

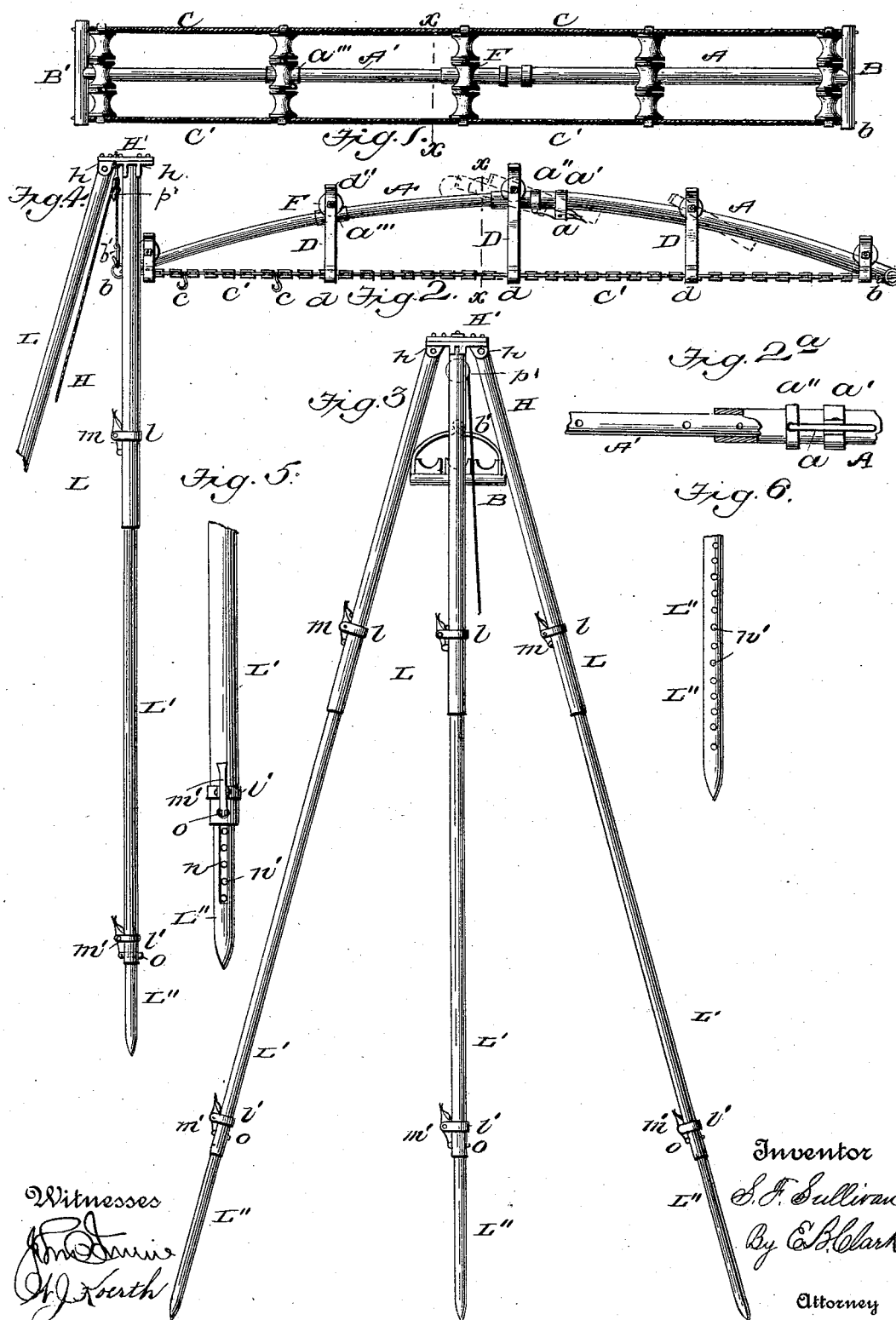
(No Model.)

2 Sheets—Sheet 1.

S. F. SULLIVAN.
ADJUSTABLE TRUSS HOSE BRIDGE.

No. 537,320.

Patented Apr. 9, 1895.



