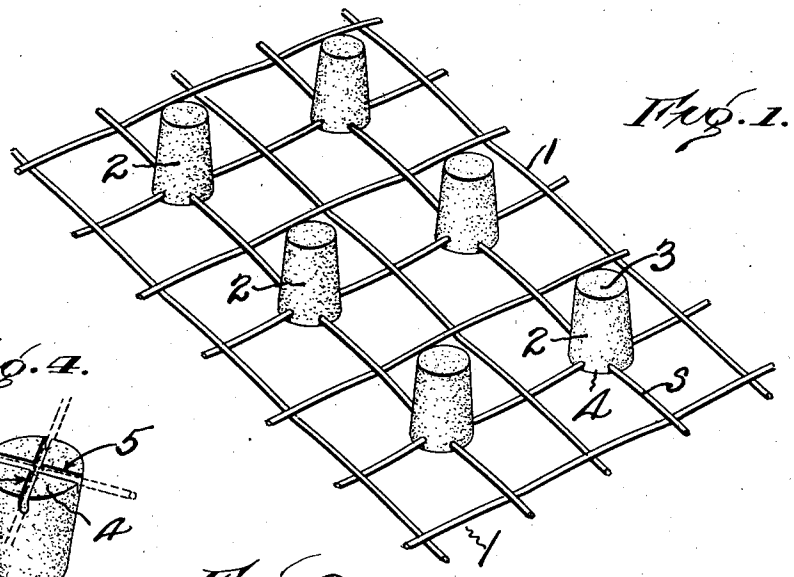


Fig. 4.

Fig. 2.

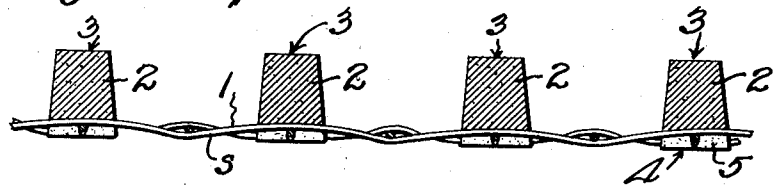
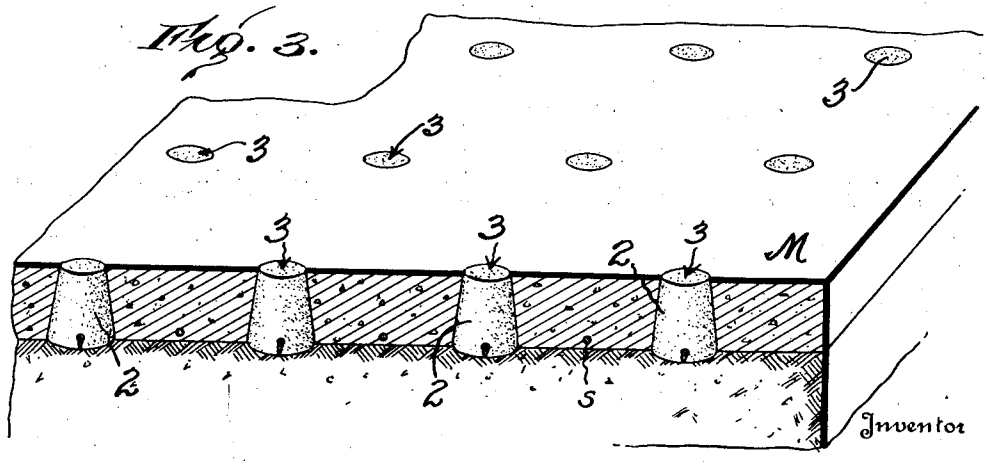


Fig. 3.



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SAFETY TREAD STRUCTURE.

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To all whom it may concern:

Be it known that I, ARTHUR W. HERBERT, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Safety Tread Structures, of which the following is a specification.

This invention relates to safety tread structures for use in pavements, platforms, floors, stairs, and the like to provide an anti-slipping tread surface.

Various means and devices have heretofore been employed in concrete structures to afford additional security against slipping, and more particularly in concrete or cement walks, floors, stairs and other places where it is desirable to protect pedestrians from falls. Generally such devices are specially constructed units of relatively small size which cannot be conveniently and readily handled in trade, and which also are more or less troublesome in applying in position when the concrete structure is being formed and the said units incorporated therein. It is the purpose of the present invention to obviate these and other objections to the more usual types of safety tread structures heretofore employed by providing a structure of this character which can be expeditiously and economically manufactured in lots of indeterminate length and carried in stock, and units or pieces of suitable size cut off therefrom for use as required, according to the requirement in each case.

Another object of the invention is to provide a safety tread structure which may be laid with facility and despatch, and may be readily made an integral part of a floor, stair tread, or other part of the concrete structure where it is necessary to have a sure and safe traction surface.

