Apr. 17, 1923. 1,451,840

R. NOVOTNY

ARCH SUPPORT FOR MINES

Filed Jan. 30, 1922

Fig. 1

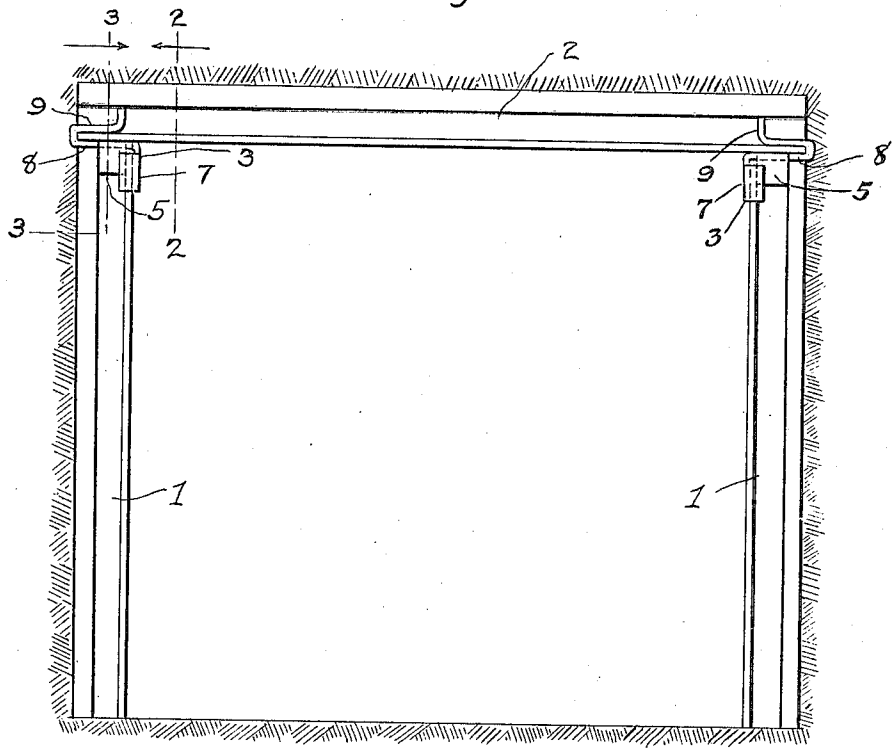


Fig. 2

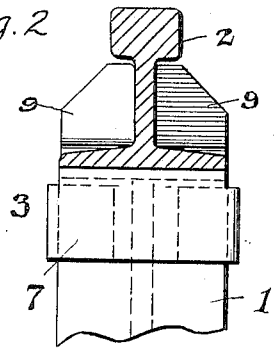


Fig. 3

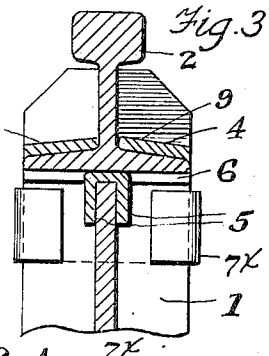


Fig 4.

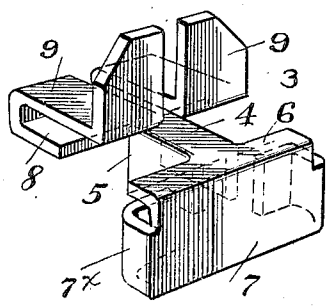
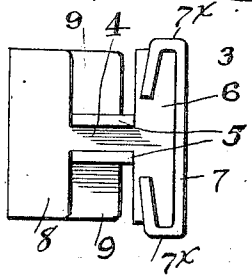


Fig. 5.



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UNITED STATES PATENT OFFICE.

RUDOLF NOVOTNY, OF PORTAGE, PENNSYLVANIA.

ARCH SUPPORT FOR MINES.

Application filed January 30, 1922. Serial No. 532,930.

To all whom it may concern:

Be it known that I, RUDOLF NOVOTNY, a citizen of the Republic of Hungary, residing at Portage, in the county of Cambria and State of Pennsylvania, have invented new and useful Improvements in Arch Supports for Mines, of which the following is a specification.

The object of my said invention is the provision of an arch support for mines embodying sections of railway rails, and couplings through the medium of which the sections are connected and held together in proper relation to form an efficient support for the roof and side walls of a mine tunnel; the sections of railway rails, preferably old discarded rails, and the metallic couplings being materially advantageous because of their ability to withstand deterioration for an indefinite period of time.

To the attainment of the foregoing, the invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings, forming part of this specification:—

Figure 1 is an elevation showing an arch support constructed in accordance with my invention.

Figure 2 is a detail vertical section taken in the plane indicated by the line 2—2 of Figure 1.

Figure 3 is a detail section taken in the plane indicated by the line 3—3 of Figure 1.

Figure 4 is a detail perspective of one of the couplings.

Figure 5 is an inverted plan view of the same.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

As hereinbefore indicated the upright side sections 1 and the crown section 2 of my novel arch support are formed of old railway rails, the crown section 2 being superimposed at its ends on the upper ends of the side sections 1.

The couplings 3 which may be formed of cast iron or other appropriate metal are identical in construction and therefore a detailed description of the one shown in Figures 2, 3, 4 and 5 will suffice to impart a definite understanding of both. The coupling alluded to is preferably, though not necessarily, made in one piece and includes a bar 4 adapted to rest on the upper end of one upright section 1. Depending from the side edges of the bar 4 are flanges 5 adapted to rest at opposite sides of the web of section 1. At the inner end of the bar 4 the coupling is provided with a flange 6 to rest on the end of the base of the section 1, while depending from the flange 6 is a flange 7 arranged to bear against the underside of the base of the section 1, on which flange 7 are end loops $7^{\times}$ to embrace the base edges on the rail 1. In addition to the portions indicated the coupling has at the outer end of the bar 4 a T-head 8 adapted to rest on the end of the head of section 1, and reaching from the outer edge of the T-head 8 are two spaced arms 9 arranged to rest at opposite sides of the web of the crown section 2 with a view to preventing lateral displacement of the said crown section. Manifestly when the coupling is arranged as described relatively to the section 1 and the crown section 2 the coupling will serve to effectively retain the said sections in the working relation illustrated. It will also be readily appreciated that in virtue of the construction described the section 1 and the crown section 2 may be expeditiously and easily tied together so as to form an efficient arch support.

In the practical use of my invention I would have it understood that it is contemplated to employ in a mine tunnel or chamber a plurality of arch supports such as shown in Figure 1, the said arch supports being spaced apart, and when deemed necessary being tied together by appropriately connected longitudinal bars. These latter, however, I have deemed it unnecessary to illustrate.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear and exact understanding of the said embodiment. I do not desire, however, to be understood as confining myself to the said specific construction and relative arrangement of parts inasmuch as in the future practice of the invention various changes and modifications may be made such as fall within the scope of my invention as defined in my appended claim.

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

As a new article of manufacture, a rigid coupling for use in mine arch supports,

formed of one piece of material and comprising a body bar, longitudinal flanges spaced apart and extending downwardly from said body bar at right angles thereto, an end flange reaching in opposite directions from one end of the body bar, a flange depending from the said end flange throughout the length thereof and provided with end loops, and a T-head carried at the opposite end of the body bar and having spaced arms reaching upwardly and longitudinally inward from the outer edge of the T-head and then upwardly.

In testimony whereof I affix my signature.

RUDOLF NOVOTNY.