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Templeman

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(54) **BRIDGES, CHAIN,(IMPROVEMENT FINLEY)**

(76) Inventor: **John Templeman**

John Templeman

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The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said John Templeman himself of his improvements and application to Timber Chain Bridge

Improvement the first. When the Scale is to be of one Span for the Chains see the upright Iron Stone or Abutments in the manner as described by the above patent and let them rest in the middle of the Curve on the Pier without any upright. hang the Chains at first within 12 & 18 Inches of the top of the Pier and then the Bridge of floored Work up to it with Square timber till it takes a proper bearing. Go on with the suspension and joints as described by the above Patent and extend the Chains from one Abutment to the other in this case the upright will require to be higher than in Timber Bridges first Improvement the second. Where it may be proposed to use upright on the Pier instead of the foregoing method the Pier must be constructed in such way as to have strength enough to support the weight of Scales may be on one Span while the opposite Span has nothing on it. In such cases great strength and perfect Security are indispensably necessary. Where a Pier can be built on from natural rock from four to Six Feet of iron of Inches wide and one thick are to be planted firmly in the natural rock at one the distance of every four & feet holes of such Square must be made through the flat bars and bars of such Square iron 4 feet long are to be run through them in such a manner as to take a strong hold of the Stream work inside of the Pier These flat bars of iron are to extend up near one end at the top of the Pier about two feet and then pass through the sills of the upright and then down in such a manner as to bind the upright to the Pier in a more powerful way. Above the sill there is to be a hole in the head of the bars of iron such square from whom a Chain or bar of iron is to be extended up to the arms of the upright Besides these powerful supports to the upright there are bars of flat iron to come up the sides of the pier and bolt to the sills of the upright under the middle of the

bowing of the bridge. Over there is also a rounded cast iron pieces invented for this purpose. That is to plant the ends of the iron bars in the abutment rock and carry the bars up the pier and to the top of the upright main iron on the chain pier and down on the opposite side and fasten the ends to the abutment rock by bolting and screwing as you go. One of these which is intended to support an upright which upright is to support the chains at the bridge is represented in the annexed drawing. Number one to be laid across at bottom of the pier by an iron and a half square iron one foot long to which the flat bars are to be attached. But if the bottom should be found uneven it will be necessary to level the pier with Cement or plaster of Paris which is easily done so that the iron either in bars or chains are to be attached to the pier at the bottom of the pier and then brought up about the bars and made fast to the flat bars which are to continue up the sides of the pier and there are to be bolted to the sides to give the double purpose of strength to the pier and upright. The ends of the bars in this case will go up on the outside of the upright and bolt to it, but care must be taken to have the chains from the ends of the suspension chains inside those bars. The uprights are covered which make them look well and answer the intended purpose of preserving the timber for many years from rotting. Besides the above advantages of these the invention is easy to apply chocks and brace chains to keep the whole bridge more steady and stronger more solid as well as to afford additional strength to the uprights and as the bridges that are now built on the chain principle have come to be much complained of for want of stability I have applied the post and brace to what some call the King post principle to the railings which while it affords great additional stability to the pier also affords great support to the chains by dispensing the weight and equalizing it. Besides the above mentioned improvements and application I have invented an entire new Chain Bridge with a method of suspending ropes or cables of hemp or of wire made fast into rocks and the ends of rope and wire into cable or iron chain hoop strings. The ropes of wire are intended to counteract or avoid the effect of frost on the chains as it is possible that in very cold climates the frost may swell the chains inside. The wire ropes are to be well filled and covered with tin. Cloth and