A further object is to provide an article of the character set forth which is simple, durable and efficient in use and susceptible of being produced by simple and economical means from relatively inexpensive and readily available materials, thereby greatly enhancing its value from a manufacturing and commercial standpoint.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of a comparatively small section of improved tread structure.

Fig. 2 is a cross sectional view thereof taken through one of the lines of friction studs.

Fig. 3 is a perspective view, partly in section showing the manner of embedding the present tread structure in the concrete surface.

Fig. 4 is a detail perspective view of one of the friction studs inverted to show how the bottom thereof may be made in the form of the invention shown, to secure the same to the carrier sheet or base.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying forward the present invention it is proposed to utilize two principal elements, namely the holding base of suitable construction which may be manufactured in large lots or sheets or which is available on the market in such sizes, and a plurality of friction tread elements permanently united to and carried by said base, and arranged in such numbers and disposition as may be desired by the manufacturer, said elements as well as the holding base therefor being adapted to be incorporated in the concrete structure forming the floor, stairs or other surface to be protected. As indicated, the holding base is intended to be of such a construction that it may be handled in substantially sheet form, thereby permitting the making up of the safety tread structure in lots of indeterminate length, so that safety tread units of any desired size may be cut off for use when required, and such units embedded in the concrete material so as to bring the tops of the friction tread elements flush with the surface.

While the holding base designated by the numeral 1 may be any suitable and readily available material it preferably consists of comparatively light weight wire fabric or equivalent recticulated or foraminous body. However, the wire fabric material is especially adaptable for the purposes of the invention since it provides an open mesh struc-

ture through which the concrete material keys, and also provides crossed wires which form at their intersection a joint affording a convenient and stable point of attachment and support for the friction elements which are preferably in the form of tapering studs 2. It will of course be understood that while this base or carrier sheet 1 is shown as being composed of the individual strands S which cross each other at right angles, other forms of mesh may be utilized with good results.

Referring particularly to the friction studs 2, it will be observed that the same are carried by the base 1 in suitable numbers and in spaced relation, and for the purpose of giving the same greater security when they are embedded in concrete, the body thereof is preferably slightly tapered. That is to say, the studs 2 are substantially frustoconical in form, and present a top friction wear surface 3, and an enlarged attaching base 4 which engages with the base or carrier sheet 1. Also the studs 2 may be made of any desired friction metal or composition which will provide the necessary frictional surface when the same are in service, such for instance as lead, and may be secured to the base 1 in any suitable manner. When lead is utilized as the material for these studs, the enlarged base portion 4 thereof is preferably formed with the intersecting slots 5 and 6 which provide a socket to receive the joint produced by the crossing of the wires in the base 1. And, owing to the relatively soft and malleable characteristic of lead, a convenient and effective way to attach the studs or pillars to the joints of the base 1 is to upset or crush the enlarged base, as by a hammer blow or the like, so that the same will be deformed or spread out to such an extent that the portions thereof lying between the slots 5 and 6 will be forced over the joint of the base, thus clenching the joint in the slots. This method of attaching the studs will be clearly apparent from the Figs. 2 and 4 of the drawings.

From the foregoing it will be seen that the present safety tread structure may be manufactured in unlimited quantities from readily available materials, and may be made in sheet form so that the handling thereof is rendered expeditious in the warehouse and factory, while at the same time its application in the finished concrete structure is also greatly facilitated. As will be observed from Fig. 3 of the drawings, a tread structure unit consisting of the base and the spaced friction studs projecting from one side thereof, is embedded in the concrete or plastic material M so that the latter entirely envelops the base 1, and the body of the studs 2, leaving only the top friction wear faces 3 thereof exposed. By utilizing a comparatively large number of the friction tread studs in suitable arrangement a very extensive frictional area may be distributed throughout the surface of the floor or other object with the result of rendering the same safe to pedestrians.

Without further description it is thought that the many features and advantages of the invention will be readily apparent, and it will of course be understood that minor changes in the form, proportion and other details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:

1. A safety tread structure including a carrier base consisting of a plurality of crossing wires, and relatively soft elongated friction studs having a straddling locked engagement at one end with said wires at their crossing points only.

2. A safety tread structure including a carrier base consisting of a plurality of crossing wires, and relatively soft elongated friction studs having a combined straddling and embracing engagement with the joint made by the crossing wires.

3. A safety tread structure including a fabricated wire mesh carrier base, and relatively soft metallic friction studs of elongated formation having one end thereof formed with intersecting slots to receive the joints of the fabricated mesh, and whereby the portions of metal lying between the slots may be displaced into embracing engagement with the wires in the vicinity of the joint.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ARTHUR W. HERBERT.

Witnesses:
GEO. H. WATSON,
O. D. RAISER.