

No. 762,902:

PATENTED JUNE 21, 1904.

C. HAINES.
METAL STUD OR POST.
APPLICATION FILED JUNE 1, 1903.

NO MODEL.

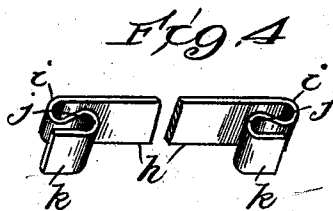
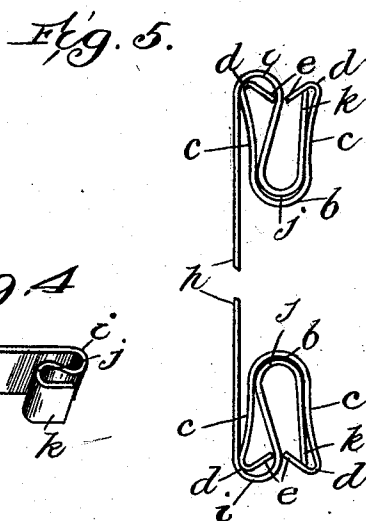
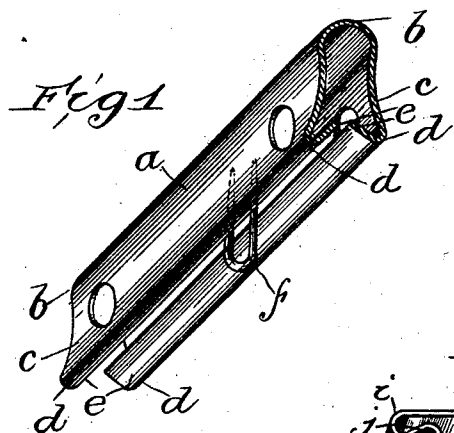


Fig. 2

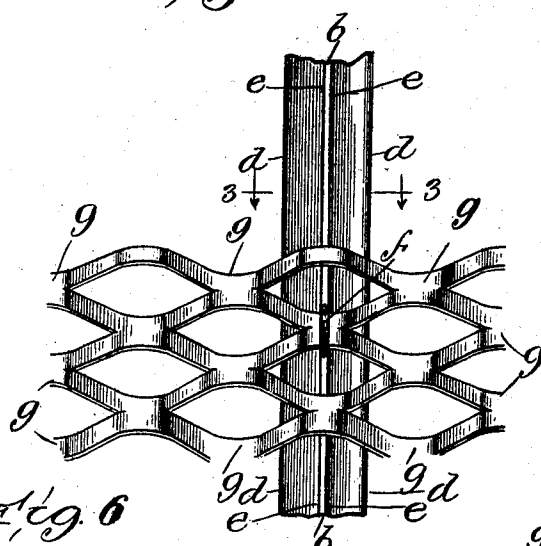


Fig. 7

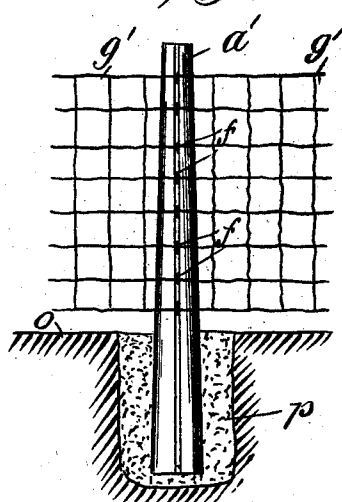


Fig. 6

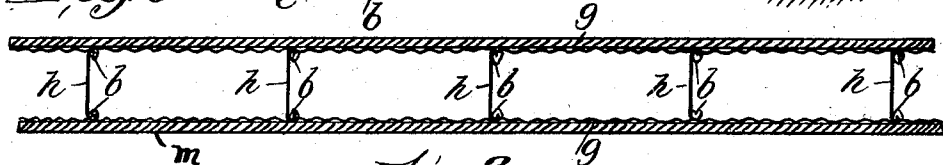
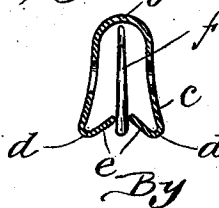


Fig. 3



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By Howard M. Cox Atty.

