May 3, 1932. M. ZIDRO 1,856,682

MINE TIMBERING APPARATUS

Filed June 24, 1931 3 Sheets-Sheet 1

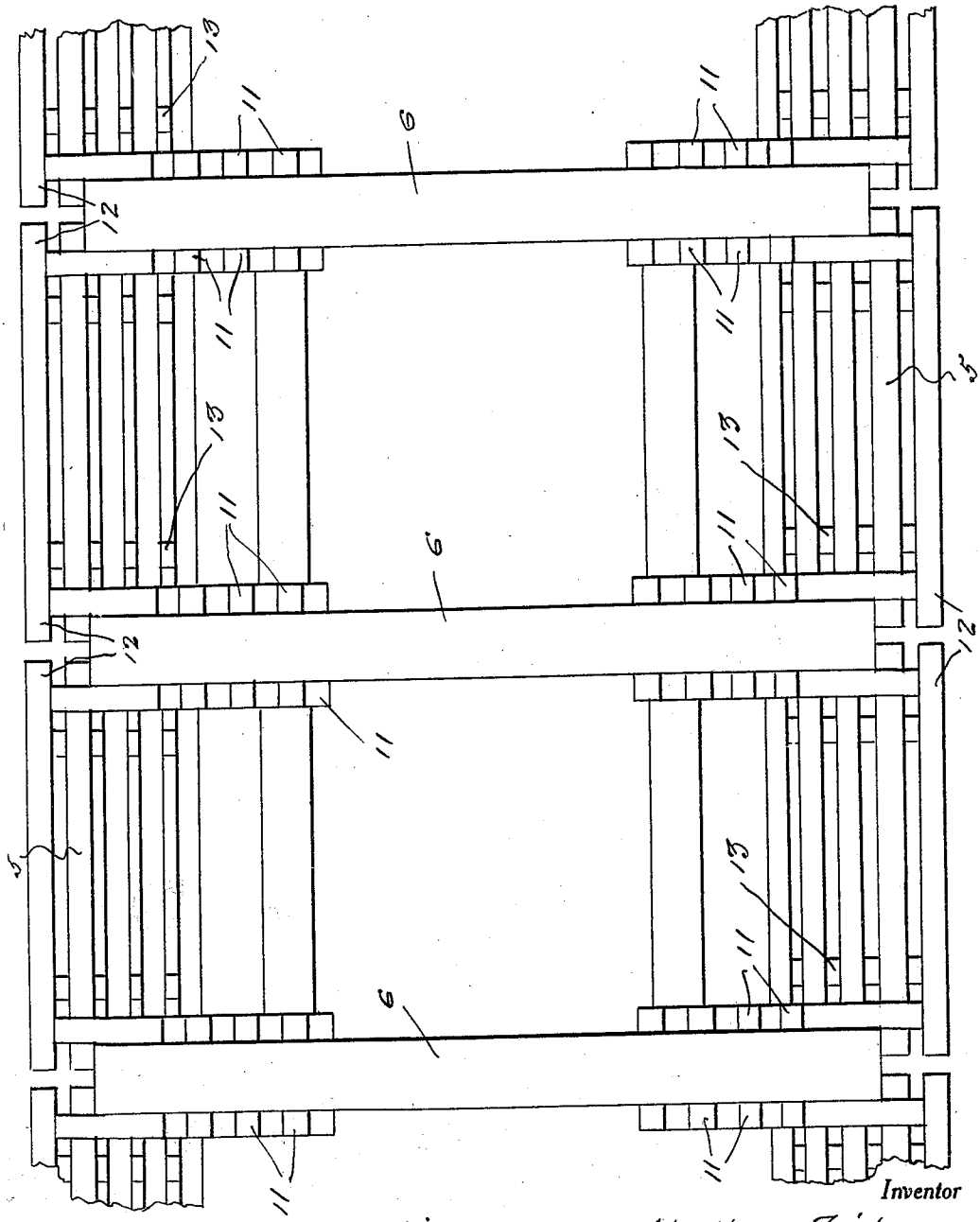

Fig. 1.