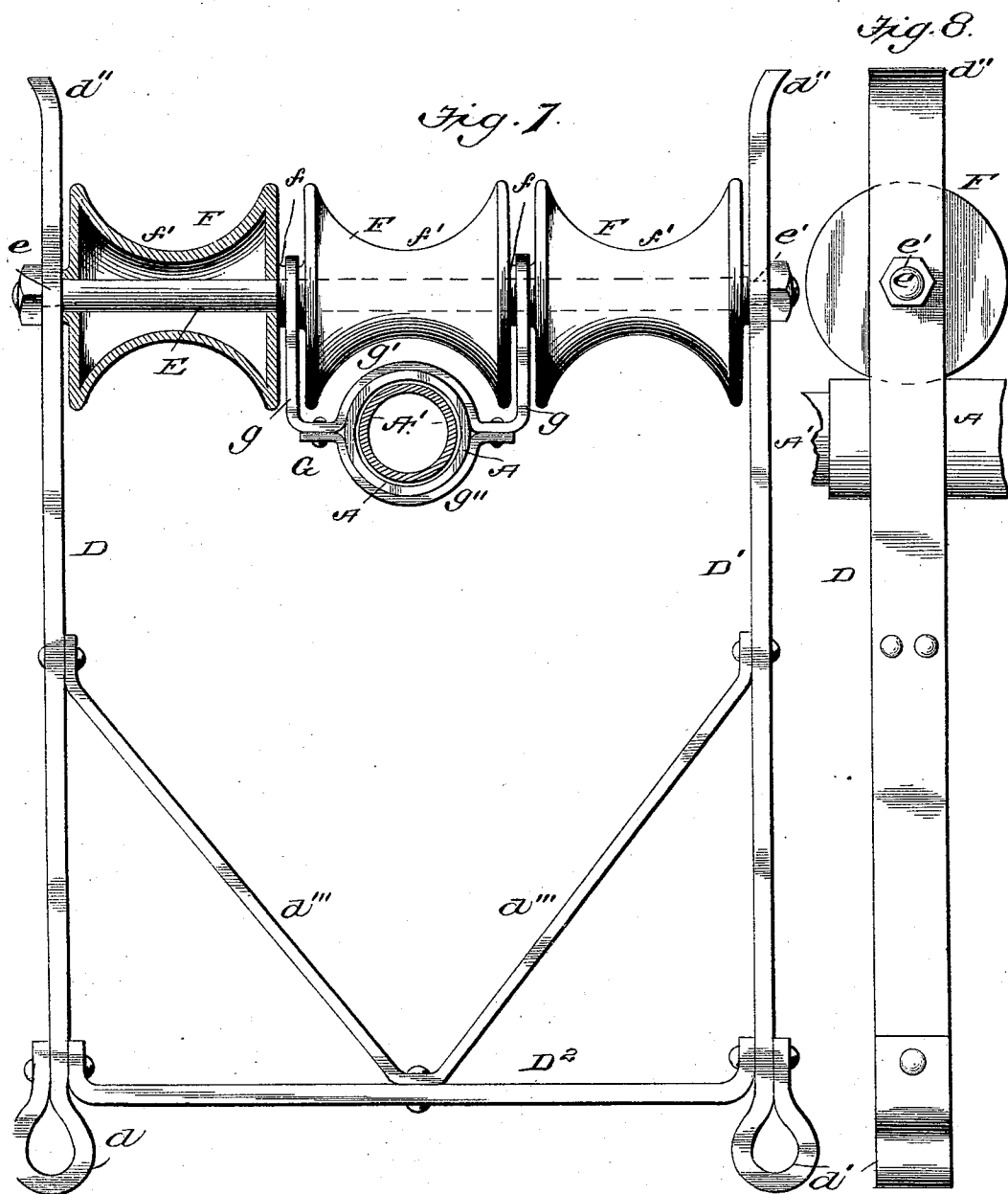
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Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL F. SULLIVAN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF FIVE-EIGHTHS TO THOMAS W. AISBITT, OF SAME PLACE.

ADJUSTABLE TRUSS HOSE-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 537,320, dated April 9, 1895.

Application filed September 13, 1894. Serial No. 522,930. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL F. SULLIVAN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Adjustable Truss Hose-Bridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an adjustable and portable truss-bridge for fire-hose.