UNITED STATES PATENT OFFICE.

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METAL STUD OR POST.

SPECIFICATION forming part of Letters Patent No. 762,902, dated June 21, 1904.

Application filed June 1, 1903. Serial No. 159,618. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HAINES, a citizen of the United States, residing in the city of Canton, county of Stark, in the State of Ohio, have invented a new and useful Improvement in Metal Studs or Posts, of which the following is a specification.

My invention relates to metal studs or posts composed of a single piece of metal; and the object of my invention is to provide a fire-proof stud or post which shall be light in weight and at the same time have great stiffness and rigidity.

It is also an object of this invention to provide means whereby the studs or posts may be connected together in pairs to thereby form the framework for partition-walls.

I obtain these objects by the means shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a short section of metal stud embodying my invention. Fig. 2 is a face view of a section of stud, showing a portion of expanded metal secured thereto for use in a partition. Fig. 3 is a sectional view of the stud on the lines 3 3, Fig. 2. Fig. 4 is a perspective view of the form of tie by which the studs are connected in my form of double partition-wall. Fig. 5 is a transverse sectional view of a pair of studs, showing the manner in which same are connected together by means of a tie to form a partition construction. Fig. 6 is a horizontal sectional view of my improved partition-wall, showing the arrangement of the studs and ties therein. Fig. 7 is a view in elevation, showing the stud or post when used for fence and similar partitions.

Similar letters refer to similar parts throughout the several views.

Referring to Figs. 1 to 5, inclusive, *a* represents the studs, which under ordinary circumstances will be composed of sheet-steel in order that the stud may have certain resiliency and yet tend to permanently retain the configuration to which it is brought by bending or pressing. Each stud consists of a single piece of metal having a bend *b*, extending lengthwise of the stud between the sides *c c*. Said sides *c* preferably diverge from said bend

b, and the bends *d d*, which also extend lengthwise of the stud, form the connecting portion between said sides *c* and the inwardly-extending flanges *ee*. Said flanges *ee* extend obliquely inward toward each other such distance that the edges thereof make contact with each other, or nearly so, except when forced apart by the staples *f* or other fastening devices employed.

In constructing partitions it is common to employ expanded metal, wire-cloth, lath, or similar means for supporting the plaster, and for the purpose of illustrating the method of operation of the stud I have shown a fragment of expanded metal *g* secured to the stud by means of a staple *f*. When the staple or other fastening device is driven into the stud, it forces the flanges *ee* apart, and the spring of the metal forces the edges of the flanges into close contact with the fastening device and effectually prevents it from being withdrawn under any ordinary strain. It will be noted that the pressure of the flanges on the fastening device gives rise to a gripping action and that the efficacy of the stud does not depend upon any head or protuberance on the fastening device. It is not even necessary that the staple or nail be roughened in order to be effectually retained. When the fastening device is driven home, it retains the expanded metal firmly against the stud, and the bends *d d* thereof afford bearings or points of contact, so that the stud is prevented from rotating, and the expanded metal is at the same time held more rigid, and thereby stiffened. The obliquity of the flanges *ee* has a tendency to increase the efficacy of retention of the stud, for if an attempt is made to withdraw the fastening device the tendency is to spring the metal so that the flanges *ee* come more nearly into the same plane. This would cause a slight spreading of the stud, which would in turn be resisted by the elasticity of the metal, with a consequent increase in the gripping action of the flanges upon the fastening device.

The shape of the bend *b* and sides *c* is not essential, especially where the stud is used for the single-partition construction, the main

consideration in such case being to elastically hold the two oblique inwardly-folded flanges *e e* in proper relation.

When it is desired to construct a double partition, two rows of studs *a* are arranged with the bends *d* facing outward and the bends *b* toward the inside of the partition, as illustrated in Figs. 5 and 6. In this construction the studs are connected in pairs by means of ties *h*. Said ties are preferably bands of sheet-steel and are provided with bends *i i*, adapted to fit over the bends *d* of the studs *a*. By preference the bends *j j* of the ties are adapted to make close contact with the inner surface of the studs at the bends *b* to add to the rigidity of the construction by assisting to overcome any tendency of the studs to rotate from their true position. The extremities *k* of the ties are adapted to engage the flanges *e* or adjacent portions of the studs in such a manner as to hold the studs at their proper distance apart. It will thus be seen that in the preferred form the ties *h* not only serve as distance pieces to prevent the studs from approaching toward or receding from each other, but also tend to prevent torsion and rotation of said studs. In practice the ties may be adjusted by being slipped over the ends of the studs, and in the finished partition the distance from one tie to the next one above or below may vary to suit the requirements of the structure. For ordinary conditions the thickness of the ties is very slight, and consequently at the bends *i*, where the ties pass over the outside of the studs, said ties do not interfere with the expanded metal *g* or its substitute.