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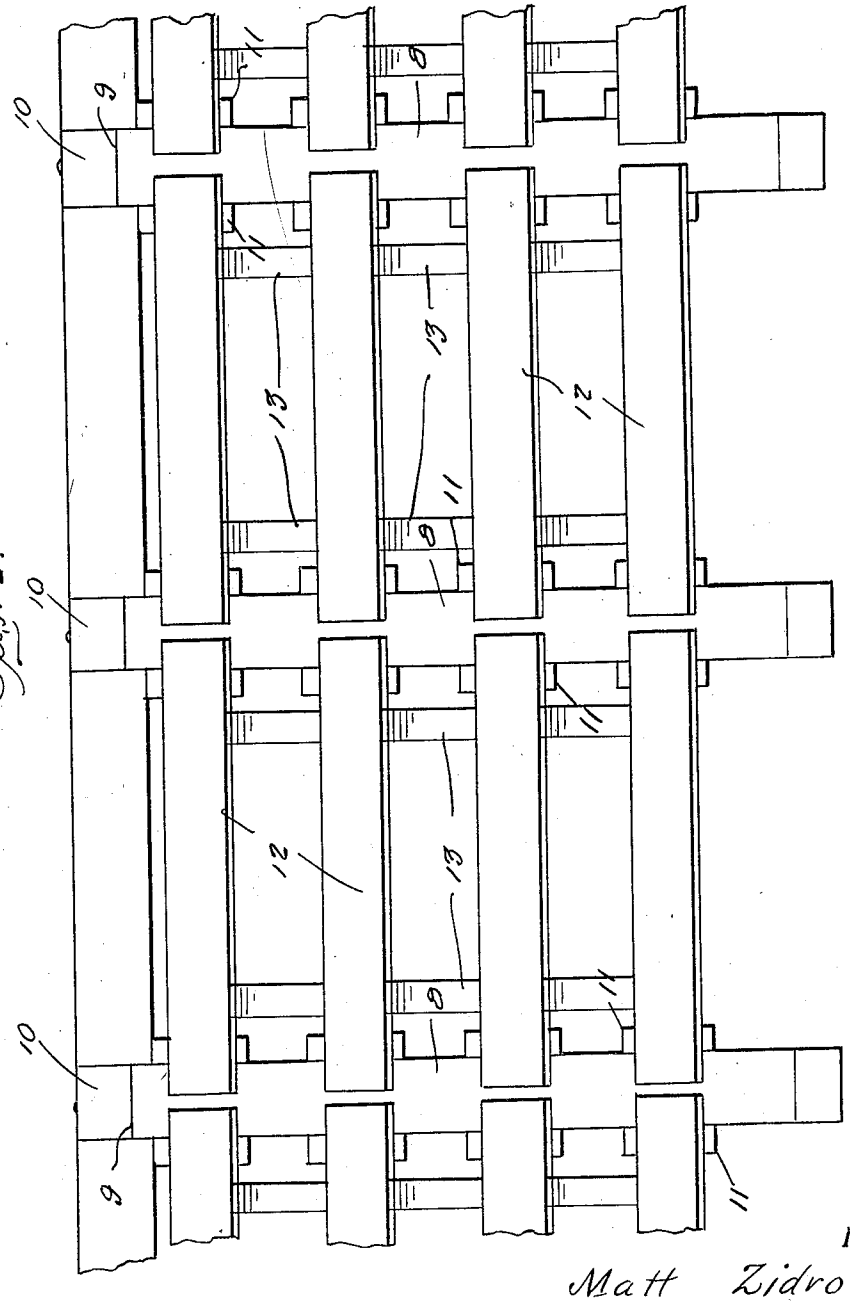

Fig. 2.

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Fig. 3.