The object of my invention is to provide a hose-bridge which is simple in construction and can be readily adjusted in position for supporting lines of fire hose above the street level, and at sufficient elevation to permit the passage of horses, street cars, and other vehicles beneath the hose without interfering with street traffic.

Another object of my invention is to provide a truss hose-bridge which can be readily retracted or slid together and folded up, or extended into operative position over any desired number of tracks or width of street, and which, at the same time, shall be very strong and effective in practical use.

Another object is to provide a truss hose-bridge which can be adjusted to any desired height and to suit the grade of the street or unevenness of ground surface.

The matter constituting my invention will first be described and then defined in the claims.

I will now describe the details of construction of my truss hose-bridge by reference to the accompanying drawings, in which—

Figure 1 represents a top plan view of the bridge without the tripods. Fig. 2 represents a side elevation thereof. Fig. 2^a represents a detail view. Fig. 3 represents an elevation of one of the adjustable and extensible tripods for supporting the bridge. Fig. 4 represents a side elevation of a part of a tripod in position at one end of the bridge. Fig. 5 represents an enlarged detail view of part of one of the tripod legs. Fig. 6 represents an enlarged detail view of the lowest end section of a tripod leg showing the side opposite from that shown in Fig. 5. Fig. 7 represents a

transverse section, on enlarged scale, of the bridge on line $x-x$, Figs. 1 and 2, showing the upright members or posts in elevation. Fig. 8 represents a side elevation thereof.

My hose-bridge is constructed of few parts and can be quickly and effectively put into operative position, and is shown in the drawings, (Figs. 1 and 2) as opened out or extended, ready to be elevated by block and tackle connecting with the top plate of the tripod. The truss beam is preferably composed of curved tubular sections A and A' , adapted to telescope or slide one within the other, and two or more of such telescoping sections may be used. For the purpose of illustration, I have shown but two telescoping sections, but three or more thereof may be suitably constructed and arranged to slide together. To the outer ends of the curved sections, A , A' , are secured tubular or other cross bars B , B' , as shown in Figs. 1 and 3, and to the outer ends of such cross bars are secured, by means of hooks, b , the flexible chords, C , C' . The flexible chords, C , C' , are substituted for the usual tie-beams and may be composed of chains, wire ropes, or ordinary hemp ropes, since, in practical operation, they are put under tension by the outward thrust of the curved sections A , A' , composing the upper truss-beam. The curved section A' , is made sufficiently small to slide into the curved section A , and the section A' is provided with a line of perforations at its under side for receiving the bolt or pin of the spring locking device. To the inner end of section A , are secured two collars, a' , a'' , and to the collar a' , is pivotally connected the spring lock a , the pin or bolt of which passes through a hole in collar a'' , and in the wall of the section A , for engagement with any one of the holes in the section A' , so that the sections A and A' , may be extended, one upon the other, and rigidly held by the lock in the extended position, as shown in Figs. 1 and 2. The lateral chords, C , C' , may be provided, at suitable intervals with hooks, c , c , so as to connect different lengths of the chords to the hooks, b , in the transverse end bars B , B' . In practice the hooks, c , c , will be so spaced apart as to correspond with the distance between the holes in the section A' , so that when the sec-

tions A, A', are extended and locked in the desired position the chords, C, C', may be drawn tight so as to support the weight of hose placed upon the bridge.

- 5 The curved section, A', has fitted to it a sliding collar, a''' , which is embraced by the hanger G, shown in Fig. 7, so that said collar may slide upon the section A', when such section is slid into the large section A. The
10 hooks or rings, b , may have swiveled stems which pass through holes in the cross bars B, B', and are held by nuts or rivet heads. Other well known mechanical devices may be used for connecting the chains C, C' with the
15 cross bars B, B'.

