

G. H. BARBOUR.
METAL GANGWAY SUPPORT FOR MINES.
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1,009,628.

Patented Nov. 21, 1911.

Fig. 2.

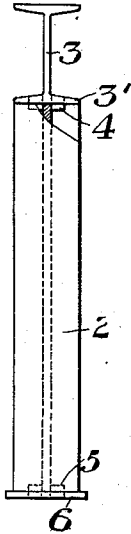


Fig. 1.

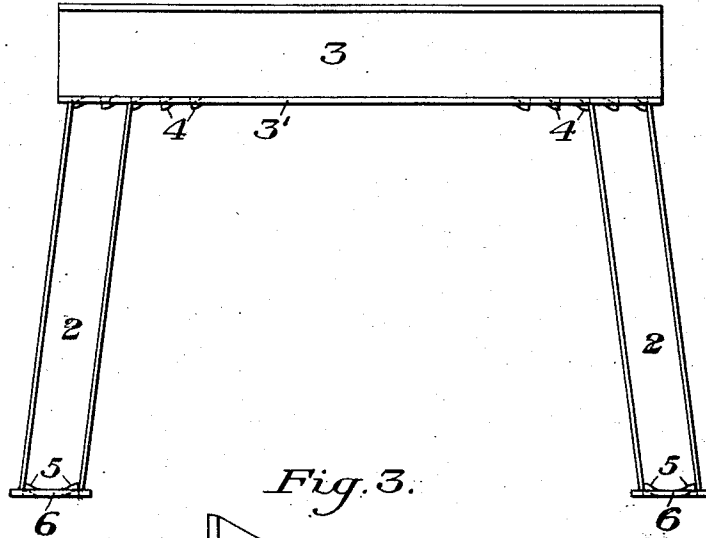


Fig. 3.

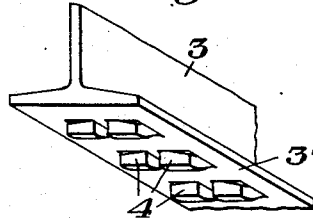
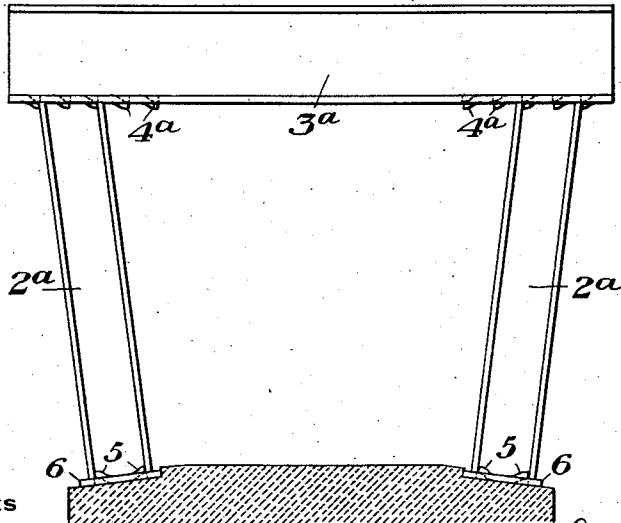


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE H. BARBOUR, OF PITTSBURGH, PENNSYLVANIA.

METAL GANGWAY-SUPPORT FOR MINES.

1,009,628.

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To all whom it may concern:

Be it known that I, GEORGE H. BARBOUR, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Metal Gangway-Supports for Mines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation showing one form of my improved construction; Fig. 2 is an end elevation of the same; Fig. 3 is a detail perspective view showing the manner in which the bottom flange on the horizontal beam forming part of my improved construction is punched in accordance with my invention; Fig. 4 is a side elevation showing a modified form of construction.

My invention relates to the construction of framing used in mines, tunnels and similar constructions for supporting the roof of such constructions and the invention more particularly relates to the means by which the members forming such framing are secured together and are held in place in erecting the supports forming the framing. Heretofore wooden timbers have generally been used in constructing such framing, and on account of the increasing cost of the wooden timbers, the metal framing can now be economically used as a substitute for wood.

The object of my invention is to provide a metal construction in which the parts forming the framing are secured together without the use of bolts or rivets.

Another object of my invention is to provide simple and cheap means for securing the parts together which are formed integral therewith.