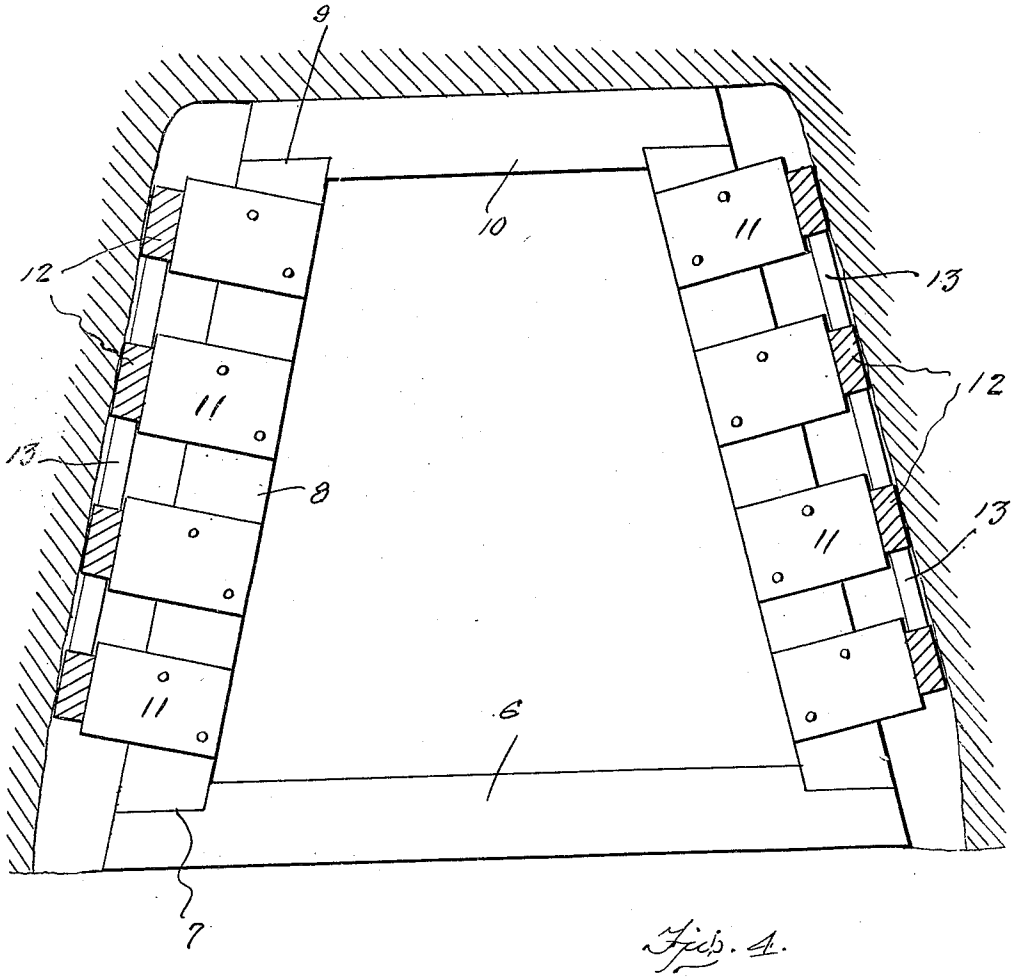


Fig. 4.

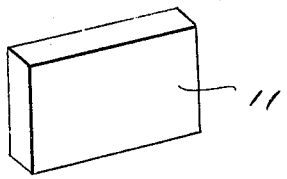
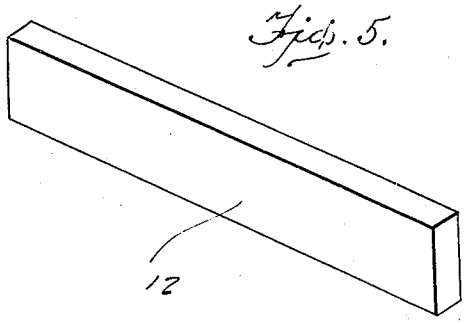


Fig. 5.



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UNITED STATES PATENT OFFICE

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MINE TIMBERING APPARATUS

Application filed June 24, 1931. Serial No. 546,620.

The present invention relates to an apparatus for timbering mines. As is well known in underground mining it is necessary that soft or caving ground be supported on the sides as well as on the top of the tunnels or horizontal workings and this is done by means of lagging which is placed on the outside of upright posts or timbers. If the ground is caving badly, the posts are often broken or forced out of position and have to be replaced, often at frequent intervals.

The prime object of the present invention is to eliminate the likelihood of the post becoming broken or forced out of position.

Another very important object of the invention resides in the provision of an apparatus of this nature which is exceedingly simple in its construction, easy to build, thoroughly efficient and reliable in use and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a bottom plan view of an apparatus embodying the features of my invention.

Figure 2 is a side elevational view thereof.

Figure 3 is a vertical transverse section therethrough.

Figure 4 is a perspective view of one of the cleats, and

Figure 5 is a perspective view of one of the laggings.

Referring to the drawings in detail, it will be seen that the numerals 6 denote spaced parallel cross members extending transversely of the mine tunnel, and each of these cross members 6 is provided at its end and in the upper edges thereof with notches 7. Posts 8 have their lower ends seated in the notches 7 and extend upwardly, and at their upper ends are seated in corner notches provided in the ends of upper cross members 10. To each upright or post 8 there are nailed or otherwise secured thereto a plurality of relatively spaced cleats 11 that project outwardly a slight distance from the post or uprights dependent upon conditions. The average distance would be about four inches.

Extending between, and contacting the outer edges of opposed cleats 11 are laggings 12, thereby providing adjacent each side wall of the tunnel a plurality of series of relatively spaced laggings 12 interposed between the outer edges of the cleats 11 and an adjacent side wall of the tunnel as shown in Figure 3. The laggings 12 of each series are maintained in proper spaced relation through the medium of spacer blocks 13 arranged between the laggings 12 at corresponding ends of the lagging as shown in the drawings.

In actual practice, the lowermost laggings 12 may have one edge resting directly on the ground or suitable supporting blocks (not shown).

By the use of this construction, instead of placing the lagging directly on the post it is held away from them by the cleats at right angles to the wall of the tunnel or other working. These cleats in actual practice are approximately eleven inches in length and should be placed so as to hold the lagging which is placed across the ends of the cleat about four inches away from the post. These dimensions are not of the essence of the invention. If the weight of the ground is then too heavy for the lagging to support, it has four inches to move, the nails yielding to the pressure, before positions of the post are endangered. The lagging would be such as is now used for the same purpose, as is also the case with the timbers or posts and the cleats may be constructed of ordinary two by six or two by eight lumber. This method may be properly used in shafts also but to a lesser degree of advantage.

It is thought that the construction, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

The present embodiment of the invention has been described in considerable detail merely for the purposes of exemplification since in actual practice it attains the features

of advantage enumerated as desirable in the statement of the invention and the above description.

It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

In an apparatus of the class described, a plurality of relatively spaced cross members having notches in their upper end corners, posts having their lower ends seated in said notches and rising from the cross members, upper cross members having notches in their lower end corners to receive the upper ends of the posts, spaced cleats secured to the post and extending outwardly therefrom, and laggings having the inner surfaces thereof flatly contacting the outer ends of the cleats, and spacer blocks arranged between vertically alined laggings for retaining the same in relatively spaced relation.

In testimony whereof I affix my signature.

MATT ZIDRO.