- The upright members or posts, D, D', (Fig. 7) are preferably made of metal and are bent at their lower ends to form loops or eyes d, d' for passage of the chords C, C'; and they are
20 connected at the lower ends by the cross bar D^2 , which is preferably secured by the same rivet which holds the looped end of the post in place. Braces d''' , d'''' , are riveted to the posts D, D' and to the cross bar D^2 for making
25 the parts more rigid. The upper ends of the posts D, D', are curved outward at d'' , and extended up above the rollers F, for preventing the hose from rolling off from the bridge. A transverse shaft E, is provided with re-
30 duced screw-threaded ends, e , which pass through suitable holes in the upper portion of the posts, D, D', and such screw-threaded ends are provided with nuts, e' , e' , for holding the shaft in place. Upon the shaft E, are
35 mounted the anti-friction rollers F, having at their ends short hubs or bosses, f , for spacing them apart and also having large annular grooves, f' , for holding the lines of hose.

- Though I have shown but three rollers F,
40 I may use four or more, if desired. I preferably use three rollers as shown and connect with the middle portion of the shaft the hanger G, having two arms, g , which are provided with holes for receiving shaft E. Be-
45 tween the arms, g, g , the hanger is formed with a semi-circular curved portion, g' , and to the under side of the hanger, there is secured a semi-circular strap, g'' , forming with the curved portion, g' , a bearing for the
50 curved tubular sections, A, A' of the bridge, as clearly shown in Fig. 7. The sliding collar a^3 , shown in Figs. 1 and 2, is supported by a hanger g , having a circular bearing like that shown in Fig. 7. The cords, C, C', where
55 they pass through the eyes, d , are rigidly secured to the posts, D, D', so that when the sections, A, A', are extended the upright members or posts D will be drawn into position by the chords. The side posts, D, D', are
60 connected with the transverse shafts E, so as to form a pivotal joint and readily turn thereon, whereby said posts may be folded up against the curved section A, as indicated by dotted lines in Fig. 2. Since the hanger
65 G, is placed at the middle portion of the shaft E, with its arms embracing between them the middle roller F, it acts as a brace and sup-

port for all the rollers and it also equalizes the pressure of the hose from the central curved sections A, A', constituting the truss
70 beam, to both of the side chords, C, C'. The weight of the hose is distributed, so as to bear evenly upon both of the side chords.

The tripod H, is constructed with a top metallic plate H', having on its under side three
75 lugs or ears, h , to which are pivotally connected the upper leg sections L. The legs, L, are preferably composed of three sliding telescopic sections, L, L', L'', as shown in
80 Figs. 3, 4 and 5. The section L', slides or telescopes into the upper section L, for the purpose of raising the bridge to the desired height, and the section L'' slides into section L', also for raising the bridge, but more particularly for adjusting the lugs to the grade
85 or uneven surface of the ground. The upper section L, is provided with a collar, l , to which is pivotally connected the spring lock, m , and near such collar L, the wall of the section L, is provided with a hole for receiving
90 the pin or bolt of the lock. The section L', is provided with perforations at suitable intervals for receiving the bolt of the spring lock which holds the parts in place after they have been adjusted in the desired position.
95 The lower ends of sections L', are provided with collars, l' to which are pivotally connected the spring locks m' , having bolts, o , which pass through holes in the walls of the section L'. The lowermost section, L'', is
100 provided at one side with a longitudinal slot, n , (Fig. 5) and at its opposite side with a series of holes, n' , about half an inch apart, as shown in Fig. 6, so that when the bolt, o is drawn out of the holes, n' , the section L'', may
105 then be slid inward or outward in the section L', and will be guided by the bolt, o , in the slot, n ,—the bolt and slot connection preventing the section L'' from turning. The section L'', having been properly adjusted, it is se-
110 curely held in place by the bolt, o , passing through one of its holes, n' . A suitable pulley, p' , is suspended from the top plate H', and in practice, a rope is passed over said pulley and connected to the bale b' , at the end
115 of the bridge, by means of which the bridge may be raised into the desired position and supported by the tripods at the ends thereof.