In the drawings, 2 represents the upwardly and inwardly extending struts or posts of the framing which are removably secured on the base plates 6. On top of the struts 2 is a horizontal beam 3, having its bottom flange resting upon the top ends of the struts 2, the top flange of the beam 3 engaging with and supporting the roof of the constructions in which the framing is placed. In such constructions the width of the gangway or entry varies and in order to accommodate the framing to suit the different widths met with, a series of projections 4 are provided which are struck or bent down out of the bottom flange 3' of the beam 3. These projections are spaced apart at such distances

that two sets of the projections will engage each with one flange of the beam forming the post or strut 2. The base plates 6 on which the bottom end of the struts rest is also provided with similar projections 5 which extend upwardly beyond the top surface of the base plate 6. In this case the projections 5 face in opposite directions so that their vertical edges engage with the inner surface of the flanges on the edges of the beams.

When the framing as shown in Fig. 1 has been put in place the load transmitted by the horizontal beam 3 to the posts 2 tends to move the post inwardly at their upper ends. This tendency is resisted by the projections engaging with the flanges of the struts 2 and the struts are securely held in place. The projections 5 on the base plate 6 securely hold the bottom ends of the struts 2 in place on these plates and with any movement of the base plate 6 there must be a corresponding movement of the strut 2. The projections 5 are separated so as to extend on opposite sides of the web of the struts 2, in this way preventing sidewise movement of the post relative to the base plate and the web at the top end of the strut 2 is embraced by the opposite projections 4 in like manner.

In the modifications shown in Fig. 4 the framing is very similar to that shown in Fig. 1, the difference being that the struts 2^a in this case extend upwardly and outwardly, instead of upwardly and inwardly as in Fig. 1. The base plates 6 in Fig. 4 are similar to those in Fig. 1 and the projections 4^a on the beam 3^a of Fig. 4 are faced in the opposite direction to those to the projections 4 on the beam 3 of Fig. 1.

The advantages of my invention will be apparent to those skilled in the art. The beams may be fabricated in the shop in readiness for use, and are assembled in place without the use of bolts or rivets.

Modifications in the construction and arrangement of the parts may be made without departing from my invention. The number of the projections and the distances they are apart from each other may be varied without departing from my invention. The shape of the beam 3 may be varied and shapes used other than the rolled beam section shown. The construction of the struts 2 may likewise be changed. Instead of forming the projections on one flange of

separate beam 3 or 3^a as shown, projections may be formed on both flanges thereof. The projections may be formed so as to extend in one direction on one flange of the beam and in the opposite direction on the other flange, in this way permitting the construction of either Figs. 1 or 4 to be formed with the same framing members.

I claim:—

10 1. A metal framing for mines having a beam and posts supporting said beam, flanges on said posts, the beam having a plurality of bent projections on opposite ends formed integrally therewith and arranged
15 to engage the flanges of the posts to secure the posts in position relative to the beam; substantially as described.

20 2. A metal framing for mines having a beam and posts supporting said beam, the beam having a plurality of pairs of bent projections on each end formed integral therewith arranged to engage with the web and flanges of the post and secure the posts in position relative to the beam; substan-
25 tially as described.

30 3. A metal framing for mines having a horizontally extending girder or beam, flanged posts for supporting the girder, a base plate for the bottom of each post, interlocking connections between the flanges of each post and the beam, and interlocking connections between the flanges of each post and its base plate; substantially as described.

35 4. In a metal framing for mines a horizontally extending beam member and supports for said beam, the beam having a plurality of integral bent portions on opposite ends of at least one flange arranged to en-

gage with and secure the beam on its support; substantially as described. 40

5. In a metal framing for mine gangways, a horizontally extending beam and means for supporting the beam, said beam having a plurality of pairs of bent lugs formed integral therewith on each end and arranged
45 to engage with and hold said supports in position relative to said beam; substantially as described.

6. A metal framing for mines, comprising a beam and supporting posts therefor, each
50 of the posts having a plurality of flanges, and a plurality of bent projections on each end of the beam, the projections on the beam being arranged to engage the flanges of the post; substantially as described. 55

7. A metal framing for mines, comprising a beam and supporting posts therefor, each
60 of the posts having a plurality of flanges, and a plurality of pairs of projections on each end of the beam, each pair of projections on the beam being arranged to engage the flanges of the post; substantially as described. 65

8. A metal framing for mines, comprising a beam and supporting posts therefor, each
70 of the posts having a pair of flanges, and a pair of bent projections on each end of the beam, the projections on the beam being arranged to engage the flanges of the post; substantially as described. 75

In testimony whereof, I have hereunto set my hand.

GEORGE H. BARBOUR.

Witnesses:

WM. J. SAUNDERS,
J. C. BILLY.