The finished partition is commonly provided with a covering *m* of plaster or other suitable material.

The metal of which the studs are formed is ordinarily cut from sheets of metal, and in the cutting a minutely burred and roughened edge is usually produced. I contemplate taking advantage of this fact upon certain occasions by so forming the studs that the flanges *e* will extend toward the inner and central portion of the stud after the manner shown in the drawings. When thus formed, said flanges will present a corner of their edges to the staple *f* or other fastener, and the burred and roughened edges will increase the tenacity with which said fasteners will be held in position in the studs. Another advantage of this latter formation would result from the fact that the outer surfaces of the flanges would then tend to guide the point of the staple so that it would more readily find the space between the flanges, thereby saving time on the part of the constructor.

My invention is not limited in its application to interior partitions, but is equally applicable to out-of-door partitions, such as fences, and in Fig. 7 I have shown the stud used as a fence-post. In the form of stud or post shown in Fig. 7 the cross-section corre-

sponds to the cross-section shown in Figs. 1 to 6, inclusive; but by preference the stud, which I have denoted by *a'*, increases in the cross-section toward the bottom. When it is used as a post, the lower extremity is lowered into a post-hole sunk a suitable distance below the ground-line *o*, the post-hole being larger than the stud. After the stud is placed in an upright position approximately at the center of the post-hole a filling of cement or concrete is inserted into the post-hole and into the interior of the stud. When the cement or concrete is hardened, the stud will be rigidly held in position. The cement or concrete inside of the stud will assist in stiffening the same. After the stud or post has become set in the concrete or cement wire-netting *g'* or expanded metal or any other suitable material may be attached by means of the staples or other equivalent fastenings *f'* in the manner hereinabove described.

It is obvious that a double construction, such as that above described, may also be employed for fences and other outdoor partitions.

What I claim as new, and desire to secure by Letters Patent, is—

1. A one-piece elastic sheet-metal stud having two flanges connected by a bend, said flanges extending obliquely inward toward the interior of the stud and the edges of said flanges lying in proximity to each other and being approximately square cut whereby the corners of said edges are presented to press against and grip an object between them.

2. The combination of a pair of studs consisting of a piece of metal bent to form two sides and two flanges, said flanges extending from said sides toward each other to receive and retain a fastening device such as a staple or nail; and a tie for connecting said studs in pairs, said tie engaging both of said studs both inside and outside for preventing said studs from moving either toward or from each other.

3. The combination of a pair of studs consisting of a piece of metal bent to form two sides and two flanges, said flanges extending from said sides toward each other to receive and retain a fastening device such as a staple or a nail; and a tie for connecting said studs together, said tie having two bends for engaging said studs on the outside and two other bends for contacting said sides on the inside surface thereof to prevent rotation of said studs.

4. The combination of a pair of studs consisting of a piece of metal bent to form two sides and two flanges, said flanges extending from said sides toward each other to receive and retain a fastening device such as a staple or nail; and a one-piece metal tie for connecting said studs together, said tie passing around the outside of one of the flanges of each stud to hold the studs together, and said tie engaging one of the flanges of each stud on the inside of the stud to hold the studs apart.

5 5. The combination of a pair of studs consisting of a piece of metal bent to form two sides and two flanges, said flanges extending from said sides toward each other to receive and retain a fastening device such as a staple or nail; and a one-piece metal tie for connecting said studs together said tie passing around the outside of one of the flanges of each stud to hold the studs together, and said tie engaging one of the flanges of each stud on the inside 10 of the stud to hold the studs apart; and said tie making contact with the inner surface of both sides of both studs to prevent rotation thereof.

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Witnesses:

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