The truss-bridge and tripods being constructed as above described and shown in the
120 drawings, the parts may be readily slid together or telescoped and the side posts, D, D' folded up, so as to make a very compact device, which may be readily stored under the seat of a street car or any other small space. When
125 it is desired to use the bridge, it is opened out as shown in Figs. 1 and 2, and locked into extended position, then laid upon the ground and the lines of hose laid upon the grooved rollers F. The tripods are then set up in the
130 desired elevated position, the legs properly adjusted to suit the grade of the ground and secured in place by spring bolts; and then the bridge is raised, by means of the pulleys

and ropes attached to the strips, to the desired height and secured in elevated position by tying the ropes or by other suitable means. The antifriction rollers F, permit the hose to be readily drawn over the bridge whether empty or full of water and under pressure.

My invention is not confined to tubes, such as A and A', for forming the truss-beam, but the curved sections may be of flat metal bars or angular in cross section, and provided with any suitable means for locking them in an extended position.

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

1. An adjustable truss bridge for fire hose, constructed with two or more curved tubular sections, adapted to slide one within the other, and a flexible chord connecting the outer ends of said curved sections, substantially as described.

2. An adjustable truss bridge for fire hose, constructed with two or more curved sections adapted to slide one upon the other, and provided with means for locking them into an extended position, and a flexible chord connecting the outer ends of said curved sections, substantially as described.

3. An adjustable truss-bridge for fire hose, constructed with two or more curved sections, adapted to slide one upon the other, a flexible chord uniting the outer ends of two of the sections, and upright members connecting with said flexible chord and the curved sections, substantially as described.

4. An adjustable truss bridge for hose, constructed with two or more curved extensible sections, having T's or cross bars at their outer ends, two flexible chords, such as chains or ropes, connecting the ends of said cross bars, and suitable lateral upright members connecting with the lateral flexible members or chords and with the intermediate curved extensible sections above them.

5. The combination with curved extensible sections, of a truss bridge and flexible chords formed of chain or rope connecting the ends of said sections, of upright lateral members connecting at their lower ends with the lateral chords, and provided at the top with transverse bolts or shafts carrying rollers and a hanger suspended from said transverse shaft and provided with a bearing embracing said curved or arched section, substantially as described.

6. The combination with curved extensible sections, of a truss-bridge and flexible chords, of a pair of upright members secured at the lower ends to each of said chords and connected at their upper ends by a transverse bolt or shaft, a hanger suspended from the middle portion of said shaft and provided with a bearing or box embracing the curved section of the bridge, so as to equalize the pressure and bring the weight equally upon the middle

curved section and the lateral chords, substantially as described.

7. An adjustable and extensible truss bridge for hose constructed with curved extensible members, one or more flexible chords, and pivoted or folding upright members connecting the chords with the curved members, whereby the extensible members may be slid together and the upright members folded up for convenience in storing and transporting the bridge, substantially as described.

8. In a truss hose-bridge, the upright members or posts constructed with a transverse shaft or axle connecting two opposite posts together and provided with grooved anti-friction rollers for supporting the lines of hose, substantially as described.

9. In a truss hose-bridge, two opposite upright members or posts formed with loops or eyes at their lower ends and connected by a cross bar at their lower ends, and connected near their upper ends by a shaft or axle provided with antifriction rollers.

10. In combination with a pair of upright members or posts, a transverse shaft or axle connecting them, a hanger connecting by two arms to said shaft and having a box or bearing for supporting the curved extensible members of the bridge, substantially as described.

11. In a truss hose-bridge constructed with curved tubular sections, the combination with one of said sections, of a sliding collar connecting with the adjacent upright member or post, substantially as described.

12. In combination with the extensible curved sections, forming the truss beam, and one or more transverse shafts connecting with said sections, the upright members or posts pivotally connected to said shafts so that they may be folded up against said curved sections, substantially as described.

13. In a truss hose-bridge constructed with curved extensible sections, one of said sections provided with a spring lock and the other section formed with holes suitably spaced apart, and adapted to be engaged by said lock, in combination with the side chords provided with hooks for attaching them at different lengths to the outer end of one of the curved sections, substantially as described.

14. In a tripod for hose bridges, the legs composed of two or more sliding and adjustable sections, one of said sections being provided with a spring lock and the adjacent section having a longitudinal slot *n*, at one side serving as a guideway for the bolt of said lock and a series of holes *n'* at the other side for extending the leg and locking it in the desired position.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL F. SULLIVAN.

Witnesses:

C. G. MCCOY,
THOS. MCKEE.